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~ ἀεὶ μὲν δυνατὴ,
οὔποτε δ' ασθενής ~

The Berkeley Linguistics Society wishes to express its profound gratitude to Professor John Ohala, director of the Phonology Laboratory of UCB Linguistics Department, for the use of vital space and facilities which have allowed BLS to function for the past five years. We also thank the many members of the Berkeley Linguistics Department staff and community who have helped us organize the conference and produce this volume.

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The following authors did not present their papers at the Annual Meeting but are published in this volume: A.T. Bennett, R.A. Berman, R. Bernardo, E. Hamp, B.R. Hartmann, L. Hasson de Knab, A. Kimenyi, T. Knab, L. Knecht, S.C. Levinson, S. McLendon, I.A. Mel'čuk, D.L. Shaul, H. Statha-Halikas.

Due to time constraints and delays in trans-Atlantic communication, papers by R.A. Berman, A. Kimenyi, T. Knab, L. Hasson de Knab, S.C. Levinson, I.A. Mel'čuk were retyped by the editors, who take responsibility for their format.

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Form and Function:
Passives, Middles, and Impersonals in Modern Hebrew*

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1. Introduction

There have been a number of recent studies on impersonal passives in relation to personals and to other types of impersonal constructions (for instance, Comrie 1977, Keenan to appear, Kirsner 1976, Langacker & Munro 1975, Olshtain 1978, Perlmutter & Postal 1977). [1] The purpose of this paper is to investigate three related types of agentless constructions in Modern Hebrew, and to characterize the distinctions between them in terms (i) of structural factors conditioning their formation and (ii) of pragmatic factors affecting when they are used and/or how they are interpreted. It seems that detailed examination of such constructions in a given language might suggest certain typological correlates between the existence of well-developed impersonals and middle voice, on the one hand, and a concommitant lack of resorting to the use of passives even where a language does have a productive structural mechanism for passive-formation.

The three Hebrew constructions in question are illustrated in (1) and (2) below: The first two constructions - passives and middles - share the same surface SV(X) ordering of constituents, differing formally in verb morphology and in the fact that the passive alone may have a overt agent specified. The third, impersonal construction takes the form VO(X), and differs from both the passive and the middle in the morphological pattern of the verb, which moreover must be in the plural.

(1) Type I: AGENTLESS PERSONAL PASSIVES
hara'eyon putax be angliya
the-idea was-developed in England
Type II: MIDDLE VOICE (REFLEXIVE) INTRANSITIVES
hara'eyon hitpateax be angliya
the-idea developed in England
Type III: 3RD PERSON PLURAL (ACTIVE) IMPERSONALS
pitxu et hara'eyon be angliya
developed(PL) OM the-idea in England [2]

(2) Type I: PASSIVE
šney cvatim ye'urgenu bekarov
two teams will-be-organized soon

Type II: MIDDLE
šney cvatim yit'argenu
two teams will-get-(themselves)-organized
bekarov
soon
Type III: IMPERSONAL
ye'argenu šney cvatim bekarov
(they)-will-organize two teams soon

The three alternates in (1) and (2) above are semantically equivalent, in the sense of expressing the same propostional content and having the same truth value. And none of the three specifies overtly who or what perpetrated or will perpetrate the event in question: that is, they are all superficially "agentless". Yet, as we will try to show, such expressions function differently with respect to the extent to which they can or do imply agency.

In Type I , the traditional role of the agentless passives is manifested: here, "the identity of the performer of the action is not of interest, (and) is as far as possible from being the topic of the sentence" (R. Lakoff 1971: 159), and "the personal passives ... foreground the NP which is their subject" (Keenan Ms. 61). In Hebrew, as in English (though by no means all languages), such expressions typically can specify agency - e.g., in I of (1) bidey mad'anim 'at-the hands-of = by scientists' and of (2) al ydey hamaxlaka 'by (means of) the-department'. [3]

In the Type II middle voice intransitives, agent-specification is much less vague: it is expressed within the verb morphology - both hitpateax in (1) and yit'argenu in (2) being in the intransitive hitpa'el verb pattern - with the clear implication that it is the (nonoccurrent) Object of the action which is also its agent. Thus, in the Type II examples, hara'eyon hitpateax 'the-idea developed' or cvatim yit'argenu 'teams will-get-organized', no "by" phrase can be attached [4] - by contrast with the Type I passives - but some kind of "reflexive" expression is quite feasible, for instance:

(3) a. hara'eyon hitpateax me acmo
the-idea developed from itself
'the idea developed of itself, on its own,
of its own accord'
b. hacvatim¡ yit'argenu lahem¡
the teams will-organize(INTRANS) to-them
'the teams will (go and) get themselves organized.'

In both cases, the object pronominal must agree with the surface subject NP - ra'eyon 'idea' or cvatim 'teams'. The dative marker le- on the pronoun object on (3b)

represents a productive type of intensifying reflexive form on intransitive verbs - e.g., hem halxu lahem bli lomar mila 'they went to-them without saying (a) word' means something like 'they went off, they upped and went themselves' or with a middle voice verb, hi hitpatxa la yafe me'od 'she developed to-her very nicely' has the sense of 'she's gone and developed (herself) very nicely'. This reflexivity of sense is to be expected for Type II middles, for the action is predicated of a coreferential Object and Agent or Experiencer together. This can explain why Hebrew uses the same verb pattern for middle-voice and for the small set of lexicalized reflexive-verbs referring to bodily activities (e.g., hitraxec 'wash oneself', hitlabeš 'dress oneself', hitgaleax 'shave oneself') as discussed in Berman to appear. And in fact many languages show an overt morphological equivalence between reflexives and middle-voice intransitives, reflecting the close semantic correspondence between these categories (see Barber 1975, Faltz 1977, and Garcia 1975).

Type III expressions take the form of a Main Verb in 3rd Person Masculine Plural with its associated complements and modifiers. They have no surface subject at all, and hence are a kind of "verb-first" or "missing-persons" construction (the latter term is due to Hakulinen & Kartunnen 1973), and they constitute the prototypical instance of "impersonal" constructions in Modern Hebrew. [5] Examples include:

(4) a. pitxu et hara'eyon be angliya
developed(PL) OM the-idea in England
'They developed the idea in England'

b. ye'argenu od cvatim bekarov
will-organize(PL) more teams soon
'More teams are going to be organized shortly'

c. bonim šam kviš xadaš
are-building there road new
'They're building a new road/
A new road's being built there'

d. lo garim ba bayit hahu kvar šanim
not(have) lived in house that already years
'That house hasn't been lived in/
Nobody's lived in that house for years'

Elsewhere (Berman in progress), we try to demonstrate why the main verb of such constructions must be Masculine in gender (Masculine here being functionally equivalent to Neuter, in fact); why it must be Plural - in keeping with the the "generic" sense of such propositions; and why the unspecified agent or agents must be construed as Human (in this connection, see also Kirsner 1976). Below we present

evidence to demonstrate that despite these three semantically motivated constraints on the form of the "impersonal" verb - which in Hebrew as in other languages agrees with the surface subject in number, gender, and person - such constructions cannot be analyzed as transformationally related to their counterparts with some overt, though "impersonal" Subject such as anašim 'people' or hem 'they'. As (5) and (6) show, a zero subject cannot be coreferential to any overt nominal; that is, it neither pronominalizes a noun like 'people' nor is it pronominalizable by a pronoun like 'they'.

(5)	a.	kše	anasim	omrim	zot,	hem	mit'almim
		when	people	say	that,	they're	ignoring
		me'ikar		haba'aya			
		the-root-of		the-problem			
	b.	kše	Ø	omrim	zot,	Ø	mit'almim
		me'ikar		haba'aya			
	c. *	kše	anasim	omrim	zot,	Ø	mit'almim
		me'ikar		haba'aya			
	d. *	kše	Ø	omrim	zot,	hem	mit'almim
		me'ikar		haba'aya			

The contrast between wellformed (a) and deviant (c) shows that even such a "generic" kind of noun as anasim 'people' requires an overt pronominal anaphor, and cannot be taken to cover the same scope of subjecthood as the zero subject in (b). As a corollary, hem 'they' must be anaphoric to anašim 'people' (or to some more clearly specified N such as politika'im 'politicians' or yedidav 'his friends') and cannot be taken as the implied subject of a subjectless plural verb - as in (d). Similarly, the (a) example in (6) below is only wellformed if the people who do the talking ill of him are not the same as those who tell him about it (pragmatically the most likely situation), thus:

(6)	a.	im	anašim	meraxlim	alav,	hu	mitragez
		if	people	gossip	about-him,	he	gets-mad
		kše	Ø	mesaprim	lo		
		when		tell(PL)	him = 'when he's told'		
	b.	im	Ø	meraxlim	alav,	hu	mitragez
		kše	Ø	mesaprim	lo		
	c. *	im	Ø	meraxlim	alav,	hu	mitragez
		kše	hem	mesaprim	lo		

Thus expressions like those in (4) above and in the (b) sentences of (5) and (6) - with both main clause and embedded zero subjects - are truly "impersonals" and they do not have any kind of deep subject hem associated with them; for hem 'they' is typically a personal, that is referring, pronoun,

whereas here "the underlying subject is unspecified", in the sense of Langacker and Munro (1975: 794).

The event specified by the main verb of Type III impersonals, then, has no referential agent outside of the general class of human beings entailed by a given universe of discourse. [6] Such sentences are quite typically translated by passives or by the use of "they" as an impersonal subject in English (as noted in Gesenius' comments on Biblical usage in fn. 5) - for the latter is a language which has the peculiar property of requiring an overt constituent as surface grammatical subject in all sentences other than imperatives. This is certainly not true of Hebrew, in which one finds a wide range of subjectless constructions (see fn. 5), including both active impersonals of the kind labelled Type III in this study as well as a more restricted set of passive impersonals, too. [7]

Before proceeding to a consideration of the functional impact of the three constructions - Type I agentless passives, Type II middle voice, and Type III active impersonals - we consider structural factors constraining the formation of one or other of these constructions.

2. Structural Constraints on Passive and Middle-Voice Formation

Although Hebrew has a highly productive morphological mechanism for constructing passives, and a relatively productive means for constructing middle-voice expressions - as indicated schematically in (7) below - it appears that both Type I passives and Type II middles are severely constrained on formal grounds. A rough chart indicating the main functions of the binyan system of verb morphology (adapted in part from Berman to appear, fn. 2) is given below:

(7) Main Functions of the Binyan Verb-Patterns

1. kal - Basic, nonderived verb pattern, both transitive & intransitive, e.g., caxak 'laugh', patax 'open', gamar 'finish'
2. nif'al - Intransitive verb pattern: [8]
   i) Passive reflex of kal: e.g., niftax 'be opened', nigmar 'be finished'
   ii) Intransitive, middle reflex of hifil: e.g., nirdam 'fall asleep', niš'ar 'remain', names 'melt'
3. pi'el - Basic, nonderived verb pattern, typically transitive: e.g., gibeš 'finalize', piteax 'develop', irgen 'organize'

3b. pu'al - Passive reflex of verbs in pi'el: e.g., gubaš 'was finalized', putax 'was developed'

4. hitpa'el - Intransitive verb pattern: [8]
   i) Intransitive, middle reflex of pi'el: e.g., hitgabeš 'get finalized', hitpateax 'develop'
   ii) Reflexive: e.g., hitraxec 'wash oneself', hitlabeš 'dress oneself'
   iii) Reciprocal: e.g., hitkatev 'correspond (with)', hitnašek 'kiss (one another)'
5. hif'il - Transitive verb pattern:
   i) Causative of verbs in kal: e.g., hicxik 'make laugh', hilbiš 'dress (someone)'
   ii) Transitive reflex of verbs in nif'al: e.g., hirdim 'put to sleep, hiš'ir 'leave (behind)'
   iii) Inchoative (intransitive): e.g., hexvir 'turn pale', hivšil 'become ripe'

5b. hof'al - Passive reflex of verbs in hif'il: e.g., hulbaš 'be dressed (by X)', hurdam 'be put to sleep'

This chart shows that on the basis of transitive verbs in (1) kal, (3) pi'el and (5) hif'il - passives can be formed in (2) nif'al and in (3b) pu'al and (5b) huf'al respeccively; while middle-voice intransitives can be formed in (2) nif'al and in (4) hitpa'el. Below we consider different kinds of constraints - syntactic, morphological, and lexical - on such formations.

(a) Only Direct Object Passives: Hebrew allows only DO (Patient or Experiencer) passives, in the sense of Keenan, to appear, Ms. 25-7. The lack of IO passives (John was promised help), Oblique passives (He'll be laughed at) as well as Instrumental, Locative, etc. passives in Hebrew is due to a more general syntactic constraint in the language which disallows dangling or orphan prepositions (as discussed in Berman 1978, 124-238). That is, forms like yicaxek 'will-be-laughed' or ruxal 'was-gossiped' are morphologically feasible but syntactically constrained because they would entail prepositions without any associated NP. Type III impersonals are typically used instead of expressions like the English examples above.

(b) Present Tense Statals: Present tense passives tend to be interpreted and hence used in a statal or adjectival rather than in a kinetic or dynamically passive sense (terms are due to Hasegawa 1968), reflecting the basically participial nature of present-tense verbs in Hebrew in general (Berman 1978: 142-59). That is, passives like those in (8) below are ambiguous in a way analogous to English The room is swept (i) by the cleaning woman at around 6:00 every morning - dynamic passive

- compared with (ii) so we can put the carpet down now - statal or perfective passive. [9] Examples of similarly ambiguous constructions in Hebrew are:

(8) (i) pu'al pattern

a. haŝgiyot mesumanot be'adom
mistakes are-indicated in-red
?? al ydey ha'orex
by the editor

b. haŝgiyot mesumanot be'adom,
mistakes are-indicated in-red,
az kal livdok otan
so(it's) easy to-check them

(ii) huf'al pattern

a. kol hamo'amadim musmaxim
all the-candidates are-qualified
?? al ydey va'ada
by (a)committee

b. kol hamo'amadim musmaxim
all the-candidates are-qualified
la'asok banose
to-deal with-the-subject

As the question-marks in the (a) examples indicate (as well as further examples of the same type discussed in more detail in Berman 1978: 159-68), these present-tense passives are typically interpreted as adjectival or statal - and again, Type III impersonals will be preferred for the dynamic sense of the verb. [10]

(c) Constraints on Non-finite Passive Forms: Nonfinite verb forms - infinitives and gerunds - have no passive counterpart in the two purely passive patterns, (3b) pu'al and (5b) hof'al as set out in the chart in (7). Thus the equivalents of English the pipe needs to be fixed or he sighed with relief on his article's being completed need to be given an active formulation - very often of an impersonal type corresponding to '(they) need to fix the pipe'. As a result of the lack of passive infinitive forms in the two exclusively passive verb-patterns - (3b) pu'al and (5b) hof'al by contrast with (2) nif'al in the chart in (7) above - when modal expressions taking an infinitive are used, the active impersonal will again take over. Thus the Hebrew equivalents of expressions like the affair must be ended or he can't be helped will take the Type III impersonal form:

(9) a. xayavim lesayem et haparaŝa
must(PL) to-end OM the-affair

b. lo yexolim lesayea lo
not can(PL) to-help him

(d) Lexical Gaps in Passive Patterns: There is quite a large group of verbs with respect to which the paradigmatic Active pi'el / Passive pu'al / Middle hitpa'el is suppletive in actual usage; in such cases the passive form, though morphologically regular, is avoided, being replaced by the middle-voice form - which functions as a true passive in some cases (e.g., in (10) below it can take an agent phrase) but not in all.

(10) (i) a. PASSIVE * hamixtav kubal
the-letter was-received
(al yadeynu)
(by us)

b. MIDDLE hamixtav hitkabel
the-letter was-received
(al yadeynu)
(by us)

(ii) a. PASSIVE * hu bukaš (al ydey hamenahel)
he was-asked (by the-boss)
lehitnacel
to-apologize

b. MIDDLE hu hitbakeš (al ydey hamenahel)
he was-asked (by the-boss)
lehitnacel
to-apologize

For reasons which are as yet not clear to us, some such suppletive paradigms admit of no passive construction at all with certain verbs, as evidenced by the fact that the (b) examples below are wellformed just in case no agent phrase is possible.

(11) (i) a. PASSIVE * haši'ur suyam
the-lesson was-ended
(al ydey hamore)
(by the-teacher)

b. MIDDLE haši'ur histayem
the-lesson was-ended
* al ydey hamore
by the-teacher

(ii) a. PASSIVE * hamexonit tekulkal
the-car will-be-broken
(al ydey hace'irim) im titen
(by the-kids) if you-give
ota
it (to them)

b. MIDDLE hamexonit titkalkel
the-car will-break-down
* (al ydey hace'irim) im titen
(by the-kids) if you-give
ota
it (to them)

These are cases where Type II middles are used instead of Type I passives - functioning as dual-purpose passives and middles as in (10b) or as middles alone as in (11b).

(e) Gaps in the System of Middles: The system of verb-patterns charted in (7) includes one highly productive and regular set of Active/Middle alternations in the form of the transitive pattern (3) pi'el and its intransitive reflex (4) hitpa'el. Thus:

(12) (i) ACTIVE pi'el: dan sider et ha'inyan
Dan arranged OM the-matter
MIDDLE hitpa'el: ha'inyan histader
the-matter arranged-itself/
got-settled/worked-out
(ii) ACTIVE pi'el: hamore siyem et haši'ur
the-teacher ended OM the-lesso
MIDDLE hitpa'el: haši'ur histayem
the-lesson ended

A somewhat less productive but quite widespread Active/Middle alternation is manifested by the transitive hif'il pattern taking the intransitive nif'al as its middle reflex, thus:

(13) (i) ACTIVE hif'il: haxom hemis et haxem'a
the-heat melted OM the-butter
MIDDLE nif'al: haxem'a namesa (baxom)
the-butter melted (in-the-heat)
(ii) ACTIVE hif'il: hamore himšix et
the-teacher continued OM
haši'ur
the-lesson
MIDDLE nif'al: haši'ur nimšax
the-lesson continued

Numerous verbs alternate in this way in Hebrew, and the fact that each such pair has an associated passive form (in pu'al for the verbs like those in (12), in huf'al for verbs like those in (13)) is evidence for the claim that Hebrew manifests a tripartite system of voice - active, passive, and middle. [11] However, this system breaks down with respect to verbs in pattern (1) on

chart (7) - the basic or unmarked kal pattern which includes both transitive (two-place predicate) and intransitive (one-place predicate) verbs.

As a result of both the dual transitive/intransitve distribution of verbs in the kal pattern (1) along with the dual function of the nif'al pattern (2) - both the passive reflex of verbs in kal and the middle reflex of verbs in hif'il as shown in (7) - no special form exists as the middle counterpart of kal, and nif'al may function as both the intransitive-middle and passive sense in such cases:

(14) (i) PASSIVE nif'al: hakad nišbar
the-vase was-broken
(al ydey haxatul)
(by the-cat)

MIDDLE nif'al: hakad nišbar,
the-vase broke,
le da'avoni
to my-regret

(ii) PASSIVE nif'al: hadelet niftexa
the-door was-opened
(al ydey haso'er)
(by the-doorman)

MIDDLE nif'al: hadelet niftexa
the-door opened
pit'om
suddenly

Again, where no agent is specified, speakers can use Type III impersonals in the active kal pattern in such cases, too, to yield, for instance, gamru et kol ha'oxel '(they) have-finished OM all the-food' in the sense of 'the food's all finished' or savru et hakad '(they) have-broken OM the-vase' = 'the vase has broken'.

The structural constraints noted in this section can be charted as follows:

(15) Constraint	I Passives	II Middles	III Imperson
a) Only DO Passives	-		+
b) Pres. Tns. Passive = Statal	-		+
c) No Nonfinite Passives	-		+
d) Lexical Gaps in Passives	-	+	(+)
e) Gaps in Set of Middles	+	-	(+)

where minuses indicate that a construction is formally unavailable, pluses indicate the construction used instead, and parentheses indicate that a construction may but need not be used to bridge the gap.

The picture which emerges is that Type I passives are the most severely constrained of the three constructions; Type II middles are somewhat constrained - as shown by (e), but they may take over the role of passives as in (d); while active plural impersonals of Type III seem to manifest no constraints at all - being the only ones which can be freely formed with intransitive and transitive verbs alike. This account also provides a formal explanation of the intuitive feeling of Hebrew speakers that the passive is somewhat atypical of their language, somehow "not really Hebrew", despite the relatively productive morphological mechanism which exists for its formation. This intuition is backed up by the findings of a pilot study conducted by Mira Ariel of Tel Aviv University [12] of seven 8 to 10 and one-half year-old Israeli children, who consistently avoided using the passive form even when it was quite clearly called for. This avoidance was particularly evident in the younger of the seven subjects, and was manifested throughout with respect to present-tense passives which are viewed as adjectival (see our point (b) above). [13] Moreover, the strategies children used for avoiding the passive when required to produce sentences in which the logical object occurred initially are consistent with the points made here: younger children used simple actives or middle-voice (Type II); those who showed better command of passive constructions used impersonals (Type III) or NP fronting strategies to avoid the passive; while only the the two oldest children, who made most frequent use of passive formation (including passives with agent-phrases), made relatively rare use of such methods of avoidance.

This ties in with another relevant structural property of Hebrew, as a language for which the passive is relatively <u>not</u>

at the outset, personal passives "foreground the NP which is their subject" (Keenan Ms. 61), Hebrew has numerous other devices for foregrounding a nonagent NP (see, for instance, Ben-Horin 1976). In order to, in some deliberately vague sense of the term, "focus" on a given NP, Hebrew speakers can regularly bring it to the front, as follows:

(16) DO FRONTING - et hara'eyon pitxu
OM the-idea developed(PL)
hamad'anim be angliya
scientists in England

IO FRONTING - le dani natati et hamixtav
to Danny I-gave OM the-letter

OBL FRONTING - al ba'ayotexa nedaber
about your-problems we'll-talk
behizdamnut
in-due-course
LOC FRONTING - ba megira tasim
in the-drawer put(IMP)
et kol haneyarot
OM all the-papers

Moreover, Hebrew has a very productive process of left-dislocation with crossreferential pronominal trace, specifying the dislocated NP as the "topic" in the sense of what the following discourse is about. Thus, where the dash indicates a pause:

(17) DO DISLOCATED - ra'eyon ze - mad'anim pitxu
that idea - scientists developed
oto be angliya
OM+it in England
IO DISLOCATED - dani - natati lo et hamixtav
Danny - I-gave him OM the-letter
OBL DISLOCATED - ba'ayotexa - nedaber al-
your-problems - we'll-talk about
ehen behizdamnut
them some-time
LOC DISLOCATED - rina - ha- hitnahagut šel- a
Rina - the behavior of her
mešaga'at oti
makes-crazy me
'Rina, her behavior drives me crazy'

Such constructions, as well as other devices for NP "foregrounding" in Hebrew, lie outside the scope of the present discussion. They are noted here as further motivation for the fact that Hebrew speakers can and do avoid using the passive, because they have other devices available to them to perform at least one major function of passives in a language like English - foregrounding of NP's other than the agent.

Moreover, with respect to the other, logically related function of passives - as a way of talking about actions the performer of which is perceived as unimportant or irrelevant, or whose identity is unknown or taken for granted - Hebrew again has welldeveloped structural devices alongside the agentless passive of Type I: specifically Type II middles and Type III impersonals. [15] Hence the tendency to use relatively few passives even in more formal written Hebrew, certainly in the spoken language, can be explained in terms of other structural options which are available to the Hebrew speaker, rather than to factors of relative mor-

phological complexity (as noted in fn. 11 above).

3. Functions of Agentless Constructions in Hebrew

The three construction-types considered here, then - passives, middles, and impersonals - are alike in that none makes any overt reference to an agent NP (and in this they differ from sentences with preposed NP's like those illustrated in (16) and (17), where the agent is specified). What we shall try to show is that the three constructions in question differ crucially in whether and how they impute agency, and that notions of degree of agent involvement or responsibility for the event described are relevant to how such expressions are interpreted.

We would like to suggest that there is a kind of agent-hierarchy, along the following lines:

(18) 1. TYPE II MIDDLES
hara'eyon hitpateax be angliya (me acmo)
the-idea developed in England (of itself)
-Least agency imputed, the event is perceived as "autonomous"

2. TYPE I PASSIVES
hara'eyon putax be angliya
the-idea was-developed in England
-Agency is logically implied - and an agent could be mentioned - but its importance is downgraded

3. TYPE III IMPERSONALS
pitxu et hara'eyon be angliya
(they) developed OM the-idea in England
-Human agency is clearly imputed, but its identity not specified

Consider, first, Type II Middles, in which, we are claiming, the event or process is construed as in some sense "autonomous" - some formal evidence being provided by the possibility of an expression such as me'acmo 'of/in itself' or 'of its own accord' in (18-1) above. In discussing middle-voice constructions, some writers stress the identity of Agent/Experiencer and Patient/Benefactee. As typical one-place predicates, they are taken to imply that "a patient/benefactee is either the agent as well, or is partially involved in or responsible for the action" (Olshtain 1978: 29). According to Barber, "the middle voice is expressing the fact that the subject is not only performing the action, as agent, but receiving some benefit from it as well" (1975: 18), that is, the middle-voice is "a means of signalling that some nonsubject NP in the sentence proposition is identical with the surface subject" (op cit). Much in line with Faltz (1977), middle voice - specifically, lexicalized reflexive - verbs have the effect of "incorporating

the idea of to whom and by or for whom a given action was perpetrated...expressing a kind of 'oneness' of action and object-of-action, whereby the object is somehow 'internal' or integral to the action itself" (Berman to appear). This accords well with Keenan's characterization of certain middles as "a class of constructions which resemble personal passives in a great many ways, but in which the subject's responsibility for the action is portrayed as sufficiently autonomous that the existence of no other argument (agent or causer) is implied (to appear, Ms. 22).

We would like to refine the notion of "autonomy of event" expressed by middles in relation to the claim made by Keenan that the semantic interpretation of intransitive verbs varies with (depends on) their surface subject NP. [16] Thus, the "oneness" of agent/patient referred to earlier is possible only with animate subjects, which can be viewed as both the doers and receivers of an action, as in (19):

(19) a. hacevet hitargen
the-team (got itself) organized
bli ba'ayot
without (any) difficulty
b. haganavim histalku
the-thieves took(themselves)off
me habayit
from the-house
c. haxatul hitnagev baševeš
the-cat dried(itself) in-the-sun

This truly "reflexive" sense of such verbs - implied by the parentesized reflexives in the gloss - is possible only with animate, purposive initiators of the action. Other such expressions are somewhat less autonomous, in that they imply some human agent responsible for the event, as in (2Ø):

(2Ø) a. hamesiba hitargena bli
the-party got-organized without (any)
ba'ayot
difficulty
b. hatoxnit mitpataxat yafe
the-plan is-developing nicely
c. hacalaxot yitnagvu maher
the-dishes will-get-wiped quickly

That the event is viewed in each case as autonomous is evidenced by the fact that in each sentence in (2Ø) the verb could be followed by a dative pronoun that agrees with the Subject NP, of the sort noted in connection with example (3) at the outset of this paper - hitargena la, mitpatxat la and

yitnagvu lahen respectively. Some human agent is implicit, however, because obviously parties do not organize themselves, nor plans develop themselves nor dishes (unfortunately) wash themselves - people do these things.

A use of middles related to such instances is where no person, but some other (often physical) force presumably initiated the action, just because these inanimate subjects cannot be conceived as self-initiating, for instance:

(21) a. hamarak mitbašel (al ha'eš)
the-soup is-cooking (on the-fire)
b. hadelet niftexa pit'om
the-door opened suddenly
c. hamidron hitkasa be šeleg
the-slope got-covered with snow

Here, some outside, nonhuman agency is presumed responsible for the event experienced by the Subject NP - and in (c) the "perpetrator" of the covering must be overtly mentioned as snow. Normally, however, when one talks about soup cooking, doors opening, vases breaking, butter melting (all middle forms in Hebrew), what happened to the Subject is what matters - and not the agent. One last set of examples will serve to further show how very tenuous is agency-imputation in middle-voice expressions. We refer to cases where some inherent property of the Subject NP is responsible for the state of affairs described, thus:

(22) a. calaxot mi plastik mityabšot bekalut
dishes (made) of plastic dry easily
b. xomer ka ze nisdak maher
stuff like that chips(off) quickly
c. habad haze mitkavec nora
this cloth shrinks terribly

Thus, middles will be used in Hebrew precisely to talk of states-of-affairs which the (surface subject) patient-experiencer is viewed as undergoing autonomously, irrespective of agency - except where the Subject is animate, and hence both the initiator and undergoer of the event. This claim is strengthened by cases where middles - while morphologically available - are ruled out in Hebrew, just because the event is such that an agent is either logically or pragmatically involved, thus:

(23) a. * hamišpat lo hitnaseax
the-sentence (did)n't get(itself)worded
kahalaxa
properly

b. * ha'aš̌pa histalka me haxacer
the-garbage took(itself)off from the-yard

Unlike the cases in (2Ø) - parties and plans can develop their own momentum, so to speak, and dishes can be left to dry - sentences only get worded and garbage removed if there are people around who deliberately undertake to do so. Thus, (24) is somewhat better than the two sentences of (23), just because the act of omission need not - in fact usually is not - be purposeful:

(24) ?? š̌tey milim niš̌metu be xol sura
two words (got)dropped in each line

In all these cases, the passive Type I would be used instead - in keeping with its property of entailing an agent, even where none is specified, thus:

(25) a. hamiš̌pat lo nusax kahalaxa
the-sentence not was-worded properly
b. ha'aš̌pa sulka me haxacer
the-garbage was-removed from the-yard
c. š̌tey milim huš̌metu be xol sura
two words were-dropped in each line

Type I Passives, then, will be used - as in English and other languages - where an agent is logically implied, but downgraded in importance or relevance by not being specified. Beyond this, we note with respect to passives that (i) they are relatively infrequent in Hebrew - as discussed in Section 2 above; (ii) they occur almost exclusively in written language -mainly of scholarly works and newspaper usage - hardly at all in informal speech; and (iii) they function analogously to the dynamic passive with be (rather than with get) in English.

With respect to Type III Impersonals, we need to motivate our claim as formulated in (18) that they are the highest of the three constructions on the scale of agency-imputation. Note that impersonals like the ones below are logically equivalent to their passive counterparts in (25) in the sense of having the same truth value as propositions.

(26) a. lo nisxu et hamiš̌pat kahalaxa
(did)not word(PL) OM the-sentence properly
b. silku et ha'aš̌pa me haxacer
have-removed OM the-garbage from the-yard
c. hiš̌mitu š̌tey milim be xol š̌ura
left-out(PL) two words in each line

The sentences in (26) are typical impersonals, and as such

they "function to de-emphasize, de-focus, or in general withdraw attention from an argument" (in this case the "missing" Subject - R.B.) in the sense of Keenan, Ms. 61. Yet such sentences do impute agency, and imply quite clearly that there are or were agents, in fact people, who are responsible - for, as we noted earlier, these impersonals are only feasible just in case the verb is understood to apply to human beings. [17]

One explanantion of this in typological terms is suggested by Olshtain 1978. She points out that in languages which have a welldeveloped morphological middle voice (e.g., Hebrew, Russian, Greek), "It is to be expected that there will be a wide use of impersonal, nonreferential active sentences...(possibly because) Middle Voice weakens the 'agenthood feature' by having the agent and patient share the same 'agent function' (and) the need therefore arises to create a special construction that is 'passive-like' in meaning and stresses

It seems clearly the case that Hebrew impersonals of our Type III do indeed "stress agenthood as such", and in this sense differ significantly from both Type I passives and Type II middles. Take, for instance, a man coming home from work, walking into the house and finding a broken window (or - a window broken). Either of the following is a possible reaction, but they imply different points of view:

(27) PASSIVE OR MIDDLE: [18]
la'azazel! haxalon nišbar šuv
damn! the-window was broken/broke again
= 'the window's been broken/has gotten broken/ has broken again'

(28) ACTIVE IMPERSONAL
la'azazel! šavru šuv et haxalon
damn! broke(PL) again OM the-window
= 'they've (gone and) broken the window again'

In (27) there is a focussing on the subject - the patient of the action - in the sense of the highlighting of a certain element for attention, and it is the window that is being cursed, along with its having gotten (itself) broken again. In (28) it is the act of breaking and hence the perpetrators thereof - though their identity is not specified, may perhaps not be known - that are being cursed; that is, responsibility is being imputed for the event. In other words, if one chooses to focus on an NP other than the agent (apart from the kinds of fronting operatins discussed in Section 2), the patient "comes first" in both the middle-reflexives and the agentless passive. If what one is concerned with is the action, the event itself, then a "verb-first" impersonal is used.

With regard to the high degree of "imputation of agency" we are claiming for the Impersonals, compare the following:

(29) a. hamon mexoniyot nignavot
lots-of cars are(getting)stolen
kan la'axarona
here lately
b. šeli gam be sakana
mine (is) also in danger
c. ?? kol miney tipusim mistovevim
all kinds-of types wander-around
bašetax po
in-the-area here

(29a) is in the passive, hence (b) which refers back to the surface subject of (a), talking about "a car", is a plausible follow-on from (a), unlike (c) which refers explicitly to conceivable perpetrators of the stealing noted in (a) and hence is only possible as a follow-on from the original (a) statement if some sort of shift in the topic of discourse is assumed. The converse is true with impersonals, thus:

(30) a. gonvim hamon mexoniyot kan la'axarona
steal(PL) lots-of cars here lately
b. ? šeli gam be sakana
mine (is) also in danger
c. kol miney tipusim mistovevim
all kinds-of types wander-around
bašetax po
the-area here

Similarly, the sentence in (28) about the breaking of the window (impersonal) could be followed by something like "I'm gonna give those kids one helluva talking to!" - but this is not a plausible follow-on for the passive/middle-voice sentence of (27), where the window is what the speaker is most concerned with. Thus in the Type III impersonals of (28) and (30a), the state of affairs described is clearly attributed to some unspecified but presupposed (and in these instances negatively perceived) human agents viewed as responsible for breaking and stealing respectively.

4. Summary

Given that Hebrew has (at least) three different constructions in which no overt agent is specified, we have tried to show that the choice between them is partially constrained by structural factors - morphological, syntactic, and lexical. Type III impersonals are least constrained, being limited only by the requirement of human

reference (fn. 17); Type II middles are rather more constrained, and in some cases merge morphologically with passive forms; Type I passives are quite severely constrained on formal grounds, and some of their traditional functions can be performed by other, very productive fronting operations in Hebrew - hence providing formal motivation for the fact that passives are relatively so uncommon, even in more careful written usage.

In terms of function, the three constructions differ in degree of agency, in the sense of the amount of involvement and responsibility imputed to the unspecified perpetrators of the event in question. Type II middles are the most agent-free, the Subject (particularly in the case of animates) or the event itself being construed as largely "autonomous"; Type I agentless passives focus on the patient, which they serve to foreground - and although passives imply the logical existence of an agent, the latter's role is deliberately ignored; Type III "verb-first" impersonals stress agency as such, making it clear that there are people in the background who are held responsible for the state of affairs - while the "impersonal" formulation means the speaker has no need or desire to specify their identity, for otherwise he would use an active sentence with an overt Subject.

In more general terms, our findings reinforce the point of view of the other studies noted at the outset, indicating that the traditional - certainly transformationalist - conception of passives in terms of their direct active counterparts is not necessarily the most revealing approach to such constructions. Our study further suggests that agentless passives and impersonals - both Type III active impersonals and impersonal passives like those noted in fn. 7 (and see Comrie's discussion of the latter in different European languages) - can be characterized as having similar propositional content but different pragmatic motivations and hence consequences. The data from Hebrew also provides evidence to explain the cooccurrence of middle-voice and impersonal constructions in languages like Hebrew, spoken Arabic, and Russian, on the one hand, and the common morphological identity between forms used in both middle-voice and reflexive constructions, on the other.

Finally, the study points to an interrelation between the relatively common use of passives in a language like English and the fact that English does not tolerate subjectless sentences. Though English can and does use "impersonal" subjects such as <u>they</u>, <u>you</u>, <u>one</u>, or <u>we</u>, these are relatively marginal features of the language. (Thus, <u>they</u> and <u>you</u> are mainly informal; <u>one</u> is so formal as to be rare - certainly not on a par with German <u>man</u> or French <u>on</u>; and <u>we</u> is not used nearly as widely as its literal counterpart <u>anu</u> in He-

brew, as noted in fn. 15.) Hebrew, on the other hand, is a typical instance of a language exhibiting a wide range of "subjectless" or "verb-first" constructions (see Berman in progress) - and hence the ease with which it can accommodate impersonals in lieu of passives.

FOOTNOTES

* I am grateful to Tsafrira Ben-David, Alexander Grosu, Edward Keenan, Elite Olshtain, and David Stein for their very helpful comments on an earlier version of this paper. The inadequacies which remain are mine alone.

1 These studies all take a rather different view of such constructions than is expressed in various transformationalist attempts to derive passives from their corresponding active counterparts and, possibly, by extension impersonals from corresponding personals.

2 OM indicates the object marker et obligatorily preposed to direct objects just in case they are [+Definite].

3 In many cases, agentless passives seem to require some other adverbial to "fill out" a strictly one-place ##SV## construction, as in:

(i) The news is broadcast twice a day / only in Spanish.
(ii) Results will be posted on the department bulletin bo
(iii) Proposals must be submitted in three copies.

This constraint ties in with the observation that English, for instance, has very few "absolute intransitives" (Lees & Klima 1963). However, given the wellformedness - in some undefined sense of the term - of such sentences as "John was killed" or the "The building will be destroyed" in both English and Hebrew, we merely note this constraint in passing, as a theme for further investigation.

4 A graduate student of linguistics at Tel Aviv University informs me that such expressions as the following can be heard - particularly among young people:

(i) hara'eyon hitgabeš al ydey hakvuca
the-idea took-shape by the-group
(ii) hatoxnit hitpatxa be angliya
the-program developed in England
al ydey hamarksistim
by the-Marxists

Such middle-voice expressions with an overt agent phrase marked by the same instrumental preposition as agent phrases in ordinary passives seem to go counter to all

our claims - and in fact other native Hebrew speakers in the same graduate class rejected this form. Given that the student in question is in constant contact with young people who speak a very "permissive" type of Hebrew, being out of contact with the manistream of normativism in the schools (she is a member of a kibbutz), her data may in fact provide evidence to show that Hebrew speakers are beginning to reanlyze middle voice verbs as a kind of passive. This claim is strengthened by the existence of suppletive paradigms in all levels of usage, where the middle-voice hitpa'el verb-pattern functions as a passive in cases of particular verbs which are never used in this way in the strictly passive verb-pattern pu'al as discussed in Section (2d) below. The examples given in this footnote are noteworthy precisely because the middle-voice verbs in (i) and (ii) do have wellestablished counterparts, thus:

(iii)	hara'eyon	gubaš	(al	ydey	hakvuca)
	the-idea	was-given-shape	(by		the-group)
(iv)	hatoxnit	putxa	(al	ydey	hamarksistim)
	the-program	was-developed	(by		the-Marxists)
	be angliya				
	in England				

5 Impersonals with 3rd-person plural main verbs occur in many other quite unrelated languages, such as Russian. The fact that they are used with much the same function in Modern Hebrew cannot be attributed to "foreign influence", however, as similar constructions occur in both Biblical and Mishnaic (the latter c. 300 B.C. - 600 A.D.) Hebrew. Thus the 19th century Biblical scholar Gesenius notes that "The 3rd plur. also is sometimes used to express an indefinite subject...In such a case the 3rd plur. comes to be equivalent to a passive (emphasis mine - R.B.), as very commonly in Aramaic...e.g., Jb 7:3 'wearisome nights minu li have (they) allotted to me' (equivalent to 'were allotted to me'; to make 'invisible powers' the subject is a merely artificial device)". Gesenius then cites several other verses in the Bible in which "the indefinite personal subject (our they, one, French on, and the German man) is expressed by the 3rd plural masculine...in parallelism with a passive" (Gesenius 1910: 460). In the Mishna, the use of present tense plural verbs with the negator eyn is an extremely common way of expressing prohibitions, e.g., eyn not'in yerakot betox sadan šel šikma 'not plant(PL) vegetables in (the) trunk of (a) sycamore' in the sense of "it's not done", "one shouldn't do so".

Such "verb-first" or "predicate only" constructions

are, moreover, in accoradance with a more general structural property of Hebrew which, as we try to show elsewhere (Berman in progress), manifests a wide range of sentence-types which are lacking in overt subjects. These include: (i) existentials such as yeš ba'ayot '(there) are problems' or eyn derex axeret '(there is) no other way'; (ii) expressions of "ambience" (in the sense of Bolinger 1973), e.g., nora kar po '(It's) terribly cold here' or haya nexmad eclam '(It) was pleasant at-their-place'; and (iii) modal and other types of predicates taking sentential complements, e.g., carix la'azor lo 'must to-help him' = 'he must be helped' or xaval še hu lo ba '(It's a) pity that he (did) not come'.

6 The notion "universe of discourse" may be explained as follows: In a statement like šotim hamon mic ba'arec 'drink(PL) lots-of juice in-Israel' = 'people drink a lot of juice in Israel', the universe of discourse is confined to people living in Israel, while in lo yod'im anglit beyapan '(do) not know(PL) English in-Japan' the discourse entails people who are Japanese living in Japan. And if someone says yodi'u et hatoca'ot maxar 'will-announce(PL) OM the-results tomorrow', he is presumably understood to be imputing the act of announcing to those people whom both speaker and hearer recognize as having the authority, knowledge, or potential to announce results.

7 The present discussion is confined to the class of active impersonals. Hebrew does have a passive impersonal construction - with no surface subject, the verb being passive in form and singular (unmarked, that is) in number. However, these are restricted to a few lexicalized forms, mainly verbs of saying and thinking, thus:

(i) ne'emar lanu še dan zaxa
was-said to-us that Dan won =
'We were told that Dan won'

(ii) sukam al yadam še Dan zaxa
was-decided by them that Dan won

(iii) yuvrar še dan zaxa
will-be-shown that Dan won

These constructions correspond closely to a wide range of similarly "subjectless" predicates in which the (masculine singular) head of the predicate need not be passive - as in (iv) - nor a verb - as in (v) and (vi).

(iv) margiz oti še dan zaxa
annoys me that Dan won =
'It annoys me that Dan won'

(v) xaval šeˇ ze haya dan šeˇ zaxa
pity that it was Dan that won =
'It's a pity that it was Dan who won'
(vi) haya barur šeˇ dan yizke
(It) was clear that Dan would-win

See also fn. 5 in this connection.

8 The strict intransitivity of the two "middle-voice" patterns - nif'al and hitpa'el - is manifested, inter alia, by the fact that they never govern the direct object marker et. Where they occur in two-place predicates, the verbs in such patterns will take an oblique, never a direct object.

9 Hasegawa 1968 provides a careful discussion of this distinction. Langacker & Munro (1975: 824-7) consider the relation between perfectives and passives in nonIndo-European languages. Keenan, to appear, discusses "aspect distinctions in the passive" of various languages (Ms. 17-9); in his terms, Hebrew clearly provides a further example of his generalization G-1.2 to the effect that "The presence of a specifically imperfective passive in a language entails the presence of a perfective passive...but the converse fails". Note that English can get around the dynamic-statal distinction quite often by using get as well as be, the former being typically dynamic in sense, as discussed in R. Lakoff 1971.

1Ø This neutralization of the perfective/passive distinction occurs only in the (participial) present tense of Hebrew. Thus the examples in (8) of the text could be formally distinct in past and future, compare:

(i) a. PASSIVE - hašgiyot sumnu
mistakes were-indicated
(al ydey ha'orex)
(by the-editor)
b. PERFECTIVE - hašgiyot hayu mesumanot
mistakes were indicated
be'adom
in-red

(ii) a. PASSIVE - hamo'amadim yusmexu
the-candidates will-be-qualified
(= ordained)
(al ydey hava'ada)
(by a-committee)
b. PERFECTIVE - hamo'amadim yihyu musmaxim
the-candidates will-be qualified
la'asok banose
to-deal with-the-subject

Note also that a formal distinction between

passive/perfective is made even in the present tense of the nif'al verb pattern - which came into use as a passive reflex of kal relatively recently in the language, and which still functions as a basically intransitive and not only as a passive pattern, as shown in (2) of the chart in (7) of the text. Thus compare:

(iii) a. PASSIVE - hamekomot haxi tovim nitpasim
the-best places are/get-taken
(al ydey hayaxsanim)
(by VIP's)

b. PERFECTIVE - hamekomot haxi tovim tefusim
the-best places are-taken
(kvar)
(already)

(iv) a. PASSIVE - hatšuvot nixtavot bixtad yad
the-answers are-written by hand
(al ydey hastudentim)
(by the-students)

b. PERFECTIVE - hatšuvot ketuvot be'ivrit
the-answers are-written in-Hebrew
(??al ydey hastudentim)
(??by the-students)

Consideration of a number of written texts shows that present tense passives, where used at all, are nearly always in this nif'al pattern rather than in the two other potentially ambiguous patterns. Thus in an article of some 10,000 words (Blum 1977) which uses a relatively large number of passives, I noted some 10 instances of present tense passives in the nif'al pattern, but only one or two (which could be interpreted statally) in the pu'al and hof'al.

11 The fact that Hebrew should be viewed as having a "middle-voice" is discussed and motivated by Ariel 1969, Berman 1973 (Chapter 3), and Olshtain 1978.

12 As part of a research project in conjunction with Sandra Ben-Zeev of the Bilingual Education Service Center, Chicago.

13 All the subjects, but particularly the younger ones, had evident difficulty with passive-form verbs except for a few lexicalized items treated as unrelated to any active verb, e.g., meluxlax 'dirty', literally 'be dirtied' or nifca 'get hurt, hurt oneself' = 'be wounded'. In considering the question of "why most languages contain a passive form when it is fairly rare occurrence in spoken and written language", Beilin and Sack (1975: 11) point out that "It is difficult to assess...whether the difficulty of the passive is due to its infrequent use or whether its limited use results from the relative difficulty of

the construction".

14 Thus, for instance, unlike Philippine or some Bantu languages, Hebrew can form both relative clauses and questions on any NP - including DO, IO, Oblique Objects, Possessives, etc. (all except the DO case requiring a resumptive pronoun in the relative clause) - and hence there is no need in Hebrew to passivize in order to yield surface structures appropriate to such extraction processes.

15 Hebrew also makes widespread use of a device analogous to English "editorial" we for impersonalizing the agent in expository writing. We (sic) refer to such cases as the following (translated from Blum 1977):

(i) Here (= in this context), we will consider the factor of frequency... (24)
In light of the data we presented above, there seems to be no... (34)
With respect to the first group, as we have seen, this claim is... (36)

Here the 1st person plural pronoun anu (by contrast with the seemingly synonomous but evidently more "personal" anaxnu) has a clear function within the discourse frame of scholarly writing: it is used preponderantly at the beginning and end of subsections of the text, when the writer sets out and subsequently sums up his own views of the issues in question. Hebrew speakers clearly view this use of we as "impersonal", and it constrasts functionally with some writers' use of ani 'I' when specifying their own procedures in a given study, say, or setting their own claims apart from those of other scholars. However, Hebrew speakers-writers also use anu 'we' where no sense of personal involvement at all can be attributed to the speaker, in cases where English would definitely require a passive. The following examples are taken from term-papers of Israeli linguistics majors with an excellent command of English (as discussed in Berman 1979):

(ii) From the two trees we see that the deep structure is quite similar...
We derive this construction by a transformation...
We use the passive much more in English... (sic)
We first make a yes/no question and then we add...

Hence the use of we as a strictly impersonal form in relation to activities in which the speaker-writer is in no sense personally involved (for instance, in the third example of (ii) above, it is unlikely that the student is identifying himself with "users of English") may be

viewed as yet another device available to Modern Hebrew for avoiding agent-specification.

16 The claim was discussed and motivated at a philosophy colloquium presented by Edward L. Keenan "On the relationship between logical form and grammatical form", Tel Aviv University, January 10, 1979.

17 Thus, these impersonals are ruled out with verbs typically requiring inanimate Subjects, e.g., gozrim mecuyan 'cut (PL. - used of scissors, blades, etc.) excellently' or te'imim me'od '(are) very tasty' are uninterpretable as they stand. Moreover, such impersonals will be taken as having human reference even when the verb admits of nonhuman agents, e.g., yešenim harbe baxoref 'sleep(PL) lots in-winter' is wellformed only when it is taken as a statement about people and not about animals, and tasim kan kol yom axšav 'fly(PL) here every day now' refers to the activity of pilots, not of airplanes.

18 This merging of passive/middle voice is due to the dual function of the nif'al verb pattern as set out in the chart in (7) and discussed in point (e) of section 2. The same claims would hold, however, were we to use the strictly passive form nupac 'be shattered' (cf. hitnapec 'shatter (Intr.)' = middle-voice') compared with active nipcu 'shatter, Tr. Pl.'.

19 For instance, if I find my favorite pair of scissors missing from my drawer and I mutter la'azazel! šuv lakxu li et hamisparayim 'damn! again have-taken from-me OM the-scissors' it would be something like saying "Damn! Someone's gone and taken my scissors again!" - but I'm deliberately not saying which of the members of my household might be guilty of the deed, even though I may (but need not) have a pretty good idea who the culprit is.

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Wie Es Sich Verhält: Some Referential and Syntactic Functions of German Es without Antecedent

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For many years there has been discussion of certain construction types found in several Western European languages; these are exemplified in English by such sentences as It's cold, It's raining, It's five o'clock. The focus of dispute has been the status of the pronoun--English it, German es, French il--in these expressions. Does this pronoun have reference, and if so, to what does it refer? Or is it merely a syntactic dummy, filling the subject slot, which these languages do not permit to be void? The latter is virtually never an adequate explanation of the occurrence of it, and is totally untrue for many of its occurrences, since the pronoun it does often have an identifiable, if vague, semantic reference. German investigators debated this issue in the last century and earlier in this one (Miklosich 1883, Sigwart 1888, Brugmann 1917, Corrodi 1925, Ammann 1929), and several strong statements for the referentiality of es were made even then, particularly by Sigwart, Corrodi and Ammann. More recently, others have ignored these arguments and attempted to demonstrate a relationship between the it occurring with weather verbs and the it found in extraposition (Langendoen, Morgan, Breckenridge).

The object of our paper is to investigate these locutions and others with indefinite es in German, which has them in far greater profusion than any other Western European language, and thus evokes the greatest confusion and ambivalence as to the nature of es in them. This is no doubt why the vast preponderance of the literature on this topic is in German. Many linguists and linguistic philosophers of the past hundred and fifty years have believed that it has reference; equally many have felt just as strongly that it has none. We shall refer to these as the referential and non-referential positions. The question has still not been resolved: neither side has yet been able to cite compelling evidence for its position.

How could so profound a disagreement as to the nature of es (it, il) have arisen? It is clear enough why philosophers and logic-oriented linguists would wish to establish that es has reference: it is impossible to imagine an action, state or process without some medium through which it is manifested, that is, the subject of the verb. There are however several considerations (which in fact have never been explicitly stated by non-referentialists) that might have led to their impression that es is no more than a "leeres Formwort."

(a) Sentences like Es ist kalt, 'It's cold', tend to be used and understood unitarily, like idioms; they are not usually analyzed by speaker or hearer.

(b) Es with such verbs as regnet, blitzt, schneit, 'It's

raining, lightning, snowing', cannot be understood as having the role Agent.

(c) The classical languages and some modern IE languages have no pronoun in corresponding expressions: Latin pluit, Italian piove, 'Es regnet', 'It's raining', Latin tonat, 'Es donnert', 'It's thundering.'

While these considerations may well have helped to create the impression that es with ambient verbs lacks reference, they are by no means cogent arguments to this effect: the fact that standing phrases are not employed or understood analytically does not import that they are unsusceptible to linguistic analysis; for example, idioms commonly undergo question and other transformations and some may even be passivized, requiring understanding of their underlying role structure. Subjects in general may be any one of a number of underlying functions, including Agent, according to the valence of the verb. It is not disturbing to confront verbs which prohibit an agentive subject, as every language has many of them. Finally, the classical languages and many modern ones commonly omit subject pronouns in all persons and numbers; when used at all, such pronouns are apt to be emphatic. If the subject pronoun of pluit, for example, has reference, then it would normally be deleted, as is the subject pronoun in Latin (is) me amat, 'he loves me.'

A few more serious objections to the possible referentiality of es:

(d) Es in ambient and time expressions never represents an antecedent noun.

(e) In many of these expressions, no particular noun can be made to replace es with certainty that es really substituted for that noun and not for one of several other possible ones. Is Es ist kalt more nearly equivalent (semantically rather than grammatically) to Das Wetter ist kalt, 'The weather is cold', or Die Luft ist kalt, 'The air is cold,' or perhaps even Die Umgebung ist kalt, 'The environment is cold'?

(f) In some sentence-types, such as Es wird getanzt, 'There is dancing', Es hungert mich, 'I'm hungry', it is hardly possible to conceive of the pronoun as having reference. Here, most of all, it seems to be a slot-filler.

(g) Es, even more than pronouns generally, has very low information value, especially in constructions of the kind in which we are interested. This results from the fact that, lacking a nominal antecedent or postcedent, es could only refer to something understood or taken for granted or physically impinging on the senses.

These considerations make evident the most confusing aspect of the problem: the fact that es is of such low topicality that it is difficult to isolate it semantically. We will present an analysis of various functions of this elusive pronoun in which we attempt to account for its appearances semantically and syntactically.

As an approach to this problem we wish to posit four types of reference in addition to the traditional redeixis (anaphora) and prodeixis (cataphora). The first of these, paradeixis, is likewise a contextual function: it is reference which is not directly redeictic or prodeictic to something in the surrounding discourse, but only inferable from it, as in:

1. The bank was robbed yesterday but they caught him a few hours later.

The other three functions are non-contextual and in the strict sense non-pronominal, since with them the "pronoun" stands not for a noun phrase but for something perceived or conceived; they are thus respectively pro-perceptual and pro-conceptual rather than strictly pro-nominal. It has been pointed out before (Postal 1966) that there can be an original pronoun in the deep structure if it refers to something not involved in the discourse context but physically present in the situation; we call this kind of reference exodeixis. It is exemplified by sentences like

2. Die ist ja hübsch!, 'She's sure pretty',

spoken of a woman visible to speaker and hearer but previously unmentioned. Apodeixis is reference to something not physically present in the situation but inferable from it; thus, while walking through the ruins of a Mayan city, one can say to a companion without fear of misunderstanding, "They were an ingenious folk, weren't they?" In addition, a pronoun can refer to something tacitly understood by speaker and hearer: we call this metadeixis. (Cf. Hawkins 1977 for closely analogous uses of the definite article.) Thus a doctor visiting a patient may say, "Wo sitzt es?" Both know that es refers to the disease or complaint involved. Then again, in such idioms as

3. You're it,

said by children playing tag, we know from long experience as members of the English speech community what it refers to. Similarly,

4. I'm almost overparked; I've got to run or they'll nail me,

where shared knowledge of the prevailing social organization makes it possible for the speaker, without fear of misunderstanding, to use they instead of the police, which would seem unnecessarily circumstantial. Those circumstances need not have been mentioned in the preceding discourse for us to understand what is meant; that understanding is part of our shared community.

It should be particularly noted that we do not infer discrete differentiation among these types of deixis; deictic functions frequently overlap. Thus es in

5. Es ist Peter, 'It's Peter',

is exodeictic in that it calls attention to something not previously mentioned but physically present, and paradeictic in that its reference is identified by the predicate noun (it is the wrong gender to be considered prodeictic in the usual sense). The comprehension of a pronoun's reference seems to be a matter of largely unconscious, reflexive weighing of likelihoods, drawing on data from common knowledge and assumptions, and from the situation, as well as from the discourse context. With paradeictic and non-context-bound pronouns, the absence of an NP to which the pronoun could refer in the immediate speech context probably determines, just as much as the presence of such an NP, the way in which the pronoun is "processed" by the hearer. The pronoun, and thus the whole sentence in which it appears, is understood through something like an instantaneous, largely automatic process of elimination. If upon hearing Es ist kalt, the speaker has kept in mind, say, das Gemüse, 'the vegetable', from a previous sentence, or observes the speaker eyeing with distaste something on his plate, the pronoun is processed as redeictic or exodeictic respectively; otherwise, the absence of a contextual or situational referent leads to the interpretation of the pronoun as metadeictic. In everyday usage a non-context-bound pronoun can be chosen as the subject of a sentence simply because no greater specificity is needed, and a noun would seem pedantically explicit unless contrast intonation were desired:

6. Die ist ja hübsch vs. Die Frau dort ist ja hübsch, 'The woman over there is sure pretty.'

Such non-specific use of the pronoun is implied in the es with the so-called occasional impersonals--verbs representing auditory, visual or olfactory phenomena accompanied by a non-contextual es as subject:

7. Es läutet, schillert, riecht übel, 'There is a ringing, something is glistening, something smells bad.'

These verbs may be accompanied by Agent, Source and/or Instrument roles:

8. Der Glöckner läutet, 'The bell-ringer is ringing'; Die Glocke läutet, 'The bell is ringing';

es is chosen as subject either when the particular origin of the perceived phenomenon is unknown--thus in fact as a sort of indefinite pronoun, or when the speaker considers it obvious or unimportant to specify--thus in fact as a low topicality pronoun. Thus he may say Es läutet, even when he knows it is his own doorbell, and even when he knows who must be ringing it. In either case, the predicate is clearly the focus of attention. We believe that this unemphatic quality--es even lacks a kind of specificity

inherent in er and sie, since these pronouns in non-contextual use strongly imply that their referent is animate--is one reason why es has been held to lack reference in some expressions in which it is used. (An intermediate degree of subject specificity, and hence also of predicate enhancement, would be found with

9. Jemand läutet, Etwas läutet, 'Someone/Something is ringing the doorbell.')

Since, however, the verb logically calls for a medium through which the action, event, process or state it expresses is manifested, and there is a pronoun present, there seems no cogent reason to assume otherwise than that the pronoun represents that medium, however vaguely.

This brings us back to the issue with which we started, namely the reference of es with ambient verbs and time expressions. For the several reasons discussed above, it has often been assumed (though never cogently argued) that such sentences are "reine Prädikatssätze", es being a mere dummy without reference. We do not think this assumption plausible. With time expressions

10. Es ist fünf Uhr, 'It's 5:00'; Es ist Freitag, 'It's Friday',

the reference of es is quite unambiguous: it is metadeictic and strongly paradeictic, its reference being identified by the predicate as a point in, or segment of, time. It is not surprising that non-referentialists have never had much to say about time expressions. Furthermore, in the ambient expression Es ist kalt, if kalt were literally predicated of nothing, the sentence would have no more meaning than X ist kalt. But in fact we know that Es ist kalt, in the absence of a nominal or specific situational referent, is a remark about the state of the atmosphere, either with indefinite extension, or within a space specified by an adjunct (in diesem Zimmer, 'in this room', in Alaska). The pronoun is exodeictic and metadeictic and it bears the principal role State.

Whereas the adjectives in ambient expressions (kalt, warm, dunkel, 'cold, warm, dark') by and large appear quite regularly with subjects other than es, other subjects with weather verbs are quite exceptional, and perhaps only possible in poetic or Biblical diction:

11. Der Himmel regnete Feuer und Schwefel, 'The sky rained fire and sulfur'; Die Wolken regneten Manna, 'The clouds rained manna.'

In this sort of construction an accusative specifying the material being rained seems to be necessary. This accusative appears also in metaphorical colloquial uses of regnen as well:

12. Es regnet Bindfaden, 'It's raining string'; junge Hunde;

'young dogs' (cf. cats and dogs);

and is customary when the material is unusual, as in

13. Es regnet Steine, 'It's raining stones'; Frösche, 'frogs.'

However, the material, intrinsically an underlying Patient or Result, can also be subjectivalized at times:

14. Wenn Schwefel oder Blut regnet (Hebel), 'When it rains sulfur or blood.'

This seems, however, to apply mainly in metaphorical expressions in which the source of the phenomenon is conceived of as quite different from the usual one:

15. Feuerküsse regneten auf den Marmor (Schiller), 'Fire-kisses rained upon the marble'; Verbesserungen, Erweiterungen regneten in seinen Kopf hinein (Jean Paul), 'Corrections, expansions rained into his head.'

Weather verbs are thus somewhat parallel to the verbs with occasional impersonals; the es refers to the source of the weather or to the substance of the precipitation, and in the unmarked usage, perhaps to the rain itself. With regnen and other common verbs of this type

16. schneit, hagelt, blitzt, donnert, 'it's snowing, hailing, lightning, thundering', etc.

the reference of es is again exodeictic and metadeictic, but paradeictic as well, since our interpretation of the pronoun depends partly on the meaning of the verb.

We consider this es, like that with ambient adjectives, time expressions and occasional impersonals, to represent a constituent of deep structure. But beyond the recognition that referentiality implies pronominality and deep structure status, there is little positive proof of this. The pronominalization test for distinguishing pronouns from dummies by questioning them does not work. That is, none of the cases of referential it can undergo this test, except those which refer to a specific NP, namely the personal pronoun it. The reason is that what, like who, is a definite pronoun, and calls for a definite response. Es, though referential, is highly indefinite, and as such neither it nor its vague antecedent can serve as answer to the question What's cold? or What's raining? In fact, questions like that force the answerer to seek out a specific NP for his response, seeming to focus on a certain role, such as Source, which would fulfill the requirement of definiteness. In actual fact, the question is unlikely to be asked, except in the hope of a marked response, because part of what a competent speaker

knows about it/es/il is that there is no definite antecedent available. Seeking one, the questioner and his answerer will naturally hit on a possible NP antecedent, and will tend to choose a marked one, such as Source or Instrument rather than the substance itself.

It has been pointed out that the reference of es is in many cases rather vague and its burden of significant information extremely light. It consequently acquired at a fairly early period the implied function of signalling that the important part of the communication was to follow, and it developed new usages in which no semantic function at all is discernible. This apparently happened in the course of the 11th and 12th centuries, since except for occasional occurrences of extraposition and clefting, only examples of the deep structure pronouns are found in written German sources before 1100 (Bishop 1977). These newer uses are the syntactic uses of es, exemplified in German by extraposition of sentential arguments, clefting, dummy subjects with subjective state verbs and subjectless passives, and extraposition of complex or indefinite subject noun phrases. In contrast to the deep structure es, the semantic es, all the syntactic occurrences are motivated by syntax or discourse factors. Clefting is a highly marked transformation, casting the focus upon a certain noun, which is made head of a relative clause containing the original sentence. The resulting complex NP is then predicate noun in a copular clause with es.

17. Es waren die Kinder, die ihm das sagten, 'It was the children who told him that'; Immer werde ich es sein, die ihn halten muß, 'It'll always be me who has to hold him.'

The fact that this es also has a demonstrative function is clear, for it may in turn be pronominalized as an even more emphatic derjenige (subject to agreement with the head noun):

18. Die Kinder waren diejenigen, die ihm das sagten, 'The children were the ones who told him that'; Immer werde ich diejenige sein, die ihn halten muß, 'I'll always be the one who has to hold him.'

Extraposition moves a noun clause to the right, leaving es in its slot. In German, extraposition may occur from either subject or object position, and both types are common. Whereas with clefting the es is always present, regardless of post-cyclic permutations undergone by the clause, the es with extraposition may be reduced when an adjectival matrix predicator is fronted:

19. Klar ist nur, daß er sie liebt, 'Clear is only that he loves her.'

Note that factive clauses are not normally extraposed, either from subject or object position:

20. Daß überhaupt organisiert wird, überrascht mich sehr,

'That things get organized at all surprises me very much'; Sie ließ ihn fühlen, daß man's hier auch verstehe, 'She let him feel that people here also understood.'

We employ two syntactic tests to differentiate original es from cyclic and post-cyclic es: agreement and reducibility. In no case can it be proven that the transformationally inserted es governs number agreement on the verb. Rather, any other nominative in the sentence governs it, and where there is no other plural nominative, the verb is singular. This fact accounts for the possibility of plural verbs in cleft sentences and in sentences with extraposed subjects. Whereas we use agreement to separate deep structure es from transformational es, we use reducibility to test for post-cyclicity. Post-cyclic es is always reduced when some other element begins the sentence, or better, the structural description for its insertion requires a vacant initial slot. Because various transformations which prepose sentence parts are post-cyclic, it is necessary to assume that this es insertion follows them; otherwise a deletion transformation would be required which would be, however, unable to distinguish between reducible es and unreducible es. Thus:

21. Subjectless passives: Wird heute abend getanzt? 'Will there be dancing tonight?'; subjective state verbs: Hungert dich? 'Are you hungry?'; indefinite subjects: Kamen auch schon damals dolle Geschichten vor? 'Did crazy stories happen already even then?'

There are several motivations for a post-cyclic insertion of es, some of which are explainable in terms of the Verb Second Constraint (Haiman 1971). According to this constraint, the position of the main verb in declarative sentences in German must be the second one. Where nothing else is available to fill the first slot, an es is inserted, as in:

22. Sentences with a subjectless passive: Es wurde getanzt, 'There was dancing'; sentences with subjective state impersonal verbs: Es hungert mich, 'I'm hungry'; sentences with a complex NP as subject: Es liegt was darin, das einem Christenmenschen doch zu denken gibt, 'There's something in this which, however, gives a Christian food for thought'; Freilich, es will sie (Artischocken) keiner so recht, 'Of course, nobody really wants (to eat) them (artichokes).'

(Note that the sentences with a complex NP as subject share some characteristics of cleft sentences: they begin with es, the extraposed subject is followed by a relative clause or may merely be a "heavy NP." They differ from cleft sentences in that the main verb is not to be, and the es is reducible, which it is not in cleft sentences.) Many other occurrences of post-cyclic es are generated in response to discourse factors. For these the Verb Second Constraint is an oversimplified explanation, implying that the es is

merely a slot-filler, marking the subject position and nudging the verb back into the required second position, but devoid itself of meaning or other function. Arguments for this explanation are based on the fact that this es only occurs in first position, and when some other sentence element occupies that slot, then the es insertion is blocked. The assumption is that since it is absent except in first position, its function must be to fill that position. We think that this explanation, though tidily formal, underestimates the discourse function of the expletive es, seeing discourse function only in the displacement of the subject to the right. Such accounts ignore the fact that German has various alternatives which fulfill the Verb Second Constraint with varying presentational impact. The presence of es at the front of the sentence is a perceptual cue for a subject under focus. In German, the sentence position with the greatest news value is the last optional one, the absolutely final slots being reserved for verbal elements. In what has been called "pragmatic" syntax (Vennemann 1974), German can shift subject NPs which are new information (subject NPs are normally old information) rightward into that topical slot. When the subject is thus shifted, the expletive es may introduce the sentence, filling the subject slot, and focussing attention of the topic shift it anticipates. In structures like this, then, the discourse function of es evokes the demonstrative function of es, as in Es ist Peter, and is more important than its role in preserving the Verb Second Constraint. Because this postcyclic insertion of es occurs with new topics, rather than with all subjects which are new information, it is not possible to condition it to apply to all indefinite simple subjects. Topic shift syntax is typical of the first sentence in narratives or parts of narratives:

23. Es kamen auch schon damals dolle Geschichten vor, 'Already then crazy stories happened too',

where the thrust is scene setting, or topic shifting within a narrative or discourse, where the subject is unexpectedly new information.

This is different from the extraposition of complex NPs:

24. Es kamen auch schon damals dolle Geschichten vor, worüber wir uns stundenlang lustig machten, 'Already even then there happened crazy stories about which we joked for hours',

in that the initial position may be, and in fact more frequently is, filled by an adverbial element:

25. Auch schon damals kamen dolle Geschichten vor, worüber wir uns stundenlang lustig machten, 'Already even then crazy stories happened about which we joked for hours.'

Note that the basic sentence has available:

26. A topic shifting syntax with es: Es kamen auch schon damals dolle Geschichten vor, 'There happened crazy stories even then already'; extraposition of complex NP: Es kamen auch damals schon dolle Geschichten vor, worüber wir uns stundenlang lustig machten, 'There happened even then already crazy stories about which we joked for hours'; neutral syntax: Dolle Geschichten kamen auch schon damals vor, 'Crazy stories happened even then already.'

All three of these respect the Verb Second Constraint, operating within it to conform to varying syntax and discourse requirements.

The same discourse alternative governs all post-cyclic opportunities for es-insertion. Passives with indefinite subjects undergo the right-displacement common also to indefinite subjects of active verbs, and subjectless passives already have the structural description for the application of the es-insertion transformation to preserve the Verb Second Constraint. A subjectless passive quite without time or place adverbs is very unusual in actual texts, so that the choice of es versus adverb is virtually always available. The fact that an adverb is quite likely to be first in these types of sentences, necessitates a more complex set of rules for this syntax: first, a right-displacement of subjects which are either new information or complex NPs, and second, a discourse-sensitive rule to prepose an adverb or insert es according to discourse requirements.

We have presented an analysis of several kinds of constructions in German in which es plays a prominent role, and in all of which the es has been widely considered to be a syntactic dummy without semantic function. We conclude that the semantic es derives from deep structure, where it has semantic reference in degrees of specificity ranging from quite high to extremely low. Predicators normally selecting this referential es include the ambient verbs and adjectives, the occasional impersonals, and the time expressions. This es may not be deleted when another constituent precedes it. The syntactically-motivated es, particularly resulting from clefting and extraposition, is also non-reducible, with, however, one systematic exception under extraposition. We assume no semantic reference for these uses of es, though they are syntactically prodeictic, anticipating the clause they have displaced. The discourse motivated es is also syntactically prodeictic, semantically non-referential. Its presence is confined to first position (it cannot be inserted elsewhere) and it functions as a discourse focuser. Theoretically this post-cyclic es could be considered a syntactic dummy. In fact, since it alternates with temporal and locative adverbs as a subject slot-filler, and since the choice between them is made on discourse criteria, there is no occurrence of es which is only due to the Verb Second Constraint. Nor are there in German argumentless verbs, since the weather verbs were the only real candidates for that category. Through this paper we hope to provoke discussion of the semantics of es--we found innumerable antecedentless occurrences in both English and German--and of the role of the dummy es in discourse.

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CASE MARKING AND ISLANDHOOD IN EST: EVIDENCE FROM QUECHUA

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I. Introduction

There are certain syntactic properties associated with sentences like (1) in English.

(1) Frank believes {Charles / him/*he} to be asleep.

Sentences like (1) differ from those like (2) in a number of ways.

(2) Frank believes $_S$[that {Charles / he/*him} is asleep.]

First, the underlying complement subject of (1) (Charles) is susceptible to a variety of syntactic rules, while that of (2) is not. Some examples of this difference are given in (3)-(6).

(3) Passivization
  a. Charles is believed by Frank to be asleep.
  b. *Charles is believed by Frank that is asleep.

(4) Reciprocal Interpretation
  a. Charles and Frank believe each other to be asleep.
  b. *Charles and Frank believe that each other are asleep.

(5) Disjoint Reference
  a. Charles$_i$ believes {*him$_i$ / him$_j$} to be asleep.
  b. Charles$_i$ believes that he$_{i,j}$ is asleep.

(6) Reflexive Interpretation
  a. Charles believes himself to be asleep.
  b. *Charles believes that himself is asleep.

Second, the complement clause in (1) is non-finite (untensed), while that in (2) is finite. Third, the underlying complement subject in (1) appears in accusative case, while that in (2) is in nominative case.

Within generative syntax there have been two widely accepted explanations proposed for the differences between (1) and (2). In the Standard Theory the properties of (1) have been analysed as due to the application of Subject to Object Raising (SOR). This rule is claimed to map an underlying structure like (7) onto a derived structure roughly like (8).

(7) $_S$[NP_1 V $_S$[NP_2 VP]]

(8) $_S$[NP V NP_2 $_S$[Ø to VP]]

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The differences between (1) and (2) are claimed to be due to the fact that (1) has a derived structure like (8), while the derived structure of (2) is like (7). The rules in (3)-(6) are assumed to be clause bounded. Thus, they apply to the raised (accusative) NP, but not to the unraised (nominative) NP.

In contrast to the raising analysis, within the framework of the Extended Standard Theory (EST), it has been proposed that (1) has a structure like (7) in both underlying and derived structure. According to this approach, the differences between (1) and (2) are not due to the derived constituency of the complement subject (which is claimed to be the same in both sentences), but rather to differences in the internal structure of the complement clause. In the most recent version of EST, that proposed by Chomsky (1978) in "On Binding", the determining factor is the superficial case marking of the complement subject. More specifically, nominative NPs are, in effect, islands with respect to syntactic rules (the Nominative Island Condition [NIC]).[1] It is the islandhood of nominative NPs that explains the distribution observed in (3)-(6).[2]

The two approaches make radically different claims regarding the structure of complex sentences and the conditions on rule application. How might the approaches be distinguished? One possibility is to look at the implications of the two analyses for other aspects of English grammar. Although promising in principle, in practice it has been impossible to reach a definitive resolution to the controversy in this way. Both analyses appear to account for roughly the same range of data in English. (See Postal (1974), Bresnan (1976), Bach (1977) and Postal (1977).)

A more practical way to distinguish between the two analyses is cross-linguistic. Do other languages exhibit an array of facts similar to that found in English? If so, can one of the approaches be generalized cross-linguistically while the other cannot? If it can be shown that one approach explains similar data in a broad range of languages, while the other is linked to peculiarities of English, the approach with wide cross-linguistic application is clearly to be preferred.

In the sections which follow we examine certain aspects of complementation in Imbabura Quechua (IQ). We show that data analogous to (3)-(6) cannot be due to surface case marking. Rather, they would appear to be due to the derived constituency of the underlying complement subject. This suggests that a raising analysis is to be preferred for IQ. If raising is found to be the preferred analysis in all languages in which the facts distinguish between the two analyses, this would constitute strong evidence that SOR is the correct analysis whenever a range of facts like that seen in (1)-(6) occurs.

II. Complementation in Imbabura Quechua

IQ is spoken in Northern Ecuador and is a member of the Quechua A branch of the Quechua language family (cf. Parker 1969). As in most varieties of Quechua, complement clauses are generally

nominalized, and the complement clause is case marked in terms of its grammatical role in the matrix clause, as is illustrated in (9).

(9) Maria-ca cri-n Francisco cay-pi ca-j-ta
Maria-topic believe-3 Francisco this-in be-pres Nom-acc
'Maria believes that Francisco is here.'

In addition to sentences like (9) in which the complement subject appears in nominative case, there is an additional pattern in which the complement subject is marked accusative:

(10) Complement Subject in Accusative Case in IQ
Maria-ca Francisco-ta cri-n cay-pi
Maria-topic Francisco-acc believe-3 this-in
ca-j-ta
be-pres Nom-acc
'Maria believes Francisco to be here.'

Sentences like (9) and (10) differ in much the same way that sentences (1) and (2) differ in English. The nominative underlying subject fails to undergo a variety of syntactic rules undergone by the accusative:

(11) Disjoint Reference in IQ
a. Jose$_i$ cri-n *pay-ta$_i$ cayna
pay-ta$_j$
Jose believe-3 he-acc yesterday
shamu-shca-ta
come-past Nom-acc
'Jose$_i$ believes him$_j$ to have come yesterday.'
b. Jose$_i$ cri-n pay$_{i,j}$ cayna shamu-shca-ta
Jose$_i$ believe-3 he-nom yesterday come-past Nom-acc
'Jose believes that he$_{i,j}$ came yesterday.'

(12) -llataj Reflexivization in IQ
a. Jose$_i$ cri-n pay-lla-ta-taj$_i$ wasi-ta
Jose$_i$ believe-3 himself-acc house-acc
randi-shca-ta
buy-past Nom-acc
'Jose$_i$ believes himself$_i$ to have bought the house.'
b. *Jose$_i$ cri-n pay-lla-taj$_i$ wasi-ta randi-shca-ta
Jose$_i$ believe-3 himself-nom$_i$ house-acc buy-past Nom-acc
('Jose$_i$ believes that himself$_i$ bought the house.')

(13) Object Verb Agreement in IQ
a. Jose ñuca-ta yacha-wa-n Maria-ta juya-j-ta
Jose I-acc know-1-3 Maria-acc love-pres Nom-acc
'Jose knows me to love Maria.'
b. *Jose yacha-wa-n ñuca Maria-ta juya-j-ta
Jose know-1-3 I-nom Maria-acc love-pres Nom-acc
('Jose knows me that I love Maria.')

These "islandhood" facts would appear on first examination to be analyzable in the same way as the parallel English examples, either in terms of derived constituency (the raising analysis) or surface case (the NIC analysis). But, as will be seen shortly, this is not the case.

III. Nominative Case and Islandhood

It will be recalled that, according to NIC, it is surface case marking that determines islandhood. A noun phrase bearing nominative case is an island, while accusatives and obliques are not. We shall show in this section that it is not case marking in IQ, but, rather, subjecthood, which determines whether a noun phrase is an island. There is a class of verbs, the subjects of which receive accusative case. We shall show that despite having accusative case, these noun phrases pattern with the nominative complement subjects in (11)-(13) rather than with the accusatives.

The noun phrases in question are the subjects of two classes of verbs, -naya- desiderative experiencers, and lexical experiencers:

(14) -naya Desiderative Experiencers
Jose-ta punu-naya-n
Jose-acc sleep-desid-3
'Jose wants to sleep, Jose is sleepy.'

(15) Lexical Experiencers
Jose-ta rupa-n
Jose-acc be-hot-3
'Jose is hot.'

There are a variety of arguments that the accusative nominal Jose-ta is the subject in sentences like (14) and (15). One class of arguments is presented in Cole and Jake (1978). In addition, it can be shown that these noun phrases act like subjects with respect to the Opacity Condition (Chomsky 1978). See Cole and Hermon (1979) and Hermon (to appear) for details. We shall show now that the subjects of (14)-(15) behave like nominative noun phrases. These facts are compatible with the raising analysis, but not with an analysis in which islandhood is taken to reflect surface case marking.

IV. Disjoint Reference

As predicted by the NIC analysis, nominative complement subjects fail to undergo disjoint reference, a rule of construal that marks anaphors as obligatorily non-coreferential with a potential antecedent. In (16) disjoint reference has not applied:

(16) Disjoint Reference Does Not Apply to Nominative Subject
Jose$_i$ crin pay$_{i,j}$ micu-ju-j-ta
Jose believes he[nom] eat-prog-pres Nom-acc
'Jose$_i$ believes that he$_{i,j}$ is eating.'

In contrast, disjoint reference does apply to accusative underlying subjects in sentences like (16), as is shown in (11a) (repeated).

(11) a. Disjoint Reference in IQ
Jose$_i$ cri-n *pay-ta$_i$ / pay-ta$_j$ cayna shamu-shca-ta
Jose believe-3 he-acc^j yesterday come-past Nom-acc
'Jose$_i$ believes him$_j$ to have come yesterday.'

But NIC makes incorrect preditions with regard to accusative experiencers like those in (14) and (15). Accusative experiencers pattern with nominatives rather than with accusatives like those in (11a). This is illustrated in (17).

(17) a. Disjoint Reference Does Not apply to Desiderative Experiencer Subject
Jose$_i$ cri-n pay-ta$_{i,j}$ micu-naya-j-ta
Jose^i believe-3 he-acc^{i,j} eat-desid-pres Nom-acc
'Jose$_i$ believes that he$_{i,j}$ wants to eat.'
b. Disjoint Reference Does Not Apply to Lexical Experiencer Subject
Jose$_i$ cri-n pay-ta$_{i,j}$ rupa-j-ta
Jose^i believe-3 he-acc^{i,j} hot-pres Nom-acc
'Jose$_i$ believes that he$_{i,j}$ is hot.'

These facts constitute a straightforward counter-example to the claim that surface case marking determines islandhood. If that claim were correct, why would accusative experiencers be islands just like nominative noun phrases? But the raising analysis has no difficulty explaining these facts. Nominatives and accusative experiencers are "islands" because they remain constituents of the complement clause. In contrast, accusatives in sentences like (11a) are accessible to disjoint reference because they are matrix direct objects in derived structure.

An additional fact for which the NIC hypothesis provides no explanation, but which is an automatic consequence of the raising analysis, is the contrast between (11a) and (18).

(18) a. Disjoint Reference Applies with Desiderative Experiencer Subject Which Precedes Matrix Verb
Jose-ca$_i$ *pay-ta$_i$ / pay-ta$_j$ cri-n micu-naya-j-ta
Jose-topic he-acc^j believe-3 eat-desid-pres Nom-acc
'Jose$_i$ believes him$_j$ to want to eat.'
b. Disjoint Reference Applies with Lexical Experiencer Subject Which Precedes Matrix Verb
Jose-ca$_i$ *pay-ta$_i$ / pay-ta$_j$ cri-n rupa-j-ta
Jose-topic he-acc^j believe-3 hot-pres Nom-acc
'Jose$_i$ believes him$_j$ to be hot.'

The raising analysis must claim that the accusative experiencer in (18) has undergone raising since the underlying complement subject appears to the left of the matrix verb. Thus, it would be predicted that disjoint reference would apply, and pay-ta would be marked as obligatorily non-coreferential to the matrix subject. The NIC analysis, in contrast, would predict that disjoint reference would apply in both (11a) and (18). It provides no explanation for the contrast.

V. Validator Placement

A second rule that groups nominative complement subjects and accusative experiencers together in contrast to other underlying accusative subjects (like (10)) is validator placement. Validators indicate the evidential status of the sentence. In general, the placement of validators is free. There is, however, an important restriction on their placement which is illustrated in (19).

(19) Validator Placement in IQ

a. Juan-mi cri-n Maria Jose-ta ricu-shca-ta
Juan-valid believe-3 Maria Jose-acc see-past Nom-acc
'It is Juan who believes that Maria saw Jose.'

b. Juan cri-n-mi Maria Jose-ta ricu-shca-ta
Juan believe-3-valid Maria Jose-acc see-past Nom-acc
'Juan believes [e.g., but doesn't know] that Maria saw Jose.'

c. *Juan cri-n Maria-mi Jose-ta ricu-shca-ta
Juan believe-3 Maria-valid Jose-acc see-past Nom-acc
('It's Maria who Juan believes saw Jose.')

d. *Juan cri-n Maria Jose-ta-mi ricu-shca-ta
Juan believe-3 Maria Jose-acc-valid see-past Nom-acc
('It's Jose who Juan believes Maria saw.')

e. *Juan cri-n Maria ricu-shca-mi Jose-ta
Juan believe-3 Maria see-past Nom-valid Jose-acc
('Juan believes that Maria saw [e.g., not heard] Jose.')

As is shown in (19), the validator -mi 'first hand information' may not appear on constituents of the complement clause including nominative complement subjects. It may, however, be suffixed to accusative underlying subjects like that in (20).

(20) Accusative Underlying Complement Subjects Can Be Validated

a. Maria-ca Francisco-ta-mi yachan wasi-man
Maria-topic Francisco-acc-valid knows house-to
shamu-shca-ta
come-past Nom-acc
'It is Francisco whom Maria knows to have come home.'

(20) b. Maria yachan Francisco-ta-mi wasi-man
Maria knows Francisco-acc-valid house-to
shamu-shca-ta
come-past Nom-acc
'It is Francisco whom Maria knows to have come home.'

The facts given so far are compatible with both the raising and the NIC analyses.

But the NIC analysis provides no explanation for the fact that the accusative experiencers in (21) cannot be validated.

(21) a. -naya Desiderative Experiencer Subjects
*Maria cushi cushi paypaj wawa-ta-mi
Maria happy happy her child-acc-valid
micu-naya-chun
eat-desid-subjunc Nom
('Maria is very happy that her child [e.g., not her husband] wants to eat.')
b. Lexical Experiencer Subjects
*Maria cushi cushi Jose-ta-mi wasi-man
Maria happy happy Jose-acc-valid house-to
shamu-ngapaj muna-chun
come-subjunc Nom want-subjunc Nom
('Maria is very happy that Jose [e.g., not Francisco] wants to come home.')

This state of affairs is predictable on the basis of the raising analysis. The accusative experiencers in (21) are embedded beneath a matrix adjective (cushi 'happy') and, thus, cannot be raised into the matrix clause. This explains their islandhood. In contrast, the matrix predicate in (20) is a raising trigger (yacha- 'know'). The underlying complement subject has been raised into the matrix clause, which explains the possibility of validation.

VI. Conclusions

We have shown that in IQ the islandhood of certain complement subjects cannot be due to surface case marking, as Chomsky (1978) claimed in "On Binding,"[3] but, rather, seems to be due to derived constituent structure. As far as we know, there are no languages in which there is strong evidence favoring a surface case analysis. This suggests that the analysis proposed in Chomsky (1978) is based on a peculiarity of English, the fact that in English case marking and subjecthood show a high correlation. When such a correlation exists, it is hard to determine whether a particular syntactic phenominon (e.g., islandhood with respect to the rules in (3)-(6)) is due to nominative case or subjecthood. Our data suggest, however, that when nominative case and subjecthood are differentiated in a language, it will be found that islandhood is a property of complement subjects rather than nominative NPs.

NOTES

*This paper is part of a larger project in which we seek to determine the extent to which the major claims of relationally based cross-linguistic syntax must be incorporated into the Extended Standard Theory (EST). The purpose of this paper is to present evidence that Chomsky's (1978) proposals regarding the role of surface case in grammar appear to be based on peculiarities of English, and, thus, not to be generalizable cross-linguistically. For a fuller treatment of this question, see Cole and Hermon (1979).

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[1]The Nominative Island Condition is formulated as a condition on the binding of variables in Logical Form. The condition acts in effect as a filter at the level of Logical Form, marking as ill-formed any derivation in which there is involvement between a nominative noun phrase and an element outside the clause containing the nominative. (This does not affect wh-movement for reasons we shall not discuss here. See Chomsky (1978) for details.)

[2]It should also be noted that in the framework of EST, the rules in (3)-(6) are not assumed to be clause bounded. In Cole and Hermon (1979) we examine the possibility of modifying the "On Binding" framework so as to include a rule of SOR and a Subject Island Condition. In that analysis, rules like those in (3)-(6) need not be clause bounded.

[3]There are several additional arguments that we have omitted here for reasons of space. See Cole and Hermon (1979).

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Athapaskan Classifiers, Person, and Deference[1]

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1. When we view the verb classifier prefixes from the perspective of comparative subject (actor)[2] properties, and from the perspective of discourse structure, we see the interplay of Person and Anaphora on two levels of historical grammar. Comparative subject (actor) properties, indefiniteness and depersonalization, figure importantly in the constitution of the morphological set known in the Athapaskan literature as "classifiers." In particular, we find that depersonalization via pluralization of first person subject (actor) plays a major role in the regularization of this paradigm. Additionally, deictic elements employed in discourse coreference and deference behaviors intersect the Proto-Athapaskan person system at first person plural.

In the following sections the Athapaskan classifier system is described in terms of form of elements and (apparent) functions. Hypotheses on the historical regularization of this system are reviewed. A lengthy aside on sources, descriptive traditions, and clausal organization precedes the discussion of illustrative examples. The person system is briefly analyzed in terms of speech event and nominal category features in order to highlight the structural markedness of Ist person plural. This point within the person system is seen as linked, via a set of cognates, with deictic affixes.

2. According to Krauss, the classifiers appear in all well described Athapaskan languages as four, or reflexes of four forms: Ø, də, ɬ, and ɬə (hereinafter l, j.c.). When they appear as some overt morphophonemic form, they fall immediately in front of the verb stem. They apparently key or reflect transitivity relations (verbal diathesis); they co-occur with thematic particles, hence as constituents of broadly defined lexical classes[3]. Precise grammatical function remains elusive, yet striking parallelism in usage is reported. Ø occurs mainly in transitive, intransitive and neuter forms, while də occurs in the corresponding passive, mediopassive, reflexive, impersonal, customary and iterative forms. ɬ occurs mainly in transitive and causative forms, while -l- occurs in the corresponding passive, mediopassive, reflexive, impersonal, customary and iterative forms. Hence the proportion Ø:d::ɬ:l. (Krauss 65: 20; Li 46:410-11; Sapir-Hoijer 67:91-2; Golla 70:76-87).

The lack of an *l segment in reconstructable proto-Athapaskan phonology suggests that PA lacked the four classifiers of the contemporary languages (Krauss 69:55); instead there were probably markers for transitivity, Ø, ɬə, and an impersonalized or depersonalized subject marker də. In response to the puzzle of l formation, Athapaskanists have proposed several hypotheses. The solutions differ on the mechanisms and ultimate provenience of merger, yet overlap in agreeing either on participating elements or the general process of fusion.

One hypothesis suggests that the merging of d and ɬ creates the classifier l (Hoijer 67:55). The California Athapaskan Languages (Hupa, Kato, Mattole) provide the crucial evidence: within these languages Ist person plural subject is dɩ, which when combined with a ɬə + stem complex results in dɬl + stem. In Navajo and in Chipewyan, first person plural subject ii(D) plus an ɬ + stem complex results in iil + stem. This provides diagnostic evidence for the hypothesis of first plural d(ɩ) plus ɬ merger.

Golla (70:74-75) presents a second hypothesis, which concurs with the first in deriving the l classifier from the fusion of d and ɬ. He treats the question of provenience differently, however: positing the binary system Ø, ɬ, he views d as the reflex of də, an impersonal subject marker which at some putative point co-occured with ɬ to create l; thus giving a fourway system.

Krauss, arguing from the broader perspective of the Na-Dene phylum, present a third hypothesis. He prefers to link d, and derivatively, l, with Tlingit du, a non-focal subject form (cf. French 'on'). In this argument the d classifier is cognate with the initial consonant of du. The relationship is posited for some reconstructable level of the Na-Dene group (69:55-6); curiously, the vowel segment, u, is related to that of tu, first person plural subject (69:82, n.11).

Whether plural or non-focal is the precise origin, for our purposes we should bear in mind the intimate historical association of depersonalization and despecification of subject (actor) with the d and l classifiers. The fusion of də plus ɬ (or d-u plus ɬ) occurred quite early in Athapaskan history. It regularized and gave explicit proportionality to the system.

3. Because the status of the classifiers reduces to that of archaic residue under certain descriptive procedures, it is necessary to be clear about sources, traditions of description, and assumptions made concerning clausal structure.

First, the data presented are taken almost entirely from grammatical studies of an (earlier) structuralist sort (Hoijer 67, 45; Li 30, 46; Golla 70; Reichardt 40 and 51; Young and Morgan 43). These grammars are largely based on

field work conducted in the 1920's, 30's and 40's. Despite the recent publication dates of Hoijer (67) and Golla (70), both works rely extensively on field notes collected by Edward Sapir in the 20's and 30's.

Much of the relevant corpus consisted of mythological and ethnological texts. This acquires more significance when we consider that discussions of the verb classifiers are typically illustrated with verb complexes with anaphoric affixes. These frequently gloss as 'He Vs him'; he is Ved by him'; '(some)one Vs'; and so forth. Such forms greatly predominate over those constructions with independent nominals, in which it could be said that the noun phrase imparts new information bearing on the predicate. If, as argued below, we deal with phenomena concerning suppression or despecification of actor, we face a possible two-fold skewing of contemporary Athapaskan grammar. On the one hand, most of the data were collected 4 to 5 decades ago; and in text examples, particularly those concerning mythological events, we would expect a disproportionate number of archaic formations. On the other hand, we address ourselves to a level of grammatical organization which lies 'above' regular functioning syntax; one which pertains to coreference presuppositions rather than the pragmatics of NP structure.

Second, the studies cited above belong to a tradition which was more concerned with the hierarchical ordering of contrastively defined elements than with ever refined description of a positively characterized unit, say NP, via precise distributional analysis. From the perspective of this latter, generative, descriptive tradition, the classifiers tend to disappear as a meaningful system; e.g., in Navajo judicious arrangement of classifiers alongside verbal person markers permits description in terms of a few low level phonological rules.[4] Problems of attested contrast remain, however; and it is precisely the more general issue of paradigm versus phonological notational capacities that occupies much of Kari's (76) critique of Stanley's treatment of Navajo phonology (Stanley 69). The tension of meaningful paradigm with descriptive simplicity becomes more severe if we consider comparative evidence: striking similarities of form and function occur across the Athapaskan languages.

Third, the classifiers, viewed as a four-member binarily contrasting set, provide insight into a level of clausal organization distinct from that of fully transitive verb complexes. By full transitivity I mean a morpho-syntactic level, and concomitant description, requiring the co-occurence of independent NPs which serve as arguments for the predicate verb. Such forms are fully inflected within the verb for subject and object. Recently, some detailed work on Navajo noun phrase hierarchy has restricted the subject-object inflection to 3rd person. The verb

internal 3rd forms, yi-bi, stand as co-referential substitutes for the adjoining NPs whose surface syntactic role relations they mark. Such transitive forms inflected for anaphoric 3rd person provide a syntagmatic frame; investigation of the ordering of access of NPs to the subject position proceeds from this frame (Hale 73; Frischberg 72).

With the verb classifiers, in particular d and l, we address a differing level of clausal organization. At this level we should view PASSIVE as a label under which congregate several types of construction. This treatment differs sharply from those studies which view passive as a process entailing movement whereby an NP marked patient is promoted to some privileged syntactic position, that of subject (Hale 73; Foley and VanValin 77a).[5]

Within this grouping of types we find, e.g., simple passives, agentive passives (in Navajo; impersonals elsewhere) and medio-passives. Within this area of Athapaskan grammar, I consider PASSIVE not as movement to a (privileged) syntactic position, but as relative suppression of Actor; it relates more to semantic role organization of the clause than to questions of Noun Phrase hierarchy.[6]

(The notion of intra-clausal semantic role organization as distinct from pragmatic syntactic organization is developed by Foley and Van Valin in a series of papers (77a,b and 79). They postulate two major systems in clause-level grammar, one concerned with semantic (case) role structure of the clause, the other with referential or pragmatic properties of NPs in a clause. Their work is an attempt to elaborate a theory of functional grammar with which to characterize a wide selection of natural languages. In a language in which semantic role dominates clausal structure, a formal passive or anti-passive, if it exists, pertains to semantic organization (viz. suppressio of Actor or Undergoer), rather than pragmatic-syntactic clausal structure [e.g. structures of access to a given NP slot]).

I do not dispute the importance of, e.g., syntactic processes which move NPs assuming a patient role into subject position. I do propose another level: that of the sentence-like, and perhaps anaphorically 'bound', verbal complex; it is at this clausal level that the classifier system appears most salient, as a Pan-Athapaskan phenomena.

4. The Chipewyan and Navajo forms presented below are intended to illustrate the foregoing arguments. The reader should bear in mind an implicit '3rd' marker Ø, an anaphoric subject (actor), which requires an anaphoric object marker yi in transitive constructions. This anaphoric Ø has been left out of the interlinear gloss. Where Ø occurs in the gloss, it marks a zero classifier.

Items are grouped, and contrasted within groupings, in order to reveal 1) similar reductions of verbal complement (as Ø, ɬ go to d,l) 2) similar shifts in subject (actor) definiteness (referential specificity of affix taking the Actor role), or 3) similar modulations of Actor-Undergoer properties. Reflexives and iteratives are left untreated.

1. Reduction of verbal complement, with an implied suppression of Actor we see in nos. (1) through (7):

(1) nɛ-γɛ-t'a thm-imp-d-fool	one is fooled	Chp.
(2) yɛ-nɛ-'a 3o-thm-fool	he is fooling him	
(3) hi-l-zaih inc-l-hook	it is being hooked	
(4) na-ni-l-'in it-prf-l-hide	it is kept hidden	Nav.
(5) na-i-ni-ɬ-'in it-3o-prf-ɬ-hide	he keeps it hidden	
(6) yoo' na-t'ish beads it-d-string	the beads are being repeatedly strung	
(7) yoo' ne-i-'ish beads it-3o-string	he strings the beads repeatedly	

In (1) and (2) note the lack of a third object marker yɛ and the presence of a d classifier characterizing the passive. In (3) we see a further example; in (4) and (5) a contrasting Navajo pair. In both Chipewyan and Navajo simple passives we note the lack of object inflection on the verb and an l classifier; contrasting (5) with (4) we see both object inflection (y)i and classifier ɬ. In (6) and (7) we see such formations accompanied by a free standing NP. Again, in (6) contrast lack of object inflection (suppression of Ø, anaphoric subject (actor)) and presence of a d classifier, with the object inflection and Ø classifier found in (7).

Note the contrast between all of the foregoing and (8), (9):

(8) ɬéétsaa'í dog	mosí cat	yi-sh-xash 3o-prf-bite	the dog bit the cat	Nav.
(9) ɬéétsaa'í dog	mosí cat	bi-sh-xash 3'o-prf-bite	the cat bit the dog	

In both of these two full NPs precede the fully transitive verb complex; changes in the semantic role of the nominal arguments are keyed by an alternation of yi-bi proximate/obviative affixes; the remainder of the verb complex is unmodified. In (8) and (9) we see yi-bi alternations keying semantic role switches identical to those found in (1), (2) and (3), (4). What concerns us here, however, is not the divers ways of marking semantic role shifts, but rather how such shifts are keyed by classifier contrasts and concomitant reductions of verbal complement.

2. Shifts in Actor definiteness we see in (10) through (13):

		Chp.
(10) zi-l-zaih 3is-l-hook	someone is hooking it	
(11) ni-ɬ-saih 2s-ɬ-hook	hook it (you)!	
		Nav.
(12) shi-'-di-i-l-ghéh 1o-3is-thm-imp-l-kill	I'm being killed	
(13) shi-i-ɬ-héh 1o-imp-ɬ-kill	he's killing me	
(14) 'a-s-diz 3io-1s-Ø-spin	I'm weaving (something)	

In (10) we see a Chipewyan indefinite form. Note the l classifier as contrasted with ɬ in (11) 'you', ni, 'hook it.' The Chipewyan zi is cognate with Apachean 'a('i), an indefinite affix which occurs in the 'Agentive Passive';. It presents a more intricate pattern, as we see in (12) and (13). In the latter we note the ɬ classifier and object inflection within the normal object position; in the former, a passive, we find l, an 'a(di) indefinite subject (actor) and an abnormally placed object affix. (cf. Young-Morgan 43:50 for further attestation and discussion).[7]

We should note in (14) that when 'a indefinite takes up the undergoer role, with Actor role taken by s, 1st person singular, we find no alternation of the verb. Similarly, in Chipewyan, an indefinite object (undergoer) does not require a d,l classifier.

3. In the attested mediopassives, relative participation of Subject (as both actor and Undergoer) in the predicated action is the issue:[8]

		Chp.
(15) cé-γɛ-s-tɬ food-prf-1s-to handle a solid object	I have eaten	
		Nav.
(16) yi-ni-l-k'ah 3o-prf-l-fatten	he fattens (himself)	

(17) yi-ni-ɬ-k'ah — he fattens him
3o-prf-ɬ-fatten

In (15) we see a Chipewyan form with an incorporated noun and a d classifier. In (16) as contrasted with (17) we see a similar Navajo construction. The l classifier, mediopassive (16) contrasts with ɬ classifier and explicit object (undergoer) inflection found in transitive (17). In Hupa, the reflexives come closest to these constructions: 'to tap,pat, slap an object : to flap one's wings'; 'to stretch an Object:to stretch (oneself)'. In the Hupa forms, the ɬ classifier goes to dɬ, not Ø. (Golla 70:108)

With regard to pluralization of subject (actor) and d,l classifier co-occurence, we note (18), (19) and (20):

(18) ni·t'as (ni-i·-d-'a) — we are getting up — Chp.
thm-1pl-d-go

(19) ni-u·h-'as — you are getting up
thm-2pl-Ø-go

(20) na-nii-l-'in — we keep it hidden — Nav.
it-prf:1pl-l-hide

In the former we see -i·(d)-, 1st person plural and a d classifier; in the latter we find u·h 2nd plural and a Ø classifier. Number (20) should be compared with (4) in order to see the formal similarity of passive with pluralization; they differ on the segment -i-[9]. It is this plural, its structural isolation within the person system and its suggestive cognates, that we address in the following sections.

In the data: a clear co-occurence of implicit suppression of actor (1-2, 3-4-5, 6-7), of indefiniteness of subject (actor) (10, 12-13) and depersonalization of subject (actor) (18-19, 20) with a regular morphological paradigm, classifier; similarly, we see the more semantic category mediopassive following an identical pattern (15, 16-17). From a comparativist perspective we have three hypotheses concerning the regularization of the morphological paradigm; the orderliness of the paradigm derives from the historical association of the *də and derivatively *ɬə markers with the very subject (actor) properties with which their reflexes d, l co-occur in the contemporary languages. In this case, historical process is clearly preserved in contemporary co-occurence relations.

5. The following analysis characterizes the reported Athapaskan pronominal systems[10] in terms of features of speech event participant (Person) and nominal number categories. The arguments for analyzing the system of person separately from the system of anaphoric affixes

(which include the 3rd person) cannot be developed here. Both concise theoretical argumentation for and practical application of this decision can be found in Benveniste (46;56), Jakobson (57) and Silverstein (76a; 76b:115-125). This section is intended to illustrate the structural isolation of the Ist plural form, and, additionally, to provide a transition to the following sections on (some of the) anaphoric affixes, which, in turn, partially intersect both the person system and the system of classifiers.

When we look at the Athapaskan Person System we find obligatory contrasts between ego (speaker)/tu (addressee) and singular/non-singular. Ego and tu are distinguished. in the singular number. The distinction collapses into vous (tu-plural) in the non-singular for the paradigm of OBJECT (undergoer, postpositional object, nominal possesive, and emphatic affixes, and the free standing forms). Only in the SUBJECT paradigm do we find the distinction ego/tu maintained in the non-singular. Because the distinction within singular of dual/plural is made in the person system only when 'ontological context' requires such specificity, dual and plural are treated as plural.

The following chart presents the person system in terms of features which represent speech event and number categories. A + indicates an obligatory form for the given combination of features; a -- indicates that no such distinctive form occurs.

	SUBJECT		OBJECT	
	singular	plural	singular	plural
ego	+	+	+	--
tu	+	+	+	+

Note that only in the SUBJECT do we find ego/tu distinguished in the plural. With Ist person plural, the marked member of this paradigm, we have a differing juxtaposition of pragmatic and semantic categories from Ist person singular. 'I' is a shifter marking speaker; Ist plural, 'we', bounds speech event personae according to a different manipulation of categories. Boas commented in his classic Introduction on the functional anomaly of Ist person plural ('logical laxity' was his term): where Ist person singular indicates 'I', first plural does not indicate 'I', 'I',...; instead, it indicates either a) speaker and addressee, or b) speaker and person spoken of, or c) both a and b. This comprises considerable ambiguity of reference for those languages, like the Athapaskan, which do not make a grammatical distinct inclusive/exclusive in their person systems (Boas 1911:39-40; cf. Benveniste (46)71:203-4 for a similar perspective in Indo-European scholarship).

Within Athapaskan the extension of ego/tu into plural occurs only where this metaphoric pluralization concerns the subject (actor). And it is precisely at this point of pragmatic ambiguity that we find the d and l classifiers.

6. Two considerations are pertinent for what follows: first, the pragmatic and formal isolation (from the point of view of speech event boundaries and of regular paradigm inflection) of 1st person plural subject (actor); second, the putative origins of d,l classifiers in pluralized or indefinite subject (actor). Krauss, in his discussion of -l- classifier formation presents a set of pre-Athapaskan cognates which suggest a possible historical link at a pre-Athapaskan stage; they document the employment of deictic forms in the indefinite/depersonalized subject (actor). Within Hupa and the Apachean languages reflexes of these forms perform co-reference tasks; in the Apachean languages one reflex figures importantly in ethnographic reports on deference behaviours.

Krauss reports that k$^{w'}$ə and k^{w}ə are cognates of the Navajo (Apachean) forms a('i) and ji. k$^{w'}$ə is a general Alaskan deictic form which serves as Ist person plural subject (actor) and keys the vocalization processes that are the Na-Dene counterpart to the Athapaskan classifiers (d,l; also ultimately a vocalization process). K'ə is a general Athapaskan indefinite form (Krauss 69:67), 'a indefinite, we have seen above. ji, a deictic form, is the so-called Navajo 4th person, or Honorific.

Exactly what deictic forms are is difficult to deduce, but an examination of translations and texts shows a general anaphoric function; they index features of the speech (text?) environment, whose existence in some context their occurence both presupposes and signals. Golla reports a set of four such deictic forms in Hupa: yɩ any non-human capable of initiating the verbal action, or a female,child, or person in special role, xʷɩ place, event; č ɩ, adult male Hupa; kʸɩ- some (previously specified) thing, an understood or indefinite referent. This last, kʸɩ is the Hupa reflex of Athapaskan k'ə (Navajo 'a). č'ɩ is a puzzle: it functionally resembles Navajo ji, and shares a cognate OBJECTIVE form xo (Navajo ha), yet its usage is more specialized, in that it denotes specifically a Hupa male as opposed to woman, child, or special role.

As is so frequently the case with Athapaskan, it is for Apachean languages, and in particular Navajo, that we have the most extensive report, description and analysis of this deictic form.

The following discussion of ji-ha forms will move back and forth between generality for all Apachean languages (Navajo, Lipan, San Carlos, White Mt,

Cibecue, Chiracahua, Mescalero and Jicarilla Apache)and Navajo proper. The remarks on coreference are reported for all of Apachean (Hoijer 45:197), but details are available for Navajo only (Haile 41:17, passim; Reichardt 51:81-82).

The ji form, along with its OBJECT counterpart ha, performs essentially three functions: syntactic cross-reference; coreference; and indexation of diverse social relations usually aggregated under the labels FORMALITY or RESPECT. Akmajian and Anderson (70) have described the employment of these forms in complex cross-referencing constructions. Coreference we see in (21) and (22):

(21) ha-yaazh ba-'ałchinílígíí éí ha-nálí n-líí-łeh
4- son 3'- children those 4-gch. prf-become-adv.
'one's son's children, they become one's grandchildren'

(22) bidínáádęę́ ałdo' bi-nálí ji-líí-łeh
conversely also 3'-gmo. 4-become-adv.(usually)
'conversely, also, one get s to be their grandmother'

In (21) ha marks the possessor of son, -yaazh, and of grandchildren, -nali, while in (22) ji indicates that the subject(actor) of the verb -líí is the same referent.

It is as an index of social relations rather than a maintainer of cross-clausal discourse relations that we encounter the notion of 'distance' in the ji/ha forms. The ethnographic reports as given by Haile, Hoijer and Reichardt are remarkably consistent on this matter. The ji/ha forms, viewed as pronominals which index some referent or speech event participant, take part in a two-way contrast. On the one hand, they contrast with the unmarked forms Ø/yi-bi in that use of ji/ha in mention of some referent indexes the speakers feeling of distance, formality or respect depending on the status relations involved. On the other hand, they contrast with ni 2nd person singular in a variety of conversational interactions. According to Haile, one never inquired directly of a Navajo about his or her kinsmen, but employed ji/ha instead of direct addressive ni (Haile 41:72-3;114-7). Both Reichardt and Hoijer report that the former were employed between cross-classificatory siblings of the opposite sex, among whom a socially prescribed avoidance relation obtained, or between any two people, one or both of whom wished to index formality or respect (Hoijer 45:197; Sapir-Hoijer 67:69; Reichardt 51:81).

Thus, ji/ha functions in two modalities within the event of Deference or Respect: the one a contrast between socially unmarked and marked anaphoric forms, the other employing a pragmatic metaphor whereby the addressee is apparently moved out of the realm of address and into the depersonalized realm of anaphoric, or discourse reference (the pervasiveness of this latter pragmatic metaphor is noted by Silverstein (76a:36-8) within a broader treatment of formal and functional universals).

7. Neither the socially marked substitution of anaphoric affixes, ji/ha for Ø/yi-bi (Hupa č'i for yi), nor the substitution of anaphoric

forms for address forms are atypical in events of deference (cf. Brown and Gilman 60). What is distinctive here is that the ji form goes back to a deictic/indefinite couplet (k^{w}ə/k'ə). 'a indefinite shares a similar correspondence; and here we note the simultaneous association of 'indefinite' with deixis and the pragmatically ambiguous point within the Na-Dene person paradigm.

Indefiniteness of reference, depersonalization via pluralization, and explicit reduction of verbal complement severally suppress subject (actor); they key the d,l classifiers across the Athapaskan languages. The particles which intersect the Pre-Athapaskan first person plural reveal complex anaphoric and deferential functions; when they are viewed, not from the perspective of their status marking and coreferential functions, but from the semantic role they assume (actor), then we find the diverse, frequently hyphenated passive types reported in the literature. Such PASSIVES, with suppressed, indefinite or deleted actor, occur at a level of clausal organization distinct from that of explicit NP (NP) VP syntactic description. This level must be integrated into accounts of Athapaskan transitivity relations and lexical structure.

NOTES

1. This study relies on the comparative work of Hoijer (45) and particularly Krauss (64,65,&69). The general observations concerning classifier co-occurence relations with subject properties, and the reconstructed forms proper, are taken from Krauss (69). I have abbreviated the argument, tried to make more explicit the level of intra- and inter-clausal organization at which the classifiers have both comparative and synchronic significance, and to relate the actor/classifier argument to anaphoric process and deference behavior.

Legend

1-----Ist person singular	s-----subject(actor)
1pl---Ist person plural	o-----object
2-----2nd person singular	thm---thematic (lexical assignment)
2pl---2nd person plural	it----iterative aspectual
3-----3rd person proximate	imp---imperfective aspectual
3'----3rd person obviative	prf---perfective aspectual
4-----deictic 3rd, honorific	inc---incipient aspectual
3i----indefinite 3rd	

The notation employed for the Navajo forms is adapted to standardized orthography (cf. Young and Morgan 43:I-VI); the Chipewyan forms are kept in Li's (46) transcription.

2. This unhappy form, subject(actor), results from a compromise with the literature, where paradigms are grouped as subject/object despite the numerous semantic roles which accrue to the personal and anaphoric affixes inflectable on those paradigms. The appended (actor) serves to remind the reader that these paradigms relate to semantic features of the verbal predicate, which bear a troublesome relation to SUBJECT when it is understood as something resembling an English-like grammatical subject.

3. I do not wish to take up here the admittedly important question of typological priority, i.e., whether the classifiers pertain more to the TRANSFORMATIONAL or LEXICAL characteristics of the language in

question. In Hupa they belong to both parts of the grammar (Golla 70: 73); likewise, though less explicitly, in Navajo and other Athapaskan languages. Given the importance of Theme (lexical classes) in Athapaskan verb description, the effects of the classifiers on verbal diathesis must ultimately be integrated into the broader rubric of Theme.

4. Issues of this sort occur with all description; for example, in Sapir-Hoijer a large part of the discussion of classifiers, and the contrastive examples, occur within the section on morphophonemics. (Sapir-Hoijer 67:25-6). Unfortunately, I have not been able to consult the important but unpublished body of work on Navajo using a generative descriptive approach (Hale 70,71,72a,72b; Higgins 71; Kaufman 72; Parrish, et.al. 68).

5. Cf. Platero (74, esp. p.235) for a discussion of the difficulties encountered in formalizing on aspect of positional privilege, relativization in fully transitive clauses, without accounting for person, NP hierarchy, and verbal semantics.

6. For Navajo, Reichardt made the first and most consistent attempts to describe and analyze compound classifiers and causative constructions (Reichardt 40;51). Within Hupa compound classifiers form a regular derivational system, a part of which are the causative constructions (Golla 70:86-7). Krauss reports that Tlingit translates Athapaskan passives with indefinite subject constructions (Krauss 69:67).

7. This di particle has an indecisive status. Sapir called it a 'mixed relational.' It has both relational (transformational) and concrete-relational (lexical) functions (S-H 67:97).

8. Benveniste (50) gives a brief lucid synopsis of this category in Indo-European. He distinguishes between 1) those middle forms in which the actor is seen as inside the predicated process, formally quite close to the intransitive, and 2) those in which the actor is outside the process, agentive, yet also goal; Athapaskan mediopassives seem to be of the latter, transitive type.

9. Krauss views this -i- as a possible result of the generalization of ni 2nd singular, on analogy with the conflation of 1st and 2nd plural in the OBJECT paradigms (Krauss 67:82, n.11).

10. If Hupa, Mattole, Chipewyan and the Apachean languages comprise a representative sample.

11. This special value 'hupa male' accrues to the forms only when textual context or verbal semantics imply a human actor (Golla 70:98-103; 77:17-25, nn. 4,11).

12. These remarks apply, of course, to the works cited only, and say nothing about contemporary Navajo usage.

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Innocence: A Second Idealization for Linguistics

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1. The nature of the fit between predictions generated by a theory and the phenomena within its domain can sometimes be assessed only when different sources of explanation can be isolated through one or more idealizations. One such idealization is the simplifying assumption, for the laws of Newtonian mechanics, that the physical bodies whose movements fall within their scope are (or can be treated as) dimensionless particles, not subject to distortion or friction. The empirical laws of elasticity and friction are themselves best formulated against this background idealization.

The most frequently discussed idealization in linguistics in recent years has been that of the ideal speaker/hearer in a homogeneous speech community (Chomsky 1965, p.3f). By means of this idealization, through which we have learned a distinction between competence and performance, we are in principle able to separate out of the heterogeneous and disorderly data of speech.

(i) the systematic knowledge native speakers have about their grammars,

(ii) variation in the details of such linguistic systems from person to person, and

(iii) the effects on speech of fluctuations in speakers' attentiveness to their own texts, memory breakdowns in the course of a text's planning, any of the various kinds of speech defects, and interruptions from the surrounding world.

I am going to suggest that there is a second idealization operating in linguistics, one which underlies most traditions of semantics, and which I think it would be well to bring out into the open for careful discussion. This second idealization involves what I shall call the innocent speaker/hearer. In the way that, under the familiar idealization, the general theory of linguistic competence can be thought of as more or less equivalent to a theory of language performance on the part of an ideal speaker/hearer, we might say of certain theories of semantics that they are theories of the language-understanding abilities of the innocent speaker/hearer.

I characterize the innocent language user as fol-

lows. It knows the morphemes of its language and their meanings, it recognizes the grammatical structures and processes in which these morphemes take part, and it knows the semantic import of each of these. As a decoder, or hearer, the innocent language user calculates the meaning of each sentence from what it knows about the sentence's parts and their organization. It makes no use of past calculations: each time a structure or sentence reappears, it is calculated anew. As an encoder, or speaker, the innocent language user decides what it wishes its interlocutors to do or feel or believe and constructs a message which expresses that decision as directly as possible. There are no layers of inference between what it says and what it means.

The innocent speaker/hearer is in principle capable of saying anything sayable, given enough time. That is, its semantic system satisfies Jerrold Katz's condition of Effability and hence qualifies as a full-fledged natural language system (Katz 1972, pp.18ff). But the discourse of innocents tends to be slow, boring, and pedantic.

One early statement of our idealization is in Bloomfield's discussion of sememes and episememes. The smallest meaningful units of lexical form are morphemes, and their meanings, we learn, are sememes; the smallest meaningful units of grammatical form are tagmemes, and their meanings are episememes. Formally any utterance can be described as a collection of lexical and grammatical forms; semantically any utterance can be described as an assembly of its sememes and episememes[1] (Bloomfield 1933, pp. 166ff).

In more recent work the semantic capabilities of an innocent speaker/hearer have come to be spoken of in terms of compositionality, a term first used, I think, in Katz and Fodor's 1963 paper on the structure of a semantic theory (Katz and Fodor 1963, p.171). More recently still John Searle has equated the idea of a compositional semantics with an assumption about the determination of a sentence's "literal meaning." In his formulation of that assumption "(T)he literal meaning of a sentence is entirely determined by the meanings of its component words (or morphemes) and the syntactical rules according to which these elements are combined" (Searle 1978, p. 207).

The model of semantic competence which fits this idealization is one which contains a lexicon, a way of characterizing grammatical structures, and a set of semantic integration rules. The model is not embarrassed by ambiguity, synonymy, homonymy or vagueness. A necessary characteristic of the model is that the meaning of a sentence in a given context is a selection from a set of meanings which the sentence has out of context. Any semantic theory which treats the determination of sentence meaning in context by a meaning-constructing rather than a meaning-selecting process goes beyond the powers of the innocence model.

2. An innocent speaker/hearer can do all of the things I said it can do, but it has several important limitations:

(1) It does not know lexical idioms, that is, lexical forms whose meanings could not be determined by somebody who knew merely their morphological structure and the meanings of their constituent morphemes. Knowing JAIL and PRISON and all possible uses of the -ER suffix could not enable an innocent to figure out the difference in meaning between JAILER and PRISONER.[2]

(2) The innocent language user does not know phrasal idioms. If you were to go up to it and say, YOUR GOOSE IS COOKED!, it would feel worried if it had a pet goose, grateful if it had just brought a goose carcass home for dinner, or puzzled if it had no goose at all. But it would lack the idiomatic interpretation that the rest of us are able to give the expression.

(3) The innocent language user does not know lexical collocations that are not based on necessary meaning relations. If it knows the expression BLITHERING IDIOT at all, it has to assume that BLITHERING is a form of the verb BLITHER and that it can be used of anything that 'blithers.' Understanding only the meanings of the words, it has no reason to know that BLITHERING is limited to the context in which it modifies IDIOT.[3]

(4) It lacks the ability to judge the appropriateness of fixed expressions to specific types of situations. It has no situational associations with such expressions as THIS HURTS ME MORE THAN IT HURTS YOU or THIS IS WHERE I CAME IN, to say nothing of such semantically opaque

locutions as KNOCK ON WOOD or SPEAK OF THE DEVIL.

(5) It possesses no construal principles for metaphorical language use, nor, in fact, does it have any reason to believe that language can be used metaphorically. It is accordingly ignorant of the conventional images that provide grounding for metaphoric interpretation in its language. Suppose we induced it to try to interpret the metaphoric utterance, I'LL STAND BEHIND YOU. It has no basis for preferring the image of a person falling backwards, an image which would allow the utterance to be taken as comforting, over that of a person falling forwards, in which case the expression could be taken as threatening.[4]

(6) In general the innocent language user lacks any interpretive mechanisms for indirect communication, that is, for meaning one thing while saying another, or principles of text coherence that would allow it to 'read between the lines' in a text. If we can suppose that it enjoys being flattered, then it will indeed be flattered if we say to it, YOU HAVE A VERY LOVELY LEFT EYE.[5]

(7) The innocent one has no background of understanding for what might be called text structure. That is, it is unable to 'situate' pieces of text within slots defined for given kinds of texts. One of the clearest examples of the kind of 'situating' I have in mind is provided by a convention in Japanese letter-writing. Personal letters in Japan are expected to begin with a preamble which contains comments on the current season. The innocent, on reading at the beginning of a letter that its Japanese correspondent's garden floor is covered with leaves will not realize that this remark serves to satisfy that convention.[6]

Summarizing, the innocent speaker/hearer does not know about lexical idioms, phrasal idioms, lexical collocations, situational formulas, indirect communication, or the expected structures of texts of given types. The collections of things the innocent language user does not know gives us a catalogue of the kinds of uses of and responses to language that fall outside of the ideal of a pure compositional semantics. The innocence idealization is in fact frequently thought of as establishing the boundary between semantics proper and such neighboring concerns as pragmatics, rhetoric, logic, and language comprehension. I will be showing

below that in this purest form the idealization has proved to be incompatible with the territorial urges of some semantic theorists.

3. But first I need to introduce some new distinctions. The semantics of innocence is a compositional semantics, but I need to say more now about just what that means. I would like to begin by reviewing a distinction that is sometimes ignored, that between compositionality proper and motivation. An expression can be spoken of as motivated if the speakers of the language see it as having the form it has by virtue of some (possibly vaguely perceived) word-forming or phrase-forming principles. POET, POEM and POETRY appear to be constructed out of partly identical material in a way that reflects their semantic commonality, and such words as JAILER and PRISONER have components that speakers see as related to their meanings. On the other hand, when we say that an expression's interpretation is compositional, we mean that the expression is more than merely 'motivated'; but what is that additional element?

To be clear about they we need to make another distinction. Here, as in many areas of linguistics, I think it is important to distinguish the decoding, or hearer's point of view from the encoding, or speaker's point of view. Applying these two perspectives in the case of compositionality, we can talk about semantic transparency in the decoding case, and semantic productivity in the encoding case. An expression is semantically transparent if we can rely on compositional semantics to figure out what it means once we encounter it. A set of syntactic-semantic rules is semantically productive if by relying on them we can succeed in producing fully natural ways of saying what we mean. The distinction I am making between the two 'directions' of compositionality bears on the distinction between two senses of the English adjective IDIOMATIC. In the one case, were I to say that your speech is 'idiomatic' I would mean that it contains expressions which the innocent language user could not interpret. In the other case, in describing your speech as idiomatic, what I would mean is that it is what an accomplished native speaker would naturally say, and that means that it is not likely to be what an innocent would have chosen to say. The distinction I have just

drawn is essentially the distinction between what Adam Makkai calls idioms of decoding and idioms of encoding (Makkai 1972).

4. The problems linguists have in dealing with the innocence idealization have been in connection with fixed expressions, collocations, idioms, indirect communication, and the differences I have just been discussing regarding motivation and compositionality. Many theoretical moves that semanticists have made seem to be directed toward increasing the domain of semantics while preserving innocence. The goal is to reformulate semantic observations in such a way that the innocence idealization fits cases it didn't fit before the reformulation, thus reducing the need to look for new sources of explanation. Compositional semantics, after all, is dependable and formally easy to cope with: the more that can be brought into its scope the better off we are. Or so it is sometimes thought.

(1) One of the innocence-preserving moves that I have in mind involves the context restriction of the senses of a polysemous word. What may have looked like a lexical or phrasal idiom will turn out to fit a purely compositional semantics if we allow ourselves to say that some of the morphemes have senses that just happen to be limited to this specific context. Zellig Harris has a beautiful formulation of this principle, using BLUEBERRY as his key example. He states, "the meaning of an element in each linguistic environment is the difference between the meaning of its linguistic environment and the meaning of the whole utterance (i.e. the whole social situation). Thus the meaning of blue in blueberry might be said to be the meaning of blueberry minus the meaning of berry and of the '-- -- morpheme: blue here therefore does not mean simply a color, but the observable differentia of blueberries as against other berries." (Harris 1951, p. 347). Instead of saying that the word BLUEBERRY is a composite word which somebody in the history of the English-speaking people invented as a name for a particular genus of berries, a formulation which departs from innocence, we can now be pleased to realize that the word contains exactly the right morphemes and that these together, by completely regular rules, designate exactly this genus

of berries.

(2) The Hungarian semanticist László Antal preserves innocence in a far different way: he does so by insisting on a sharp distinction between meaning and content. To Antal, every morpheme has a unique meaning, and every expression composed of morphemes has a meaning exactly represented by that assembly of morphemes. Content, by contrast, appears only with sentences and texts, not with words, and can be described only by using knowledge of facts that are clearly outside of linguistics. Meaning and content, Antal says, "differ from each other in that the former is broken down into smaller parts, while content manifests itself as an undivided whole. This, he goes on, "is because the meaning of the sentence is made up of the meanings of the individual morphemes that occur in it." Antal would say that the meaning differences separating PETER LOST HIS WAY, PETER LOST HIS MIND, PETER LOST HIS JOB and PETER LOST HIS PATIENCE are to be found precisely and unambiguously in the meaning differences separating WAY, MIND, PATIENCE and JOB.[7] Their differences in content are not so orderly; but that, according to Antal, is not the semanticist's concern (Antal 1964, p.23).

(3) A third move for preserving innocence is that taken by Charles Hockett; it is a decision by which expressions which might appear to some people to be morphologically complex and semantically irregular turn out to be primary linguistic units and hence to offer no challenge to compositional semantics. One way of accomplishing this kind of redefinitional solution would be to extend the range of the term morpheme to include lexical and phrasal idioms. At the lexical level this would be to say that such words as REFER, PREFER, RECEDE and PRECEDE are synchronically four separate undivided morphemes whose internal structures have only etymological relevance. Hockett's choice, by contrast, was to generalize the term idiom to make it include morphemes. If an idiom is a linguistic form whose meaning is not built up out of the meanings of its constituent parts, then morphemes are idioms. Having made this terminological choice, Hockett can then claim that "any utterance consists wholly of an integral number of idioms. Any composite form which is not itself idiomatic consists of smaller forms which are." (Hockett 1958, p.173). We are left, then, with a uni-

form class of primary meaning-bearing elements, and no troublesome distinction between morphemes and idioms.

This decision appears to leave us with the problem of not being able to recognize that certain expressions are simultaneously fixed expressions and semantically motivated. One possible solution--I don't know whether this would be Hockett's solution--is to regard what I see as a descriptive problem as simply involving the distinction between a pure synchronic description of a language on the one hand and on the other hand whatever knowledge or beliefs speakers may have of the motivational basis of given linguistic forms at the time they were introduced into the language.

(4) A fourth common move to preserve innocence is one which claims a sharp distinction between knowledge about shared meanings and knowledge about the world. By distinguishing, as it is sometimes put, a dictionary and an encyclopedia, we can allow ourselves to say that the innocent speaker/hearer can know everything about the meaning of a sentence independently of knowing anything at all about what the world is like.

The relevance of such a decision to the question of innocence is that it allows a distinction between two kinds of judgments about the acceptability of sentences, the one having to do with true semantic compatibility and the other with truth or plausibility. The semantic integration principles operate by accepting well-formed semantic complexes and rejecting ill-formed ones. This task is a more cleanly determined one if the meaning vs. world distinction is maintained. The analyst is left facing a number of decisions, however, that are extremely hard to make: to borrow a favorite example of John Searle's, we might wonder what could possibly be the difference between a description of an oscilloscope and a statement of the meaning of the noun OSCILLOSCOPE.[8]

(5) A fifth move to preserve innocence is that of minimizing the appearance of polysemy in semantic description and formulating invariant meanings for all uses of a morpheme or word. Rather than describing the phrase CUT THE CARDS, in the sense of dividing and restacking a deck of playing cards, as an idiom, we could simply try to formulate the meaning of the verb CUT in such a way that it included all of the uncontested uses of the

verb plus the use we see in this expression.

A commitment to the formulation of invariant or 'core' meanings, a position associated in general with Dwight Bolinger (Bolinger 1977) and with respect to grammatical morphemes in the work of Roman Jakobson (Jakobson 1936) and William Diver (Diver 1964), puts its holders into an essentially unassailable position. My argument against it is that when you have captured the core meanings of everything, you have no basis for knowing which combinations of words have which meanings. The core-meaning linguist insists that morphemes have just the meanings that they have, and that people who see a problem in constructing composite meanings out of component meanings are confused about the difference between meaning and comprehension.

(6) One final innocence-preserving strategy is the one which posits a finite number of possible relations that can link together the elements that make up a compound word.[9] Given this decision, we can say that the noun compounds HORSE SHOES and ALLIGATOR SHOES, to use examples from Katz and Fodor (1963), are each ambiguous in many ways, and in the same ways. Each can designate shoes that are worn by the animal named, that are made out of that animal's skin, that are made in the shape of the animal, and so on. The fact that each of these has been lexicalized in English, conventionalized as a composite name with a specific assigned sense, can be taken as proper to the study of language use rather than semantics; and the fact that in detail the kinds of relationships we sense linking the parts of compounds do not appear to be neatly classifiable is merely to be taken as evidence for the abstractness of the underlying relationships (cf. Bolinger 1965, p.568).

5. The innocence idealization has served linguistics well, at least as a heuristic for making linguists aware of the various modes of signifying; and in one form or another it is a necessary core of any theory capable of coping with the reality that speakers and hearers do indeed create and comprehend novel sentences. But I feel that the desire to generalize it has backed semanticists into analytical corners that they would have done

well to stay out of. In particular, I believe that the facts which lie outside of anything the innocence model is capable of handling are so pervasive and powerful that nothing really important is gained by distorting the idealization in the way the innocence-preservers have chosen to do. I am not arguing that the idealization be abandoned; only that it should be kept pure.

There are three characteristics of the semantic systems of real speakers and hearers that seem absolutely critical in this connection.

The first of these is what might be referred to as the 'layering' of conventionality in language. With Jerry Morgan we can say that while we need to recognize from the start the conventional or arbitrary nature of the relations between elementary signs and their meanings, we must also recognize conventional pairings of contexts with meanings-to-convey-in-those-contexts, as well as conventional pairings between contexts and particular expressions by which conventionalized meanings get conveyed in those contexts (Morgan 1978).

A second characteristic is the inescapable participation of context and background in constructing the meanings of utterances in actual use. Pamela Downing (Downing 1977), Herbert and Eve Clark (Clark and Clark 1978) and Geoffrey Nunberg (Nunberg 1977) have all given us an awareness of classes of expressions-in-use which have the following properties: they are not semantically transparent, they do not have conventionally assigned meanings, and they cannot be seen as instances of metaphoring acts of the usual kind; they are expressions for whose interpretation we require a detailed understanding of the participants' shared engagement in an experiential context. Once the operation of context is made clear in these obvious cases, it becomes possible for us to ask what role it plays in cases that used to appear to satisfy the idealization. I suspect that we will sometimes be surprised.

A third important characteristic of real language use is found in what I shall call structural formulas. A language's free phrases are limited only by the grammar and what people choose to say; fixed expressions have most of their lexical and grammatical, and maybe even their prosodic, properties fixed by convention. For the structural formulas that I have in mind, the grammatical form and possibly one or two lexical items

are fixed, but the class of substitutions is open but constrained by semantic and pragmatic considerations. As an example, consider expressions of the form 'Someone plays Something to Someone's Something', as in SHE PLAYED DESDEMONA TO MY OTHELLO, which I could use in reporting shared theatrical experiences she and I have had. As a second example, consider 'X in and X out' where X can be a word designating a cyclic calendric term, as in DAY IN AND DAY OUT, YEAR IN AND YEAR OUT, etc. (cf. Kiparsky 1976). Or consider the colloquial formula 'WATCH Something Happen', a very flexible construction beginning with 'imperative' WATCH and followed by an infinitive clause indicating a surprise which fate might have in store. (Examples: I've been insisting that you're too young to carry such a big tray of fruit, and I take it away from you. Then I say, NOW WATCH ME DROP IT. We've been planning on a picnic for many days, and have just invested a lot of money in getting the supplies for it; I say, NOW WATCH IT RAIN.)[10]

I expect that there are lots of structural formulas like this, each with its own private semantic interpretation rules. If the number and frequency of such constructions is very great, there might some day be semanticists who feel that the standard form of compositional semantics can be undermined altogether, by having its principles absorbed into the list of pairings of such formulas and specific semantic interpretation rules. It is conceivable that the central principle of truth-conditional semantics could be introduced, in such a system, as an interpretation rule for a structural formula called 'indicative sentence.'

The argument that this last proposal is not altogether absurd must be saved for another occasion. For now let me just hope to have convinced you of the importance of distinguishing real innocence from pretended innocence.

Footnotes

1. Bloomfield insists, I should point out, that any effort to characterize the sememes and episememes substantively belongs outside of linguistics proper. He seems to be saying that <u>if</u> we knew what these things were, we would know, as linguists, what to do with them.

2. My phrase "the -ER suffix" represents an implicit synchronic judgment about the structure of these words. The etymologically sophisticated will find the JAILER/PRISONER examples unfair. The claim, however, is simply that ordinary speakers will see these words as made up of stem plus -ER.

3. There is a problem, of course, in deciding what it is to "know the meaning of" a word that has such tight collocational requirements, especially since the expression is almost never used in what might be called its "literal" meaning. Until just a few days ago, I myself believed that BLITHERING meant 'drooling.'

4. This example is borrowed from George Lakoff.

5. It does not know Oswald Ducrot's 'loi d'exhaustivité' (Ducrot 1972, p. 170) or Paul Grice's 'Quantity maxim' (Grice 1975, pp. 45ff).

6. Nor is the innocent in a position to appreciate the following facts: (i) that urgent letters in which the seasonal remarks are left out usually begin with an apology, one version of which is the word ZENRYAKU, an abbreviation of a larger expression which means 'apology for omitting the preamble'; and (ii) that the Kenkyusha Japanese-English dictionary defines ZENRYAKU as "I hasten to inform you that . . ."

7. Antal's examples include only PATIENCE and JOB, not the other two. It is clear from the context, however, that he would accept the statement I made about the four sentences.

8. There is no doubt that for a great many cases such a distinction is necessary, but there is clearly a problem of knowing where to draw the line. For a typical statement, see Leech (1974, pp. 87ff).

9. For a treatment exemplifying this approach as applied to the special class of "complex nominals," see Levi (1978).

10. These expressions cannot be thought of merely as uses of imperative sentences with the normal embedding verb WATCH, since some of these expressions contain

clausal elements that could not normally serve as complements of WATCH. I once heard an adolescent girl, who had been fretting at some length about how unimpressive her blind date was probably going to be, say NOW WATCH HIM BE REAL HANDSOME.

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MULTIPLE DEPENDENCY IN BLACKFOOT[1]

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1. Introduction

This is a brief study of Blackfoot sentences in which a single nominal bears relations to both an upstairs (matrix) and downstairs (embedded) clause. In particular, I wish to focus attention on the linear positions possible for such nominals, for they indicate the need for revision of a "law" of Arc Pair Grammar (APG) (Johnson and Postal, to appear).[2]

2. Dual-dependencies

There are two classes of sentences involving a nominal with both upstairs and downstairs dependencies: 1. those in which the nominal bears initial relations to both clauses; and 2. those in which the nominal bears an initial relation to only the downstairs clause. The latter group, of course, involve so-called ascensions.

2.1 Initial dual dependencies

Examples (1) - (4) are representative of sentences in which a single nominal bears initial and final relations in both clauses.[3]

(1) Iikstaa-yi noko's-iksi m-aahks-oyi-hsi iinai.
want(intrans)-3pl my:kid-pl 3-might-eat-sub banana(s)
'My kids want to eat banana(s).'

(2) Noko'siksi iikstaa-yi m-aahksoyihs-aawa iinai.
-3pl 3- -PRO(3pl)

(3) Noko'siksi, iikstaa-y-aawa m-aahksoyihs-aawa iinai.
-3pl-PRO(3pl) 3- -PRO(3pl)

(4) Iikstaa-yi m-aahksoyihsi noko'siksi iinai.
-3pl 3-

These examples are paraphrases, and noko'siksi 'my kids' is the initial subject (SU) of both clauses in each of (1) - (4). (Except for the first example in sets of paraphrases I will segment and gloss only agreement affixes and enclitic pronouns.) The same nominal is also final SU of both clauses in (1) and (4), accounting for the fact that both verbs are inflected to agree with this nominal. In (2) noko'siksi is final SU of the upstairs verb, but the final SU of the downstairs verb is the enclitic pronoun -aawa (Fox and Frantz 1979). The downstairs verb agrees with noko'siksi as replacee (controller) of the final SU. Both verbs of (3) have pronouns as final SU; these are replacers of noko'siksi, necessitated by the fact that this nominal bears an 'overlay' relation of focus (generally new topic). So noko'siksi is a constituent of the upstairs clause in (2), of the downstairs clause in (4), and of neither clause in (3).

It is not immediately obvious whether noko'siksi in (1) is a constituent of the upstairs clause or of the downstairs clause. I am inclined to say that this is a moot question and will not pursue it further here except to say that if constituency is determined by surface graph relations as Johnson and Postal assume, perhaps noko'siksi is surface-graph SU of both clauses. I hasten to add that this would be contrary to assumptions (manifest in the 'Internal Survivor Law') of Johnson and Postal (to appear).

Example (4) is of interest in that noko'siksi is clearly a constituent of the downstairs clause. To account for this in APG we must assume that in the surface graph noko'siksi bears no relation to the upstairs verb, i.e. that the upstairs relation has been 'erased' by the downstairs relation. And while such a situation is rare, it is legal in APG.[4]

2.2 Non-initial dual dependencies

Blackfoot exhibits a number of ascensions, but for purposes of this paper ascension from complements of iikst- 'want' will suffice. And though other than SU's may ascend from these, I will limit discussion to cases of SU ascension.[5] Consider example (5) and paraphrases (6) - (9):

(5) Nits-iikstaa m-aahks-oyi-hsi noko's-iksi iinai.
I-want(intrans) 3-might-eat-sub my:kid-pl banana(s)
'I want my kids to eat banana(s).'

(6) Nits-iikstat-a-yi noko'siks m-aahksoyihsi iinai.
I-want(trans)-direct-3pl 3-

(7) Noko'siksi nits-iikstata-yi m-aahksoyihs-aawa iinai.
I- -3pl 3- -PRO(3pl)

(8) Noko'siksi, nits-iikstata-y-aawa m-aahksoyihs-aawa iinai.
I- -3pl-PRO(3pl) 3- -PRO(3pl)

(9) Nits-iikstata-yi m-aahksoyihsi noko'siksi iinai.

Example (5) differs from paraphrases (6) - (9) in that it involves no dual dependencies. The upstairs verb is inflectionally intransitive, for the verb 'want' has no final direct object (DO). The upstairs verb of (6) - (9), however, is transitive as a result of "ascension" of the downstairs SU; i.e., the nominal which is the final downstairs SU also bears the relation of DO to the upstairs verb. Comparing (6) - (9) to (1) - (4), respectively, we find the same pattern of possible linear positioning for noko'siksi and the same distribution of enclitic pronouns. So noko'siksi is a constituent of the matrix clause in (7), of the downstairs clause in (9), of neither clause in (8), and of ambivalent constituency in (6).

3. Violation of the "Successor Erase Law"

Within the APG framework, noko'siksi as ascendee in the net-

works for (6) - (9) is a successor of noko'siksi as downstairs SU. The 'Successor Erase Law' of Johnson and Postal (to appear) guarantees that if the 'predecessor' (in this case the downstairs SU relation) is not erased by a 'replacer' in that relation (as it is by pronoun -aawa as downstairs SU in (7) and (8)), then the successor itself must erase the predecessor. But this would guarantee that noko'siksi could bear no relation to the downstairs clause in the surface-graph, and hence could not be a constituent of the downstairs clause, contrary to what we see in (9).

4. Summary

Blackfoot treats dual dependencies involving ascensions exactly the same as dual dependencies involving exclusively initial relations, including possible linear positioning of an ascendee according to its downstairs grammatical relation. Current laws of APG predict that these should differ, at least with regard to surface status of the downstairs relation in the ascension cases.

Given current assumptions of APG that surface graphs cannot involve multiple dependencies ('overlapping structural arcs'), the minimum revision that the Blackfoot data require in the Successor Erase Law is to make it applicable only to successor-predecessor pairs in a simplex clause, i.e. to erasure of 'local' predecessors. The Internal Survivor Law then will suffice to guarantee that there are no overlapping structural arcs in cases of ascension, just as it does in the cases of initial dual dependency.

NOTES

1 I am grateful to Paul Postal for comments on my abstract of this paper, particularly for those which led me to correct my use of the term 'final.'

2 I apologize for the mixture of terminology in what follows. I have tried to make the paper somewhat understandable to persons who are unfamiliar with APG, yet make use of APG concepts where necessary to assure that my claims actually have an interpretation within Johnson and Postal's well-defined system.

3 See Frantz 1971 for details of morphology. Some of the allomorphy seen in the examples of this paper is due to the following rule: i → ∅/s_V and y_+V. Abbreviations in glosses: 1,2,3= first, second, and third person; intrans=intransitive; pl=plural; PRO=pronoun; sg=singular; sub=subordinate marker (marks verbs of the "conjunct order"); trans=transitive.

4 Rich Rhodes (unpubl. note) has presented the most convincing evidence for what has been called 'up-Equi' in a transformational framework.

5 As Frantz 1974 shows, any dependent of the downstairs predicate may ascend in Blackfoot.

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OUT OF CONTROL IN ILOKANO

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1. Control in Ilokano. *

This paper deals with the syntactic expression of lack of control in Ilokano, an Austronesian language of the Philippines. The sentences below differ from each other in an interesting respect. The a and b sentences have the implication that the agent performed the action in an intentional or deliberate manner. The c sentences, on the other hand, imply that the agent performed the action unintentionally, accidentally, non-volitionally, or coincidentally. The verbs in the c sentences are prefixed with ma- , a marker of uncontrolled action in Ilokano. (cf § 3)

This dichotomy of semantic implication will be referred to here with the notion of control. That is, the agents in the a and b sentences are performing controlled actions, while the agents in c are acting in situations which are out of their control.

1. a. Nag - panúnot ni Eva iti aramíden na.[1]
pst act - think Det O-Det doing 3G
'Eva concentrated on what to do.'

b. P - in - Ø - anúnot ni Eva ti aramíden na.
pst - pas - think Det Det doing 3G
'What to do was concentrated on by Eva.'

c. Na - Ø - panúnot ni Eva ti aramíden na.
pst-unc - pas - think Det Det doing 3G
'Eva flashed on what to do.' / 'What to do came to Eva.'

2. a. Nag - tippóg ni Irwin ka-dagiti botélya.
pst act - knock over Det O- Det bottle
'Irwin knocked over the bottles.' [on purpose]

b. T - in - Ø - ippóg ni Irwin dagiti botélya.
pst- pas- knock over Det Det bottle
'The bottles were knocked over by Irwin.' [on purpose]

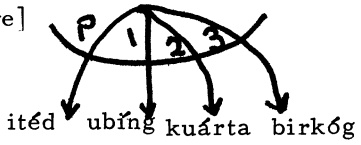
c. Na - Ø - tippóg ni Irwin dagiti botélya.
pst -unc - pas -knock over Det Det bottle
'The bottles were knocked over by Irwin.' [accidentally]

3. a. Nag - iték ti ubíng iti kuárta ka-dagiti birkóg.
pst act - give Det child O-Det money O-Det thief
'The child [deliberatedly] gave the money to the thieves.'

b. In - ted - án ti ubíng iti kuárta dagiti birkóg.
pst - give - adv Det child O-Det money Det thief
'The thieves were given the money by the child. '[deliberate]
c. Na - ited - án ti ubíng iti kuárta dagiti birkóg.
pst-unc-give -adv Det child O-Det money Det thief
'The child [unintentionally] gave the money to the thieves. '/
'The thieves were given the money by the child. '[unintentional]

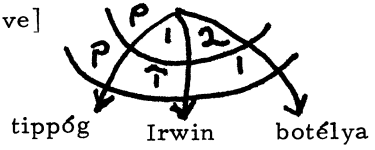
Arguing within the theory of relational grammar,[2] I present the following analysis of the above sentences:
The a sentences, which will be referred to as ag- sentences, are active and can be represented in a monostratal relational network, such as the network for sentence 3a in 4:

4. ag- sentences [active]



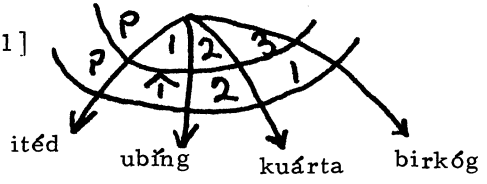
The b and c sentences in 1 and 2, referred to here as Ø - sentences, are passive and can be represented in a bistratal relational network, such as the network for 2b in 5:

5. Ø - sentences [passive]



Passive sentences are characterized by an advancement of the direct object to subject placing the initial subject en chômage. The b and c sentences in 3, referred to as -an sentences, are clauses with indirect object advancement. Sentence 3b can be represented by a bistratal network as in 6, where the initial indirect object has advanced to subject, placing the initial subject en chômage.

6. -an sentences [3 →1]



I will be referring to passive and indirect object advancement collectively as advancements.[3]

It is significant to note in the data above that, while clauses with controlled actions (the a and b sentences above) can be either active or advancement clauses, initially transitive clauses with uncontrolled actions (the c sentences above) cannot occur as active clauses.

7.

	controlled	uncontrolled (ma-)
active	a sentences	*
advancement	b sentences	c sentences

Thus, initially transitive clauses expressing uncontrolled actions in Ilokano have two features in common. First, their verbs are prefixed with ma- , a marker of uncontrolled action. Second, their initial subjects have been placed en chômage by the advancement of another NP to subject. [4]

2. Arguments for an advancement analysis .

In this section, I argue for an advancement analysis of the b and c sentences in section 1 on the basis of pronominal case, relative clause formation, and cleft constructions. Bell (to appear) has given analogous arguments in greater detail for an advancement analysis in Cebuano. She argues convincingly that an analysis within a theory of language which formulates rules in terms of grammatical relations captures significant generalizations, contrary to an assertion in the literature that a relation such as subject is not a viable construct in Philippine languages. [5]

To contrast a non-advancement analysis with an advancement analysis in Ilokano, I will formulate rules for the above phenomena in both analyses. In describing the data, I will use the following terminology: agent denotes the nominal which performs the action; patient denotes the nominal on which the action is performed; recipient denotes the nominal which receives the patient from the agent. [6] In formulating rules, I will refer to the term relations posited for relational grammar: subject, object , and indirect object.

In a non-advancement analysis, only a single level of structure is posited for the ag- , Ø , and -an sentences, as in 8.

8. Non-advancement analysis.



The nominals in 8 bear the same grammatical relations at both initial and final level. [The agent is both the initial and final subject. Likewise, the patient and recipient are object and indirect object respectively at both the initial and final level.] Therefore, rules in a non-advancement analysis will be written without regard to level.

In contrast, rules in an advancement analysis need to distinguish initial from final grammatical relations. In ag- sentences (cf 4), there are no advancements and the initial terms are the final terms. However, in Ø - sentences (cf 5), the initial object (the patient) is the final subject and the initial subject (the agent) is a final subject chômeur in a passive construction. In -an sentences (cf 6), the initial indirect object (the recipient) is the final subject and the initial subject is en chômage due to indirect object advancement.

2.1 Pronominal case.

The first argument for an advancement analysis is based on the formulation of rules for case assignment for pronouns in Ilokano. There are three sets of non-emphatic pronouns in Ilokano; a partial list is given here.

9.

	Nominative	Genitive	Oblique
1s	ak	ko	kanyák
2s	ka	mo	kenká
3s	Ø	na	kenkuána

If the third person nominal agents in the sentences above were replaced by 1st person pronominals as in 10 and 11, a consistent difference appears: the ag- sentences have nominative pronouns; the Ø - sentences and the -an sentences have genitive pronouns.

10. a. Nag - panúnot ak iti aramíde - k.
pst act- think 1N O-Det doing 1G
'I concentrated on what to do.'

b. P - in - Ø - anúnot ko ti aramíde - k.
pst - pas - think 1G Det doing 1G
'What to do was concentrated on by me.'

c. Na - Ø - panúnot ko ti aramíde - k.
pst-unc -pas- think 1G Det doing 1G
'I flashed on what to do.'

11. a. Nag - itéd ak iti kuárta ka-dagiti birkóg.
pst act-give 1N O-Det money O- Det thief
'I [deliberately] gave the money to the thieves.'

b. In - ted - án ko iti kuárta dagiti birkóg.
pst - give - adv 1G O-Det money Det thief
'The thieves were given the money by me.' [deliberate]

c. Na - ited - án ko iti kuárta dagiti birkóg.
pst-unc- give - adv 1G O-Det money Det thief
'The thieves were given the money by me.' [unintentional]

Furthermore, a 1st person patient in a Ø - sentence is expressed by a nominative pronoun:

12. T - in - Ø - uáng n - ak ni John.
pst pas push 3G 1N Det
'I was pushed by John.' [deliberate]

Similarly, a 1st person recipient in -an sentences is expressed by a nominative pronoun:

13. In - ted - án n - ak ti ubíng iti kuárta.
pst - give - adv 3G 1N Det child O-Det money
'I was given the money by the child.' [intentional]

To account for the pronominal morphology in 10-13, a non-advancement analysis would have to posit the following rules:

14. a. Pronominal subjects in ag- sentences, objects in Ø - sentences, and indirect objects in -an sentences are nominative.
b. Pronominal subjects in Ø - sentences and -an sentences are genitive.

In an advancement analysis, a much simpler rule for pronominal case can be given:

15. a. Final subjects are nominative.
b. Final subject chômeurs are genitive.

Thus, the data on pronominal morphology provices evidence for an analysis with passive and indirect object advancement.

2.2 Relative clause formation.

A second argument for an advancement analysis comes from relative clause formation. In an ag- sentence, such as 16a, the agent ('the child') can relativize, as in 16b. However, the patient ('the money') and the recipient ('the thieves') cannot relativize, as is seen in 16c and d.

16. a. (= 3a) Nag - itéd ti ubíng iti kuárta ka-dagiti birkóg.
pst act- give Det child O-Det money O-Det thief
'The child gave the money to the thieves.'

b. ti ubĭng nga nag-itéd iti kuárta ka-dagiti birkóg
child lnk give money thief
'the child who gave the money to the thieves'

c. *iti kuárta nga nag-itéd ti ubĭng ka-dagiti birkóg
money lnk give child thief
*'the money that the child gave to the thieves' [7]

d. (*ka)dagiti birkóg nga nag - itéd ti ubĭng iti kuárta
thief lnk give child money
*'the thieves who the child gave the money to'
'the thieves who gave the child money '

In 16d, 'the thieves' can only be interpreted as agent.

In Ø - sentences, the facts are different. In 17b, it is the patient noun ('the money') that can relativize. As is seen in 17c and d, the agent and recipient nouns cannot relativize.

17. a. In - Ø - téd ti ubĭng ti kuárta ka-dagiti birkóg.
pst-pas - give Det child Det money O- Det thief
'The money was given to the thieves by the child.'

b. ti kuárta nga in-téd ti ubĭng ka-dagiti birkóg
money lnk give child thief
'the money that was given to the thieves by the child'

c. !! ti ubĭng nga in-téd ti kuárta ka-dagiti birkóg
child lnk give money thief
!!'the child who was given to the thieves by the money'
* 'the child who gave the money to the thieves'
*'the child who the money was given to the thieves by'

d. !! (ka)dagiti birkóg nga in-téd ti ubĭng ti kuárta
thief lnk give child money
!!'the thieves who were given to the money by the child'
* 'the thieves who the moneywas given to by the child'

In 17c, 'the child' can only be interpreted as patient.

Likewise, in Ø - sentences with the prefix ma- , only the patient noun can relativize, as in 18.

18. a. Na - Ø - itéd ti ubĭng ti kuárta ka-dagiti birkóg.
pst-unc-pas - give Det child Det money O-Det thief
'The money was given to the thieves by the child.'[unintentional]

b. ti kuárta nga na-itéd ti ubĭng ka-dagiti birkóg
money lnk give child thief
'the money that was given to the thieves by the child'

c. *ti ubĭng nga na-itéd ti kuárta ka-dagiti birkóg

d. *(ka)dagiti birkóg nga na-itéd ti ubĭng ti kuárta

On the other hand, in -an sentences, only the recipient can relativize, as is seen in 19.

19. a. (=3b) In - ted- án ti ubíng iti kuárta dagiti birkóg
pst - give-adv Det child O-Det money Det thief
'the thieves were given the money by the child.'
b. dagiti birkóg nga intedán ti ubíng iti kuárta
thief lnk give child money
'the thieves who were given the money by the child'
c. ti ubíng nga intedán iti kuárta dagiti birkóg
child lnk give money thief
'the child who was given the money by the thieves'
*'the child who the thieves were given the money by'
d. *iti kuárta nga intedán ti ubíng dagiti birkóg
money lnk give child thief
*'the money that was given the thieves by the child'

Likewise, only the recipient can relativize in -an sentences prefixed with ma-:

20. a. (=3c) Na- ited - án ti ubíng iti kuárta dagiti birkóg.
pst-unc -give - adv Det child O-Det money Det thief
'The thieves were given the money by the child.' [unintentional]
b. dagiti birkóg nga naitedán ti ubíng iti kuárta
'the thieves who were given the money by the child'
c. *ti ubíng nga naitedán iti kuárta dagiti birkóg
d. *iti kuárta nga naitedán ti ubíng dagiti birkóg

A non-advancement analysis would find it necessary to posit the following rule to account for the relativization data:

21. a. In ag- sentences, only subjects relativize.
b. In Ø - sentences, only objects relativize.
c. In -an sentences, only indirect objects relativize.

An advancement analysis, however, can capture the relevant generalization by means of a single rule:

22. Only final subjects relativize.

Furthermore, as Bell (to appear) has pointed out for Cebuano, a rule such as 22 is compatible with the predictions made by Keenan and Comrie (1977) concerning the accessibility of nominals to relativization. Specifically, the Accessibility Hierarchy would predict that if only one nominal of a clause can relativize, that nominal must be the subject. While that prediction would be borne out in an analysis with advancement and rule 22, a statement like that found in 21 would violate this claim.

2.3 Cleft Constructions .

Data involving cleft constructions give a third argument for an advancement analysis in Ilokano. Cleft constructions, which contrast or emphasizd an NP, are formed by placing a nominal before the verb and following it with the determiner ti , as in 23, the clefted form of 3a.

23. Ti ubíng ti nag - itéd iti kuárta ka-dagiti birkóg.
Det child Det pst act-give O-Det money O- Det thief
'The child was the one who gave the money to the thieves.'

As we see in 23, agents can be clefted in ag- sentences. However, patients and recipients cannot be.

24. a. *Iti kuárta ti nag - itéd ti ubíng ka- dagiti birkóg.
Det money Det pst act-give Det child O- Det thief
'the money was what the child gave to the thieves.'

b. *ka-dagiti birkóg ti nag - itéd ti ubíng iti kuárta.
O- Det thief Det pst act-give Det child O-Det money
'The thieves were the ones whom the child gave the money to.'

In Ø - sentences, patients can be clefted while agents and recipients cannot be:

25. a. (cf 17a) Ti kuárta ti in - Ø - téd ti ubíng ka-dagiti birkóg.
Det money Det pst-pas-give Det child O-Det thief
'The money was what was given to the child by the thieves.'

b. !! Ti ubíng ti in- Ø - téd ti kuárta ka-dagiti birkóg.
Det child Det pst-pas-giveDet money O-Det thief
!! 'The child was the one that was given to the thieves by the money.'
*'The child was the one that the money was given to the thieves by.'

c. *Ka-dagiti birkóg ti in- Ø - téd ti ubíng ti kuárta.
O- Det thief Det pst-pas-give Det child Det money
*'The thieves were the ones that the money was given to by the child.'

The same generalization holds for Ø - sentences prefixed with ma- :

26. a. (cf 18a) Ti kuárta ti na- Ø - itéd ti ubíng ka-dagiti birkóg.
Det money Det pst-unc-pas-give Det child O-Det thief
'The money was what was given to the thieves by the child.' [unintentional]

b. !! Ti ubíng ti na - Ø - ited ti kuárta ka-dagiti birkóg.
Det child Det pst-unc-pas-give Det money O-Det thief
!! 'The child was the one that was given to the thieves by the money.' [unintentional]
*'The child was the one that the money was given to the theives by.' [unintentional]

c. *Ka-dagiti birkóg ti na - Ø - ited ti ubíng ti kuárta.
O- Det thief Det pst-unc-pas-give Det child Det money
*'The thieves were the ones who were given the money by the child.' [unintentional]

In contrast, only the recipient can be clefted in -an sentences and in -an sentences with ma- .

27. a. (cf 19a) Dagiti birkóg ti in- ted - án ti ubíng iti kuárta.
Det thief Det pst-give-adv Det child O-Det money
'The thieves were the ones who were given the money by the child.'

b. *Ti ubíng ti in-ted-án iti kuárta dagiti birkóg.
Det child Det pst-give-adv O-Det money Det thief
*'The child was the one who the thieves were given the money to by.'

c. * Iti kuárta ti in - ted - án ti ubíng dagiti birkóg.
O-Det money Det pst-give-adv Det child Det thief
*'The money was what the thieves were given by the child.'

28. a. (cf 20a) Dagiti birkóg ti na - ited - án ti ubíng iti kuárta.
Det thief Det give- adv Det child O-Det money
'The thieves were the ones who were given the money by the child.' [unintentional]

b. *Ti ubíng ti na - ited -án iti kuárta dagiti birkóg.
Det child Det pst-unc- give-adv O-Det money Det thief
*'The child was the one who the thieves were given the money to by.' [unintentional]

c. * Iti kuárta ti na - ited - án ti ubíng dagiti birkóg.
O-Det money Det pst-unc -give-adv Det child Det thief
*'The money was what the thieves were given by the child.' [unintentional

To account for this data, a non-advancement analysis would posit the following rules:

29. a. Only subjects can be clefted in ag- sentences.
b. Only objects can be clefted in Ø - sentences.
c. Only indirect objects can be clefted in -an sentences.

However, an advancement analysis can state the following generalization:

30. Only final subjects can be clefted.

The data on cleft constructions, then, provides evidence for an advancement analysis.

3. ma- as an out-of-control marker.

In the previous section, I have argued on the basis of pronominal case, relative clause formation, and cleft constructions that the b and c sentences in section 1 are best handled by an advancement analysis. As noted in section 1, the b and c sentences differ from each other in an interesting respect: 1-3c are prefixed with ma- and have the implication that the action was performed without control; 1-3b lack this prefix and have control implications. This difference leads to the supposition that ma- is a morphological marking for uncontrolled actions.

The sentences with verbs prefixed with ma- given above have all been examples of initially transitive clauses. In addition, ma- may be prefixed to verbs in initially intransitive clauses. Certain intransitive verbs whose subjects lack control over their actions are prefixed with ma- , as in 31.

31. a.	Ma-tennág ti danúm.	'The water falls'
b.	Na-regré g ni John iti kayó.	'John fell from the tree.'
c.	Na-turóg ak.	'I fell asleep.'

In Ilokano, there are relatively few intransitive verbs of this type, and most of these verbs allow other affixes which contrast in meaning to ma- , as in 32.[8]

32. a.	ag-tennág	'fall [intentionally]' [like a stunt man]
b.	ag-regrég	'drop'
c.	Nag-turóg ak.	'I went to sleep.'

A major class of intransitives which prefix ma- are the stative verbs, as in 33.

33. a.	Na-sakít ak.	'I was sick.'
b.	Na-ládao ak.	'I was late.'
c.	Na-bannóg ak.	'I am tired.'

Subjects of stative verbs, I claim, are also characterized by lack of control over the state they are in.

The unifying characteristic of all the examples of clauses with ma- is that the subjects of those clauses lack control over their actions. On this basis, I propose that ma- is a morphological

marking for actions which are out of control. [9]

4. Conclusion.

In Ilokano, there is a means for indicating that the initial subject of a clause is performing an action that is out of control. Ma- , a morphological marker for uncontrolled actions, is prefixed to the verbs of such clauses. Thus, there is a morphological categorization of clauses into those with uncontrolled actions, with verbs prefixed with ma- , and those with controlled actions, lacking a ma- prefix.

A second phenomenon, which I suggest is unrelated, is the advancement of another NP to subject in initially transitive clauses where the initial subject lacks control. I propose that this reflects a constraint in Ilokano stating that transitive agents which lack control can never surface as final subject.

Thus, two features, the prefix ma- and the advancement of another NP to subject, characterize initially transitive clauses whose initial subjects are out of control in Ilokano.

Footnotes.

*I would like to thank Mrs. Eva Aguinaldo of National City, California, a native of Pasuquin in Ilocos Norte, The Philippines, for serving as my consultant.

I also thank Sandra Chung and David Perlmutter for making many helpful comments on this paper and Laurence Reid for introducing me to the study of Philippine languages.

The responsibility for errors in the data and the analysis is my own.

The following abbreviations are used in this paper:

pst	completed action	Det	Determiner
act	active marker	N	Nominative
pas	passive marker	G	Genitive
adv	advancement marker	O	Oblique
unc	uncontrolled action marker		

1. The data become more transparent if you keep the following phonological processes in mind:

a. -in- the completive marker is affixed before the first vowel of the stem. When -in- is affixed in certain prefixes, the first syllable of the resulting form is lost:

in - ag → nag
pst act

m - in - a → na
pst unc

b. 1st and 2nd person genitive pronouns (ko and mo) lose their

vowel when encliticized to a vowel final stem.

c. A stem final n is deleted before the 1st person genitive pronoun:

aramiden	ko	→	aramidek
'doing'	1G		'my doing'

d. Vowel drop deletes root-initial i when it follows a consonant:

in -	itéd	→	intéd
pst	'give'		

2. For definitions of the terms and for explanation of the networks used in the relational grammar framework, cf Perlmutter and Postal (1977) and Bell (to appear).

3. As in Cebuano (cf Bell), there are advancements of various obliques to subject in Ilokano. The generalizations I make concerning advancements hold for these constructions as well, but for lack of space I will not argue for this here.

4. cf f.n. 9

5. E.g., Schachter (1976).

6. I am using 'agent', 'patient', and 'recipient' as an expedient means for introducing the data in a way that is not biased towards my solution. I make no claims as to the usefulness or definability of such notions.

7. I am starring English clauses that are not acceptable glosses for the Ilokano clause.

8. In fact, ma- as a stative marker is reconstructable for Proto-Philippine and probably for Proto-Austronesian. It is easy to see how a marker of stativity could come to be used as a marker of lack of control. In a system that distinguishes stative from active, a clause such as 'John accidentally fell from the tree.' would not clearly fit into either category. I claim that in Ilokano, such out-of-control actions were categorized with stative verbs rather than active verbs.

9. In this discussion of ma- I am ignoring two other occurrences of that prefix in Ilokano.

First, ma- , which is the passive form of maka-, marks potential action or ability. This prefix is also used to indicate that the initial subject 'succeeded' or 'managed to' perform an action, notions which perhaps should be categorized as the 'limited control' of the subject. At this point, I prefer to analyze this as a distinct morpheme from ma-, the marker of uncontrolled action.

Second, initially transitive clauses with unspecified agents advance another NP to subject and prefix the verb with ma- as in i. below. As is seen in ii, clauses with advancements but without ma- cannot have initially unspecified agents.

i. Na - Ø - tippóg dagiti botélya.
pst - pas- knock over Det bottle
'The bottles were knocked over.'
ii. *T - in - Ø - ippóg dagiti botélya.
pst pas

I propose that this use of ma- developed as an extension of the use of ma- as a stative marker (cf f.n. 8). I argue that stative sentences such as iii. were optionally reanalyzed as passive sentences with unspecified agents as in iv.

iii. Na - dagás ak. 'I am already picked up.'
pst-unc-pick up 1N
iv. Na - Ø - dagás ak. 'I was already picked up
pst - pas -pick up 1N [by someone].'

This reanalysis was possible for several reasons. First, the morphological marking for passive is Ø. Second, pronominal case is determined by final termhood (cf 15). In addition, the passive without ma- does not allow initially unspecified subjects (as in ii.).

Thus, ma- indicates an unspecified initial subject in sentences like i. and iv. rather than lack of control. In any given case, it is clear whether the initial subject is unspecified or out of control; an unspecified subject never surfaces but an out-of-control subject always surfaces as a chômeur.

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THE AUXILIARY VERB IN NATCHEZ

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1. Natchez[1] verbs are inflected for person (first, second, and third), for number (singular, dual, and plural), and for tense-mode (present, past, optative). There are two main kinds of verbs. There are, first, active verbs which are directly inflected only for the distinction between singular and plural, as shown in (2). All the rest of the inflectional paraphernalia is carried by the auxiliary verb with which it obligatorily occurs; see righthand portion of (2). Secondly, there are inflected verbs which occur in two subcategories, (i) independent inflected verbs, as shown in (1), and (ii) auxiliary verbs.[2]

(1)	haci ʔiš	:	h	aci	ʔiš	
	one to lie		Indef. SU	lie	Infin. marker[3]	
	heci ʔiš	:	h	eci	ʔiš	
	one to sit, live			sit, live		

(2)	tek^{w}e-haki ʔiš	:	tek^{w}e-	h	aki	ʔiš
	one to sit down		sit down Sing.	Indef. SU	Intr.	Infin. marker
	tek^{w}e·-hal ʔiš[4]	:	tek^{w}e·-	h	al	ʔiš
	many to sit down		sit down Plur.	Indef. SU	Supple-tive	Infin. marker

The two inflected subcategories are inflected alike except for the plural number. The independent inflected verbs have their own special type of plural formation; see section 6. The auxiliary verbs, on the other hand, do not since that is shown by the active verb.

2. That auxiliary verbs should carry the inflection for the verb phrase in which they occur is not unusual. In English we have do : does, have : has (number) and do : did, have : had (tense). What is unusual in Natchez is the scope of this inflectional apparatus which encompasses pronominal subject, tense-mode (combined with pronominal subject), pronominal direct object, pronominal indirect object/benefactive, and singular and

dual number (of subject and object). The pronominal subject, as combined with present tense, is illustrated in (3).

(3)	tek^{w}e-taka·^{n}	:	tek^{w}e-	t	aki	a·^{n}	Normal[5]
	I am sitting down		sit down Sing.	I SU Pres.	Intr.	Prog.	
	tek^{w}e-panaka·^{n}	:		pan			
	you are sitting down			you SU Pres.			
	tek^{w}e-naka·^{n}	:		n			
	he, she is sitting down			he, she SU Pres.			
	tek^{w}e·-tala·^{n}	:	tek^{w}e·-	t	al		
	we are sitting down (Plur.)		sit down	I SU Pres.	Suppl.		

In addition to the pronominal subject/present tense combination shown in (3), there are two other sets of pronominal subjects distinguished for tense-mode. But in each case in addition to the change in form of the pronoun, the auxiliary stem itself appears in one of three ablaut grades: Normal, Reduced,and Lengthened. The present tense shown in (3) requires the Normal grade throughout the singular and the plural. In contrast, the Past tense appears in the Normal grade with the first person, but in the Reduced grade with the second and third persons, as shown in (4).

(4)	tek^{w}e-yaka·^{n}	:	tek^{w}e-	y	aki	a·^{n}	Normal
	I was sitting down		sit down (Sing.)	I SU	Intr.	Prog.	
	tek^{w}e-puka·^{n}	:	tek^{w}e-	p	uki	a·^{n}	Reduced[6]
	you were sitting down			you SU Past			
	tek^{w}e-ʔika·^{n}	:	tek^{w}e-	ʔ	iki	a·^{n}	Reduced
	he, she was sitting down			he SU Past			
	tek^{w}e·-yala·^{n}	:	tek^{w}e·-	y	al	a·^{n}	Normal
	we were sitting down		sit down (Plur.)	I SU	Suppl.		

The third pronominal subject/tense-mode combination is that of the optative mode. This mode takes the Normal grade with the first person and the Lengthened grade with the second and third persons, as shown in (5).

(5)	tekʷe-ʔaka·ⁿ	:	tekʷe-	ʔ	aki	a·ⁿ	Normal
	may I be sitting down		sit down Sing.	I SU Opt.	Intr.	Prog.	
	tekʷe-pa·ka·ⁿ	:	tekʷe-	p	a·ki	a·ⁿ	Lengthened
	may you be sitting down			you SU Opt.			
	tekʷe-ʔa·ka·ⁿ	:	tekʷe-	ʔ	a·ki	a·ⁿ	Lengthened
	may he, she be sitting down			he, she SU Opt.			
	tekʷe··ʔala·ⁿ	:	tekʷe··	ʔ	al	a·ⁿ	Normal
	may we be sitting down (Plur.)		sit down (Plur.)	I SU Opt.	Suppl.		

The last two tense-modes permit the addition of deictic prefixes to indicate two additional tenses. The prefix ka··[7] when added to the Past tense paradigm makes the **Nonrecent Past tense paradigm** as shown in (6).

(6) ka·tekʷeyaka·ⁿ I was sitting down some time ago.
Etc. as in (4)

In a similar fashion the prefix ma··, when added to the Optative paradigm gives us the Future paradigm, as shown in (7).

(7) ma·tekʷe ʔaka·ⁿ I shall be sitting down.
Etc. as in (5)

3. With transitive verbs the pronominal direct object (DO) is also included in the auxiliary verb, as illustrated in (8).

(8)	cak-hal ʔiš	:	cak-	h	∅	al	ʔiš
	one to stab one (him, her)		stab Sing.	Indef. SU	him DO	Tr.	Infinitive

cak-tala·^{n}	:	cak-	t	Ø	al	a·^{n}	Normal
I am stabbing him, her		stab Sing.	I SU	him DO	Tr.	Prog.	
cak-tapila·^{n}	:	cak-	t(a) I SU	p you DO	il	a·^{n}	Reduced
I am stabbing you							
cak-nanila·^{n}	:	cak-	n(a) he SU	n me DO	il	a·^{n}	Reduced
He is stabbing me							

The indirect object/benefactive (IO/B) can also be added to the complex, as shown in (9).

(9)

ta·-haw?iš	:	ta·-	h	Ø	aw	?iš	
one to kill one		strike, kill Sg.	Indef. SU	him DO	Tr.	Infin.	
					aWši		
ta·-haWši?iš	:	ta·-	h	Ø	aw	hši	Ø ?iš
one to kill one for him						IO/B	him Infin.
						hc	
ta·-naWca·^{n}	:	ta·-	n	Ø	aw	hš(i)	t ?iš
he is killing him for me			he SU Pres.			IO/B	me

4. Singular and plural number is expressed in the active verb stem, as is shown above in (2). The plural of such verb stems take many shapes, depending on the phonological shape of the singular. A few examples are shown in (10).

(10) a. me-hal?iš one to put out fire
me·-hal?iš many to put out fire

b. ta·-haw?iš one to kill one
taha-haw?iš many to kill one

c. nec-hal?iš one to laugh
nece-hal?iš many to laugh

d. tem-haw?iš one to pick one
temi·-haw?iš many to pick one

e. we·L-haki ?iš one to talk
we·le-haki ?iš many to talk

Plurality of object is also shown by the shape of the active verb stem. With a singular subject, plurality of object is shown by reduplication, but if both subject and object are plural, an additional change takes place, as in (11).

(11) a. ta·ta·-haw ?iš one to kill many, kill repeatedly
ta·ha·-haw ?iš many to kill many

b. cakcak-hal ?iš one to stab many, stab repeatedly
caka·ha·-hal ?iš many to stab many

c. temtem-haw ?iš one to pick many, pick repeatedly
temi·hi·-haw ?iš many to pick many

While the distinction between singular and plural subject and object is shown by the shape of the active verb stem, dual number is incorporated within the auxiliary verb complex immediately following the pronominal subject, as shown in (12).

(12) cak-tatanila·^{n} :	cak-	t(a)	tan	Ø	il	a·^{n}	Reduced
we 2 are stab-	stab	I	Dual	him	Tr.	Prog.	
bing him	Sing.	SU		DO			
cak-pantanila·^{n} :	cak-	pan	tan	Ø	il	a·^{n}	
you 2 are stab-		you					
bing him		SU					
cak-natanila·^{n} :	cak-	n(a)	tan	Ø	il	a·^{n}	
they 2 are stab-		he					
bing him		SU					

It should also be observed that the pronominal subjects for the plural number are the same as for the singular number, since the plurality of subject is shown only in the shape of the active verb stem. Examples are in (13).

(13) cak-tala·^{n} I am stabbing him
caka-tala·^{n} we (more than 2) are stabbing him

cakcak-tala·^{n} I am stabbing them
caka·ha·-tala·^{n} we (more than 2) are stabbing them

5. There are also lexical problems associated with the process of combining active verb stems with auxiliary verbs. Although the active verb stem imparts the basic lexical meaning, this is modified to a greater or less extent by the auxiliary verb with which it is combined. There are some forty or fifty different auxiliary verbs and the nature of their semantic distinctions is not always clearly discernible. Distinctions that have been identified include copular, intransitive, involuntary, transitive/causative, reflexive, indirective/benefactive, and reciprocal. The copular auxiliary is illustrated in (14).

(14) -ha·ʔiš : ʔocin-ha·ʔiš one to be hungry
ceL-ha·ʔiš one to be dirty, soiled

Intransitive auxiliaries are shown in (15).

(15) -hakiʔiš : ta·-hakiʔiš one to stumble, stub toe
-haciʔiš ; tuluM-haciʔiš one to roll over

The involuntary auxiliary is shown in (16).

(16) -hektiʔiš : tiša·-hektiʔiš one to sneeze
ʔoho·-hektiʔiš one to cough

There are several auxiliaries which may be described as transitive. The most commonly used one, -halʔiš, is also sometimes causative. Examples are shown in (17).

(17) -halʔiš : ta·-halʔiš one to strike, kill one
tem-halʔiš one to feed one (i.e. cause to pick, gather; cf. tem-hawʔiš in (10) d)
-hawʔiš : ta·-hawʔiš one to kill one
-hakuʔiš : top-hakuʔiš one to cut, break one
-hewʔiš : maš-hewʔiš one to peel one
-helu·ʔiš : ta·-helu·ʔiš one to play ball (i.e. stick-ball)
-helkuʔiš : kolo-helkuʔiš one to cover, bury one

Some reflexive auxiliaries are shown in (18).

(18) -hahšalʔiš : ta·-hahšalʔiš one to hit himself. Reflexive of -halʔiš.
-hašu·ʔiš : ko·t-hašu·ʔiš one to scratch himself. Reflexive of -hawʔiš.

The indirective/benefactive auxiliaries impart the meaning 'to, on, for ...' and there is one for each of the transitive auxiliaries. Some of them are shown in (19).

(19) -haLši?iš : ta·ta·-haLši?iš one to hit, strike repeatedly on... Indirective/benefactive of -hal?iš.
-haWši?iš : ta·-haWši?iš one to kill one for .... Indirective/benefactive of -haw?iš.

The reciprocal auxiliary imparts the meaning 'each other, one another, together' as shown in (20).

(20) -hetahnu·?iš : weh-hetahnu·?iš to meet, gather together
cikip-hetahnu·?iš to wrestle (lit., pinch each other); cf. cikip-haw?iš one to pinch one

There are several other auxiliaries, most of which have been difficult to assign a meaning to. Some of these are in (21).

(21) -helahci?iš : ta·-helahci?iš one to pay one
weh-helahci?iš one to gather something together
-hešku?iš : kolo-hešku?iš one to put on (a hat)
-heti·?iš : ?o·h-heti·?iš one to wait for one
-heLti·?iš : holoh-heLti·?iš one to take one out of
-heNci?iš : pata-heNci?iš one to put something together, assemble something (as a boat)

Another interesting feature associated with auxiliary verbs is that they can be diminutivized. Independent inflected verbs can also be diminutivized. This diminutivization applies to the subject of intransitive verbs and to the object of transitive verbs. Some examples are shown in (22).

(22) hetpiti?iš a little one, baby one to walk. This is the diminutive of hapiti?iš a normal-sized one to walk; -et- is infixed.
ta·-helilu·?iš one to hit, kill a little one, a baby one. This is the diminutive of both ta·-hal?iš one to strike one and ta·-haw?iš one to kill one; -li- is infixed in -helu·?iš.

6. In the case of the active verb stem plus auxiliary verb complex the plural number is indicated only in the active verb stem. Independent inflected verbs, on the other hand, must indicate number within the verb itself. This is illustrated in (23).

(23) helcoko?iš one to learn
hetenilcoko?iš two to learn; -tan-/-ten- Dual as in auxiliary verbs
hepilcoko ?iš three or more to learn; -p- Plur. in independent verbs but not auxiliary verbs

In addition to the regular ways of expressing number in Natchez verbs, as already shown in (2), (10), (11), (12) and (23), there is a considerable amount of suppletion in the language. This introduces several kinds of irregularities. Independent verbs which utilize suppletion have different stems in the dual and plural. However, the plural is often especially marked in that it is composed of an active verb stem plus an auxiliary verb, as shown in (24).

(24) a. haci?iš one to lie
hataNci?iš two to lie. Regular formation with -tan-. Dual incorporated.
holi·-ha·?iš three or more to lie. Active verb stem, Plural of nonexistent *hol-, plus the copular auxiliary; suppletive.

b. heci?iš one to sit, live
hetukši ?iš two to sit, live. Suppletive verb.
ko·-haki ?iš three or more to sit, live. Active verb stem, Plural of nonexistent *ko-, plus the intransitive auxiliary.

c. hahti?iš one to go
hakši?iš two to go. Suppletive verb.
we·-haki ?iš three or more to go. Suppletive construction as in (24) b.

In the examples in (24) the plural suppletive form is constructed as if it were a normal active verb stem plus auxiliary verb complex and the active verb stem appears in plural form. In the example shown in (25) below, the active verb stem is <u>not</u> in the plural form normal for such stems.

(25) hapiti?iš — one to go around. Similar to (24) c with infixed -pi-.

hapikši?iš — two to go around. Similar to (24) c with infixed -pi.

pe-haki?iš — three or more to go around. Not related to (24) c. And since pe- has a short vowel it cannot be interpreted as plural in form.

Active verbs have their own kinds of irregular plural formations. Sometimes they take one auxiliary in the Singular/Dual but another in the Plural, as shown in (26).

(26) a. yuku-haki?iš — one to stand. Dual adds -tan-.
yuku·-hal?iš — three or more to stand.

b. tek^{w}e-haki?iš — one to sit down. Dual adds -tan-.
tek^{w}e·-hal?iš — three or more to sit down.

These sets are special because -hal?iš, which is normally transitive/causative is here suppletive to an intransitive auxiliary. But some active verb stems change not only the auxiliary but the active verb stem itself as well. A notable example is in (27).

(27) k^{w}aL-hešku?iš — one to run
k^{w}aL-hete·šku?iš — two to run. Dual -te·- for -ten-.
hekeL-haki?iš — three or more to run. Plural signalled by a change in auxiliary, a change in active verb stem and nonplural form for hekeL- (Plural should be *hekele-).

7. For the final section of this paper I would like to point up the semantic difficulties inherent in the nature of the active verb stem plus auxiliary verb complex. Earlier I pointed out that the active verb stem bears the lexical content. But in terms of a suitable translation into English there are frequent difficulties. In English we label hit a transitive verb and run an intransitive verb. But we also have many verbs like break which can be either transitive (I broke it) or intransitive (it broke). In Natchez the distinction between transitive and intransitive is made overt by the use of a transitive auxiliary for the transitive, an intransitive one for the intransitive. But still other refinements can be expressed through the choice of auxiliary. Recapitulating the various auxiliaries used with ta·-, as shown in previous examples,

we have the set shown in (28).

(28) ta·-hal?iš one to strike, hit one
ta·-haw?iš one to kill one
ta·-helu·?iš one to play ball (stick ball)
ta·-helu·ši?iš one to discharge a gun (making a noise)
ta·-helilu· ?iš one to strike, kill a little one (diminutive)
ta·-hetahnu· ?iš to meet, come together; to kill together (two working together)
ta·-haki?iš one to stumble, bump, stub toe
ta·-hahšal?iš one to hit himself
ta·-helahci?iš one to pay one

What does ta·- mean? And what do the several auxiliaries add to the meaning of the whole? Some we have already sorted out, but others remain opaque and none has been found with an invariant meaning. The stem ta·- seems basically to mean 'to strike a blow', but what does -haw?iš add, over and above transitivity, that makes the combination mean 'to kill'? Here we might suggest that it is a sort of intensive transitive (more intensive than -hal?iš, for instance), but other examples belie this completely. It can even occur in intransitive combinations, as in ?ay-haw?iš 'to think'. The most we can say is that in general the combination of active verb stem and auxiliary verb is fixed and cannot be freely changed around. Hence the combination is often similar to a fixed expression in other languages. Another interesting set of examples is shown in (29).

(29) tem-haw?iš one to pick,gather something
tem-hal?iš one to feed one (cause to pick, gather)
tem-helu·?iš one to feed one (on something)
tem-hešku?iš one to graze (as sheep)
tem-helahci?iš one to cause one to graze

These examples show that in certain cases to change from one transitive auxiliary to another signals the causative, e.g. from -haw?iš to -hal?iš or from -hešku?iš to -helahci?iš.

While all such comparisons are helpful each set fits only a limited number of circumstances. Further study will surely reveal other insights, but it is doubtful if these will change the deep impression that Natchez is a language rich in fixed expressions.

8. Although Natchez is a language isolate, it is structurally similar to many of our North American linguistic families, such

as Muskogean, Iroquoian, Algonkian, Athapaskan, etc., in that it has a very elaborate verb structure. The details differ from family to family but the ability to compress into one 'gigantic verb' a multitude of ideas that in other languages require a sentence is characteristic of them all.

Footnotes

[1]Natchez is a language isolate of the Southeast, formerly spoken in a string of villages in the vicinity of the present Natchez, Mississippi. Natchez is probably distantly related to the Muskogean family (Swanton 1924, Haas 1956) and the other Gulf languages (Haas 1951). My materials on the language were collected forty years ago from the last two speakers, Watt Sam and Nancy Raven.

[2]In this paper I have written the lone sibilant of the language as s̲, its true phonetic value, instead of the simplified symbol s̲ used in other papers of mine. I have also written the verbs in their underlying form rather than their surface form as was done in other papers (Haas 1956, 1973). Thus here I write

haci?iš	for	haci·s	-haki?iš	for	-haki·s
-haw?iš	for	-ho·?is	-haWši?iš	for	-hohsi·s
-helku?iš	for	-helku·s	-hew?iš	for	-hʉ·?is

[3]Abbreviations used include: SU, subject; DO, direct object; IO, indirect object; B, benefactive. Other abbreviations require no explanation.

[4]For the use of -hal?iš here instead of the expected -haki?iš see section 6 below. Most intransitive verbs would retain the use of -haki?iš throughout the paradigm.

[5]'Normal' refers to the Normal ablaut grade as explained immediately below.

[6]The Reduced grade of -aki- is -iki- or -uki- after a labial.

[7]In other uses ka· can mean 'this', ma· can mean 'that'; hence these prefixes are basically deictics.

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COPING WITH COMPLEX POLYSEMY: A COMPARISON OF DATIVE/ BENEFACTIVE CONSTRUCTIONS IN MANDARIN AND THAI

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In Mandarin and Thai, many prepositions have etymologically and semantically related homonyms that are members of other lexical classes. In Mandarin these homonyms can be verbs[1], and in Thai they may be verbs or substantives. In both languages there exists a benefactive/goal preposition (gěi in Mandarin, hâi in Thai) which is homonymous with a common verb that has extensive dative and causative usage. In this article I compare the syntactic and semantic characteristics of dative/benefactive constructions in the two languages, and conclude with the hypothesis that certain striking similarities that will be seen reflect a trend to avoid the possible confusion that could result from these closely parallel cases of complex polysemy.

I. PREPOSITIONAL GEǏ/HÂI[2]

The Mandarin preposition gěi has two distinct uses: benefactive and goal-directive. The benefactive gěi, according to Teng, has the same semantic content as the dative verb (i.e., "give") and always occurs preverbally.[3] Furthermore, according to Teng,[4] benefactive gěi has two distinct meanings: "in place of" and "for the benefit of." The preposition tì ("substitute, instead of") can replace the former gěi, whereas the preposition wèi ("for the sake of") can replace the latter gěi.

1) Wǒ gěi (or tì) tā zuò fàn.
   I ben$_1$ he make food
   I cook food for (i.e., instead of) him.
2) Wǒ gěi (or wèi) tā zuò fàn.
   I ben$_2$ he make food
   I cook food for him (to eat).

"Goal" gěi, on the other hand, may occur either preverbally or postverbally, and therefore is sometimes ambiguous with benefactive gěi. Wèi and tì cannot replace this gěi.

3) Wǒ gěi nǐ jiè-shao yí-ge péng-you.
   I goal you introduce one-class. friend
   I introduce a friend to you.

Note that example 3 could also be interpreted as "I introduce a friend for your benefit" or as "I introduce a

friend for you - since you are not able to introduce him yourself." Example 4, however, with postverbal gěi, does not have these additional interpretations.

4) Wǒ jiè-shao gěi nǐ yí-ge péng-you.
I introduce goal you one-class. friend
I introduce a friend to you.

Goal gěi may also occur after the direct object:

5) Wǒ jiè-shao yí-ge péng-you gěi nǐ.
In introduce one-class. friend goal you
I introduce a friend to you.

With verbs of transmission, such as sòng ("send"), postverbal gěi may be omitted when the direct object is a noun phrase specified by a number.

6) Nǐ sòng (gěi) tā yì-běn shū.
You send (goal) he one-class. book
You send him a book.

This last example contrasts with the alternative construction 7, which has three possible meanings.

7) Nǐ gěi tā sòng yì-běn shū.
You (goal OR ben.) he send one-class. book
You send him a book.
OR
You send a book for him. (2 meanings)

The Thai preposition hâi always occurs postverbally; thus the variety of syntactic structures which in Mandarin helps distinguish between various interpretations of the preposition does not exist. Furthermore, there is no distinction corresponding to that illustrated by Mandarin examples 1 and 2. Sentence 8 could therefore be synonymous with either 6 or 7 above.

8) Khun sòng nángsʉ̌ʉ hâi khăw.
You send book hâi he
You send the book to him.
OR
You send the book for him. (for the benefit of OR instead of him)

Another difference between hâi and gěi is that hâi, unlike prepositional gěi, can be stranded in sentence final position.

9) Khăw khiən còdmaăi hâi.

He write letter hai
He writes a letter for OR to (someone unspecified).

BUT 10) *Tā xiě yi-feng xìn gěi.
He write one-class. letter gěi

II. VERBAL GĚI/HAÌ

The basic structure of Mandarin sentences containing verbal gěi is NP-gěi-IO-DO, as exemplified by sentence 11.

11) Tā gěi wǒ qián.
He give I money
He gives me money.

Note that although verbs of transmission (which might be expected to include dative gěi) may immediately precede an optional goal gěi (as in 6 above), sentence 12 is ungrammatical.

12) *Tā gěi gěi wǒ yì-běn shū.
He give goal I one-class. book

The constraint seems to be simply that goal gěi cannot occur next to verbal gěi, for example 13 is grammatical.

13) Tā gěi qián gěi wǒ.
He give money goal I
He gives money to me.

Note, however, the ungrammaticality of sentence 14, which contains both benefactive gěi and verbal gěi.

14) *Tā gěi wǒ gěi nǐ shū.
He ben. I give you book

My native informants rejected this sentence on the grounds that it would be difficult to interpret. According to my informants, however, example 14 is not as bad as example 12. This may be because 14 superficially resembles the structure of acceptable gěi sentences, whereas 12 contains a redundant, superfluous gěi and is not analogous to other Mandarin structures.[5] Interestingly, the sentences which my informants produced as corrections of 14 substituted the prepositions wèi and tì which, as noted earlier (cf. examples 1, 2), are synonymous with benefactive gěi. This could be explained as a measure to reduce semantic redundancy and ambiguity if Teng is correct in asserting that verbal

gěi and its benefactive homonym are semantically equivalent.

The following, then, are corrections of sentence 14.

15) Tā wèi wǒ gěi nǐ shū.
He wèi I give you book
He gives you the book for me (for my sake, at my request).
16) Tā tì wǒ gěi nǐ shū.
He tì I give you book
He gives you the book for (instead of) me.

Example 17, like 14, was rejected by my informants on the grounds that it was virtually impossible to interpret.

17) *Tā gěi wǒ gěi nǐ sòng yì-běn shū.
He gěi I gěi you send one-class. book

In Thai the basic structure of sentence containing main verb hâi is NP-hâi-DO-(prep.)-IO, as seen in the following example.

18) Khăw hâi nǽngsɨ̌ɨ̌ (kàb) khun.
He give book (kàb) you
He gives the book to you.

Sentence 19, like Mandarin example 14, is ungrammatical.

19) *Khăw hâi nungsɨ̌ɨ̌ hâi khun.
He hâi book hâi you

In Thai, then, prepositional hâi cannot co-occur within a sentence with verbal hâi, but the preposition kàb ("with") may optionally be substituted for prepositional hâi.[6] In comparing the Thai sentence 18 with Mandarin example 20, notice that Thai introduces two substitute prepositions, and that the order of the prepositional phrases is fixed.

19) Khăw hâi nungsɨ̌ɨ̌ kàb khun phɨ̀ə chăn.
He give book kàb you phɨ̀ə I
He gives the book to you for me.
20) Tā tì/wèi wǒ gěi nǐ shū.
He tì/wèi I give you book
He gives the book to you for (2 meanings) me.

In addition to having the dative usages discussed

so far, gěi and hâi can be used as causatives with human objects (translatable as "allow" or "have someone do something"), although this is more common in Thai than in Mandarin.

21) Mɛ̂ɛ -khrua hâi-dèg tàd nyá pen-chín.[7]
Cook hâi-child cut meat into-slice
The cook has the child cut the meat into slices.

22) Xiān-sheng gěi wǒ-men chī fàn.
Teacher gěi we eat food
The teacher allows us to eat.

III. FURTHER DISCUSSION

It has been seen that Mandarin and Thai prefer not to employ prepositional gěi/hâi in sentences containing the homophonous and semantically related main verb, and that Thai is somewhat stricter than Mandarin in this respect. This would seem logical, inasmuch as Mandarin has several syntactic devices to reduce ambiguity among the various interpretations of polysemous gěi, whereas Thai resorts mainly to preposition substitution, with haplology limited to the type seen in example 18.

Teng (1975) proposes a haplology rule which specifies that when gěi is introduced by a goal feature marker into a sentence (i.e., when the main verb is a verb of transmission, as in example 6), it is deleted in case the main verb of that sentence is also gěi. Teng does not discuss the obligatory substitution of other pronouns for benefactive gěi, but a rule could be introduced which would prevent co-occurrence of two semantically equivalent gěi's within a sentence. It seems likely that Thai sentence 19 is unacceptable for the same reasons that Mandarin sentence 14 is unacceptable.

A clue to the semantic reasons for the phenomena discussed so far is provided by the inability of verbal gěi and hâi to take the passive markers bèi and thuuk of their respective languages.

23) Nà-ge dōng-xi bèi wǒ sòng le.
That-class. thing pass. I send asp.
That thing was sent by me.

BUT 24) *Nà-ge dōng-xi bèi wǒ gěi le.
That-class. thing pass. I give asp.

Similarly in Thai:

25) *Nǎngsɨ̌ɨ̌ thuùk hâi.
Book pass. give

Teng (1975) proposes that dative/benefactive gěi and the passive marker bèi cannot co-occur in a Mandarin sentence because bèi has a pejorative feature marking which is semantically anomalous with the benefactive meaning of gěi. There is evidence that Thai thuùk also has "pejorative" connotations: it occurs most often with verbs of physical violence, such as "hit" and "break."

According to one of my Mandarin informants, sentences such as 26 are unacceptable because they are "confusing;" i.e., difficult to interpret.

26) *Zhāng Sān gěi Lǐ Sì bèi dǎ le.
John ben. Lisa pass. beat asp.
John was beaten for (2 meanings) Lisa.

As usual, it is necessary to substitute wèi or tì for benefactive gěi here.

Gěi in colloquial usage can itself function as a passive marker, as in 27.

27) Zhāng Sān gěi (or bèi) Lǐ Sì dǎ le.
John gěi (pass.) Lisa beat asp.
John was beaten by Lisa.

I have shown how the polysemous usage of gěi and hai prevents them from behaving like other, less versatile verbs and prepositions of their languages with regard to passivization and prepositional phrase complementation. It is easy to see how multiple occurrences of gěi or hai in a sentence could lead to confusion, since both words have so many semantically related functions. My hypothesis is that preposition haplology and substitution in Mandarin and Thai are devices to reduce the possibility of ambiguity that could result from this complex polysemy. It is especially interesting that such similar cases of polysemy - with similar solutions - should involve the basic dative/benefactive constructions of two languages that are related geographically but not genetically.

FOOTNOTES

1. I accept the analysis of Li and Thompson (1974).
2. There is some dispute as to whether Thai in fact has prepositions. Although Noss (1964) classifies some uses of hai as prepositional, other experts, such as Mary Haas, would consider these to be examples of hai as a complementary verb. I have found some evidence (based on a comparison of relativization in Thai and Mandarin) that there may be a syntactic distinction be-

tween verbs and prepositions in Thai similar to that seen in Mandarin. Whether or not this evidence is sufficient to support such an argument, however, in this paper I classify certain Thai structures as prepositional phrases in order to facilitate the comparison with Mandarin.

Mandarin verbal gěi relativizes as follows, with a deletable subject noun phrase.

28) (Wǒ) gěi tā de fàn
I give he rel. food
The food that (I) give him

Benefactive gěi, however, cannot relativize by itself, but must be followed by a main verb. Notice also that this gěi has no subject.

29) Gěi tā chī de fàn
Ben. he eat rel. food
The food that is for him to eat

(Example 30 could also be interpreted as "the food that deleted subject gave him to eat.")

The situation in Thai is very similar. The hâi which I consider verbal relativizes in the same way as Mandarin verbal gěi, with an optional subject noun phrase. (In both Thai and Mandarin it is common to omit the subjects of sentences in ordinary discourse.)

30) Khâaw thîi (Panit) hâi khãw
Rice rel. (Panit) give he
The rice that (Panit) gave him

The hâi which I have described as prepositional, on the other hand, must be followed by a main verb. Furthermore, like benefactive gěi, this hâi seems to have no underlying subject.

31) Khâaw thîi hâi khãw kin
Rice rel. hâi he eat
The rice that is for him to eat

3. Teng (1975), p. 41.
4. Ibid., pp. 151-152.
5. That is, other verb/preposition homonymous pairs mentioned in Li and Thompson's 1974 article cannot occur in constructions analogous to 12. The following example demonstrates the case of prepositional zài ("at") and its verbal homophone meaning "to be at."

32) *Wǒ zài zài Běi-Jīng.
I be-at at Peking

INSTEAD
33) Wǒ zaì Peǐ-Jīng.
I be-at Peking
I am at Peking.

6. However, substitution of kàb is obligatory when two pronouns in sequence would result from the deletion of prepositional haî.
7. This example is from Noss (1964).

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Raising to Oblique in Modern Greek*

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0. Introduction

Modern Greek has a syntactic process, which can be called Raising to Oblique, by which the subject of a sentential object of a preposition can be raised to become the object of that preposition. This process relates cognitively synonymous pairs of sentences as in (1) through (3):

(1) a. me to na filai i Maria ton Yani, teliose
with the/NTR Part. kiss/3SG Mary/NOM John/ACC ended/3SG

to ergo
the-play/NOM

'With Mary kissing John, the play ended'

b. me tin Maria na filai ton Yani, teliose to ergo
Mary/ACC

'With Mary kissing John, the play ended'

(2) a. me to na stekome eki, den voleftike o Yanis
stand/1SG there not was-comfortable/3SG John/NOM

'With me standing there, John was not comfortable'

b. me emena na stekome eki, den voleftike o Yanis
me/ACC

'With me standing there, John was not comfortable.

(3) a. me to na kalipti i maska to prosopo, anasenete fisika
cover/3SG the-mask/NOM the-face/ACC breathe/2PL natu-

'With the mask covering your face, breathe normally' rally

b. me tin maska na kalipti to prosopo, anasenete fisika
the-maska/ACC

'With the mask covering your face, breathe normally'

The (a) sentences above involve a preposition (me 'with') with a full sentential complement as its object--the neuter definite article to nominalizes the clause and thus serves a complementizing function.[1] The (b) sentences have the preposition me followed by an NP which corresponds to the embedded subject in the (a) sentences, which is then followed by a clause--there is no overt nominalizing/complementizing definite article with the clause in this sentence pattern

Thus these two types differ in the case-marking (nominative versus accusative) and position of the NP which answers semantically the the role of subject of the embedded clause, as well as in the presence versus absence of the definite article nominalizer. It is claimed that the relation between these two sentence-types is to be captured by means of a Raising rule of the sort described above; from a source corresponding roughly to the (a) sentences of (1) to

(3), the (b) sentences arise by the raising of the clausal subject to become the object of the preposition.[2]

In this paper, then, this construction is explored in some depth, and the proposed raising analysis is defended. The broader implications of this analysis for purposes of cross-linguistic comparison and for Linguistic Theory in general are brought forth. In particular, this construction is compared to a superficially similar one in English, and the validity of this comparison and the lesson to be drawn from it concerning such comparisons are then discussed. Furthermore, Raising to Oblique is shown to be a counter-example to the Host Limitation Law proposed within the framework of Relational Grammar as developed by Postal and Perlmutter (see Perlmutter (In Press a, b) for details).

1. Arguments for the Raising Analysis

In arguing for the raising analysis, it is necessary to contrast it with an analysis in which the NP to the right of the preposition in the (b)-type sentences is generated underlyingly as the object of the preposition, with a clause tacked on after it. This analysis would involve, then, a double subcategorization option for a preposition like me, me + NP (which could be a clause) and me + NP + S. Furthermore, to prove that raising has occurred, it is necessary to show that the putative raised NP is no longer in the clause it originated in.

The base-generation analysis is immediately suspect because the "tacked-on" clause is in no way a complement to the NP, i.e. it is not a "legitimate" NP + S configuration such as a relative clause or a complex NP like the fact that S. Moreover, there are arguments, of a fairly standard type, involving evidence from idiom chunks, semantic relations, and economy of subcategorization statements, which lessen the credibility of the base-generation analysis.

For example, Greek has idioms, such as that in (4a), which can occur in the proposed Raising to Oblique pattern with no loss of idiomatic meaning, as in (4b):

(4) a. o kombos ftani s to xteni
the-knot/NOM reaches/3SG to the-comb/ACC
'Things are coming to a head' (Lit. "The knot reaches the comb")

b. me ton kombo na ftani s to xteni tora s to Egio
with the-knot/ACC now in the-Aegean

den mu fenete kali idea na pas s tin Turkia
not to-me seems/3SG good-idea/NOM go/2SG to Turkey/ACC

'With things coming to a head in the Aegean, it doesn't strike me as a good idea for you to travel to Turkey'

This preservation of the idiomatic reading is an automatic consequence of the raising analysis, whereas in the base-generation analysis, two unrelated statements about the composition of this idiom,

one allowing for kombos (Nominative) and the other for kombo (Accusative) as "subject" would be needed.

Similarly, an idiomatic expression like (5a) can passivize with no loss of idiomatic meaning, as indicated in (5b)--this passivized version can occur in the proposed Raising to Oblique pattern with the idiomaticity of the expression preserved, as in (5c):

(5) a. anigome ton dromo ya kati
open/1PL the-road/ACC for something
'We pave the way for something'

b. o dromos anigete ya kati
the-road/NOM is-opened/3SG.PASS
'The way is paved for something'

c. me ton dromo na anigete ya tin metanastefsi
with the-road/ACC open/3SG.PASS for the-immigration/ACC

su, boris na figis amesos ya tin Ameriki
your can/2SG leave/2SG at-once for America/ACC

'With the way paved for your immigration, you can leave at once for America'

Again, these facts are an automatic consequence of the raising analysis, and constitute a complication in the grammar under the base-generation analysis.

A further argument comes from sentences such as those in (6):

(6) a. me tin Maria na filai ton Yani, teliose to ergo
'With Mary kissing John, the play ended'

= b. me ton Yani na filiete apo tin Maria, ...
John/ACC is-kissed/3SG.PASS by
'With John being kissed by Mary, ...'

These sentences show that there is synonymy between sentences of the (1b) type with an active embedded verb and the corresponding sentences with a passive embedded verb. This synonymy is predicted by the raising analysis, but whereas it can be accomodated within the base-generation analysis (e.g. by allowing Passive to operate on a string with an accusative NP to the left of the verb instead of the nominative NP generally found with finite verbs), it certainly is not an automatic consequence of it.

Finally, one can cite the extra subcategorization statement needed in the base-generation analysis as an argument against it. As noted above, this approach would have to allow me to occur underlyingly with either a plain NP (which could be a clause) or with an NP followed by a clause, whereas the raising analysis requires only the me + NP subcategorization. More importantly, though, the NP + S subcategorization would need an additional constraint to guarantee that the NP was coreferent with the subject of the following clause, in order to block sentences like (7a)--the raising analysis predicts the ungrammaticality of (7a) because its

putative source, with two embedded subject nominals, would be ungrammatical:

(7) a. *me ton Yani na pianun i astifilakes tin Maria, ...
with the-John that catch/3PL the-policemen/NOM Mary/ACC
'*With John that the policemen catch Mary,...'
b. *me to na pianun i astifilakes tin Maria o Yanis, ...
John/NOM

Furthermore, there is good evidence that the post-me NP, e.g. tin Maria in (1b), is no longer a member of the clause in which it originates and is in fact the object of the preposition. The case-marking of accusative and the position immediately after me are appropriate for an object of a preposition in Modern Greek. Also, the existence of sentences such as (8) shows that Maria is not part of the embedded clause:

(8) me tin Maria na filai ton Yani ki afti, teliose to ergo
even she/NOM
'With even Mary kissing John, the play ended'

(8) shows that Raising to Oblique leaves a copy of the raised nominal behind in the clause from which it is raised. This copy can occur overtly on the surface as in (8), but most often is omitted on the surface due to the general Greek process of Subject Pronoun Drop. Generally in Greek, a subject NP cannot have a pronominal copy of itself in the same clause with it, as shown by (9):

(9) a. *θa to krino ego (mono) ego
FUT it/ACC judge/1SG I/NOM only I/NOM
'I will judge that'
b. *i Maria to ide ki afti
Mary/NOM it/ACC saw/3SG even she/NOM
'Even Mary saw it'

However, as (8) shows, a pronominal copy is possible in the putative raising sentences, suggesting strongly that tin Maria in (1b) and setnences like it is no longer a part of the embedded clause and therefore that a raising has in fact taken place.[3] When there is no raising, a pronominal copy is impossible:

(10) *me to na filai i Maria ton Yani ki afti, ...
Mary/NOM even she/NOM

From these considerations, it may be concluded that sentences such as (1b) involve an NP which has been raised to become the object of the preposition me--that is, that NP is not underlyingly the object of me but is not part of the embedded clause on the surface.

2. An Extension of This Construction

Besides the Raising to Oblique sentences with me as in (1) to (3), there is an extension of this construction to genitival clausal complements to a head noun. Thus, (11a) alternates with (11b), with the (b) version being the raised version; similarly in (12):

(11) a. i θea tu na piani ton Yani
the-sight/NOM the/NTR.GEN catch/3SG John/ACC

i astinomia me tromakse
the-police/NOM me/ACC scared/3SG

'The sight of the police catching John scared me'

b. i θea tis astinomias na piani ton Yani me tromakse
the-police/GEN
'The sight of the police catching John scared me'

(12) a. i tasi tu na epanerθi to lastixo
the-tension/NOM the/NTR.GEN return/3SG the-rubber-band/NOM

s tin arxiki tu θesi kani to mikro aeroplano
to the-original its position makes/3SG the-little-airplane/ACC

na ksekinai
move/3SG

'The tension of the rubber-band returning to its original position makes the little airplane move'

b. i tasi tu lastixu na epanerθi ...
the-rubber-band/GEN
'The tension of the rubber-band returning ...'

The same sorts of arguments given for Raising to Oblique with me hold for Raising to Oblique with complements to head nouns, so they need not be repeated here.

These sentences are parallel to the sentences with me in having the alternation in the case-marking and position of the NP answering to the role of subject of the embedded clause, and in the alternation between the presence versus absence of the definite article nominalizer/complementizer in the two sentence-types. Also, the genitive case-marking on the raised nominal in the (b) sentences suggests that it has become the complement to the head noun. Thus the sentence-type illustrated in (11) and (12) seems in all respects to be parallel to Raising to Oblique with me as in (1) to (3).

3. Raising to Oblique and Other Greek Raising Rules

Raising to Oblique as described above has all the properties of other raising rules in Modern Greek. Greek has (at least) three other raising rules, Subject-to-Object Raising, Subject-to-Subject Raising, and Object Raising (= Tough Movement), as shown in (13):

(13) a. Subject-to-Object Raising

θelo ton Yani na kaθete (mono aftos) edo
want/1SG John/ACC sit/3SG only he/NOM here

'I want (only) John to sit here'
(Lit. "I want John that (only he) sit here")
b. Subject-to-Subject Raising

fenome na ime (ki ego) fliaros simera
seem/1SG am/1SG even I/NOM talkative/NOM today
'(Even) I seem to be talkative today'
(Lit. "I seem that (even I) am talkative today")
c. Object Raising (Tough Movement)

ta aŋglika ine diskola na ta katalavo
the-English/NOM are-difficult/PL them/ACC understand/1SG
'English is difficult for me to understand'
(Lit. "The English (things) are difficult that I understand them")

One important feature of these rules is that they are copying rules[4], and so leave behind a copy of the raised nominal in the clause out of which the raising occurs. In the case of the subject-raising rules, the copy is generally absent on the surface due to Subject Pronoun Drop, but it may appear overtly on the surface under proper conditions of emphasis, as indicated by the parenthesized elements in (13a) and (13b)--in the case of Object Raising, the copy always appears on the surface since Greek has no rule sanctioning the absence of definite object pronouns on the surface. As noted above in connection with sentence (8), Raising to Oblique is a copying rule also, and thus parallels the other Greek raisings in this regard.

Furthermore, both Raising to Oblique and the other Greek raising out of a non-subject clause (i.e. Subject-to-Object Raising) are restricted in the same way to applying only to subject nominals contained in that clause.[5] Thus (14a) with Raising to Object applied to an object of the complement clause is ungrammatical just as (14b) with Raising to Oblique raising a non-subject is:[6]

(14) a. ?*θelo ton Yani na (ton) pianun i astifilakes
want John/ACC him/ACC catch/3PL the-policemen/NOM
'I want that the policemen catch John'
b. ?*i θea tu Yani na ton pianun i astifilakes me tromakse
John/GEN him/ACC me/ACC scared/
'The sight of the policemen catching John scared me' 3SG

Thus Raising to Oblique differs from the other raising rules of Modern Greek only in the type of clause from which it occurs and in the grammatical relation assumed by the raised nominal.

4. Broader Implications of this Analysis

The preceding sections have established that Raising to Oblique is a syntactic rule of Greek operative in the generation of sentences such as (1b) and (11b) above. In this section, some of the implications this analysis for matters outside the realm of Modern Greek are explored.

4.1: First, Raising to Oblique in Greek offers a cross-linguistic comparison with English sentences of the type in (15) through (17):

(15) a. With John's having stepped forward to confess, your good name is cleared.
b. With John having stepped forward to confess, your good name is cleared.
(16) a. I was surprised at John's arriving on time.
b. I was surprised at John arriving on time.
(17) a. The thought of John's arriving on time was too much to bear.
b. The thought of John arriving on time was too much to bear.

in which there is a superficial alternation in the marking of the nominal which serves semantically as the subject of the gerund verbal form in -ing--in the (a) sentences, this subject nominal has possessive marking ('s) whereas in the (b) sentences it has a zero-marking. This difference in case-marking, as it were, is the only difference in the variants; hence there is no clear indication of how the relation between them is to be captured.

A comparison with the Greek Raising to Oblique construction, though, suggests that perhaps the (b) sentences in (15) to (17), with bare NP plus gerund complementation, involve a raising to oblique in English. That is, in (15b), it is perhaps the case that John alone functions as the object of with while in (15a), the whole clause, John's having stepped forward to confess is the object of with; a similar bracketing contrast would hold between the (a) and (b) sentences of (16) and (17). Such an analysis of these English setnences would be motivated almost solely by the parallel with the Greek construction--both the English and the Greek sentences have similar forms, involving clausal objects of prepositions (and note that Greek me = English with) and (genitive) clausal complements to a head noun (e.g. thought of versus θea tu).

This analysis of English, then, would illustrate how cross-linguistic evidence in superficially similar cases could be used to determine ambiguous cases in one language. Greek sentences like (1) offer more morphological clues as to what is going on than do the corresponding English ones, e.g. the presence of the nominalizing (and hence complementizing, here) definite article to/tu in the non-raising versions versus its absence in the raising versions, the different case-marking and the different word-order between the two variants. Thus Greek gives a clear picture of how any such variants in a language can be related.

However, as attractive as such a comparison might be, the English facts are not as clear-cut as they first appear, casting some doubt on this proposed analysis for (15) to (17). In particular, the bare NP + gerund combination can appear in contexts in which a raising analysis is excluded,[7] such as subject position:

(18) a. Jane dumping John like that was hard on the old boy.
b. John being promoted created discontent among his co-workers.

Ross (1973: 115) has noted that many people reject bare NP + gerund complementation in subject position, as in (18), but accept it elsewhere (e.g. (15) to (17))--this suggests that perhaps raising to oblique sentences have been reinterpreted by some speakers as a complementation option and then extended to novel uses, e.g. as subject. However, sentences like (18) have been around in English for a long time, apparently co-terminous chronologically with sentences such as (15b) or (16b), as shown by the evidence in Visser (1966: 1172 ff.). Therefore, this reinterpretation account of sentences like (18), which would rest on Raising to Oblique being a rule of English at some point in its history, is probably not valid. In addition, there is wide idiolectal and dialectal variation in the acceptability of possessive versus zero marking on the nominal with the gerund even in superficially parallel sentences, due in part to prescriptive grammarians advocating the possessive marking,[8] so the raising analysis could not hold for all dialects nor even for all registers within the same dialect.

Thus these putative Raising to Oblique sentences in English may well involve no raising at all and rather may be better analyzed as involving an optional spelling out, possessive versus zero, of the marking for the subject of a gerund. Therefore, even though Greek offers a suggestive parallel with the English sentences in question, the comparison may be just a mirage.

This situation in itself, though, is still of some theoretical interest. Despite the fact that two constructions are superfically so parallel that one is tempted to relate them cross-linguistically, in actuality, they turn out to be quite different, the Greek construction being a "legitimate" raising whereas the English being perhaps best viewed as an optional marking of the subject of a gerund. This shows, then, just how careful one must be in making cross-lingustic comparisons.

4.2: The second point of theoretical interest deriving from the analysis of Raising to Oblique in Greek concerns its implications for one of the proposed laws of Relational Grammar.[9] In particular, Raising to Oblique provides an apparent counter-example to the Host Limitation Law:

(19) Only a term (i.e. Subject, Direct Object, Indirect Object) can serve as the host of an ascension rule.

The host of an ascension rule is the nominal (possibly a clause) out of which another nominal is raised.

Raising to Oblique is a counter-example to (19) because although it involves a raising (i.e. is an ascension rule), the nominal out of which the ascension occurs is not a dependent of a verb, not a subject, direct object, or indirect object, and therefore not a term, by any conceivable test for termhood in Greek. Rather, it is what may be called an "oblique" object. Nonetheless, the evidence of section 1 indicates that this construction is a raising construction--therefore some revisions to the Host Limita-

tion Law are needed.

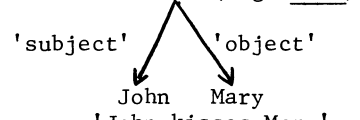
Before considering some such revisions, it is important to note that Greek Raising to Oblique is "well-behaved" with respect to other laws of Relational Grammar. In particular, it obeys the Relational Succession Law:

(20) A nominal promoted by an ascension rule assumes the grammatical relation borne by the host out of which it ascends.

Thus in the raisings with me (e.g. (1)), the subject is raised out of an oblique object (the clausal object of me) and, as predicted by the Relational Succession Law, the raised nominal itself becomes the oblique object of the preposition. As noted above in section 1, the case-marking and immediate post-me position indicate that the raised nominal is the new object of me. Similarly, in raisings out of genitival complements to head nouns (e.g. (11)), as predicted by (20), the raised nominal becomes the complement to the head noun, and in this situation, takes on the appropriate genitive case-marking. These considerations show that Raising to Oblique in Greek is not in some sense a "crazy" rule, one which might not be expected to conform to certain general constraints, since it obeys at least some of the basic laws of Relational Grammar. Therefore, the counter-example it provides to the Host Limitation Law cannot simply be dismissed as being from a rule which is strange in other respects as well, and so some revision to this law must be sought.

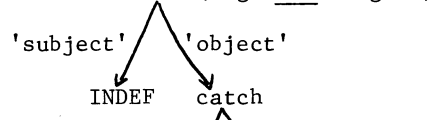
One possibility, though by no means the only one, would be to treat the complement of a noun such as θea 'sight' or a preposition such as me 'with' as standing in the same relation to its head as a dependent of a verb does to its governing verb. That is, with configurations such as in (21), one could unify these three types of complements, though there are certainly problems with such an approach:

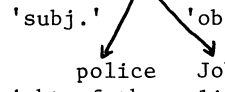
(21) a.



'John kisses Mary'

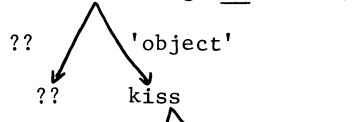
b.

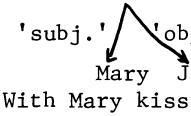




'The sight of the police catching John'

c.





'With Mary kissing John'

In this way, the Host Limitation Law could be redefined to hold for

nominals bearing a "term-like" relation to some governing element.

This is perhaps not so radical a suggestion regarding nouns (i.e. (21b)), especially nouns which clearly express a somewhat active verbal notion, such as 'sight' (Greek θea). However, with certain other nouns and with prepositions, this proposal is somewhat more radical and certainly more problematic, and may well involve too great a stretching of the notion "dependent" or "term" to be tolerated. For example, with nouns such as tasi 'tension', as in (12) above, it is harder to motivate the analysis in (21b), for this noun has no clear active verbal sense underlying it, i.e. tasi is not an action noun.

In the case of prepositions, this suggestion essentially involves treating prepositions as verbs,[10] which is perhaps plausible but not at all an obvious step. It is interesting to note, though, that the so-called "co-verbs" in Chinese are essentially instances of verbs being used to express "prepositional notions":[11]

(22) tā gěi wo mǎi yìběn shū
he give I buy one-volume book
'He bought a book for me'

In (22), the co-verb gei is used to express a benefactive notion. On the other hand, it is hard to imagine what a "subject" of a preposition might in fact be, parallel to the indefinite or unspecified subject of a noun like θea 'sight', though perhaps an apparent reduced relative clause such as:

(23) the building by the bank

may have building as a "subject" of a preposition.[12] Still, the parallelism is far from solid, and this analysis as a way of revising the Host Limitation Law may well be vitiated.

There may yet be a way out of this problem, with regard to prepositions, at least. The prepositional phrase which participates in the Raising to Oblique construction, i.e. me 'with' + S, is one which is semantically reducible to a PP consisting of a preposition with an abstract head noun with a sentential complement to that head noun. For example, with Mary kissing John in (1) could be paraphrased in this way as "with the fact of Mary kissing John" and with me standing there in (2) as "with the knowledge of my standing there" or even "with the expectation that I would be standing there". Thus a more abstract analysis of these prepositional phrases could provide a link with the analysis proposed for noun complements in (21b). In that way, notions like "dependent" or even "term" could be restricted just to constellations of noun and verb heads as "governors", and the Host Limitation Law could be appropriately defined to cover just these configurations.

On the other hand, maybe the Host Limitation Law simply must be given up, and these attempts at revisions abandoned. These revisions are meant as suggestions only, and should thus be taken on-

ly--they simply are not yet worked out in sufficient detail. Still, they do show that perhaps the counter-example to the Host Limitation Law provided by Raising to Oblique in Greek might be handled by a fairly simple and natural extension of the question of which linguistic elements can serve as "governors" upon which nominals may depend.

5. Conclusion

Thus the Raising to Oblique construction in Modern Greek has an intrinsic interest in terms of the description of the syntax of Greek. Yet it also has a more general interest; the analysis offered here extends the knowledge of the types of raising rules that can occur in natural language and thus contributes to the understanding of what constitutes a possible grammar of a language.

FOOTNOTES

*This work was supported in part by a Post-Doctoral Fellowship awarded by the Izaak Walton Killam Memorial Scholarship Committee of the University of Alberta. I would like to thank David Perlmutter for discussion that originally sparked some of the ideas contained herein, and Lee Becker and John Hogan for helpful discussion.

[1]This use of the neuter definite article is parallel to the so-called "articular infinitive" nominalization found in Classical Greek.

[2]It should be noted in passing that *me* seems to be the only preposition in Greek which occurs in this Raising to Oblique pattern. *Me* is also used in Greek for accompaniment and for instrumentation, as is its English counterpart *with*, and thus seems to qualify for the designation "preposition".

[3]The fact that *Maria* is no longer in the clause it originated in means also that this pattern cannot simply be taken as a "spell-out" option (of accusative) for a fonted subject of the embedded verb. Such an analysis, as suggested in section 4.1, may be correct for English, but it seems that it could not stand for the facts from Greek.

[4]As indicated by sentences (9) and (10), the application of a raising rule is necessary in order for the copy of a subject nominal to appear. See also Joseph (1976) and Joseph and Perlmutter (Forthcoming) for more details concerning these facts.

[5]There are some sentences in Greek which may involve the raising of a non-subject out of an object clause, and may therefore fal-

sify this generalization, for example:

(i) idan ton Yani pu ton epiase o astifilakas
saw/3PL John/ACC COMP him/ACC caught/3SG the-policeman/NOM
'They saw the policeman catch(ing) John'

However, all of these examples involve perception verbs, the analysis of which, as in English, is especially hard to determine. Thus, (i) may well have ton Yani as an underlying object of idan.

[6]To the extent that such a sentence is acceptable, it can be shown that it really involves a topicalization within the embedded clause--an NP such as ton Yani in (14a) passes no tests for membership in the matrix clause; it cannot cliticize onto the matrix verb when pronominalized, it cannot become the reflexive form under conditions of coreference with the matrix subject, and with appropriate matrix verbs (i.e. ones which can passivize) it cannot be promoted to subject by Passive.

[7]One might suppose that (18) involves a raising of Jane, for example, from subject of dumping to main-clause subject status, i.e. schematically $_S[_S[$Jane dumping John$]_S$ was hard ... $]_S$ ⟹ $_S[$Jane $?[\emptyset$ dumping John$]_?$ was hard ... $]_S$. However, with a conjoined or plural subject in the same sentence-type, plural agreement on the main verb causes an ungrammatical sentence:

(i) Jane and Mary both dumping John in successive weeks $\left\{\begin{matrix}\text{was}\\ *\text{were}\end{matrix}\right\}$ hard on him.

Thus it seems unlikely that Jane in (18a) is a main clause subject. Note that the sentence-type illustrated in (i) is probably distinct from that in (ii):

(ii) Jane and Mary were/*was hard on John, both dumping him in successive weeks.

in which both dumping him ... seems to be a modifying clause, less closely connected to the sentence, almost an aside (note also the comma/pause intonation preceding it).

[8]See Visser (1966: 1177-1179) for an account of this prescriptivism, with relevant citations.

[9]The statement of the laws in question comes from Class Lectures by David Perlmutter at M.I.T. in the Spring of 1976.

[10]It seems possible that preposition-like elements in some languages must be etymologizable as coming from earlier verbs, although most of the prepositions in Indo-European that I am aware of seem to come from case forms of nouns. Possibly, though, the use of given, in Modern English, which is clearly verbal in origin, but

seems prepositional in some of its functions, cf.:

(i) Even given his shortcomings, you could still do a lot worse for a husband.
(ii) Given (the fact) that 2 + 2 = 4, we can construct a theory of arithmetic.

offers an instructive parallel to the notion of prepositions as verbs.

[11]Thanks are due to John Hogan for bringing these Chinese facts to my attention.

[12]Thanks are again due to John Hogan for this example.

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ADDENDUM

Questions raised after the presentation of this paper pointed out that the nature of the oblique element out of which Raising occurs in this construction was not made clear, nor were all the possible avenues for testing the obliqueness of the raised nominal (especially Reflexivization as a test) explored. This addendum is an attempt to rectify this situation.

The me + S part of sentences like (1) to (3) is not an "integral" part of the main clause; rather it appears to be an adverbial adjunct to the whole sentence. Since the me + S adverbial specifies the conditions under which the activity in the main clause takes place, it can be identified as a "circumstantial" adverbial. Therefore, since

adverbials such as locatives or temporals are generally held (in Relational Grammar) to be oblique relations, it seems reasonable to treat a circumstantial like me + S as an oblique also.

Regarding the possibility of Reflexivization with the new oblique object in the raising versions of these sentences, the following comments are in order. Oblique objects in Greek normally can reflexivize:

(i) milisa s ton Yani ya ton eafton mu
spoke/1SG to John/ACC about the-self/ACC my
'I spoke to John about myself'.

However, the oblique object in the Raising to Oblique sentences with me seems not to reflexivize well; (iia) is (almost completely) ungrammatical while the source sentence (iib) is fine:

(ii) a. *?me ton eafton mu na vgazi to psomi tu,
the-self/ACC my take-out/3SG the-bread/ACC its

ekana tus gonis mu eftixis
made/1SG the-parents/ACC my happy/ACC.PL

b. me to na vgazo to psomi mu, ekana
the/NTR take-out/1SG my

tus gonis mu eftixis

'With me earning my own living, I have made my parents happy'

(for a discussion of the third person agreement in the complement clause with the Reflexive form, as indicated in (iia), see Joseph and Perlmutter (Forthcoming)). Reflexives can occur as these oblique objects somewhat more acceptably, but they seem not to be instances of Ordinary Reflexivization; for example, in (iii):

(iii) ?me ton eafton mu na dulevi toso sklira, teliosame grigora
the-self/ACC my work/1SG so hard finished/1PL quickly
'With myself working so hard, we finished quickly'

there is a first-person plural main clause subject, and so the antecedent conditions for Reflexivization are different from Ordinary Reflexivization (the equivalent in Greek of *We hit myself is unacceptable).

With oblique raisings out of a complement to a head noun, one finds Reflexives occurring acceptably:

(iv) i skepsi tu eaftu mu na pianete apo
the-thought/NOM the-self/GEN my be-caught/3SG.PASS by

tin astinomia me tromakse
the-police/ACC me/ACC scared/3SG

'The thought of myself being caught by the police scared me'.

These, however, seem to be a variety of "Picture Noun" Reflexivization, and again are therefore probably not instances of Ordinary Reflexivization. Thus the main evidence for the raised nominal being oblique itself is the case-marking and position relative to the governing word (preposition or head noun) that it displays.

Re-Weaving the Word-Web: Graph Theory and Rhymes

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0 Introduction[1]

My title, "Re-Weaving the Word-Web," refers to the ongoing effort to reconstruct earlier states of language [Joyce, 1977]. The word-web in question is that of sound and semantic associations in either prose or poetry. Today we have a much better idea how Chaucer may have pronounced his words than Dryden did, for example. However, we do not have recordings of the actual speech — such as those made by Tennyson, Browning, and others in the nineteenth century [Tennyson, 1956] — with which to guide our re-weaving of marks on the manuscript page that are the suggestions of sounds into knowledge of how to produce those sounds.

Our knowledge of how an earlier state of a language may have sounded is developed from a series of hypotheses formed from written records or extrapolated from present oral practices [McIntosh, 1956, 1963]. A primary source for evidence of pronunciation is that of end-rhymes in poetry having recognizable rhyme schemes. The traditional technique for using rhyme data has been to gather rhymes into an alphabetized list (a rhyming dictionary) and, with other language data, determine what a group of rhyming words may have sounded like. A rhyming dictionary, such as the recent computer-produced dictionary to Pushkin's rhymes [Shaw, 1974], does not preserve an important aspect of rhyme: rhymes may be linked by one or more words intermediate — that is, by a *chain* of rhyming words. The addition of such features to a rhyming dictionary as a frequency count for pairs of rhymes is helpful, but does not address the issue of preserving the chain that allows one to associate word *a* and word *c* via word *b*.

Drawing from mathematical graph theory and applications of that theory in other fields, we may represent rhymes as nodes in a *directed graph*, or, more simply, *graph*. A line connecting two words indicates that they are linked as rhymes *according to the rhyme scheme of the poem*. Visually, the graph is a web with words embedded in it. This graph may be explored and interpreted using results from graph theory to provide both phonological and semantic insights. An algorithm for guiding collocation of rhyme graph data and other language data will be discussed, with examples given from the Middle English *Pearl*.

1 A Brief Summary of *Pearl*[2]

For those who may not know *Pearl* or whose recollection is somewhat hazy, it is necessary to review the salient points of the poem because semantic aspects of the word-web require at least a cursory familiarity with the poem. The North-west Midlands *Pearl* is a late medieval allegorical poem in the form of a debate within a vision. This debate genre began with Boethius' *The Consolation of Philosophy*, and was a popular

[1] The research reported here was aided in part by Sigma Xi, the scientific research society of North America.
[2] This summary is an abridged form of one done by my wife and colleague, Tanya Joyce. She is not responsible, however, for errors introduced by me in summarizing her summary.

literary form throughout the Middle Ages. Just as Boethius is deeply troubled at having been made an exile from his homeland at the beginning of *The Consolation*, the narrator is also grieving at a loss — that of his Pearl — and though he has been taught that he may find comfort through the nature of Christ, his will, unhappy, continues to grieve. The Pearl slipped away from the narrator in an enclosed garden, and the narrator, falling among the sweet spice flowers of the garden, experiences a vision of the Pearl.

In the vision, the Pearl is a radiant maiden who instructs the narrator. Just as Lady Philosophy in Boethius' vision tells the author it is now time for healing and not lamentation, the Pearl tells the narrator (also identified as the Jeweller) that he is mistaken in thinking he has lost his Pearl. The Jeweller and the Pearl engage in a debate, and the concepts of the debate confuse and upset the Jeweller. Distinctions between worldly and spiritual comfort appear to the Jeweller to doom him to sorrow. He is upset also to learn that the Pearl is a bride of Christ, because she died at a very young age and had not (to the Jeweller/Narrator) earned the high rank she now possesses. The Pearl uses the Parable of the Vineyard to instruct the Jeweller that God's grace makes it possible for grace to be shared equally by those who deserve it — no matter how long they have lived according to Christian doctrine, or whether or not they died young. Christ died for the love of man in the worldly city of Jerusalem, and now, in the Heavenly city of New Jerusalem, Christ comes each day to celebrate with music and dancing.

The narrator is shown New Jerusalem, and it is so beautiful that he wants to cross the stream separating him and the Pearl maiden, whether or not this crossing means his death. He struggles to cross, and wakes up in the attempt. Having awakened from the vision, the narrator mournfully accepts the lesson of The Parable of the Vineyard; he will become a servant of God, assuming his correct role in the lowest station in God's spiritual court.

2 Recognition of End-Rhymes

The poem *Pearl* is 101 stanzas in length, rhyming a b a b a b a b c b c. This rhyme scheme is easy to recognize from orthographic data in the unique manuscript, Cotton Nero A.x, Article 3, in the British Library and in the various editions of the poem, as can be seen from the first stanza of the poem, in Figure 1.

Perle, plesaunte to prynces paye
To clanly clos in golde so clere,
Out of oryent, I hardyly saye,
Ne proued I neuer her precios pere.
So rounde, so reken in vche araye,
So smal, so smothe her syde3 were,
Quere-so-euer I jugged gemme3 gaye,
I sette hyr sengeley in synglere.
Allas! I leste hyr in on erbere;
Thur3 gresse to grounde hit from me yot.
I dewyne, fordolked of luf-daungere
Of that pryuy perle wythouten spot.

Figure 1: Stanza 1 of *Pearl* [Gordon, 1953]

It is a basic function of rhyme to make use of a word to recall the final cluster of sounds, typically one syllable's worth, in a word that occured previously. When such a

relation exists between words both of which occur at the end of a line, we say the words are end-rhymes. Other kinds of rhyme, such as internal rhyme, which abound plentifully in *Pearl*, are beyond the scope of the present investigation, although a complete study of rhyme evidence would need to address itself to other rhymes in addition to end-rhymes.

When we see the poem on the page there is the temptation to perceive the end-rhymes as inter-relating back and forth; that is, the sequence of *a*-rhymes in the first stanza — paye, saye, araye, gaye — appear visually to exist simultaneously in the stanzaic unit, and they do *as text.* However, in performing the poem — either by reading or hearing it — we encounter the words and their sounds one at a time, ordered by time itself; that is, we read from the first word to the last, in sequence. The progression of the poem is forward, but the end-rhymes reverse our attention: when we encounter *saye* we recall *paye*, for example. One might argue that after reading or hearing one stanza of *Pearl* we would, upon reading *saye*, anticipate *araye.* However, given the number of possible words that one might anticipate as being rhymed the effect of anticipation must necessarily be a weaker relation than that of recalling a particular, already-encountered word. Indeed, were we able to predict a rhyme word we would feel the poet's craft was lacking, as in some twentieth-century popular song lyrics in which *moon* is all-too-predictably rhymed with *June.*

The *recalls* relation among end-rhymes is one that reverses the normal flow of time in a poem. It is also true that though one does not expect to be able to anticipate a rhyme word, when the rhyme is arrived at in a performance of the poem there is an emphasis on the rhyme because its sound recalls one encountered earlier. That is, recall of a sound from one word has the effect of emphasizing the later-occuring word. Rhyme as an ornament for emphasis is a commonplace of prosody, yet the emphasis takes its strength from the relation of a second word to a first. That is, any emphasis depends upon the relation *recalls* to give it force. The relation *recalls* is the fundamental relation among rhymes, and is thus a reasonable relation to model.

3 Rationale for the Rhyme-Pair Model

The rhyme scheme of *Pearl* is self-evidently complex. A model of the rhymes should reflect that complexity if it is to model the relations among the rhymes adequately. The *a*-rhymes of the poem, for example, set up a multiplicity of recalling relations as one perceives each additional rhyme. This multiplicity might be modelled as an n-tuple, where n is the number of *a*-rhymes; the *a*-rhymes in the first stanza would be the 4-tuple: (paye, saye, araye, gaye). Other occurences of, for example, *paye* might be in other 4-tuples (*a*-rhymes), 6-tuples (*b*-rhymes) or pairs (*c*-rhymes, such as the couplet of the last stanza of the poem). Using such a model would prove awkward mathematically, and it is rejected for this reason without further discussion.

To construct another model we might take each occurence of rhyme as a relation among two words: that is, the word recalled and the word recalling it. The ordered pairs for the *a*-rhymes of stanza 1 are, then: (saye, paye); (araye, paye); (gaye, paye); (araye, saye); (gaye, saye); and (gaye, araye). This model has the advantage that all rhymes are represented as ordered pairs, and these ordered pairs have a convenient representation, as we shall see shortly, as nodes in a directed graph. The model has what appears to be a disadvantage in that each rhyme pair is represented in the same manner whether the rhymes are in consecutive lines, as are the *c*-rhymes, or are separated by a distance of 8 lines, as is the case of the first and last of the *b*-rhymes. The strength of recollection, intuitively, is greater when the rhymes are couplets rather than when they are separated by a long distance. However, it is not the strength of an individual *recalls* relation but the relation's very existence that is being modelled. The

model captures the phenomenon that one word recalls another in a corresponding rhyming position in the stanza.

There is, unfortunately, at least one knotty problem that is true in *Pearl* which, for most rhymed verse, usually is not the case: the stanza both is and is not the contained unit for rhymes in the poem. There are nineteen sections of five stanzas and one section containing six stanzas, each stanza within a section being linked by the same concluding *c*-rhyme. This relationship complicates matters in that one might venture to say that all the *c*-rhymes in a section thus recall all previous *c*-rhymes in that section. From my own experience in reading the poem both silently and aloud it appears unlikely that *yot* (line 10), which is recalled by *spot* (line 12), is also recalled by *clot* (stanza 2, line 10), *not* (stanza 3, line 10), *flot* (stanza 4, line 10), and *schot* (stanza 5, line 10). What does appear likely is that the last word for each stanza recalls the last word for previous stanzas in the same section. As the word each concluding *c*-rhyme recalls is the same word (admittedly sometimes in different senses of the word) in all but two instances (lines 203 and 912), the amount of rhyme data we risk losing at this stage does not require compromising a cautious approach to the data. Within each section, the concluding *c*-rhyme of the stanza — or the root of the *c*-rhyme — is used in the first line of the next stanza. It establishes the alliterative sound for that first line in most cases and is also carried from the final *c*-rhyme in a section to the first line of the following section. The pattern is consistent with one exception, the first line of section thirteen, line 721, which does not use the final *c*-rhyme (or its root) from the previous stanza (though the word, *ryght*, appears later in the stanza).

4 Rhyme pairs and Adjacency Matrices

One may think of a matrix as a table of data arranged into rows (vertically) and columns (horizontally). There is one row and one column for each distinct rhyme word. Thus an adjacency matrix that corresponds to the *a*-rhymes in stanza 1 of *Pearl* will contain four rows and four columns because there are four distinct rhyme words among the *a*-rhymes: araye, gaye, paye, and saye. It is customary to take the left part of the ordered pair as the row indicator, and the right part as the column indicator. Thus for the pair (saye, paye) we find the row for *saye* and the column for *paye*, and indicate the pair is in the matrix by entering the value 1 in the location down-to-the-row-for-saye and across-to-the-column-for-paye:

	araye	gaye	paye	saye
araye				
gaye				
paye				
saye			1	

The pairs are entered into the matrix until there are no more to enter. Those entries not having a 1 in them are set to 0, which we interpret to mean that there is not a rhyme pair in the poem corresponding to this combination. The adjacency matrix for *paye* in stanza 1 of *Pearl* is Figure 2.

	araye	gaye	paye	saye
araye	0	0	1	1
gaye	1	0	1	1
paye	0	0	0	0
saye	0	0	1	0

Figure 2: Adjacency Matrix for *paye* in Stanza 1

In the matrix a zero entry for the pair (paye, gaye) means *only* that *paye* does not recall *gaye* in stanza one, not that the two words do not rhyme! The delicate step from saying one word recalls another to asserting the two words rhyme may, as shall be shown later, be justified by the properties of the graph. These properties, based on the poem, constitute primary evidence for pronunciation and semantic association, thus becoming important aids in a coherent reconstruction of language. The adjacency matrix is an important aggregate of the rhymes preparatory to systematic exploration by transformations of the adjacency matrix and also augmentation of rhyme data by other traditional resources.[3]

The adjacency matrix may be used to assess interesting and useful properties of the rhyme words, though such a small matrix should not be the basis of grand interpretations, but rather serve simply as an illustration that is easy to read, examine, and follow. The rows of the matrix represent recalling words, and columns represent recalled words. One indication of sound associations is the word that is most often recalled. It is, intuitively, the word the poet wishes the reader/listener to recall, to remember. The word most often recalled is the most *popular* rhyme. To find it from the adjacency matrix we note the word having the largest column total. The adjacency matrix for *paye* in stanza 1 of *Pearl* with column totals is Figure 3.

	araye	gaye	paye	saye
araye	0	0	1	1
gaye	1	0	1	1
paye	0	0	0	0
saye	0	0	1	0
Totals	1	0	3	2

Figure 3: Adjacency Matrix with Column Totals

The most popular word is *paye*, a situation deriving from *paye's* position as the first of the *a*-rhymes in the stanza. Although it is tempting to note that one may view *Pearl* as a poem about the price of salvation and thus *paye* (which has been translated "price" more than once) is significantly placed in the stanza, it is wiser to wait until we have the rhyme graph for *paye* in the entire poem before launching into interpretations or justifications.

5 Adjacency Matrices and Graphs

In translating an adjacency matrix into a graph to gain a visual sense of the interconnectedness of the rhyme graph there are several basic guidelines one may follow in drawing the graph:

1) The fewest lines should cross;
   a graph with no crossed lines is *planar.*
2) The most popular rhyme should be visually near the center of the graph, subject to considerations in point 1.

[3] It is not a difficult task to write a computer program that, using the rhyme scheme as the rule for pairing words, will find the pairs of end-rhymes for the entire of *Pearl.* These pairs may be associated through construction of an adjacency matrix [Harary, 1965; Christofides, 1975], a convenient representation that facilitates analysis of the rhyme graphs and their properties. Construction of the adjacency matrix may (and, to avoid tedium, *should*) be done by a computer program that uses linked lists to implement a sparse array and prints the matrix for all words linked as rhymes with each other using Warshall's algorithm [Pfaltz, 1977; Tremblay, 1976].

Following these guidelines gives the graph for *paye* in stanza 1 of *Pearl*, Figure 4.

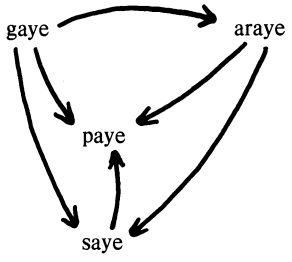


Figure 4: Graph for *paye* in Stanza 1

Having shown in some detail the exact relationships among how one derives ordered pairs from a poem using its rhyme scheme, how the ordered pairs may be entered into an adjacency matrix, and how one may draw a graph from the adjacency matrix, it is appropriate to examine a graph for which the results are more significant than in the simple example of Figure 4. The graph for all rhymes with *paye*, however distantly they are connected, is given in Figure 5.

It is apparent why simpler examples were given earlier; the interconnections here are so great in number that a planar graph for all the rhymes could not be drawn. The principle that the graph should have the fewest crossed lines has, as far as can be determined, been adhered to, and yet there are a great many crossed lines. The most popular rhyme, however, is near the center of the graph, and it is *say(e)*. The spelling *say(e)* means that *say* and *saye* are both represented by the single node labelled *say(e)*. That is, the two forms have been identified as being spelling variations rather than different words or different forms of the same word. Some of the arrows connecting two words have a number associated with them; this indicates the number of times the word *aray(e)*, for example, recalls the word *say(e)*. The adjacency matrix, strictly speaking, does not record multiple occurences. The reason for this is a matter of definition [Harary, 1965; Christofides, 1975].

6 More on the "Most Popular" Rhyme

The wisdom of refraining from a justification for *paye* being the most popular rhyme in stanza 1 is clearer now that the graph for all words rhyming with *paye* in the poem is at hand: the word *say(e)*, rather than the word *pay(e)*, is the most popular word in the graph. Yet the word *say(e)* seems too common a word to occupy a position designated as most popular. Can reasons be found, without stretching for an interpretation, to justify the word in that position? Until now the rhyme graph has been treated as a vehicle for phonological data; it is now explored as a semantic network.

The point made earlier about rhyme as a form of emphasis pertains to the semantic linking of words just as it does to the phonological linking. Throughout the history of end-rhyme it is a test of the skill of the poet to place appropriate words in rhyming positions. This test of appropriateness does not stop at the level of sound, as the earlier example of *moon/June* illustrates: a rhyme may be true yet still clunk. The excellent craftsmanship of *Pearl* is apparent enough that any doubt about the placement of words in the poem is probably more a reflection of our own lack of ability to perceive than the poet's to create — a principle that may be generalized to other works of art readily. This is not to say that the poet could not have put *say(e)* in a position to be recalled often because of the need for a rhyme, or that the poem is a narrative and thus there is

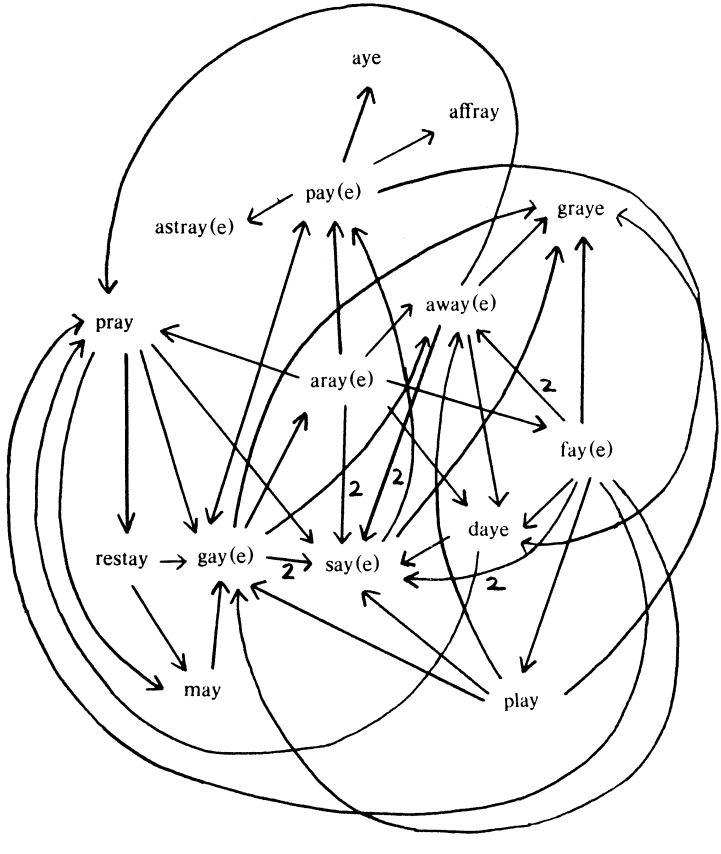

aye
affray
pay(e)
astray(e)
graye
away(e)
pray
aray(e)
fay(e)
daye
restay
gay(e)
say(e)
may
play
2
2
2
2
2

Figure 5

quite a bit of saying; however, such reasons should be given as a last resort rather than as a first impulse.

In another large graph in the poem, that for the word *juele/iuele/iuelle* ("jewel" in its variant spellings), the most popular word is *mel(l)e* ("speak, tell"); see Figure 6 for this graph. I have argued elsewhere [Joyce, 1977] that evidence from various rhyme graphs and *The Middle English Dictionary* lead me to consider *mele* and *melle* as spelling variants of the same word.[4] The graph for "jewel" is important for several reasons: its size, as it is among the largest for the poem; also, the jewel is a direct reference to the Pearl-maiden, the lost loved one who is a bride of Christ and upon whom the narrator of the poem focusses his attention. The most popular word is again another word for speaking; this might be just a coincidence, but there are reasons in the tradition from which the *Pearl* comes that provide a unifying explanation.

As indicated in the summary of *Pearl*, above, the narrator and the Pearl-maiden engage in a debate. The debate form in medieval literature was an important vehicle through which mankind could understand God's truth [Piehler, 1971]. That is, through the saying and speaking that is debate God's truth is knowable to mankind. Thus the early emphasis on *Pearl* as an elegy in late nineteenth century criticism is misplaced, as is the later emphasis on the poem as an allegory [Schofield, 1904]. The emphasis on synonyms for speaking, as shown in the rhyme graphs, points to the poet's central concern with the debate process of the poem.

But again the question of the need for a rhyme or the need for words such as "he said" and "she said" in a narrative with dialogue needs to be examined. If we study rhyme graphs for the *Pearl*-poet's contemporary, Geoffrey Chaucer, we find that in *The Knight's Tale* (which contains approximately the same proportion of dialogue as *Pearl*) the large graphs do not have as the most popular rhymes synonyms for speaking, but rather the names of characters — Arcite, Emily, and Palamon, and so on. Chaucer's concern for character is well-known, and is reflected in the rhyme graphs. The *Pearl*-poet does not ignore character, but the rhyme graphs emphasize the process for knowing God's will, the debate, rather than the individuals engaged in the debate. This attitude on the part of the *Pearl*-poet may strike us as properly medieval, just as Chaucer's emphasis on character may strike us as Renaissance-like — a term used to describe Chaucer's art more than once.

There is not space here to answer all objections and counter-proposals to my interpretations of the reason certain kinds of words appear in rhyme graphs for the *Pearl*-poet and in Chaucer. The purpose of giving these examples is to introduce the concept that rhyme graphs as semantic networks function as plausible structures for interpretation. The lines that connect any two words in a graph, we must remember, were put there by the poet; the associations, therefore, are surely his.

The most popular rhyme in a rhyme graph, as has been mentioned several times, is the word most often recalled by words in that graph. The rhyme sound in any recalled word is, for the pair of rhyme words, the *true* rhyme, as it occurs first and establishes the expectation for what the sound will be; the second word is or is not a true rhyme, depending upon the aesthetic for rhyming operative for the verse of that particular time. The most popular rhyme in a rhyme graph, then, is the *true rhyme* for the rhyme graph; another way of putting it might be that the most popular word is the *best embodiment* of the rhyme sound the graph represents. All words in the rhyme graph that, given the poet's aesthetic of rhyme, share the most popular rhyme's sound

[4] Of the two editions of the poems that have been published since my 1977 article was written, one does not address the question [Moorman, 1977], but the other appears to agree with me in that the glossary gives "mel(l)e" rather than a separate entry for each [Andrew, 1978].

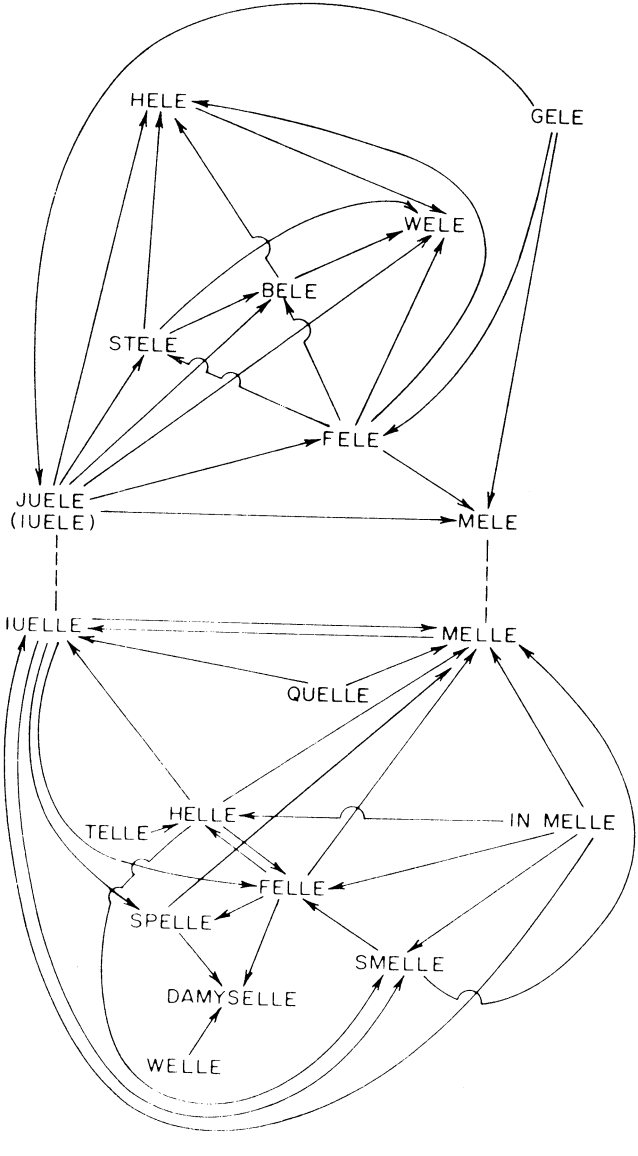

HELE
GELE
WELE
BELE
STELE
FELE
JUELE
(IUELE)
MELE
IUELLE
MELLE
QUELLE
HELLE
IN MELLE
TELLE
FELLE
SPELLE
SMELLE
DAMYSELLE
WELLE

Figure 6

are members of the set of *true rhymes* for the graph. These definitions arise from the graph model of rhyme relationships, and provide precise definitions for literary phenomena.

Such definitions clearly acknowledge that words may appear in a rhyme graph because of their association by a rhyme scheme and yet not be true rhymes. One technique of rhyming is to use a rhyme scheme established earlier in the poem to link two words that do not sound alike and thus to achieve slant rhyme or eye rhyme. Were the rhyme graph model to assert that all words in any rhyme graph are always true rhymes the model, though succeeding often, would be seriously flawed and its usefulness limited. There is a line of reasoning, however, that does allow a hypothesis about which rhymes are likely to be true rhymes, based upon a particular property of the rhyme graph: its *strong components.*

7 Strong Components in Rhyme Graphs

A *strong component* is a path (obeying the arrows as though they were one-way streets) from a word *w* through a series of words returning at last to *w.* In the graph for *pay(e)* in all of *Pearl,* the pair (pay(e), gay(e)) and also (gay(e), pay(e)) exist, and thus there is a path from pay(e) to gay(e), and a path from gay(e) to pay(e); this path is one *strong component.* Remembering that the pairs are made up of words associated by the rhyme scheme in the relation *recalls,* we interpret the strong component as *pay(e)* recalls *gay(e)* and *gay(e)* recalls *pay(e).* Each recalls a sound in the other, a situation that strongly implies that the sound recalled in each pair is the same sound. *Strongly implies* is not the same as *proves,* however. Indeed, a graph (or any other) model of a relation does not *prove* facts about the relation, but rather *implies* the facts exist — if the model is a valid one. In graph theory it is common to treat strong components as if they condensed to a single point. It would be absurd to say that the condensation of *gay(e)* and *pay(e)* means that the two words are the same; rather, it is meaningful to say that they *rhyme;* thus the relation *recalls* provides a means of predicting the relation *rhymes.*

More generally, all words in a strong component are rhymes with each other. The graph for *pay(e)* is so interconnected that only the words *astraye, aye, affray,* and *graye* are not part of the largest strong component that includes *pay(e).* All words in a strong component are also *true rhymes* with each other in that no matter which word in the strong component is the most popular word within that strong component, the other words in the strong component rhyme with it. Thus they are all *true rhymes* with each other. If the strong component includes the most popular rhyme for the graph, as defined above, the *true rhyme* for the graph, all words in the strong component are *true rhymes* for the graph.

The concept of what is a *true rhyme* and what is not depends upon the aesthetics of the writer and the time in which the verse is written. Thus if the language of a particular time is known, its aesthetic of rhyme may be established by determing the degree of conformity of sound between words in the same strong component. The aesthetic is thus expressible precisely. Comparative studies of a particular aesthetic of rhyme may be done either synchronically to establish a region or nation's aesthetic (and language) at a particular time, or diachronically to study the change over time.

Words not in a strong component are simply words connected in the graph; inference about their being true rhymes or other kinds of rhyme (slant, eye, etc.) requires further study of the graph's structure and, of course, external evidence as well. Exploring the graph's structure requires some means of exploration, and that means is obtained through interpretation of mathematical properties of the graph, as has been done is several examples earlier. The next aspect of the rhyme graph model is a

method for determining words to study as possible rhymes using *external* evidence that will realize the greatest contribution to further interpretation using the rhyme graph model.

8 An Algorithm for Scholarship

Strong components in a graph are important in that the model predicts that all words in a strong component will be true rhymes. Thus we want to find the largest number of words that are in the same strong component.[5] It would make matters even easier if the rhyme graph were one large strong component. The graph for *pay(e)*, Figure 5, comes close in that only *astraye, aye, affray, and graye* are not part of the large strong component in the graph. The graph for *juele*, Figure 6, is a different matter, however, in that the words in the strong component are *juele, fele, mel(l)e, helle, felle,* and *smelle.* The great majority of words in the graph for *juele* are not in a strong component, and will require evidence external to the rhyme graph to identify them as true rhymes.

However, there is a way of reducing the number of words that need to be examined using evidence external to the poem to identify them as true rhymes. Since words in a strong component are considered true rhymes, there should be a method for finding the two words that, if identified as true rhymes, and thus connected with a link joining them in the rhyme graph, will add the largest number of nodes to the largest strong component in the rhyme graph. This problem involves calculating the *marginal complexity* [Rhodes, 1973; Kahn, 1977] of the graph. As Kahn succinctly puts it, "intuitively, marginal complexity measures the greatest change in complexity [in a graph] when an arrow is added from a given vertex [word] to any other vertex [word] in the graph." The concept of a graph's complexity, as defined by Rhodes, is $CX(G) = n - 2$, where n is the number of words in the graph's largest strong component.[6]

In Figure 6, the greatest change in complexity may be realized in four different ways. That is, there is a tie among four pairs of words as to the number of words they will add to the strong component. These pairs are (wele, gele), (wele, in melle), (wele, telle), and (wele, quelle). To take one such pair, (wele, gele), the words added to the strong component are *stele, bele, wele, hele,* and *gele.* The other pairs that tie for the number of words they will add to the strong component add the same first four words as *gele*, adding themselves just as the pair (wele, gele) adds *gele* to the strong component. It is apparent that *wele* is the crucial word here, as it is the first word in every pair.[7]

Knowing the rhyme pairs for which marginal complexity in the associated rhyme graph is greatest informs us where to direct scholarly activity to realize the greatest return in results. If scholarship provides reasons for considering the words *wele* and *gele* as true rhymes that arrow should be added to the graph and marginal complexity computed again. The rhyme pair that yields greatest marginal complexity again informs the scholar where to direct scholarly activity to realize the greatest return in results. This procedure may be followed until all words in the graph are in a strong component. Thus calculating marginal complexity in a rhyme graph provides an algorithm for scholarship.

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[5] A strong component may be composed of several smaller strong components, or two strong components having only one word in common (figure-8 style), and still be a strong component.

[6] For anything but the simplest graphs calculation of marginal complexity can best be done by computer. A program in Pascal is available that computes marginal complexity.

[7] The fact that *wele* is a reference to the Pearl-maiden should not be missed here, though interpretation of the semantic associations must await another writing.

If a particular pair of words yielding greatest marginal complexity prove not to rhyme, based on scholarly use of external evidence, delete the word in the pair most likely to be a slant rhyme from the graph and recalculate marginal complexity. If the most likely candidate of the two cannot be determined, delete one of the words and recalculate; then restore it to the graph, delete the other word, and recalculate. Two graphs result, and two marginal complexity values. Direct scholarly activity toward the graph having largest marginal complexity. Note that because the pairs of words associated by marginal complexity were not in the strong component for the original graph, and because we remove only one word at a time, we lose the least amount of evidence for pronunciation in trying to determine which words are true rhymes through this technique.

9 Conclusion

The rhyme graph model is an improvement over the traditional treatment of rhyme evidence as an alphabetized list of words. The model encourages both phonological and semantic interpretations of its properties because it preserves the interrelations among words established by the use of rhyme. It is possible to use the rhyme graph's structure to guide scholarly activity to associate data in the graph with external evidence for pronunciation.

Future uses of the rhyme graph model are many and varied. They include the combination of rhyme graphs for poetry of a particular dialect region to construct a model of the dialect. They also include study of rhyme graphs for a particular word from poetry written at different times to determine changes in pronunciation over time. These phonological studies have their semantic counterparts as well, the interpretation of which may bring new insight into the poetry of a time or place.

The rhyme graph model, like any other model, is not fool-proof in that the model provides the evidence for interpretation, but not the interpretation itself. Fortunately, the model may be studied using a computer to perform the more time-consuming and tiresome calculations.[8] Machine-aided analysis also makes it feasible to duplicate the research reported here using other poets and poetry to test whether the arguments for generality indeed hold. Early efforts along these lines confirm what has been reported here, and there is much room for further refinements in interpretation through further exploration of results in graph theory.

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[8] Credit for the various programs used in this study go to students past and present, whose observations and efforts speeded research time considerably. The individuals are (in alphabetical order): Cayford Burrell, Dennis Caswell, Renée Stoddard, and David Wilkes. A complete list of acknowledgements would exceed the space available here.

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FUNCTIONAL GRAMMAR

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Introduction

The term *functional grammar* has been used before, notably by Dik (1978). I risk adding to the number of its meanings here, and thus debasing its value, only because it is peculiarly apt for this new employment. I propose to outline a new grammatical formalism which, if it can be successfully developed, will be worthy of the name *functional* on three counts. First, it is required to *function* as part of a model of language production and comprehension. The formalism is interpretable by an abstract machine whose operation is intended to model the syntactic processing of sentences by speakers and hearers indifferently. This is not to say that it is not also intended to represent a speaker's grammatical competence. Secondly, the formalism ascribes to every sentence, word, and phrase, a *functional description* which differs from the structural description of better known formalisms mainly by stressing the function that a part plays in a whole rather than the position a part occupies in a sequence of others. The names of grammatical categories, like *S*, *NP*, and *VP* will therefore play a secondary role to terms like *subject*, *object*, and *modifier*. Thirdly, properties that distinguish among logically equivalent sentences will have equal importance with properties that they share. In other words, this will be a functionalist view of grammar in which notions like *topic* and *focus*, *given* and *new* will have equal status with *subject* and *predicate*, *positive* and *negative*.

For the most part, theoretical linguists see a grammar as an abstract device that characterizes the presumably infinite set of sentences of a language, that is, which differentiates the sentences from other strings which are not sentences. Computational linguists, on the other hand, have usually taken a grammar to be a transducer showing how a meaning comes to be represented as a string of words or, more frequently, how a string of words is analyzed to reveal its meaning. Functional grammar has both aspects. It can also be said to be a transducer whose input is a more or less incomplete account of the syntactic relations among the parts of a sentence and whose output is one or more accounts which are complete according to the theory. Given a more or less incomplete description, it verifies that it describes a legal grammatical object—a word, phrase, or sentence—and adds such additional detail as the grammar allows. If it is not a legal grammatical object, no output is produced. If it is, one or more descriptions are produced, each an enrichment of the original, but reflecting different grammatical interpretations.

The ideal speaker comes to the syntactic processor wanting a sentence with a certain meaning; the processor's job is to complete his picture of the sentence by supplying appropriate words and phrases. The ideal hearer has a complete description of the words in the sentence but needs descriptions of the phrases and the meaning of the whole to complete the picture. A more realistic hearer starts with a picture including imperfectly heard words and some notions about what is being said and needs details filled in in a variety of places. In any case, the process consists in applying the grammar to a functional description to yield a more complete functional description or, if the description does not correspond to a grammatical object, the null functional description.

Functional Descriptions

Intuitively, a description is a set of properties. The objects it describes are those that share just those properties. Generally speaking, to add new properties to a description is to reduce the number of objects in the set described. In fact, there is a duality in the set-theoretic properties of descriptions and those of their extensions, that is, the sets of objects described. Thus, the empty description applies to all objects; the union of two descriptions applies to the intersections of the sets they individually describe, and the intersection of a pair of descriptions applies to the union of the two original sets of objects. Functional descriptions are defined in such a way as to preserve these intuitive properties. So, suppose that $F(s_1) \cdots F(s_4)$ describe sentences (1) $\cdots$ (4) respectively.

Brutus killed Caesar	(1)
Cassius killed Caesar	(2)
John hit Caesar	(3)
John wrote a book	(4)
$\cdots$ *killed Caesar*	(5)
John $\cdots$	(6)
John killed Caesar	(7)

$F(s_5) = F(s_1) \cap F(s_2)$ is a description of all the sentences that have the predicate *killed Caesar* and $F(s_6) = F(s_3) \cap F(s_4)$ is a description of all sentence of which *John* is the subject. $F(s_7) = F(s_5) \cup F(s_6)$ describes sentence (7).

A simple functional description consists of a possibly empty set of *patterns* and a list of attributes with associated values. I shall come to the form and function of patterns shortly. For the moment, we shall consider the attribute-value pairs.

The attributes in a functional description must be distinct from one another so that if a functional description F contains the attribute a, the phrase "the a of F" uniquely identifies a value. An attribute is a *symbol*, that is, a string of letters. A value is a symbol or another functional description. In the notation I shall use, symbols are to be interpreted as representing attributes when they are immediately followed by an "=" sign or when they are written inside angle brackets. Otherwise, they are values. So, in (8), ALPHA and BETA are attributes and GAMMA is a value.

$$[\text{ALPHA} = \text{BETA} = \text{GAMMA}] \tag{8}$$

The list of attribute-value pairs in a functional description is written in square brackets, the members of each pair separated by the equal-sign. No significance attaches to the order in which the attribute-value pairs are written. Thus, for example, (9) might be a description, albeit a very simple one, of the sentence *he saw her*. In what follows, I shall use upper-case letters for true atomic values and lowercase letters as an informal surrogate for complex values whose details are either irrelevant or readily inferrable from the context.

If the values of SUBJ and DOBJ are reversed in (9), and the value of VOICE changed to PASSIVE, it becomes a description of the sentence *She was seen by him*. However, in both this and the original

$$\begin{bmatrix} \text{CAT} & = & \text{S} \\ \text{SUBJ} & = & \begin{bmatrix} \text{CAT} & = & \text{PRON} \\ \text{GENDER} & = & \text{MASC} \\ \text{CASE} & = & \text{NOM} \\ \text{NUMBER} & = & \text{SING} \\ \text{PERSON} & = & 3 \end{bmatrix} \\ \text{DOBJ} & = & \begin{bmatrix} \text{CAT} & = & \text{PRON} \\ \text{GENDER} & = & \text{FEM} \\ \text{CASE} & = & \text{ACC} \\ \text{NUMBER} & = & \text{SING} \\ \text{PERSON} & = & 3 \end{bmatrix} \\ \text{VERB} & = & \text{SEE} \\ \text{TENSE} & = & \text{PAST} \\ \text{VOICE} & = & \text{ACTIVE} \end{bmatrix} \tag{9}$$

$$\begin{bmatrix} \text{CAT} & = & \text{S} \\ \text{PROT} & = & \begin{bmatrix} \text{CAT} & = & \text{PRON} \\ \text{GENDER} & = & \text{MASC} \\ \text{NUMBER} & = & \text{SING} \\ \text{PERSON} & = & 3 \end{bmatrix} \\ \text{GOAL} & = & \begin{bmatrix} \text{CAT} & = & \text{PRON} \\ \text{GENDER} & = & \text{FEM} \\ \text{NUMBER} & = & \text{SING} \\ \text{PERSON} & = & 3 \end{bmatrix} \\ \text{VERB} & = & \text{SEE} \\ \text{TENSE} & = & \text{PAST} \end{bmatrix} \tag{10}$$

$$\begin{bmatrix} \text{CAT} & = & \text{S} \\ \text{SUBJ} = \text{PROT} & = & \begin{bmatrix} \text{CAT} & = & \text{PRON} \\ \text{GENDER} & = & \text{MASC} \\ \text{CASE} & = & \text{NOM} \\ \text{NUMBER} & = & \text{SING} \\ \text{PERSON} & = & 3 \end{bmatrix} \\ \text{DOBJ} = \text{GOAL} & = & \begin{bmatrix} \text{CAT} & = & \text{PRON} \\ \text{GENDER} & = & \text{FEM} \\ \text{CASE} & = & \text{ACC} \\ \text{NUMBER} & = & \text{SING} \\ \text{PERSON} & = & 3 \end{bmatrix} \\ \text{VERB} & = & \text{SEE} \\ \text{TENSE} & = & \text{PAST} \\ \text{VOICE} & = & \text{ACTIVE} \end{bmatrix} \tag{11}$$

sentence, *he* is the protagonist (PROT), or logical subject, and *she* the goal (GOAL) of the action, or logical direct object. In other words, both sentences are equally well described by (10). In the sense of transformational grammar (10) shows a *deeper* structure than (9). However, in functional grammar, if a given linguistic entity has two different descriptions, a description containing the information in both can be constructed by the process of *unification* which we shall examine in detail shortly. The description (11) results from unifying (9) and (10).

A pair of descriptions is said to be *incompatible* if they have a common attribute with different symbols, or incompatible descriptions, as values. Grammatically ambiguous sentences have two or more incompatible descriptions. Thus, for example, the sentence *He likes writing books* might be described by (12) or (13). Incompatible simple descriptions $F_1 \cdots F_k$ can be combined into a single *complex* description $\{F_1 \cdots F_k\}$ which describes the union of the sets of objects that its components describe. The notation allows common parts of components to be factored in the obvious way, so that (14) describes all those objects that are described by *either* (12) or (13).

The use of braces to indicate alternation between incompatible descriptions or subdescriptions provides a compact way of describing large classes of disparate objects. In fact, as we shall see,

given a few extra conventions, it makes it possible to claim that the grammar of a language is nothing more than a complex functional description.

$$\begin{bmatrix} \text{CAT} & = & \text{S} \\ \text{SUBJ} & = & \text{he} \\ \text{DOBJ} & = & \begin{bmatrix} \text{CAT} & = & \text{NP} \\ \text{HEAD} & = & \text{books} \\ \text{MOD} & = & \begin{bmatrix} \text{CAT} & = & \text{PRESP} \\ \text{LEX} & = & \text{WRITE} \end{bmatrix} \end{bmatrix} \\ \text{VERB} & = & \text{LIKE} \\ \text{TENSE} & = & \text{PRES} \\ \text{VOICE} & = & \text{ACTIVE} \end{bmatrix} \quad (12)$$

$$\begin{bmatrix} \text{CAT} & = & \text{S} \\ \text{SUBJ} & = & \text{he} \\ \text{DOBJ} & = & \begin{bmatrix} \text{CAT} & = & \text{NP} \\ \text{HEAD} & = & \begin{bmatrix} \text{CAT} & = & \text{S} \\ \text{VERB} & = & \begin{bmatrix} \text{CAT} & = & \text{PRESP} \\ \text{LEX} & = & \text{WRITE} \end{bmatrix} \\ \text{DOBJ} & = & \begin{bmatrix} \text{CAT} & = & \text{NP} \\ \text{HEAD} & = & \text{books} \end{bmatrix} \end{bmatrix} \end{bmatrix} \\ \text{VERB} & = & \text{LIKE} \\ \text{TENSE} & = & \text{PRES} \\ \text{VOICE} & = & \text{ACTIVE} \end{bmatrix} \quad (13)$$

$$\begin{bmatrix} \text{CAT} & = & \text{S} \\ \text{SUBJ} & = & \text{he} \\ \text{DOBJ} & = & \begin{bmatrix} \text{CAT} & = & \text{NP} \\ & & \left\{ \begin{bmatrix} \text{HEAD} & = & \text{books} \\ \text{MOD} & = & \begin{bmatrix} \text{CAT} & = & \text{PRESP} \\ \text{LEX} & = & \text{WRITE} \end{bmatrix} \end{bmatrix} \right. \\ & & \left. \begin{bmatrix} \text{HEAD} & = & \begin{bmatrix} \text{CAT} & = & \text{S} \\ \text{VERB} & = & \begin{bmatrix} \text{CAT} & = & \text{PRESP} \\ \text{LEX} & = & \text{WRITE} \end{bmatrix} \\ \text{DOBJ} & = & \begin{bmatrix} \text{CAT} & = & \text{NP} \\ \text{HEAD} & = & \text{books} \end{bmatrix} \end{bmatrix} \end{bmatrix} \right\} \end{bmatrix} \\ \text{VERB} & = & \text{LIKE} \\ \text{TENSE} & = & \text{PRES} \\ \text{VOICE} & = & \text{ACTIVE} \end{bmatrix} \quad (14)$$

Unification

A string of atoms enclosed in angle brackets constitutes a *path* and there is at least one that identifies every value in a functional description. The path $< a_1\ a_2 \cdots a_k >$ identifies the value of the attribute a_k in the functional description that is the value of $< a_1 a_2 \cdots a_{k-1} >$. It can be read as *The* a_k *of the* a_{k-1} $\cdots$ *of the* a_1. Paths are always interpreted as beginning in the largest functional description that encloses them. Attributes are otherwise taken as belonging to the small enclosing functional description. Accordingly,

$$[\text{A} = [\text{B} = \langle \text{C} \rangle = \text{X}] \equiv \begin{bmatrix} \text{A} = [\text{B=X}] \\ \text{C} = \langle \text{A B} \rangle \end{bmatrix}$$

A pair consisting of a path in a functional description and the value that the path leads to is a *feature* of that functional description. If the value is a symbol, the pair is a *basic feature* of the

description. Any functional description can be represented as a list of basic features. For example, (15) can be represented by the list (16).

$$
\begin{bmatrix}
\text{CAT} = \text{S} \\
\text{SUBJ} = \text{PROT} = \begin{bmatrix} \text{CAT} = \text{PRON} \\ \text{GENDER} = \text{MASC} \\ \text{CASE} = \text{NOM} \\ \text{NUMBER} = \text{SING} \\ \text{PERSON} = 3 \end{bmatrix} \\
\text{DOBJ} = \text{GOAL} = \begin{bmatrix} \text{CAT} = \text{PRON} \\ \text{GENDER} = \text{FEM} \\ \text{CASE} = \text{ACC} \\ \text{NUMBER} = \text{SING} \\ \text{PERSON} = 3 \end{bmatrix} \\
\text{VERB} = \begin{bmatrix} \text{CAT} = \text{VERB} \\ \text{WORD} = \text{SEE} \end{bmatrix} \\
\text{TENSE} = \text{PAST} \\
\text{VOICE} = \text{ACTIVE} \\
\text{ASPECT} = \begin{bmatrix} \text{PERFECT} = + \\ \text{PROGRESSIVE} = - \end{bmatrix}
\end{bmatrix}
\qquad (15)
$$

$$
\begin{aligned}
\langle \text{CAT} \rangle &= \text{S} \\
\langle \text{SUBJ CAT} \rangle &= \text{PRON} \\
\langle \text{SUBJ GENDER} \rangle &= \text{MASC} \\
\langle \text{SUBJ CASE} \rangle &= \text{NOM} \\
\langle \text{SUBJ NUMBER} \rangle &= \text{SING} \\
\langle \text{SUBJ PERSON} \rangle &= 3 \\
\langle \text{PROT CAT} \rangle &= \text{PRON} \\
\langle \text{PROT GENDER} \rangle &= \text{MASC} \\
\langle \text{PROT CASE} \rangle &= \text{NOM} \\
\langle \text{PROT NUMBER} \rangle &= \text{SING} \\
\langle \text{PROT PERSON} \rangle &= 3 \\
\langle \text{OBJ CAT} \rangle &= \text{PRON} \\
\langle \text{OBJ GENDER} \rangle &= \text{FEM} \\
\langle \text{OBJ CASE} \rangle &= \text{ACC} \\
\langle \text{OBJ NUMBER} \rangle &= \text{SING} \\
\langle \text{OBJ PERSON} \rangle &= 3 \\
\langle \text{GOAL CAT} \rangle &= \text{PRON} \\
\langle \text{GOAL GENDER} \rangle &= \text{FEM} \\
\langle \text{GOAL CASE} \rangle &= \text{FEM} \\
\langle \text{GOAL NUMBER} \rangle &= \text{SING} \\
\langle \text{GOAL PERSON} \rangle &= 3 \\
\langle \text{VERB CAT} \rangle &= \text{VERB} \\
\langle \text{VERB WORD} \rangle &= \text{SEE} \\
\langle \text{TENSE} \rangle &= \text{PAST} \\
\langle \text{VOICE} \rangle &= \text{ACTIVE} \\
\langle \text{ASPECT PERFECT} \rangle &= + \\
\langle \text{ASPECT PROGRESSIVE} \rangle &= -
\end{aligned}
\qquad (16)
$$

It is in the nature of functional descriptions that they blur the usual distinction between features and structures. (15) shows descriptions embedded in other descriptions, thus stressing their structural properties. Rewriting (15) as (16) stresses the componential nature of descriptions.

The possibility of viewing descriptions as unstructured sets of features makes them subject to the standard operations of set theory, thereby bestowing on them that most salient property of descriptions in general discussed in reference to (1)···(7). However, it is also a crucial property of functional descriptions that they are not closed under set-theoretic operations. Specifically, the union of a pair of functional descriptions is not, in general, a well-formed functional description. The reason is as follows: The requirement that a given attribute appear only once in a functional description implies a similar constraint on the set of features corresponding to a description. A path must uniquely identify a value. But if the description F_1 has the basic feature $\langle \alpha \rangle = x$ and the description F_2 has the basic feature $\langle \alpha \rangle = y$ then either $x = y$ or F_1 and F_2 are incompatible and their union is not a well-formed description. So, for example, if F_1 describes a sentence with a singular subject and F_2 describes a sentence with a plural subject, then $S_1 \cup S_2$,

where S_1 and S_2 are the corresponding sets of basic features, is not well formed because it would contain both <SUBJ NUMBER> = SINGULAR and <SUBJ NUMBER> = PLURAL.

When two or more simple functional descriptions are compatible, they can be combined into one simple description describing those things that they both describe, by the process of unification. Unification is the same as set union except that it yields the null set when applied to incompatible arguments. The "=" sign is used for unification, so that $\alpha = \beta$ denotes the result of unifying α and β. (17)$\cdots$ (19) show the results of unification in some simple cases.

$$\begin{bmatrix} \text{CAT} & = & \text{VERB} \\ \text{LEX} & = & \text{RUN} \\ \text{TENSE} & = & \text{PRES} \end{bmatrix} = \begin{bmatrix} \text{CAT} & = & \text{VERB} \\ \text{NUM} & = & \text{SING} \\ \text{PERS} & = & 3 \end{bmatrix} \Rightarrow \begin{bmatrix} \text{CAT} & = & \text{VERB} \\ \text{LEX} & = & \text{RUN} \\ \text{TENSE} & = & \text{PRES} \\ \text{NUM} & = & \text{SING} \\ \text{PERS} & = & 3 \end{bmatrix} \tag{17}$$

$$\begin{bmatrix} \text{CAT} & = & \text{VERB} \\ \text{LEX} & = & \text{RUN} \\ \text{TENSE} & = & \text{PRES} \end{bmatrix} = \begin{bmatrix} \text{CAT} & = & \text{VERB} \\ \text{TENSE} & = & \text{PAST} \\ \text{PERS} & = & 3 \end{bmatrix} \Rightarrow \text{NIL} \tag{18}$$

$$\begin{bmatrix} \text{PREP} & = & \text{MIT} \\ \text{CASE} & = & \text{DAT} \end{bmatrix} = \begin{bmatrix} \text{CAT} & = & \text{PP} \\ \text{HEAD} & = & \begin{bmatrix} \text{CAT} & = & \text{NP} \\ \text{CASE} & = & \langle \text{CASE} \rangle \end{bmatrix} \end{bmatrix} \Rightarrow \begin{bmatrix} \text{CAT} & = & \text{PP} \\ \text{PREP} & = & \text{MIT} \\ \text{CASE} & = & \text{DAT} \\ \text{HEAD} & = & \begin{bmatrix} \text{CAT} & = & \text{NP} \\ \text{CASE} & = & \langle \text{CASE} \rangle \end{bmatrix} \end{bmatrix} \tag{19}$$

The result of unifying a pair of complex descriptions is, in general, a complex description with one term for each compatible pair of terms in the original descriptions. Thus $\{a_1 \cdots a_n\} = \{b_1 \cdots b_m\}$ becomes a description of the form $\{c_1 \cdots c_k\}$ in which each c_h $(1 \leq h \leq k)$ is the result of unifying a compatible pair $a_i = b_j$ $(1 \leq i \leq m,\ 1 \leq j \leq n)$. This is exemplified in (20).

$$\left\{ \begin{bmatrix} \text{TENSE} & = & \text{PRES} \\ \text{FORM} & = & \text{is} \end{bmatrix} \begin{bmatrix} \text{TENSE} & = & \text{PAST} \\ \text{FORM} & = & \text{was} \end{bmatrix} \right\} = \begin{bmatrix} \text{CAT} & = & \text{VERB} \\ \text{TENSE} & = & \text{PAST} \end{bmatrix} \Rightarrow \begin{bmatrix} \text{CAT} & = & \text{VERB} \\ \text{TENSE} & = & \text{PAST} \\ \text{FORM} & = & \text{was} \end{bmatrix} \tag{20}$$

Unification is the fundamental operation underlying the analysis and synthesis of sentences using functional grammar and there will be abundant examples of its use in the sequel.

Patterns and Constituents

We come now to the question of recursion in the grammar and how constituency is represented. I have already remarked that functional grammar deliberately blurs the distinction between structures and sets of features. It is clear from the examples we have considered so far that some parts of a description of a phrase typically belong to the phrase as a whole whereas others belong to its constituents. For example, in (15), the value of SUBJ is the description of a constituent of the sentence whereas the value of ASPECT is not. The purpose of patterns is to identify constituents and to state constraints on the order of their occurrence. (21)is version of (15) that specifies the order. (SUBJ VERB DOBJ) is a pattern stating that the values of the attributes SUBJ, VERB, and DOBJ

are descriptions of constituents and that they occur in that order.

$$
\left[\begin{array}{ll}
\multicolumn{2}{l}{\text{(SUBJ VERB DOBJ)}} \\
\text{CAT} & = \text{S} \\
\text{SUBJ = PROT} & = \left[\begin{array}{ll} \text{CAT} & = \text{PRON} \\ \text{GENDER} & = \text{MASC} \\ \text{CASE} & = \text{NOM} \\ \text{NUMBER} & = \text{SING} \\ \text{PERSON} & = 3 \end{array}\right] \\
\text{DOBJ = GOAL} & = \left[\begin{array}{ll} \text{CAT} & = \text{PRON} \\ \text{GENDER} & = \text{FEM} \\ \text{CASE} & = \text{ACC} \\ \text{NUMBER} & = \text{SING} \\ \text{PERSON} & = 3 \end{array}\right] \\
\text{VERB} & = \left[\begin{array}{ll} \text{CAT} & = \text{VERB} \\ \text{WORD} & = \text{SEE} \end{array}\right] \\
\text{TENSE} & = \text{PAST} \\
\text{VOICE} & = \text{ACTIVE} \\
\text{ASPECT} & = \left[\begin{array}{ll} \text{PERFECT} & = + \\ \text{PROGRESSIVE} & = - \end{array}\right]
\end{array}\right] \qquad (21)
$$

Equivalently, the description could have contained many other sets of patterns, for example, those in (22) $\cdots$ (26).

$$
\begin{array}{ll}
\text{(SUBJ VERB } \cdots\text{) (}\cdots\text{ VERB DOBJ)} & (22) \\
\text{(SUBJ } \cdots\text{ DOBJ) (}\cdots\text{ VERB } \cdots\text{)} & (23) \\
\text{(}\cdots\text{ SUBJ } \cdots\text{ DOBJ) (\# VERB } \cdots\text{)} & (24) \\
\text{(}\cdots\text{ SUBJ } \cdots\text{ VERB } \cdots\text{ DOBJ)} & (25) \\
\text{(}\cdots\text{ SUBJ } \cdots\text{ VERB } \cdots\text{) (}\cdots\text{ DOBJ)} & (26)
\end{array}
$$

If an attribute or, more generally, a path, appears in one or more patterns, then its value is the description of a constituent. If more than one constituent is named in the same pattern, then they must appear in the phrase or sentence in the order given. If a pair of attributes or paths is separated by dots, other constituents, specified in other patterns, may optionally intervene. Adjacent attributes or paths specify adjacent constituents and an attribute or path that begins (or ends) a pattern names a constituent that occurs first (or last). The symbol # signifies exactly one constituent specified in another pattern. Consider now examples (27) $\cdots$ (29) in which the order of the constituents is not uniquely specified.

$$
\begin{array}{ll}
\text{(}\cdots\text{ SUBJ }\cdots\text{ VERB DOBJ }\cdots\text{) (}\cdots\text{ MOD }\cdots\text{)} & (27) \\
\text{(}\cdots\text{ SUBJ }\cdots\text{) (}\cdots\text{ VERB }\cdots\text{) (}\cdots\text{ DOBJ }\cdots\text{)} & (28) \\
\text{(}\cdots\text{ NOM }\cdots\text{) (}\cdots\text{ ACC }\cdots\text{) (}\cdots\text{ DAT }\cdots\text{) (\# VERB }\cdots\text{)} & (29)
\end{array}
$$

(27) says that SUBJ precedes VERB and VERB precedes DOBJ but allows MOD, presumably an adverbial modifier, to occur before or after SUBJ or at the end of the sentence. (28) allows SUBJ, VERB, and OBJ to occur in any order relative to one another. (29) specifies NOM, ACC, DAT, and VERB as constituents. The only constraints it places on the order is that the verb must be in second position.

Clearly, patterns, like attribute-value pairs, can be incompatible thus preventing the unification of descriptions. This is the case in examples (30) ··· (32).

(··· SUBJ ··· VERB ···) (··· VERB ··· SUBJ ···) (30)
(# SUBJ ···) (SUBJ ···) (31)
(··· SUBJ VERB ···) (··· SUBJ DOBJ ···) (32)

If the name of a path or an attribute is preceded by an asterisk in a pattern, the corresponding value must be unified with a value specified in another pattern in order to establish compatibility between them. Thus, for example, while the patterns in (33) are incompatible, those in (34) are not. Unifying a pair of descriptions each containing one of the patterns in (33) will result in the unification of SUBJ and PROT.

(SUBJ VERB ···) (PROT VERB ···) (33)
(*SUBJ VERB ···) (PROT VERB ···) (34)

As we have seen, the functional descriptions of sentences and phrases may have other descriptions embedded in them that describe their constituents. However, the outer description is also taken as applying to each of these constituents. Thus, if G is a functional description that fills the role of a grammar which, when unified with a sentence description F, reveals it to have constituents with descriptions $F_1 \cdots F_n$, then these are also unified with G, and so on recursively. As we shall see, it follows from this that patterns can only be usefully employed in complex descriptions. Consider, for example, the description (35), which is roughly equivalent to the phrase-structure rule (36)*.

$$\left\{\begin{bmatrix}\text{(SUBJ VERB ···)}\\ \text{CAT = S}\\ \text{SUBJ = [CAT = NP]}\\ \text{PRED = [CAT = VERB]}\\ \left\{\begin{matrix}\text{[SCOMP = NONE]}\\ \left\{\begin{matrix}\text{(··· SCOMP)}\\ \text{[SCOMP = [CAT = S]]}\end{matrix}\right\}\end{matrix}\right.\end{bmatrix}\right\} \qquad (35)$$
$$\left\{\begin{matrix}\text{[CAT = NP]}\\ \text{[CAT = VERB]}\end{matrix}\right\}$$

$$S \rightarrow SUBJ{:}NP\ VERB{:}VERB\ (SCOMP{:}S) \qquad (36)$$

(35) describes *either* sentences *or* verbs *or* noun phrases. Nothing is said about the constituency of the verbs or noun phrases described—they are terminal constituents. The sentences have either two or three constituents depending on the choice made in the embedded alternation. All constituents must match the description (35). Since the first constituent has the feature [CAT = NP], it can only match the second term in the main alternation. Likewise, the second constituent can only match the third term. If there is a third constituent, it must match the first term in the alternation,

*This is, in fact, more like a tagmemic rule including, as it does, the relation that each constituent bears to the phrase, as well as its category.

because it has the feature [CAT = S]. It must therefore also have two or three constituents which (35) also describes. It is for this reason that patterns make sense only in complex descriptions. For the same reason, context-free grammars make sense only if some of the symbols are terminal and there is some nonrecursive expansion for every symbol. If (35) consisted only of the first term in the outer alternation, it would have a null extension because the first term, for example, would be required to have the incompatible features [CAT = NP] and [CAT = S]. On other hand, if the inner alternation were replaced by its second term, so that [SCOMP = NONE] were no longer an option, then the description would correspond to the rule (37), whose derivations do not terminate.

$$S \rightarrow SUBJ{:}NP\ VERB{:}VERB\ SCOMP{:}S \tag{37}$$

(35) is a recursive definition and a trivial example of the way a functional description can be used to characterize an infinite class of sentences and thus serve as the grammar of a language. Generally speaking, grammars will take the form of alternations each clause of which describes a major category, that is, they will have the form exhibitted in (38).

$$\left\{\begin{bmatrix}\text{CAT} = c_1 \\ \vdots \end{bmatrix}\begin{bmatrix}\text{CAT} = c_2 \\ \vdots \end{bmatrix}\begin{bmatrix}\text{CAT} = c_3 \\ \vdots \end{bmatrix}\ \vdots\right\} \tag{38}$$

A Grammar of Simple Sentences

In this section, I examine (51), the sentence part of a simple grammar covering such sentences as (39)· · · (50).

Jesus wept	(39)
Brutus killed Caesar	(40)
Caesar was killed by Brutus	(41)
They gave Socrates hemlock	(42)
They gave hemlock to Socrates	(43)
?*They gave to Socrates hemlock*	(44)
Socrates was given hemlock by them	(45)
?*Socrates was given by them hemlock*	(46)
Hemlock was given to Socrates by them	(47)
Hemlock was given by them to Socrates	(48)
Socrates was given hemlock	(49)
Hemlock was given to Socrates	(50)

Specifically, the sequence of word descriptions corresponding to (39) results from unifying (52) with (51); (40) and (41) from unifying (53) with (51); (42) through (48) from unifying (54) with (51); and (49) and (50) from unifying (55) with (51).

$$
\left[\begin{array}{l}
\text{CAT} = \text{S} \\
(\text{SUBJ V} \cdots) \\
\text{FV} = [\text{INFLEXION} = \langle \text{SUBJ INFLEXION} \rangle] \\
\text{VERB} = \left[\begin{array}{l}\text{CAT} = \text{VERB} \\ \text{LEX} = \text{ANY}\end{array}\right] \\
\left\{\left[\begin{array}{l}\text{PROT} = \text{NONE} \\ \text{VERB} = [\text{VOICE} = \text{PASSIVE}]\end{array}\right]\right. \\
\left.\left[\begin{array}{l}\text{PROT} = \left[\begin{array}{l}\text{CAT} = \text{NP} \\ \text{LEX} = \text{ANY}\end{array}\right] \\
\left\{\left[\begin{array}{l}(\text{PROT V} \cdots) \\ \text{VERB} = [\text{VOICE} = \text{ACTIVE}]\end{array}\right]\right. \\
\left.\left[\begin{array}{l}(\cdots \text{V} \cdots \text{BY-OBJ} \cdots) \\ \text{BY-OBJ} = \left[\begin{array}{l}\text{CAT} = \text{PP} \\ \text{PREP} = \text{by} \\ \text{OBJ} = \langle \text{PROT} \rangle = \text{ANY}\end{array}\right] \\ \text{VERB} = [\text{VOICE} = \text{PASSIVE}]\end{array}\right]\right\}\end{array}\right]\right\} \\
\left\{\left[\begin{array}{l}\text{GOAL} = \text{NONE}\end{array}\right]\right. \\
\left.\left[\begin{array}{l}(\cdots \text{GOAL} \cdots) \\ \text{GOAL} = \left[\begin{array}{l}\text{CAT} = \text{NP} \\ \text{LEX} = \text{ANY}\end{array}\right] \\
\left\{\left[\begin{array}{l}\text{BENEF} = \text{NONE}\end{array}\right]\right. \\
\left.\left[\begin{array}{l}\text{BENEF} = \left[\begin{array}{l}\text{CAT} = \text{NP} \\ \text{LEX} = \text{ANY}\end{array}\right] \\
\left\{\left[\begin{array}{l}(\cdots \text{BENEF} \cdots \text{GOAL} \cdots) \\ \left\{\left[\begin{array}{l}(\cdots \text{V} \cdots \text{TO-OBJ} \cdots) \\ \text{TO-OBJ} = \left[\begin{array}{l}\text{CAT} = \text{PP} \\ \text{PREP} = \text{to} \\ \text{OBJ} = \langle \text{BENEF} \rangle = \text{ANY}\end{array}\right]\end{array}\right]\right\}\end{array}\right]\right\}\end{array}\right]\right\}\end{array}\right]\right\} \\
\left\{\left[\begin{array}{l}\text{V} = \text{FV} = \text{VERB} = \left[\begin{array}{l}\text{TENSE} = \langle \text{TENSE} \rangle = \text{ANY} \\ \text{VOICE} = \text{ACTIVE}\end{array}\right]\end{array}\right]\right. \\
\left.\left[\begin{array}{l}\text{VERB} = [\text{VOICE} = \text{PASSIVE}] \\ \text{V} = \left[\begin{array}{l}\text{CAT} = \text{VG} \\ \text{V1} = \langle \text{FV} \rangle = \left[\begin{array}{l}\text{CAT} = \text{VERB} \\ \text{LEX} = \text{be} \\ \text{TENSE} = \langle \text{TENSE} \rangle = \text{ANY}\end{array}\right] \\ \text{V2} = \langle \text{VERB} \rangle = [\text{TENSE} = \text{PASTP}]\end{array}\right]\end{array}\right]\right\}
\end{array}\right]
$$

(51)

$$\begin{bmatrix} \text{CAT} = \text{S} \\ \text{PROT} = [\text{LEX} = \text{Jesus}] \\ \text{GOAL} = \text{NONE} \\ \text{BENEF} = \text{NONE} \\ \text{VERB} = [\text{LEX} = \text{weep}] \\ \text{TENSE} = \text{PRES} \end{bmatrix} \quad (52)$$

$$\begin{bmatrix} \text{CAT} = \text{S} \\ \text{PROT} = [\text{LEX} = \text{Brutus}] \\ \text{GOAL} = [\text{LEX} = \text{Caesar}] \\ \text{BENEF} = \text{NONE} \\ \text{VERB} = [\text{LEX} = \text{kill}] \\ \text{TENSE} = \text{PRES} \end{bmatrix} \quad (53)$$

$$\begin{bmatrix} \text{CAT} = \text{S} \\ \text{PROT} = [\text{LEX} = \text{They}] \\ \text{GOAL} = [\text{LEX} = \text{hemlock}] \\ \text{BENEF} = [\text{LEX} = \text{Socrates}] \\ \text{VERB} = [\text{LEX} = \text{give}] \\ \text{TENSE} = \text{PRES} \end{bmatrix} \quad (54)$$

$$\begin{bmatrix} \text{CAT} = \text{S} \\ \text{PROT} = \text{NONE} \\ \text{GOAL} = [\text{LEX} = \text{hemlock}] \\ \text{BENEF} = [\text{LEX} = \text{Socrates}] \\ \text{VERB} = [\text{LEX} = \text{give}] \\ \text{TENSE} = \text{PRES} \end{bmatrix} \quad (55)$$

No claims are made for the theoretical soundness of the analysis represented in (51), which was designed only to elucidate the formalism. In particular, it should not be taken as implying an argument in favor of eliminating *VP*.

(51) contains six alternations, five of which represent choices that the speaker must make in the course of framing a sentence. Indeed, there is a strong family resemblance between grammatical descriptions in this formalism and *systems* that Halliday (1961, 1967-8) uses to represent such sets of choices. (51), for example, corresponds closely to the system (56).

$$\left\{\begin{array}{l} \left[\begin{array}{l} \text{—without protagonist} \\ \text{—with protagonist} \left[\begin{array}{l} \text{—active} \\ \text{—passive} \end{array}\right] \end{array}\right. \\ \left[\begin{array}{l} \text{—without goal} \\ \text{—with goal} \left[\begin{array}{l} \text{—without beneficiary} \\ \text{—with beneficiary} \left[\begin{array}{l} \text{—indirect object} \\ \text{—prepositional object} \end{array}\right] \end{array}\right. \end{array}\right. \end{array}\right. \quad (56)$$

The sixth alternation is different only in that, as we shall see, the choice to be made here is determined entirely by the choices made at the other five.

The first four terms in (51) state that any object meeting this description will be a sentence whose first two constituents are a subject and a verb, that the values of the paths ⟨FV INFLEXION⟩ and ⟨SUBJ INFLEXION⟩ will be equal and that VERB—to be distinguished from V—will have the feature [CAT = VERB] and a non-null value for the attribute LEX. ANY is not a true *symbol* in the sense defined above. In the first place, any description containing ANY is deemed to be incomplete. I will give an example to illustrate the point of this shortly. Secondly, if a pair of descriptions are unified, one with the feature $\langle \alpha \rangle =$ ANY and the other with the feature $\langle \alpha \rangle = v$, where v is not NONE, the result will have the feature $\langle \alpha \rangle = v$. In other words, ANY is a "wild card" that will match any substantive, non-null, value.

The remainder of (51) consists of three alternations. The first of these says that any sentence meeting the description will either have no protagonist, in which case it will have the feature <VERB VOICE> = PASSIVE, or its protagonist will be a noun phrase with a substantive value for the attribute LEX. The embedded alternation says that a sentence with a protagonist can be either active or passive. In the first case, the protagonist is a constituent which immediately precedes the verb and in the second, there will be a constituent called BY-OBJ somewhere after the verb. This BY-OBJ will be a prepositional phrase with preposition *by* and the protagonist of the sentence as object. If the sentence is active, it is implicit that the values of PROT and SUBJ will be unified because the patterns (SUBJ V ···) and (PROT V ···) must be unified.

The second major alternation in (51) states that, if the sentence has a value for the GOAL attribute, then that value describes a constituent which is a noun phrase with a substantive value for the LEX attribute. Furthermore, only if there is a goal can there be a beneficiary. If there is a beneficiary, it must be a substantive noun phrase which can either precede the goal in the sentence or be the object of the preposition *to* following the goal. If the beneficiary precedes the goal, it will follow the verb as indirect object in active sentences and be the subject of passive sentences, for otherwise there would not be a substantive subject. If there is no beneficiary, the goal is the subject in passive sentences.

The last alternation provides the correct value for the V-attribute according as the sentence is active or passive. In an active sentence, V, the surface verb, FV, the finite verb, and VERB, the "deep" verb are all the same and the values are unified and given the tense attribute of the sentence. In a passive sentence, V is a verbal group consisting of two verbs. The first is an appropriately tensed form of *be* and the second is the past participle of the value of VERB. The first of these is the finite verb and the one whose INFLEXION must be unified with that of the subject.

Consider now the sentences that could be generated from the description (57) which makes no mention of the attribute BENEF.

$$\begin{bmatrix} \text{CAT} = \text{S} \\ \text{PROT} = [\text{LEX} = \text{They}] \\ \text{GOAL} = [\text{LEX} = \text{hemlock}] \\ \text{VERB} = [\text{LEX} = \text{give}] \\ \text{TENSE} = \text{PRES} \end{bmatrix} \tag{57}$$

They seem to include (60) ··· (63), in which "???" represents a beneficiary with the feature [LEX = ANY] supplied by the grammar, as well as (58) and (59).

They gave hemlock (58)
Hemlock was given by them (59)
They gave ??? hemlock (60)
They gave hemlock to ??? (61)
??? was given hemlock by them (62)
Hemlock was given to ??? by them (63)

More accurately, (57) describes all the sentences that can be obtained from (60) ··· (63) by replacing "???" with a noun phrase. It is precisely to exclude such cases as these that the special

symbol ANY is provided in the formalism. In (51), either an explicit value for BENEF must be provided in the initial description of a sentence, or the description that results from unifying it with the grammar will be deemed incomplete.

While it is indeed the case that (51) correctly describes (39) · · · (50), it also describes such sentences as (64) · · · (67).

Jesus gave (64)
Brutus wept Caesar (65)
Caesar was given by Brutus (66)
Hemlock was wept to Socrates (67)

I shall describe a simple way of excluding these here and another, which may be preferrable, in the following section. The simplest solution is to employ essentially the same device as is used in (51) for subject-verb agreement and include in the grammar something like (68). This requires appropriate values in the lexical entry for each verb. The entries for the verbs in the examples would be somewhat as in (69) · · · (71).

$$\begin{bmatrix} \text{VERB} = \begin{bmatrix} \text{PROT} & = \langle \text{PROT} \rangle \\ \text{GOAL} & = \langle \text{GOAL} \rangle \\ \text{BENEF} & = \langle \text{BENEF} \rangle \end{bmatrix} \end{bmatrix} \quad (68)$$

$$\begin{bmatrix} \text{CAT} & = \text{VERB} \\ \text{LEX} & = \text{weep} \\ \text{GOAL} & = \text{NONE} \end{bmatrix} \quad (69) \qquad \begin{bmatrix} \text{CAT} & = \text{VERB} \\ \text{LEX} & = \text{kill} \\ \text{BENEF} & = \text{NONE} \end{bmatrix} \quad (70) \qquad \begin{bmatrix} \text{CAT} = \text{VERB} \\ \text{LEX} = \text{give} \end{bmatrix} \quad (71)$$

This guarantees that *weep*, for example, can only be the verb of a sentence that has the feature [GOAL = NONE] which, according to the grammar, implies that it must also have the feature [BENEF = NONE]. The principal disadvantage of this solution is that it replicates large amounts of the sentence structure within the description of the verb.

Some More Complex Phenomena

In this section, I give a brief sketch of how functional grammar accounts for the phenomena that require unbounded-movement rules of transformational grammar. Specifically, I shall consider (1) topicalization and relativization (2) subject raising.

Suppose that the grammar describes noun phrases somewhat as in (72) and phrases of category $\bar{S}$ as in (73). The "↑" symbol provides a way of referring to levels in the constituent structure above the one to which the current description is being applied. Suppose that a given noun phrase is the direct object of the comment of the relative of the direct object of the comment of the matrix sentence, that is, it is the value of the path <COMMENT DOBJ REL COMMENT DOBJ> and that the grammar is now being unified with that noun phrase. <↑REL> refers to the higher-level constituent—presumably a noun phrase—in whose REL it is embedded. In other words, it refers to the value of <COMMENT DOBJ> in the matrix sentence. <↑REL HEAD> refers to the HEAD of that noun phrase. DOBJ refers to the lower sentence, in which the current noun phrase fills the role of direct

$$\left[\begin{array}{l}\text{CAT = NP}\\ \left\{\begin{array}{l}\left[\begin{array}{l}\text{(TOPIC COMMENT)}\\ \text{TOPIC = }\left[\begin{array}{l}\text{CAT = NP}\\ \text{GAP = ANY}\end{array}\right]\\ \text{COMMENT = [CAT = }\bar{\text{S}}\text{]}\end{array}\right]\\ \left[\begin{array}{l}\text{(ART HEAD }\cdots\text{)}\\ \text{ART = [CAT = DEF]}\\ \text{HEAD = [CAT = NOUN]}\\ \left\{\begin{array}{l}\text{[REL = NONE]}\\ \left[\begin{array}{l}\text{(}\cdots\text{ REL)}\\ \text{REL = [CAT = S]}\end{array}\right]\end{array}\right\}\end{array}\right]\end{array}\right\}\\ \text{<> = <}\uparrow\text{COMMENT TOPIC> = [GAP = ?]}\end{array}\right] \quad (72)$$

$$\left[\begin{array}{l}\text{CAT = }\bar{\text{S}}\\ \text{(}\cdots\text{ COMMENT)}\\ \text{COMMENT = [CAT = S]}\\ \left\{\begin{array}{l}\text{[TOPIC = NONE]}\\ \text{TOPIC = <}\uparrow\text{COMMENT TOPIC> = ANY}\\ \text{(TOPIC }\cdots\text{)}\end{array}\right\}\end{array}\right] \quad (73)$$

$$\left[\begin{array}{l}\text{CAT = }\bar{\text{S}}\\ \text{TOPIC = }\left[\begin{array}{l}\text{CAT = NP}\\ \text{GAP = x}\\ \cdots\text{ The soup}\end{array}\right]\\ \text{COMMENT = }\left[\begin{array}{l}\text{CAT = S}\\ \text{PROT = The boys}\\ \text{VERB = like}\\ \text{GOAL = <TOPIC>}\end{array}\right]\end{array}\right] \quad (74)$$

$$\left[\begin{array}{l}\text{CAT = NP}\\ \text{TOPIC = <COMMENT TOPIC>}\\ \text{COMMENT = }\left[\begin{array}{l}\text{CAT = }\bar{\text{S}}\\ \text{TOPIC = }\left[\begin{array}{l}\text{CAT = NP}\\ \text{GAP = x}\\ \cdots\text{ The soup}\end{array}\right]\\ \text{COMMENT = }\left[\begin{array}{l}\text{CAT = S}\\ \text{PROT = The boys}\\ \text{VERB = like}\\ \text{GOAL = <TOPIC>}\end{array}\right]\end{array}\right]\end{array}\right] \quad (75)$$

object, that is, to the value of <COMMENT DOBJ REL COMMENT>. In general, if $\langle a_1 \cdots a_i\ a_{i+1} \cdots a_n\rangle$ is the path that identifies the current constituent, and a_{i+1} does not occur in $\langle a_{i+2} \cdots a_n\rangle$, then $\uparrow a_{i+1}$ refers to the value of $\langle a_1 \cdots a_i\rangle$.

For present purposes, I take it that main and relative clauses, among others, belong to the category $\bar{S}$ whose constituents are an optional TOPIC and an obligatory COMMENT. A noun phrase is either a determiner followed by a noun or, to provide for relative clauses, a noun phrase as the value of TOPIC followed by an $\bar{S}$ as the value of COMMENT. Alternatively, a noun phrase can simply be unified with the TOPIC of the lowest constituent in whose COMMENT it is embedded and with the feature [GAP = ?]. The sign "?", occurring as the value of an attribute, is a meta-symbol each instance of which represents a different symbol not otherwise occurring in the description. By requiring that the value of GAP be unique in this way, we ensure that a given TOPIC be unified with at most one NP in the way just described, that is, that there should be only one trace, or *gap* corresponding to it. The grammar would therefore describe the sentence *The soup the boys liked* somewhat as in (74). The same sequence of words is described in (75) as a noun phrase. Notice that the COMMENT of (75) is just (74).

Suppose, now, that the lexical entry for a relative pronoun is (76). According to (72), it is a noun

phrase with neither TOPIC nor HEAD constituents; its description must therefore be unified with that of a TOPIC higher in the constituent structure. Since relative pronouns themselves function as TOPICs of $\bar{S}$'s, there must be some noun phrase in the corresponding COMMENT with which they are also unified. The description of *the soup that the boys liked* will therefore also be (75).

This analysis covers—it is tempting to say *predicts*—Pied Piping. Thus (77) describes the sentence *In the house the boys live* and (78) describes the noun phrase *The house in which the boys live.* The relative pronoun in the prepositional phrase is unified with the TOPIC of the outer noun phrase, *the house* to give, as TOPIC of the $\bar{S}$, a description for *in the house.* This is then unified with the value of the LOC attribute in the S on the understanding that prepositional phrases, like noun phrases, may be unified with higher TOPICs just in case they have no local constituents.

$$\begin{bmatrix} \text{CAT} = \text{NP} \\ \text{LEX} = \text{Rel} \\ \text{TOPIC} = \text{HEAD} = \text{ANY} \end{bmatrix} \tag{76}$$

$$\begin{bmatrix} \text{CAT} = \bar{\text{S}} \\ \text{TOPIC} = \begin{bmatrix} \text{CAT} = \text{PP} \\ \text{GAP} = \text{x} \\ \text{PREP} = \text{in} \\ \text{OBJ} = \text{the house} \end{bmatrix} \\ \text{COMMENT} = \begin{bmatrix} \text{CAT} = \text{S} \\ \text{PROT} = \text{The boys} \\ \text{VERB} = \text{live} \\ \text{LOC} = \langle \text{TOPIC} \rangle \end{bmatrix} \end{bmatrix} \tag{77}$$

$$\begin{bmatrix} \text{CAT} = \text{NP} \\ \text{TOPIC} = \langle \text{COMMENT TOPIC} \rangle \\ \text{COMMENT} = \begin{bmatrix} \text{CAT} = \bar{\text{S}} \\ \text{TOPIC} = \begin{bmatrix} \text{CAT} = \text{PP} \\ \text{GAP} = \text{x} \\ \text{PREP} = \text{in} \\ \text{OBJ} = \text{the house} \end{bmatrix} \\ \text{COMMENT} = \begin{bmatrix} \text{CAT} = \text{S} \\ \text{PROT} = \text{The boys} \\ \text{VERB} = \text{live} \\ \text{LOC} = \langle \text{TOPIC} \rangle \end{bmatrix} \end{bmatrix} \end{bmatrix} \tag{78}$$

The "↑" device also suggests a solution to a large class of problems for which *Raising* rules are invoked in transformational grammar. If the grammar in (51) were expanded to provide for sentential complements as values of the attribute SCOMP, it is easy to see how it would interact appropriately with lexical entries such as (79) and (80).

$$\begin{bmatrix} \text{CAT} = \text{VERB} \\ \text{LEX} = \text{expect} \\ \uparrow\text{VERB} = [\text{BENEF} = \text{NONE}] \\ \left\{ \begin{bmatrix} \langle \uparrow\text{VERB GOAL} \rangle = \text{NONE} \\ \langle \uparrow\text{VERB SCOMP SUBJ} \rangle = \langle \uparrow\text{VERB PROT} \rangle = \text{ANY} \end{bmatrix} \right. \\ \left. [\langle \uparrow\text{VERB SCOMP SUBJ} \rangle = \langle \uparrow\text{VERB GOAL} \rangle = \text{ANY}] \right\} \end{bmatrix} \tag{79}$$

$$\begin{bmatrix} \text{CAT} = \text{VERB} \\ \text{LEX} = \text{persuade} \\ \uparrow\text{VERB} = [\text{BENEF} = \text{NONE}] \\ \langle \uparrow\text{VERB SCOMP SUBJ} \rangle = \langle \uparrow\text{VERB GOAL} \rangle = \text{ANY} \end{bmatrix} \tag{80}$$

(79) requires that the phrase in which *expect* functionas as VERB have the feature [BENEF = NONE] and that the SUBJ of the SCOMP of that phrase be unified with the value of PROT if the value of GOAL is NONE; otherwise with the value of GOAL. In other words, the subject of the complement will be the description of *John* in the description of *John expected to go*, and *Mary* in *John expected Mary to go*. (80), on the other hand, requires the phrase in which *persuade* functionas as VERB to have a substantive value for the GOAL attribute, which is unified with the subject of the complement.

The lexical entries of *weep* and *kill* can be restated as (81) and (82) on the analogy of (79) and (80), thus avoiding the disadvantage of my previous proposal, namely that much of the sentential structure is restated as part of the description of the verb.

$$\begin{bmatrix} \text{CAT} & = & \text{VERB} \\ \text{LEX} & = & \text{weep} \\ \uparrow\text{VERB} & = & [\text{GOAL} = \text{NONE}] \end{bmatrix} \quad (81)$$

$$\begin{bmatrix} \text{CAT} & = & \text{VERB} \\ \text{LEX} & = & \text{kill} \\ \uparrow\text{VERB} & = & [\text{BENEF} = \text{NONE} \end{bmatrix} \quad (82)$$

So, for example, (81) causes any constituent in which *weep* is the VERB to be unified with [GOAL = NONE].

Conclusion

It is the business of syntax to state constraints on the relations that words and phrases contract by virtue of their position in sentences. One of the principal attractions of functional grammar is that it states these constraints simply and explicitly. In other words, the constraints are not manifested only in objects that can be produced by following a set of rules that constitute the grammar. A good *prima facie* case can therefore be made for functional grammar as the form in which a child stores the grammatical knowledge he acquires. The null grammar describes all possible languages and to reduce the range of languages described is, generally speaking, to add new features to the current set. Delicate interactions such as those that occur between the members of ordered sets of rules are largely absent.

One of the advantages that I claimed for functional grammar at the outset was that it places the logical relations that words and phrases contract on an equal footing with relations that expound communicative functions. It is noteworthy that those linguists that have given equal weight to these two aspects of language have not, for the most part, constructed formal theories. This is accounted for partly by current fashion. But it is also due to a fundamental conflict between the demands of formalization and the clarity that comes from keeping statements about grammatical relations separate when they are exponents of separate kinds of meaning relations. This is the kind of clarity that presumably motivates Halliday's systems in which grammatical phenomena are collected together more because of similarities in what they expound than because of the way they interact in a carefully articulated generative scheme.

A frontal attack on the design of a formalism to meet both sets of requirements all too easily compounds previous errors and results in a device of wondrous complexity (see, for example Hudson, 1971). I hope that the formalism proposed here may be simple enough in its basic design to avoid this danger. It treats of one kind of entity only, namely functional descriptions. Grammatical constructions, lexical entries, and the grammar itself are known to the formalism

only through this one type of representation. Unification is the only operation that is used, and it is also simple and intuitive, for it is nothing more than a slight embellishment of the notion of set union.

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Temporal Relations in Bakweri Oral Narratives*

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Perhaps one of the most perplexing problems encountered in the construction of symbolic systems which purport to represent the real world in any way is how to represent time -- or, more accurately, the relations in time between events. But one can turn to any language one might have handy and find there readymade a coherent representation of the temporal relations between events. However, there is not any necessary agreement in how different languages describe the perception of time nor are the descriptions even simple. As Whorf (1939) has lucidly argued, turning from one's own language to another will, at first, reveal a bewildering difference in how time is perceived or talked about by the speakers of that language.

The perception of temporal relations between events find their way into a language in a number of ways. We will not entertain any abstract speculation about what these linguistic manifestations of time tell us about how time is perceived but instead show how these linguistic manifestations of time in texts provide a coherence and structure to a text as a narrative event. [1] We will pose two very general questions about the temporal organization of any text: how are events referred to in a text related to one another in narrative time and what lingustic form do these relations take?

The data for this paper are three relatively long texts in Bakweri, a Bantu language of west Cameroun (Guthrie A.22): a myth, the story of the little girl Vía, and two descriptions of everyday events in Cameroun: one of hunting with traps and the other of going to visit one's grandmother. [2] This analysis of Bakweri oral narratives focusses on the temporal relations between individual events and the collection of events into episodes. Three interlocking tiers provide a frame for temporal organization of a text in this language. Sentential particles linking clauses (or propositions; in this case, the lingustic representation of an event) provide the lowest tier. These particles express strict succession of events in time and through their interaction with tense allow a sequence of contiguous events to cohere together. Temporary shifts in tense from nonpast to past forms, which I will describe shortly, create the second tier, marking episode boundaries between sequences of events. Since both the sentential particles and tense are

categories expressed within clauses, the temporal units designated by these two tiers are discrete. Finally, lexical items or phrases, equivalent to English temporal substantives, allow for separating one series of episodes from another. Though such overt lexical time reference tends to coincide with the tense shifts of the second tier, this is not always true. The domain of the largest temporal units - for which I lack a good name - may extend slightly beyond a second tier boundary at times.

In the story of the little girl Víá, the most frequent temporal linking particle, zǐ translated '(and) then', introduces nearly half of the some 150 clauses in the text. Clauses introduced with zǐ take a variant of a nonpast form of the verb, specifically a secondary development of the present/future form consisting of a high rather than low tone subject prefix. This secondary tense form is contrasted with the primary nonpast tense forms in the following paradigms:

(1)	High tone root √ -kók 'bite'	Low tone root √ -kòk 'be-big'
zǐ form	ák'ókà (H'HL)	ákòkà (HLL)
present/ future	àkókà (LHL)	àkòkà (LLL)
progressive	áàkókà (HLHL)	áàkòkà (HLLL)

The basis for deriving the zi forms from the present/future forms is the tone sandhi in high tone roots. Normally any high tone following a low tone downsteps, that is, lowers to a midtone, automatically.

(2) /LH/ ---> [LM]

If for any reason, that low tone should become high, as it has in the zi forms for morphological reasons, the second high tone still downsteps, though by rule rather than automatically; thus preserving in part the original tone configuration (an apostrophe indicates this non-automatic downstep).

(3) if {LH} ---> *{HH}, then *{HH} ---> /H'H/ ---> [HM]
e.g., ák'ókà 'then he bites' <--- àkókà 'he bites'

The zǐ form for ák'ókà 'then he bites' shows this phenomenon; the tone sequence [HML] is derived from the basic [LML] of the present/future àkókà 'he bites'.

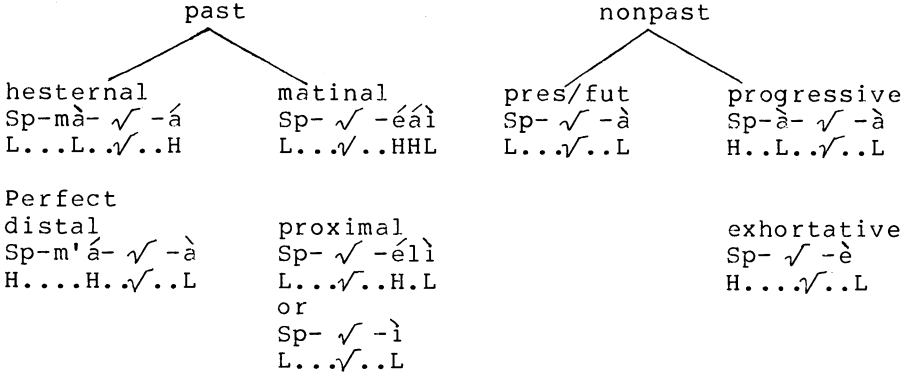
The verbs in clauses which mark episode boundaries in

this text show another secondary form, the so-called when tense, but this one, though similar to the zǐ forms in its high toned subject prefix (though note the -ê rather than -á root extension), is obviously derived from a past rather than a nonpast base, specifically the hesternal or distant past form. The following contrastive paradigm demonstrates this development (Note also that the perfect is secondarily derived from the hesternal form.).

(4)	High tone root / -kók 'bite'	Low tone root / -kòk 'be-big'
when form	ámàkókê (HLHF)	ámàkòkê (HLLF)
hesternal	àmàkókâ (LLHH)	àmàkòká (LLLH)
perfect	ám'ákókà (H'HHL)	ám'ákòkà (H'HLL)

Tense marking in Bakweri also varies under negation, relativization of subjects vs. non-subjects, as well as a number of phonological parameters. A formal and semantic analysis will be presented elsewhere. Only two further points are relevant here. First, the most elaborated tense distinctions occur in positive, independent clauses. The opposition of past and nonpast forms (as illustrated in the proportion below) provides the source for the secondary developments just described. Second, on each side of this fundamental opposition, the distinguishing feature is suprasegmental. Different tone patterns characterize the various tenses; the segments' purpose being to bear the tones.

(5) Positive, independent tense/apsect proportion [3]



I have taken a section of the story of the little girl

Vía to illustrate the interlocking use of the linking particle zǐ and tense. In this early section of the story, Vía has disobeyed her mother's command to stay at home and is sneaking along behind her as she walks to the farm. (For convenience, the verbs have been listed in a column to the right and glossed closely. The zǐ forms are starred.)

(6)		Verbs
1)	ɲàŋgó yèní àmá ávÈŋgÈ ómb'úzà	*á-vÈŋgÈ
	mother her just she glances behind	3s-glance
	1. Her mother then glances back,	THEN
2)	zǐ á'óŋgámá óvèwùlé	*á-'óŋgámá
	then she hides in the grasses	3s-hide
	2. then she (Via) hides in the elephant grass,	THEN
3)	nátÈ zǐ àmá áÈndÈ	*á-ÈndÈ
	until then just she walks	3s-go
	3. until just then she walks.	THEN
4)	àmá áúkè	á-úkè
	just she should arrive	3s-arrive
	4. Just as she's about to arrive,	EXHORTATIVE
5)	átÈÉnÉ ŋmwánà èkí	*á-tÉÉnÉ
	she remains small place	3s-remain
	5. she remains (only) a short distance away,	THEN
6)	òmá áúkè	á-úkè
	until she should arrive	3s-arrive
	6. until she will arrive,	EXHORTATIVE
7)	zǐ ámàvÈŋgÊ mÉnÉ	á-mà-vÈŋgÊ
	then when she glances like that	3s-past-glanc
	7. then when she glances (back) like that,	WHEN
8)	vía àévía lÈndÉ ovewule	à-é-vía
	Via before she knows to go in grasses	3s-before-kno
	8. before Via knows to go into the elephant grass,	BEFORE
9)	zǐ ɲàŋgó yèní áŋmw'ÉnÈ	*á=mò=ÉnÈ
	then mother her she sees her	3s=3s=see
	9. then her mother sees her.	THEN

1. Her mother then glances back, 2. then Via hides in the elephant grass. 3. Until just then she (her mother) walks, 4. just as she's about to arrive, 5. she remains only a short distance away, 6. until she will arrive. 7. Then when she glances back like that, 8. before Via knows to go into the elephant grass, 9. then her mother sees her.

The shift from a nonpast to a past tense occurs in the seventh clause, where Vía is discovered. All events prior to the discovery simply follow one on another as indicated by the zĭ form of the verbs in (6.1,2,3,5). The expectation of Vía's discovery is intensified by the use of the exhortative form of the verb in (6.4) and (6.6), which has the connotation of an imminent but yet unrealized event. Though this event is the arrival of Vía's mother at the farm, the new episode begins with the realization of Vía's presence not of arriving. In the new episode, use of the zĭ form resumes in (6.9).

Identical nonpast tense marking here draws the events immediately prior to Vía's discovery tightly together. The shift to an overt past form momentarily disrupts this coherence, and thus moves the narrative bodily to the next episode or series of contiguous and cohering events. This analysis is unintentionally foreshadowed in Jespersen's (1924) discussion of the difference in usage between the imperfect and the aorist,

> E. then (1) 'next, after that', as in "then he went to France"... and (2) 'at that time,' as in "then he lived in France"... The aorist carries the narrative on, it tells us what happen next, while the imperfect lingers over the conditions as they were at that time and expatiates on them with more or less of prolixity. One tense gives movement, the other a pause... We may perhaps be allowed with some exaggeration to say in the biblical phrase that the imperfect is used by him to whom one day is as a thousand years, and the aorist by him to whom a thousand years are as one day...the distinction has no reference to the action itself, and we get much nearer the truth of the matter if we say that it is a difference in the speed of the narrative; if the speaker wants his presentation of the facts to hurry on toward the present moment, he will use the aorist; if, on the other hand, he lingers and takes a look around, he will use the imperfect. The tense distinction is really, therefore, a tempo distinction. The imperfect is lento and the aorist allegro, or perhaps we should say ritardando and accelerando, respectively.' (276)

Jespersen's impressions of the differences in usage between the two tenses find a functional parallel in the tense alternation in Bakweri narratives, though I suspect

that a full appreciation of the subjective force of the temporal structure thereby achieved is inaccessible to the analyst.

Our next example is taken from a point somewhat later in the same story.

(7)

		Verbs
1)	zĭ ŋàŋgó yèní áwòtéá	*á-wòtéá
	then mother her she begins	3s-begin
	lìtíà mó'óndá	THEN
	to till the field	
	1. Then her mother begins to till the field,	
2)	zĭ ámàtíê ámàtíê	á-mà-tíê
	then when she tilled when she tilled	3s-past-till
	2. then when she tilled and tilled,	WHEN
3)	nátÈ ŋmwáámbò víá àmá íyà	
	until soon Via she says "Mother,	
	nààzà lìŋâ	"nà-àzà"
	I want to shit"	1s-want
	3. shortly, Via says "Mother, I want to shit."	"PRESENT"
4)	àmá wĔ'É	---
	she says "Wee!" (an exclamation of surprise or disgust)	
5)	àmá ló'ówá nánù	
	she says "the shit like here	"nà-zá-t'ánÈ
	nàzát'ánÈ nál'ílâ	1s-not-be able
	I cannot I eat it"	na=1'i=1a"
	5. She says "The shit here, I cannot eat it!"	1s=3s=eat "PRESENT"
6)	zĭ áÈndÈ óz'ááwá wàŋgá	*á-ÈndÈ
	then she walks to the edge farm	3s-walk
	6. Then she walks to the edge of the of the farm,	THEN
7)	zĭ áÈndÈ á'ímá á'ímá	*á-ÈndÈ
	then she walks she digs she digs	3s-go
	ÈfÒndí	*á-'ímá
	a hole	3s-dig
	7. then she walks, (then) she digs, (and then) she digs a hole.	THEN
8)	àmá ŋéêâ ánù	"ná-êâ"
	she says "shit toward here!"	shit-toward
	8. She says, "Shit in here!"	"IMPERATIVE"
9)	zĭ víá áÈndÈ	*á-ÈndÈ
	then Via she walks	3s-go
	9. Then Via walks (over there),	THEN

1Ø)	áɲ'ééyá âŋgâ	*á-ɲá-é(y)á
	she shits toward there	3s-shit-toward
	1Ø. (then) she shits there.	THEN
11)	ámàɲê ámàɲê	á-mà-ɲê
	when she shat when she shat	3s-past-shit
	11. She shat and shat,	WHEN
12)	nátÈ méà méénί mék'úwá	*mé-k'úwà
	until intestines her they finish	3p-finish
	l'íwúzà	THEN
	coming out	
	12. until her intestines all come out,	
13)	zĭ àzìtánÉ lìtÉmÈfÊ	*à-zì-tánÉ
	then she is not able to stand either	3s-not-be able
	13. then she is unable to stand up also.	THEN

1.Then her mother begins to till the field, 2. then when she has tilled and tilled, 3. shortly Via says "Mother, I want to shit." 4. She says "Wee!" 5. She says "The shit here, I cannot eat it!" 6. Then she walks to the edge of the farm, 7. then she walks, (then) she digs, (and then) she digs a hole. 8. She says "Shit in here!" 9. Then Via walks (over there), 1Ø. (then) she shits there. 11. She shat and shat, 12. until her intestines all come out, 13. then she is unable to stand up also. [4]

In 7.2 and 7.11, we find the shifts to a past tense form; all other clauses, except those containing direct quotation, show the zĭ form of the verb, which again creates immediate textual coherence. Direct quotation interrupts the otherwise orderly marking of temporal relations within the narrative. Following Benveniste's (1969) discussion of the distribution of the French tenses, we can distinguish between two types of speech events: narrative and discourse. [5]

Discourse precludes the use of few (if any) tenses: in French, only the aorist (il fait) and the pluperfect (il avait fait) do not appear, while in Bakweri all tenses may appear; but in both languages only a few tenses appear in narrative: the aorist, perfect (il a fait), and the pluperfect in French (N.B. The perfect appears in both planes) and, with few exceptions [6], the zĭ (áÈndÈ 'then he goes') and when (ámÈndÊ 'when he went') forms in Bakweri. Thus simple paradigmatic oppositions within the category of tense do not accurately represent the facts of usage in either language. The essential mark of direct quotation in the Bakweri texts is the appearance of a variety of tense forms, interrupting the orderly narration of events. Furthermore, the apparent function of direct quotation is not to advance the narration of events but rather for the protagonists to

comment on events or situations. Events only take place in narrative, strictly construed, compare Benveniste,

> "The historical utterance...characterizes the narration of past events. These three terms, "narration," "event," and "past," are of equal importance. Events which took place at a certain moment of time are presented without any intervention of the speaker in the narration. In order for them to have occurred, these events must belong to the past...The historical intention does indeed constitute one of the important functions of language; it impresses upon it its specific temporality" (1969, 206).

In Bakweri, the secondary developments of past and nonpast bases or more precisely the consequent structural configuration of narrative is the key to the episodic organization of a text. That the device for marking episode boundariesis the temporary substitution of a past for a nonpast form is irrelevant. [7]

The following examples illustrate how tense shift and lexical time reference interlock.

(8)		Verbs
a)	wû wómùkê	wó-mà-úk-ê
	night when it arrived	3s-past-arrive-√ex
	'When night arrived...'	
b)	zǐ é'élélé émàjê	é-mà-jà-ê
	then the morning when IT came	3s-past-come-√ex
	'Then when the morning came...'	
cf.		
c)	ɲàŋgó yèní ámàjê	á-mà-jà-ê
	mother her when SHE came	3s-past-come-√ex
	é'élélé	
	the-morning	
	'When her mother came (in) the morning...'	

These examples are especially crucial to the argument that temporal organization in Bakweri oral narratives is a matter of alternating between two opposed types of tense marking, since they demonstrate how when a narrative is advanced significantly through the mention of later times of day, these mentions coincide with the shift to a past tense form in the clause in which they occur. The mention may be thematic or adjunctive; in (8b) the temporal substantive is the subject of the clause while in (8c) it is simply a sort of adverbial

adjunct indicating more precisely when Víá's mother reappeared. Progressing from an earlier to a later time of day can be accomplished in a single leap through the use of temporal substantives and this can, though it need not be, the event which advances the narrative to the next episode.

Thus far we have seen that temporal organization of Bakweri oral narratives is episodic and that the boundaries between episodes occur where a clause containing a secondary past form interrupts a series of clauses containing nonpast forms. However, in the descriptions of everyday events, the picture is somewhat different. Within episodes present/future (àÈndÈ 'he goes/he will go', marked with an asterisk below) forms predominate, while either a distal (ám'ÉndÈ 'he has gone') or, much more frequently, a proximal (àÈndì 'he has just gone') perfect mark episode boundaries.

In the section from the description of hunting in Cameroon (below), proximal perfects, in vákpwélìtÉ 'if they have just entered' and wówìtÉ 'if they have just killed' mark episode boundaries in the fourth and eighth clauses, but there are two other episode boundaries, in the second and sixth clauses, both with the familiar when form vámàkúlÈtÉ 'if when they finished'.

(9)

		Verbs
1) a)	wóŋgà ván'áá màndáò they build small houses	*vá-óŋgà 3p-build
b)	émá vátánÈ lìnàŋgéà which they can sleep in	*vá-tánÈ 3p-be able
1.	They build small houses which they can sleep in.	PRESENT
2)	zǐ vámàkúlÈtÉ then if when they finished	vá-mà-kúlÈ-tÉ 3p-past-finish-if
2.	Then, if they finished,	WHEN
3)	mòtòtÈ àkpwééà ówàŋgá each person he enters into bush	*à-kpwá-éà 3s-enter-toward
	na véòzò vé ngùndèlì with wires of trap	PRESENT
3.	each person enters the bush with trapping wires.	

4) vákpwélìtÉ		vá-kpwá-élì-tÉ
if they've just entered		3p-enter-prf-if
ówàŋgá na véòzò véáwù		PROXIMAL PERFECT
into the bush with wires their		
4. If they've just gone into the bush with their wires,		
5) a) vák'ówò íŋgùndèlì èkí		*vá-k'ówò
they set traps place		3p-set traps
b) émá vÉn'É ná		*vá-Én'É
where they see like		3p-see
c) 'émá vát'ánÈ vál'Émbeà		*vá-t'ánÈ
where they can they catch		3p-be able
ŋàmà		*vá-l'Émbèà
game		3p-catch
5. (then) they set traps (in a) place where they see that they can catch game.		THEN
6) vámàkúlÈtÉ lìkówó		vá-mà-kúlÈ-tÉ
if when they finished setting traps		3p-past-finish-if
		WHEN
6. If they finished setting traps,		
7) vátìmbà ómàndáò máwù		*vá-tìmbà
they return to houses their		3p-return
7. they return to their houses.		PRESENT
8) lòŋgò émá válóm'á		vá-lómá
some who they make before		3p-precede
lìkówó èŋgèlè yá		PRESENT
setting traps the time of		
mòlòmÈ wówìtÉ		vá-òw-ì-tÉ
first if they've just killed		3p-kill-prf-if
8. Some who set their traps before, if they've killed first,		PROXIMAL PERFECT
9) vájàànà óv'án'ááwù vá		*va-ja-ana
they bring to their small of		3p-come-with
màndáò tÔ ómàwóndò máwù		PRESENT
houses or to huts their		
9. they bring (the game) to their small houses or to their huts.		

1. They build small houses which they can sleep in. 2. Then, if they are finished (building), 3. each person enters the bush with trapping wires. 4. If they have gone into the bush with their wires, 5a. they set traps in places b. where they see c. that they can catch game. 6. If they have finished setting traps, 7. they return to their houses. 8. Some, who set their traps before, if they have killed first, 9. they carry (the game) back to

their small houses or to their huts.

Is there, then, any difference between the two means of marking episode boundaries?

All four clauses indicate the completion of a task begun earlier: building huts in (9.2), entering the bush in (9.4), and setting traps in (9.6); the killing completed in (9.8) is at least inferable as the intended result of the earlier events. In two cases, the event is echoed through repetition of the verb in the boundary clause: (9.3) àkpwéêâ 'he (each person) enters into... (9.4) vákpwélìtÉ 'if they have just entered' and (9.5a) vák'ówò '(then) they set traps... (9.6) vámàkúlÈtÉ lìkówó 'if when they finished setting traps'. Though (9.1) wóŋgà 'they build' > lóŋgà 'build'-nonfinite (cf. (9.6) lìkówó 'set traps'-nonfinite) is not echoed in (9.2), it is fairly evident that lóŋgà has undergone ellipsis, since what they've finished, i.e., building, is recoverable from the preceding clause. Finally subsequent events in each case are contingent on the completion of the earlier events in the boundary clauses: (9.2) vámàkúlÈtÉ (loŋga) 'if when they finished (building)... (9.3) àkpwéêâ 'he (each person) enters into'; (9.4) vákpwélìtÉ 'if they have just entered... (9.5a) vak'owo '(then) they set traps'; (9.6) vámàkúlÈtÉ lìkówó 'if when they finished setting traps... (9.7) vátìmbà 'they return'; and (9.8) wówìtÉ 'if they have just killed... (9.9) vájàànà 'they bring'. The sequence of an indicative following a conditional in each pair further reinforces the sense that later events depend on earlier ones. All of these similarities lead us to ask why bother to use a perfect at all? [8]

The difference lies in the nature of the event in the boundary clause. vákpwélìtÉ ówàŋgá 'if they have just entered (into) the bush' tells us something about the state of the hunters, i.e., their location. Neither vámàkúlÈtÉ (lóŋgà) 'if when they finished (building)' nor vámàkúlÈtÉ lìkówó 'if when they finished setting traps' tells us anything about the state of the hunters, rather the hunters have brought building huts and setting traps to a state of completion. The focus of the action in clauses in the proximal perfect is back onto the subject rather than outward onto the object.

Subject focus is even more evident in (9.8), where the proximal perfect in wówìtÉ 'if they have just killed' inactivates an otherwise transitive action. The killing is an accomplishment of the hunters at this point in the text rather than an action which they are performing. As argued above, its accomplishment is a prerequisite for the action 'performed' in (9.9) vájàànà 'they carry', but is also the

desired result of the entire enterprize. Once the killing is accomplished the hunters can return home to their families. That the killing is only hypothetical (indicated by the verbal suffix -tÉ 'if') represents a separate layer of connectivity between events, specifically the dependency of subsequent events on prior preparation. The use of the perfect, however, represents the result or sum of prior events, now evident in the narrative present. The absence of a direct object in (9.8) and in (9.9) as well stems from a tendency to delete noun phrases recoverable from context, here ŋàmà 'game,meat'. The two kinds of episode boundary differ, then, in focus: in the marked case the proximal perfect brings the state of the subject to the fore [9], but in the neutral case, the event simply happens and a shift to a past tense is sufficient.

A distal perfect is also exercised to mark episode boundaries in the descriptions of everyday events; for example, in

(1Ø)		Verbs
1)	ŋmwé'énà mÓ yÒndÒ móm'úkàtÉ	mó-m'á-úkà-tÉ
	the day of going if it has arrived	3s-past-arrive-
	1. If the day of the journey has arrived,	DISTAL PERFECT
2)	mòmbámbá yèní àvÈmÈ wékòmè	*à-vÈmÈ
	grandchild her she leaves town	3s-leave
	2. her grandchild leaves her town.	PRESENT
3)	zĭ áàjà	á-à-jà
	then she is coming	3s-augt-come
	3. Then she is coming.	PROGRESSIVE
4)	âŋgá m'ÉnÉ ám'ákòkàtÉ	á-m'á-kòkà-tÉ
	there just if she has become big	3s-past-be big-
	4. If she has grown up already,	DISTAL PERFECT
5)	àÈndÈ mÓŋmwîtî	*à-ÈndÈ
	she goes herself	3s-go
	5. she goes by herself.	PRESENT
6)	àvélìfÉt'É mòzàlì	à-vé-lì-fÊ-tÉ
	if she is still a small one	3s-be-prf-still
	6. If she is still small,	PROXIMAL PERFEC
7)	émá àzíkòkí gwámù	à-zí-kòk-í
	who she has not grown up good	3s-not-be big-p
	7. who has not grown up enough yet,	PROXIMAL PERFEC
8)	áf'ítí lÈndÉ mÓŋmwîtî	á-f'ít-í
	she is fit to go herself	3s-be fit-prf
	8. (who is) fit to go by herself,	PROXIMAL PERFEC

9) zàŋgó yèní àfítà	*à-fítà
father her he is fit	3s-be fit
àŋmwÉndÉnÉ	*à=mò=Ènd-ÉnÉ
he goes with her	3s=3s=go-with
9. Her father is fit to go with her.	PRESENT
1Ø) àmòlí'ÉlÉ	*à=mò=lí'ÉlÉ
he escorts her	3s=3s=escort
1Ø. He escorts her.	PRESENT

1. If the day of the journey has arrived, 2. her grandchild leaves her town. 3. Then she is coming. 4. If she has grown up already, 5. she goes by herself. 6. If she is still small, 7. (one) who has not grown up enough yet, 8. to be fit to go by herself, 9. her father is fit ot go with her. 1Ø. He escorts her.

a distal perfect appears in (1Ø.1) and (1Ø.4), while a proximal perfect in (1Ø.6) marks another episode boundary in this excerpt from the description of a young girl's visit to her grandmother.

The use of the distal perfect móm'úkàtÉ 'if it has arrived' with a temporal substantive ŋmwé'énà mÓ yÒndÒ 'the day of going' as subject is identical to use of when forms with similar subjects in the Víá story in (8) to announce the arrival of a particular day or time of day. The distal perfect in (1Ø.4) ám'ákòkàtÉ 'if she has become big (grown up)' (conditionally) designates reaching a state. Use of the distal rather than proximal form in (1Ø.4) adds a sense that growing up takes some time; cf. vákpwélìtÉ 'if they have just entered in (9.4) above where the transition from the earlier to the present state is much briefer. The distal form also contrasts syntagmatically with the proximal forms in (1Ø.6,7,8), which are simply stative. Proximal forms lack the inchoative force of distal forms, which overtly designate a transition from an earlier state antonymous to the present one.

The episodic structure described for the Víá myth is obviously retained in the everyday descriptions. Individual events progress chronologically in much the same way in both kinds of narrative. However, the substitution of past for nonpast forms as the signifiant of an episode boundary is partially replaced by the marked subject focus construction in the perfect. This is essentially a change in detail (with respect to temporal organization of a text), the author of a text is telling us more about the involvement of the protagonists in the events of the story. I suspect that the simple and basic episodic structure of the Víá myth is a rhetorical and mnemonic frame for a text. The more informal

everyday descriptions which do not belong to the oral tradition show a greater variety of boundary devices because they were composed on the spot rather than remembered.

Conclusion

To briefly recapitulate, the linking particles and the parallelism in nonpast tense forms allow the speaker to express an immediate connectivity of successive events within a certain restricted span of time. It would of interest to determine what the size of this span of time may be, though at least for the myths it is likely that episodes are to some extent formulaically limited. My suspicion is that, otherwise, there is really no limit except that which the speaker may impose to organize his story. Shifting to past tense forms allows him to shift each episode to a state of being both prior and complete with respect to later events. Overt lexical time reference allows him to place large sections of his narrative within a time scale independent of the more immediate temporal relations between events. Each tier, however, preserves the sense that time, at least cosmologically, goes forward; tense changes and clause linkage simply allow the speaker to indicate that the place in time occupied by any one event is not temporarily arbitrary.

This investigation has had two purposes: one overt, the other covert. The overt purpose has been to describe the device of tense alternation used in organizing a text temporally in Bakweri. The array of clauses produced by the past - nonpast alternation defines the episodic structure of a text in this language. The covert purpose was to determine what the various tense and aspect distinctions in Bakweri mean from their behavior in connected speech. This purpose was not achieved in any simple way, since we have neither found out what distinguishes individual verb forms in the 'present', 'past', 'perfect', etc. nor determined the meaning of individual oppositions such as past : nonpast. What we have discovered is how the forms may be used to organize a text. To repeat a point made earlier, it is not important that the episodic structure of Bakweri texts is based on a past - nonpast alternation. What is important is that there be some device which provides structure to a text. In Bakweri it happens to be a tense alternation.

Epilogue

Recently, Nessa Wolfson (1979) has discussed the use of the English 'historical present' and its alternation with past tense forms in ordinary conversational narratives. She

argues that the places in a narrative where a past tense form replaces the historical present coincide with a significant event in the course of the story (here, for convenience, an 'episode boundary'). English and Bakweri are strikingly similar in how narratives are temporally organized, except in English past forms are not restricted to single clauses at a boundary, but instead an entire episode may be in the past. That two otherwise dissimilar languages should hit on nearly the same device strongly suggests that there is something fundamentally meaningful about the past - nonpast (= E. historical present) alternation. However, neither individual forms in isolation nor paradigmatic oppositions of tense and aspect in the two languages have similar meanings. Their alternation within a narrative temporally calibrates the progression of events with respect to the chronology of narrative time. Further investigation of the temporal organization of narratives would do well to determine the psychological advantage obtained from an episodic structure for the remembering, telling, and understanding of stories, rather than worrying about the significance of using a nonpast form to describe a past event.

FOOTNOTES

* This paper has greatly benefited from discussions with Charles Fillmore, Meredith Hoffman, George Lakoff, Sarah Michaels, Johanna Nichols, and Anthony Woodbury. I should probably have taken more heed of their suggestions. Of course, any errors or faults which remain are mine alone. The inspiration and patience of the two consultants for Bakweri, Mary and Martin, has been inestimable. I offer them my warmest thanks.

The phonemes of Bakweri are given in the chart below:

CONSONANTS

	Lab.	Alv.	Ret.	Pal.	Vel.	Lab.-Vel.
Stops						
vls.		t		j	k	kpw
vd.						gb(w)
N-vd.	mb	nd		nj	ŋg	ŋmgbw
Nasals	m	n		ɲ		ŋmw
Spirants	f		z			
Glides	v			y		w
Lateral		l				

VOWELS

	Front	Back
High	i	u
High-mid	e	o
Low-mid	E	O
Low	a	

Tones: 'V́' = high tone; 'V̀' = low tone; 'V̂' = falling tone; 'V̌' = rising tone (the last two frequently are the result of coalescence of level tones). An apostrophe indicates downstep. For further discussion, see Kingston (1978).

1 I should also note that I will not be speculating about time itself in this paper at all, but rather about temporal relations between events and how specific languages refer to them. The concern here is with time as it is manifest in grammatical categories, particularly the deictic category of tense. Of course, all such linguistic representations are the result of a speech community's continuing perception and description of the information that impinges on their senses, but it does not concern me here whether these representations are phenomenologically accurate -- if accuracy can be measured independently of a linguistic or some other symbolic description. Temporal relations are so thoroughly contained within the linguistic system that one would hardly expect anyone to sincerely complain that he had no way to express a particular and precise perception in his language, though he may express it more or less well or it may require more or less thought depending. Such complaints will only arise in the context of translation from one language or symbolic system to another. The issue of complete autonomy or relativity of perception is, of course, arguable, for each individual's perception will differ somewhat from any other's. But in the case where two individuals speak the same language, they will at least share the knowledge of one selfconsistent means of communicating a perception.

2 The texts were collected from two speakers of Bakweri, Mary Efosi Ngomba Westbrook and Martin Yangange Musonge, during the spring and summer of 1978 in a field methods class taught at the University of California at Berkeley by Charles J. Fillmore. Mary told the story of Vía and Martin gave the descriptions of everyday life in Cameroun. According to both Mary and Martin the myths are the kind told around the hearth at night following supper. Each member of the family, including children,

will tell a story. Visitors bring new stories, which may be added to a family's stock, or a family member may bring back a new story from a visit to another compound. In some not fully understood way the stories which are told around the hearth are a class apart, different from stories which can be told at any time. They are referred to by different words: gbwìtó pl. màìtó for stories told at night, which may include singing, and mòndèngà pl. mèndnèngà which are stories which can be told during the day, conversationally, and which don't include singing. There are even different verbs for describing the telling of the two kinds of stories: for gbwìtó the verb lòvá or lòvéá 'tell' or 'tell to' is used and for mòndèngà the verb lìtúvà also 'tell' is used. It may even be the case that there are stories which are not told when a stranger is present. Also, it appears that there are stories that one tells as a child and stories that only an adult may tell, though it may be that one doesn't or can't learn the stories all at once.

3 Labels are only mnemonic at this point in our investigation; otherwise: 'Sp' indicates subject prefix, '√' root, other symbols in the line below the labels indicate actual segments. The next line indicates the the tones of the form: '√' in this line indicates that the tone of the root does not change. The formal description of tense distinctions in Bakweri depends crucially on the detailed data provided in Gensler (1978), without which this discussion would have been much less satisfactory. See his work for sample paradigms. It should be noted that he may not agree with the analysis presented here nor is he responsible for any errors of interpretation. An hesternal past (yesterday and before) with low tone subject prefix and low tone tense prefix mà- differs from a distal perfect which has the preroot tone sequence /H'H/ (> [HM]) rather than /LL/. The suffixes, -éáì and -élì (for vowel final roots) or -ì (for roots ending in a consonant), mark a recent past (earlier today, e.g., this morning, thus 'matinal') and a proximal perfect, respectively. Non-past forms are expressed by alternations in the tone pattern of the verb and alternations of the root extension, i.e., low tone on the subject prefix for present/future forms and high tone on the subject prefix for progressive and exhortative forms. A preroot augment -à- with low tone creates the preroot falling contour characteristic of the progressive, which is absent in the exhortative forms; however, an -è root extension replaces the -à of the rest of the paradigm.

4 This section of the narrative describes the beginning of

Vía's punishment for having disobeyed her mother. The appropriateness of the punishment becomes evident once you know that the reason that she shouldn't have followed her mother to the farm is that one is not allowed to urinate or pass excrement there. In addition, the passing of her intestines is not, in fact, as fantastic as it might appear for the edema which accompanies amoebic dysentery can cause prolapsis of the colon, not to mention the fact that the loss of fluids can make one so weak as not to be able to stand up again. I am indebted to Newton Kingston, a parasitologist, for this explanation of Vía's predicament. See also Hemingway's account of suffering from this condition in his Green Hills of Africa,

> Already I had had one of the diseases and had experienced the necessity of washing a three-inch bit of my large intestine with soap and water and tucking it back where it belonged an unnumbered amount of times a day. (283)

That Vía is suffering from something like dysentery may also be suggested by the intensifying repetition of the verb ámànê 'when she shat' in (7.11). Similar intensification, though with the purpose of stretching the episode preceding Via's becoming stuck in a hole in the ground, occurs in the repetition of the verbs ámàtíê 'when she tilled' and á'ímá 'then she digs' in (7.2) and (7.7), respectively.

5 Benveniste distinguishes "two planes of utterance...that of history and that of discourse." (206, his emphasis). Our distinction is equivalent, except that we are talking about quotation rather than ordinary discourse; we simply use the word 'narrative' in place of 'history' since 'narrative' fits better within the discussion of varieties of oral (as opposed to written) speech events.

6 One is the use of the exhortative in the first section of the Vía story, but note that the exhortative is properly a nonpast (both formally and semantically) and as such its appearance is appropriately embedded within the body of a single episode.

7 Except that the clear derivation of the when form from a past base and the zí form from a nonpast base allows us to construe the event in a when tensed clause as anterior to those in following zí tensed clauses; thereby linking that event to the following rather than preceding episode.

8 A more fundamental question also arises at this point;

that is, what is an episode boundary? I have spoken of a correlation between the presentation of events and verb morphology, particularly tense marking. Otherwise, a first pass through the texts revealed that one event is at least locally linked to the next. I then searched for a means of extending this local notion of narrative time. The chaining of clauses through nonpast tense marking interrupted by single clauses in the past augments local linkage (by zɪ̀) and order of presentation. In this analysis the interruptions mark episode boundaries. Two further questions follow: what, if anything, in the progression of events coincides with a temporal episode boundary and are there any other means of dividing a text into episodes? To a great extent, both of these questions are beyond the scope of this paper; however, episode boundaries signal shifts in narrative time of substantial if unspecified duration, as compared to the sense of immediate succession of one event on another within an episode. Shifts in location, completion of an event or series of events, beginning a new series, and other changes of state relevant to the participants also coincide with episode boundaries. In brief, the configuration of tense marking in a narrative formally defines an episodic structure within which events semantically cohere. The semantic analogue of the episode, which is structurally defined, might be the paragraph, in which events related to one another in kind, result, or direction are drawn together.

9 Two other closely related functions can be attributed to the proximal perfect. First, predicate nominal constructions take the form

(i) (NPx) Spx-(vélɪ) (-ndí) NPy, 'NPx is an NPy'
(vénì)

with the copula in its two most common (and possibly only) forms: -vélì < -vé-(é)lì 'be' in the proximal perfect and -vénì < -vé-ÉnÉ-ì 'be with' = 'have', used in possessive constructions, and also in the proximal perfect. The copula indicates that the referent of NPx belongs to the class designated by NPy (-ndí is an emphatic postposition frequently occurring in these constructions), e.g.,

(ii) a) èféò émá ná'ázà lóv'ánù náàŋgè
the-way which I want to-tell-of-here now
èvélìndí èféò yá lìzòŋgò
it-be the-way of hunting
'The way that I want to talk about here now is the way of hunting...

b) má'ázòŋgò màvélì ŋáì ná ŋáì
the-hunting they-be kind by kind
'...the huntings are of various kinds'

In (a) èféò yá lìzòŋgò 'the way of hunting' is an identifying predicate of èféò émá... 'the way which...' and náì ná náì 'various kinds' is a distributive equational predicate of má'ázòŋgò 'the huntings'. Second, Bakweri lacks adjectives as a separable form class; stative verbs take their place. When these verbs appear in predicates, their unmarked form is the proximal perfect, e.g., nàwàwí 'I am tall' (cf. nàwàwá in the simple nonpast 'I will become tall', an inchoative, and nám'áwàwà in the distal perfect 'I've become tall'. Both are different from a simple description of the subject's state or attributes.) Stative verbs may take what Chao (1968: 312) has called "cognate objects", i.e., nouns related semantically to, or expressing extent or direction of, the condition expressed by the stative verb, e.g., àwàwí mOtÉ 'he is tall (of) height', awámi mófò 'she is clever (of) head', àwámì lìá 'she is clever (of) hand' = 'she is kind', àwÓtì mbÓtí 'he is dressed (with) clothes', àtúmì mòzómbó 'he is stripped naked'. Neither of the last two examples is strictly a stative verb, but they take on stative force in the proximal perfect and may enter into cognate object constructions. Frequently, cognate object constructions have predicate nominal paraphrases, e.g., avélindí mozómbó 'he is naked', àvélìfÊtÉ mòzàlì 'if-she-still-be small', àvénì màkpwází 'she has smartness', àvénì ŋmwèmá mó w'óvé 'she has heart of badness' = 'she is mean, cruel'. Nonfinite verbal complements are also possible with these stative verbs in the proximal perfect, e.g., àfítì lÈndÉ móŋmwîtî 'she-is-fit to-go herself' and the standard form for comparative constructions with lákà 'to pass, exceed', e.g., njÉnÉ òŋgó múnánà áw'ámì lákà 'who that man he-be-tall to-pass?' = 'who is that man taller than?'. This evidence of predication of identity, possession, quantity, quality, etc.; in short, states rather than activities of the subject reinforces the interpretation of the difference between the two kinds of episode boundaries.

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THE ROLE OF THE GENITIVE SUFFIX IN RELATIVE CLAUSES IN TURKISH: A REPLY TO DEDE*

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1. Introduction and Background

Turkish is an SOV language with a right-headed relative clause construction. The rule of relativization operates unboundedly leftward, effecting deletion of the NP in the relative clause (RC) which is coreferential with the head noun.

There are two morphologically distinct types of RC's in Turkish. Compare the form of the RC in (1), where the target is a direct object, with (2), where the target is a subject. The morphemes of interest are underlined.[1]

(1) Direct object relativized

kadɨn-ɨn Ø al-dɨğ-ɨ halɨ
woman-GEN buy-PART-POSS rug
'the rug which the woman bought'

(2) Subject relativized

Ø halɨ-yɨ al-an kadɨn
rug-ACC buy-PART woman
'the woman who bought the rug'

In both cases, the verb of the RC appears in a participial form; the participle suffixes -DIK and -(y)En both encode non-future tense.[2] The additional morphology in (1) consists of the genitive and possessive suffixes. The former is affixed to the subject of the RC, the latter to the participle. The possessive agrees with the subject in person and number. (1) exemplifies what I shall call an "object participle" (OP) RC; (2) exemplifies a "subject participle" (SP) RC.[3] (-DIK is thus an OP suffix and -(y)En a SP suffix.)

The first generative account of RC participles to appear in the literature was that of Underhill (1972). He makes the following observations. In the simple cases like (1) and (2), the subject of a RC relativizes with the SP construction, non-subjects with the OP construction. There are two circumstances, however, in which relativization of something other than the subject of the RC requires the SP: when the target is (i) a genitive NP attached to the subject of the RC or (ii) a genitive NP attached to an oblique object--provided that the subject appears in immediate pre-verbal position and is interpreted as indefinite. Underhill notes that in these cases and in the simple case, the SP is used for relativization of a clause-initial target. By assuming that the genitive suffix is assigned by a transformational rule that applies sometime after relativization, Underhill could claim that the SP is assigned just when a clause-initial, caseless NP is the relative target.

Otherwise, the OP is chosen. The relativization transformation could thus be written entirely within the framework of Standard Theory.

Hankamer and Knecht (1976)--henceforth HK--argue that the linear position and casemarking of a relative target are irrelevant to participle choice. Rather, the primary principle governing selection is that the subject of the RC relativizes with the SP and non-subjects relativize with the OP.

HK show that, contrary to Underhill's claim, relativization of a casemarked, clause-medial NP contained in a sentential subject requires the SP construction. In fact, everything in a sentential subject, regardless of its case or position, relativizes with the SP and everything in a sentential non-subject relativizes with the OP. HK propose the Mother Node Principle.

(3) Mother Node Principle (MNP): If a subconstituent of a major constituent of the RC is relativized, the participle is chosen which would be appropriate for relativization of the major constituent itself. [That is, for the simple cases, if the mother node dominating the target is the subject of the RC, the SP is chosen; otherwise, the OP is chosen.][4]

The MNP and Underhill's proposal make the same predictions about relativization of subparts of phrasal constituents: the SP is chosen when a genitive NP attached to the subject of the RC is the target; otherwise, the OP is chosen. Both correctly predict the OP when subconstituents of sentential objects are relativized. What distinguishes the two proposals is relativization of NP's in sentential subjects. For instance, the direct object in the sentential subject of a RC relativizes with the SP. This is in accordance with the MNP and in violation of Underhill's proposal.

HK propose a second principle to account for relativization of NP's in impersonal passives. Breckenridge (1975) has argued that there is no NP in an impersonal passive which functions as a subject.[5] HK observe that no matter what is relativized in an impersonal passive, only the SP is possible. They propose the No Subject Principle.

(4) No Subject Principle (NSP): If there is no subject in the RC at the time of RC formation, the OP construction is impossible and only the SP construction is chosen.

Recall what Underhill discovered about relativization into a sentence with an indefinite, immediately pre-verbal subject: a genitive NP attached to a non-subject relativizes with the SP. HK show that no matter what the relative target is in such a sentence, the OP is impossible. The principle that determines participle selection here looks suspiciously like the NSP. HK claim that it is in fact the NSP and that indefinite-subject sentences, like impersonal passives, are subjectless at the time of RC formation. They propose a rule of Subject Demotion which strips indefinite NP's of their subjecthood.

HK, then, argue that the SP is chosen in a disjunction of cir-

cumstances, i.e., when the target is the subject of the RC or part of it or when the RC is subjectless at the time of RC formation. The two principles that they propose have the effect of requiring the grammar to look at the grammatical relations of the least deeply embedded constituents in the RC. What must be determined is whether any of these constituents bears the subject relation and if so, whether the relative target is the subject or part of it.

2. Dede's Proposal

Dede (1978) claims that HK's proposal "obscures what is really happening during relativization" (p. 68): HK failed to notice that the central problem in participle assignment is discovery of the conditions under which the genitive is suffixed to the subject of the RC. When assignment of the genitive is determined, it is a simple matter to choose the appropriate participle suffix and decide whether or not to attach the possessive. Dede argues that the Genitive Suffix Attachment Rule (GSAR) is governed by a single functional principle which ensures that the genitive is assigned if and only if it is needed to prevent the subject of the RC from being misconstrued. Thus, contrary to HK's claims, a disjunction of principles is not required to account for participle assignment in Turkish.

Dede orders the GSAR before the rules that attach the participle and possessive suffixes and after Coreferential NP Deletion (p. 69):

I. Coreferential NP Deletion: Delete the NP which is coreferential with the head noun.

II. GSAR: If the deleted NP is not the subject, add the GEN-S to the subject of the clause. Conditions for the application of this rule will be given later.

III. Participle Suffix Attachment Rule (PSAR): If the GSAR applies, then obligatorily choose the PS -DIk; otherwise, choose the PS -(y)En.

IV. Possessive Suffix Attachment Rule (Poss-SAR): If the PSAR chooses -DIk, then obligatorily add a Poss-S to the participial verb which agrees in number of person with the subject of the RC.

Notice that Dede can automatically account for the choice of the SP construction when the RC is subjectless at the time of RC formation (e.g., it is an impersonal passive) as well as when the subject of the relative clause is the relative target. In both cases, by the time the GSAR has a chance to apply, there is no subject in the RC to which the genitive can be attached. So, PSAR chooses the SP suffix and Poss-SAR does not attach the possessive. This is an attractive result.

However, assignment of the SP when part of the subject of a RC undergoes relativization is not automatic. When a subconstituent

of the subject is deleted, there is something left over for the GSAR to attach the genitive to; nevertheless, the genitive must not be suffixed. It was this fact that led HK to propose a disjunction of principles to account for participle choice.

Dede claims to be able to explain why the GSAR does not apply in this circumstance; the explanation makes reference to the "functions" that the genitive serves in relativization. Dede states (p. 70):

> [The genitive] has two important functions in relativization: to distinguish the subject which remains in the RC from the subject of the sentence in which the RC appears; to prevent any change in the function and definite and indefinite feature (sic) which might be caused by deletion of the coreferential NP in the process of relativization. In order to fulfill these two functions the GSAR applies obligatorily
>
> A. to the subject of a transitive verb regardless of the definite or indefinite feature of the subject
>
> B. to the definite subject of an intransitive verb and to the indefinite subject when it does not occupy the [immediate] preverbal position.

In subsequent sections, the two functions mentioned here will be examined in some detail. For now, it suffices to say that Dede's claim apparently is that the genitive suffix picks out the subject of a RC and prevents it from being confused with other nominals, e.g., with the subject of a higher clause or with other NP's in the RC.

Notice that it is not clear from the above passage exactly what the relationship is supposed to be between the two functions of the genitive and the two conditions on the application of the GSAR. Dede simply says that the GSAR applies in A and B "in order to fulfill" the functions. This would appear to rule out assigning the genitive in some RC's in accordance with the conditions and in others in accordance with the functions. So, suppose that the genitive is always assigned in compliance with conditions A and B. Is the result that the genitive is assigned just when it is functionally required in RC's? Or is the result that it is assigned in some cases where it has a function to serve and in others where it does not?

It turns out that under conditions A and B, the genitive will be suffixed to the subject of a RC when it is not required to serve the functions which Dede ascribes to it. Moreover, assignment in accordance with these conditions leads to the wrong result in some cases. Similarly, an analysis of genitive assignment that makes reference to the two functions the suffix serves in RC's can be shown to be inadequate.

3. Conditions A and B of the GSAR

Under condition A, the GSAR incorrectly assigns the genitive suffix when the target of relativization is in an indefinite-subject

sentence. Under condition B, it incorrectly genitivizes the subject of a RC when relativization has applied to a subconstituent of the subject.

3.1 Dede states that under condition A, the GSAR is obligatory for the subject of a transitive verb, regardless of whether it is definite or indefinite. Consider the following sentences:

(5)a. Köpek adamın kızını ısırdı.
dog man-GEN daughter-POSS-ACC bite-PAST
'The dog bit the man's daughter.'

b. Adamın kızını köpek ısırdı.
'A dog/dogs bit the man's daughter.'

Assume that the target of relativization in both (5a) and (5b) is adamın. The GSAR will genitivize the definite subject of the transitive verb in the first case and the indefinite subject of the transitive verb in the second case; the PSAR will then attach the OP suffix to the verbs and the Poss-SAR will add the possessive. The result in both cases should be an OP RC. But in fact, adamın relativizes with the OP in (5a) and the SP in (5b).

(6)a. köpeğin kızını ısırdığı adam
dog-GEN daughter-POSS-ACC bite-OP-POSS man
'the man whose daughter the dog bit'

b. kızını köpek ısıran adam
SP
'the man whose daughter a dog/dogs bit'

HK can account for the SP relativization of adamın in (b): the sentence is subjectless at the time of RC formation due to the application of Subject Demotion. According to the NSP, the SP must be assigned. Dede does not analyze (b) as a subjectless sentence; nothing prevents the GSAR from genitivizing the indefinite subject.

3.2 The GSAR under condition B applies obligatorily to the definite subject of an intransitive verb and to the indefinite subject when it does not appear in immediate pre-verbal position. This leads to the wrong result in some cases.

The following sentences are intransitive; the subject of (a) is a clause while the subject of (b) is a possessive phrase. Both subjects are definite.

(7)a. Yılanın kabağı yediği şüpheli.
snake-GEN squash-ACC eat-PART-POSS doubtful
'That the snake ate the squash is doubtful.'

b. Kadının arkadaşı plâja gitti.
woman-GEN friend-POSS beach-DAT go-PAST
'The woman's friend went to the beach.'

As we know, subparts of the subject of a RC relativize with the SP. For instance,

(8)a. kabağ+ yediği şüpheli olan y+lan
SP
'the snake which it's doubtful that (it) ate the squash'

b. arkadaş+ plâja giden kad+n
SP
'the woman whose friend went to the beach'

But the GSAR under condition B requires that the definite subject of an intransitive verb be genitivized. As a consequence, OP RC's are predicted in (8a) and (8b).

Finally, consider the intransitive sentence in (9); the subject NP is indefinite and it does not occupy immediate pre-verbal position.

(9) Adam+n bir keçisi benden kaçt+.
man-GEN a goat-POSS 1s-ABL run away-PAST
'One of the man's goats ran away from me.'

In accordance with the GSAR, the genitive will be suffixed to the subject NP when adam+n is relativized; the PSAR and Poss-SAR will attach the OP suffix and the possessive, respectively. The result, of course, is an OP RC. However, adam+n relativizes with the SP.

(10) bir keçisi benden kaçan adam
SP
'the man, one of whose goats ran away from me'

I conclude that the genitive suffix is not in fact assigned to the subject of a RC in accordance with conditions A and B. In the next two sections, I investigate accounts of genitive assignment that make reference to the "functions" served by the genitive in RC's. I argue that these accounts are no more successful in predicting the distribution of the genitive in RC's than conditions A and B are.

4. The First Function of the Genitive Suffix

Dede states that one of the functions of the genitive is to distinguish the subject of the RC from the subject of the sentence in which the RC appears. It is not clear what this means; I therefore assume that Dede has sentences like the following in mind. The subject of the RC is marked genitive and the higher subject is caseless.

(11) Mustafa Ersin'in öptüğü k+z+ tan+yor.
GEN kiss-OP-POSS girl-ACC know-PRES
'M knows the girl who E kissed.'

Here it looks like the genitive suffix helps to sort out the clause-membership of subject NP's by establishing a morphological distinction between them.

But Dede's description of this "function'" is hard to interpret as an empirical claim about assignment of the genitive. In this section, I attempt to extract an empirical claim from the description. A number of possibilities are considered and each is shown to be wrong.

4.1 The first claim to be investigated is given in (12).

(12) The genitive is assigned to the subject of a RC if and only if suffixation would morphologically distinguish this subject NP from the subject of the clause which contains the RC.

For an immediate counterexample to (12), consider (13).

(13) Rahmi kɨzɨn Mahmut'un tanɨdɨğɨ adamɨ
girl-GEN GEN know-OP-POSS man-ACC

sevdiğini söyledi.
like-PART-POSS-ACC say-PAST
'R said that the girl likes the man who M knows.'

The subject of the RC (Mahmut) is marked genitive--and so is the subject of the clause which contains the RC (kɨzɨn). No speaker of Turkish is confused about the clause-membership of these two NP's. (13) clearly shows that the genitive is assigned to a RC subject when the function of morphologically distinguishing it from the next higher subject is not served by assigning it the genitive.

4.2 Let us restate the claim. Perhaps Dede intends the genitive to be understood as the morpheme which signals that the NP to which it is attached is an embedded subject.

(14) The genitive is assigned to the subject of a RC if and only if suffixation would morphologically distinguish this subject NP from the subject of the matrix clause.

Now (13) is no problem: genitivizing Mahmut does indeed morphologically distinguish it from Rahmi. But (14) makes the wrong prediction about the following sentence.

(15) Ahmet Murat'ɨn öptüğü şüpheli olan
GEN kiss-PART-POSS doubtful be-SP

kɨzɨ gördü.
girl-ACC see-PAST
'A saw the girl who that M kissed (her) is doubtful.'

The subject of the RC (underlined) is sentential; one of its subconstituents has been relativized--not with the OP as (14) predicts, but with the SP. That is, the genitive should have been assigned to Murat'ın öptüğü to distinguish it from Ahmet, the subject of the matrix. (15) shows that there are circumstances in which the genitive is not assigned even though it has a function to serve.[6]

Perhaps the sentence in (15) has some special feature that makes it unnecessary to assign the genitive to the subject of the RC. Notice that the clause-membership of the two subject NP's is readily determinable: the verb gör- ('see') is not subcategorized for sentential subjects so its subject must be Ahmet; on the other hand, the predicate şüpheli ol- ('be doubtful') is incompatible with Ahmet so its subject must be the sentential subject. Let us append to (14) the following statement: the genitive is not assigned if the subcategorization features of the verbs make it possible to determine what their subjects are.

But this will not work either. Consider (16) below; a genitive NP attached to the subject of the RC has been relativized with the SP construction.

(16) Demet kardeşi kaçan kızı gördü.
sibling-POSS run away-SP girl-ACC see-PAST
'Demet saw the girl whose sibling ran away.'

The subcategorization features of the two verbs tell us nothing: both kaç- ('run away') and gör- are compatible with Demet and kardeşi. The genitive should have been suffixed to the subject of the RC to morphologically distinguish it from the matrix subject. But an OP RC in (16) is impossible.

4.3 Finally, consider the following sentence. The matrix clause is an impersonal passive; embedded in it is an OP RC.

(17) Sinan'ın bina ettiği camiye gidilirdi.
GEN build-OP-POSS mosque-DAT go-PASS-AOR-PAST
lit: 'To the mosque that Sinan built used to be gone.'

The genitivization of Sinan is mysterious: the matrix clause does not contain a subject, so what is there for Sinan to be distinguished from?

In sum, if we take Dede's description of the "distinguishing" function of the genitive seriously, that description fails as an account of the distribution of the genitive in RC's. In any event, Dede does not put this function to much use in her paper; most of the burden of explanation falls on the second function which the genitive is claimed to serve. Hence I will say no more about the "distinguishing" function and proceed to discuss the other function.

5. The Second Function of the Genitive Suffix

The second function which Dede claims the genitive serves in RC's

is that of preventing misconstrual of the relational status or the definiteness of the NP which is the subject of the RC. Actually, this is not one function, but two. There is no reason to think that prevention of misconstrual of grammatical relations is related to prevention of misconstrual of definiteness.

5.1 Transitive Relative Clauses

5.1.1 Dede claims that the subject of a transitive RC is susceptible to misconstrual due to the fact that neither subject NP's nor indefinite direct objects are casemarked in Turkish.

(18) Çocuk köpek kovalıyor.
child dog chase-PRES
'The child is chasing dogs.'

Actually, indefinite direct objects may be casemarked accusative. Consider (19) below (and Dede's (11)).

(19) Ben bir adamı arıyorum.
1s a man-ACC look for-PRES-1s
'I am looking for a man.'

Here I have a particular man in mind; in (20) below, where the direct object is caseless, I do not.

(20) Ben bir adam arıyorum.

It is not indefinite NP's which fail to be casemarked accusative when they function as direct objects, but NP's which are non-specific in reference.

Notice that caseless direct objects are restricted to appearing in immediate pre-verbal position.

(21) Ismail {dün / bahçede} kitap *{dün / bahçede} okudu.
'Ismail read books yesterday/in the garden.'

Casemarked direct objects are not.

(22) Ismail kitabı {dün / bahçede} okudu.
ACC
'Ismail read the book yesterday/in the garden.'

Certain NP's are inherently specific: proper nouns (Ahmet), pronouns (ben: I), possessed NP's (Ahmet'in kedisi: Ahmet's cat), and NP's which occur with demonstratives (o kedi: that cat). Such NP's must be casemarked accusative when they function as direct objects.[7]

(23) Ahmet Pınarı/*Pınar kovalıyor.
'Ahmet is chasing Pınar.'

5.1.2 When the direct object of the following sentence undergoes relativization,

(24) Çocuk kɨzɨ seviyor.
child girl-ACC like-PRES
'The child likes the girl.'

one of the side-effects of deletion is that the subject NP appears in immediate pre-verbal position.

(25) [çocuk sev-] [kɨz]

According to Dede, çocuk runs the risk of being interpreted as the non-specific direct object of sev-, not as its subject. Such misconstrual is not permitted in accordance with "the generally accepted rule that transformations should not decrease or change meaning." (fn. 4) To block the object reading of çocuk, the genitive suffix is attached to it. Why does the genitive succeed in unambiguously indentifying çocuk as the subject of the RC? The reason is that, in general, only subject NP's in Turkish are genitivized.[8]

Suffixation of the genitive is accompanied by assignment of the OP suffix and the possessive. The result is an OP RC.

(26) çocuğun sevdiği kɨz
child-GEN like-OP-POSS girl
'the girl who the child likes'

Now, it is not at all clear why Dede claims that çocuk in (25) would certainly be misconstrued as a direct object were the genitive not suffixed to it. It is more likely that the string would be ambiguous, with çocuk interpreted either as the subject of the RC or as the direct object. Dede's proposal could have been that such ambiguity is not permitted to arise in Turkish.[9]

In any case, compare (24) with the following sentence.

(27) Adamɨn kɨzɨnɨ köpek kovalɨyor.
man-GEN girl-POSS-ACC dog chase-PRES
'A dog/dogs is/are chasing the man's daughter.'

A subpart of the direct object, i.e., adamɨn, is relativized.

(28) [kɨzɨnɨ köpek kovala-] [adam]

As in the previous example, the subject of the RC is in immediate pre-verbal position. But unlike the previous example, this RC contains an accusative casemarked NP (kɨzɨnɨ). Köpek, then, cannot be misconstrued as the direct object of the clause and there is no need for it to be genitivized; (28) surfaces as a SP RC.

(29) kɨzɨnɨ köpek kovalayan adam
SP
'the man whose daughter a dog/dogs is/are chasing'

Dede comments:

> It follows that the process of relativization and the assignment of the GEN case are based on whether or not it is possible to identify the subject and the DO. In other words, the GSAR operates whenever the relations of the subject and the DO are not indicated by means such as other case suffixes, word order, semantic properties of the members of the sentence, etc.[10] (p. 73)

In conclusion, Dede's claim is that the function of the genitive in transitive RC's is to prevent misconstrual of the grammatical relations of the subject NP. Crucially, the genitive is assigned as a last resort: the GSAR operates if and only if everything else has failed to indicate the relations of the subject.

5.1.3 In fact, the genitive is assigned when other casemarkers, word order, semantic properties, etc. make it possible to identify the subject of the RC with ease.

Consider the following post-deletion form:

(30) [çocuk evde kovala-] [kɨz]
child house-LOC chase girl

Although çocuk is not casemarked, its position in the RC unambiguously identifies it as a subject. (Recall that unmarked direct objects must occupy immediate pre-verbal position.) The genitive suffix thus has no function to serve in the RC and the GSAR should not apply. Nevertheless it must.[11]

(31) çocuğun evde kovaladɨğɨ kɨz
child-GEN house-LOC chase-OP-POSS girl
'the girl who the child chased in the house'

The underlined NP's in the following post-deletion RC's also admit of only one interpretation: they must be subjects.

(32)a. [Pɨnar kovala-] [kɨz]
b. [o köpek kovala-] [kɨz]

If these inherently specific NP's were direct objects, they would have to be marked accusative. Again, the genitive is not required to prevent the subjects from being misconstrued. But the GSAR must in fact apply obligatorily.

(33)a. Pɨnarɨn kovaladɨğɨ kɨz
b. o köpeğin kovaladɨğɨ kɨz
'the girl who Pɨnar/ that dog chased'

And consider the following intermediate form; the subject of a sentential object (underlined) has undergone relative deletion.

(34) [sen <u>çiçekleri yediğini</u> söyle-] [keçi]
2s flower-PLU-ACC eat-PART-POSS-ACC say goat

There are no less than three reasons why the subject of the RC, the pronoun <u>sen</u>, could not be interpreted as an object: (i) pronominal objects cannot be unmarked for case, and <u>sen</u> is; (ii) <u>sen</u> does not occupy immediate pre-verbal position; and (iii) the relative clause already contains a direct object (i.e., the accusative casemarked sentential object). Thus (34) should surface as a genitiveless, SP RC. This expectation is not borne out.

(35) senin çiçekleri yediğini söylediğini keçi
GEN OP-POSS
'the goat which you said ate the flowers'

Finally, if semantic properties (and extra-linguistic knowledge) enter into the decision to assign the genitive, the GSAR will not apply in (36).

(36) [adam yaz-] [mektup]
man write letter

Men write letters; letters cannot write men. A SP RC is predicted because the semantic properties of <u>yaz-</u> pick out <u>adam</u> as its subject.

(37) adam yazan mektup
SP

But if (37) is grammatical at all, it only has the anomolous reading: 'the letter which wrote men.' Speakers cannot interpret <u>adam</u> as the subject even though that is the only sensible interpretation of it.

5.2 Intransitive Relative Clauses

The function of the genitive in intransitive RC's is, according to Dede, somewhat different from its function in transitive RC's. Since intransitive verbs are not subcategorized for direct objects, there can be no question of mistaking a subject for an unmarked object. Rather, Dede says that the problem in intransitive RC's is maintaining the definiteness of the subject NP.

5.2.1 In the **unmarked** case, the definite subject of an intransitive verb is clause-initial. An indefinite subject appears in immediate pre-verbal position. (Dede's (30a) and (31a))

(38) Çocuk odada uyuyor.
child room-LOC sleep-PRES
'The child is sleeping in the room.'

(39) Odada çocuk uyuyor.
'A child/children is/are sleeping in the room.'[12]

Relative deletion of odada in (38) has the effect of positioning çocuk immediately before the verb. Dede claims that this "changes the subject from a definite NP to an indefinite NP. Therefore, the GSAR is needed to retain the properties of the subject."[13] (p. 75) In fact, relativization of the oblique object in (38) does require the OP construction, while relativization of the same NP in (39) requires the SP construction.

(40) çocuğun uyuduğu oda
GEN OP-POSS
'the room which the child is sleeping in'

(41) çocuk uyuyan oda
SP
'the room which a child/children is/are sleeping in'

Consider also the following SP RC.

(42) altından su akan kapı
underneath-POSS-ABL water flow-SP door
'the door that water is flowing out from under'

Although the subject, su, appears in immediate pre-verbal position, it is not marked genitive. Su is indefinite: only definite NP's in danger of being misconstrued as indefinite are genitivized.

Dede clearly intends the following: there will be suffixation of the genitive to the definite subject of an intransitive RC if and only if the definiteness of the sentential subject of an intransitive verb could be misconstrued. The definiteness of the sentential subject of an intransitive verb cannot be misconstrued under any circumstance. Thus, the genitive is not needed "to retain the properties of the subject" when a subpart of the sentential subject is relativized. This accounts for SP relativization of yılan below.[14]

(43) kabağı yediği şüpheli olan yılan
squash-ACC eat-PART-POSS doubtful be-SP snake
'the snake which it's doubtful that (it) ate the squash'

5.2.2 The problem is that in many cases, the definite subjects of intransitive RC's must be genitivized even though their definiteness would have been readily apparent were they not genitivized.

Consider an intransitive RC where deletion has not had the effect of positioning a definite subject immediately before the verb.

(44) [çocuk kedi ile dün akşam uyu-] [oda]
child cat with yesterday evening sleep room

Çocuk must be suffixed with the genitive in spite of the fact that

it is impossible to misconstrue it as indefinite.

(45) çocuğun kedi ile dün akşam uyuduğu oda
GEN OP-POSS
'the room in which the child slept last evening with the cat'

Additionally, there are subject NP's which will be interpreted as definite regardless of their position relative to the verb. Nevertheless, they must be genitivized.

(46)a. Demet'in uyuduğu oda
GEN OP-POSS

b. benim kardeşimin uyuduğu oda
1s-GEN sibling-POSS-GEN OP-POSS

'the room where Demet/my sibling slept'

The only out in the face of these examples would be to say that the "definiteness recovery principle" is grammaticized: the genitive is suffixed to the definite subjects of intransitive verbs regardless of whether there could be misconstrual of their definiteness. However, if the "definiteness recovery principle" is grammaticized and the genitive can be assigned when other factors suffice to prevent misconstrual, then the rule will attach the genitive (incorrectly) to the sentential subject in (43).

6. Conclusion

Recall that the GSAR is supposed to apply obligatorily:

A. to the subject of a transitive verb
B. to the definite subject of an intransitive verb and to an indefinite subject when it does not occupy immediate preverbal position.

Also, the principal function of the genitive in RC's is claimed to be prevention of misconstrual of the grammatical relations or definiteness of the subject of the RC. The genitive should be suffixed if and only if there could be misconstrual. I shall refer to this as the 'functional principle' of genitive assignment.

We have observed that when the genitive is assigned in accordance with conditions A and B, a number of false predictions are made. Also, when the genitive is assigned in accordance with the functional principle, false predictions are made. Interestingly, the conditions and the functional principle make different predictions about the distribution of the genitive. This is curious in the light of Dede's statement that the GSAR applies when it does (i.e., in A and B) "in order to fulfill" the functions of the genitive.

For instance, in accordance with condition A of the GSAR and in violation of the functional principle, the subjects of the follow-

ing RC's are genitivized:

(31) çocuğun evde kovaladığı kız
(33a) Pınarın kovaladığı kız

In accordance with condition B and in violation of the functional principle, the genitive is suffixed to the subjects of the following RC's.

(45) çocuğun kedi ile dün akşam uyuduğu oda
(46a) Demet'in uyuduğu oda

For the following RC , the absence of the genitive is in accord with the functional principle. Condition A of the GSAR incorrectly assigns the genitive here.

(6b) kızını köpek ısıran adam

The functional principle also accounts for the SP RC's below. Given condition B of the GSAR, these should have been OP RC's.

(8a) kabağı yediği şüpheli olan yılan
(9) bir keçisi benden kaçan adam

The predictions converge for these two cases:

(26) çocuğun sevdiği kız
(42) altından su akan kapı

In sum, a grammar of Turkish which contains just the GSAR with conditions A and B is inadequate. A grammar which contains just the functional principle is also inadequate. A grammar which contains both makes contradictory predictions in a large number of cases. There seems to be no principled basis for deciding which of the procedures to follow for a given RC. Moreover, even supposing that some such decision procedure could be devised, Dede's account cannot avoid stating the distribution of RC participles in terms of a disjunction of principles.

Footnotes

*I am indebted to Jorge Hankamer, Phil LeSourd, and Jonathan Pressler for many helpful suggestions.

[1]Abbreviations used in the glosses are the following: ABL-ablative case; ACC-accusative case; AOR-aorist tense; DAT-dative case; FUT-future tense; GEN-genitive case; LOC-locative case; PART-participle suffix; PASS-passive suffix; PAST-past tense; POSS-possessive; PRES-

present tense; 1,2,3s/1,2,3p-first, second, third person singular or plural.

[2]Uppercase letters represent segments which have a number of phonetic realizations due to the operation of vowel harmony, final stop devoicing, and consonant assimilation.

[3]These terms are Underhill's (1972). Hankamer (1973) referred to (1) as a "possessed participle" RC and to (2) as a "free participle" RC. Hankamer's terminology has the virtue of focusing attention on the crucial difference between the two RC constructions: whether or not the genitive and the agreeing possessive are suffixed to the subject of the RC and the participle, respectively. In the non-future tense, the participle suffixes have different realizations; in the future tense, however, the morpheme -EcEK does double duty as the OP suffix and the SP suffix.

(a) kadɨn-ɨn al-acağ-ɨ halɨ
woman-GEN buy-PART-POSS rug
'the rug which the woman will buy'

(b) halɨyɨ al-acak kadɨn
rug-ACC buy-PART woman
'the woman who will buy the rug'

Suffixation of the genitive and the possessive is the only thing that distinguishes (a) from (b).

Unfortunately, the terms 'possessed participle' and 'free participle' are not as well established in the literature as OP and SP. For this reason, I have adopted Underhill's terminology.

[4]In Dede's review of HK's proposals (which is discussed beginning in section 2), the following remark about the MNP appears: "Although this principle seems to work within the framework of transformational grammar, it is not necessary to include such a principle in the grammar of Turkish..." The major point of HK's paper was that the principles governing participle choice in Turkish make reference to notions like "subject" and "non-subject" and thus cannot be stated in the framework of a transformational grammar.

[5]Perlmutter (1978) and Perlmutter and Postal (forthcoming) claim that there is an NP in impersonal passives that functions as subject, but that it is an inaudible dummy. This distinction is not relevant for my purposes here.

[6](15) does not exemplify the only circumstance in which an embedded subject NP fails to be casemarked genitive. The subjects of clauses embedded under verbs like san- ('think') and bil- ('believe') may be uncasemarked:

(a) Cengiz Yakut erken kalktɨ sandɨ.
early rise-PAST think-PAST

'Cengiz thought that Yakut got up early.'

And the subjects of certain adverbial clauses are not suffixed with the genitive:

(b) Murat gelince Yasemin lokantaya gider.
come-ADV restaurant-DAT go-AOR
'When Murat comes, Yasemin will go to the restaurant.'

Thus, there is no requirement that embedded subjects be marked genitive in Turkish.

[7]Additionally, oblique objects, regardless of their specificity, are obligatorily casemarked dative, locative, or ablative.

[8]I am of course ignoring the assignment of the genitive in, for example, possessive phrases.

[9]As Jorge Hankamer has reminded me, ambiguity avoidance of this type is not universal. McCloskey (1977) points out the existence of relative clauses in Modern Irish which contain an NP which may be interpreted either as a subject or as a direct object.

[10]Dede presents the following sentence to illustrate the role played by semantic properties and the extra-linguistic knowledge of the speaker in determining whether or not the GSAR applies.

(16) kɨzɨ köpek ɨsɨrdɨ.
girl-ACC dog bite-PAST
'A dog/dogs bit the girl.'

The claim is that when the direct object (kɨzɨ) is relativized, the subject (köpek) does not have to be marked genitive to prevent its being misconstrued as a direct object. The reason is that dogs usually bite girls and not vice versa. For Dede then, the SP RC below is grammatical and has the reading, 'the girl who a dog/dogs bit.'

(18) köpek ɨsɨran kɨz
SP

For all the speakers of Turkish I have consulted, (18) is marginal at best and the only possible interpretation of it is, 'the girl who bit dogs.'

[11]With respect to examples (31) and (33), it might be tempting to claim that although the functional principle fails to assign the genitive, the subjects of the RC's will in any event be genitivized because they are embedded. Not so; see footnote 5.

[12]Çocuk in (39) is also interpretable as a definite NP. Constituents are moved into immediate pre-verbal position for emphasis;

on the definite reading, çocuk is therefore 'focused.'

[13]Dede does not explain why the derived position of the subject should have the effect of "changing it" from a definite NP to an indefinite NP.

[14]Dede's actual discussion of (43) is as follows: "...the GSAR is not needed here because the deletion of the NP in the sentential subject does not cause any change in the grammatical relation of the sentential subject to the main verb şüpheli 'doubtful' and its relation is indicated by the absence of a case suffix. That is, a sentential NP which is in the nominative case can only function as the subject." (p. 74) It is not true that uncasemarked sentential NP's must be subjects; see footnote 5. Furthermore, this discussion is confusing in light of Dede's analysis of other intransitive RC's, where misconstrual of definiteness, not grammatical relations, was said to be the problem the grammar faces.

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Theme and Context Dependency: Thematic Progression

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Central to the understanding of the text is the manner in which its minimal constituent utterances--sentences--are linked to one another. Our very perception of a text as a text depends upon our recognition of it as a coherent unit. Clearly, textual unity derives from the interplay of a complex of textual and sentence-level functions. It is the linguist's task to expose the threads that, woven together, produce the textual cloth.

One such means of textual cohesion is semantic component structure, which marks lexical items of different sentences of a text as related based on their content similarity--as when they belong to the same word-field or equivalence-class. Bierwisch (1965) points out, however, that equivalence-class membership is not a sufficient means of marking textual coherence, and he gives as an example the following pseudo-text:

1) There's nobody who isn't enchanted by her singing. Our singer is called Josephine. Singing is a word with 7 letters. Singers are wordy. (p. 72, transl. by N.K.)

As the example shows, component structure does not itself unequivocally mark sentences in a series as textually coherent.

Another, more promising textual organizational principle is thematization, the structuring of information in terms of "theme" and "rheme" (also called topic/comment).[1] The minimal unit of thematic linkage is the theme, which expresses that about which something is said or that which is commented upon in the sentence. Paired with its rheme, which comments upon the theme and contains the core of the clausal message, the theme, as we shall see, contributes significantly both to the information of the clause it appears in and to the overall textual organization and cohesion. It is the relation between these overlapping functions that interests us here.

In answer to the question of how the theme structures the text, F. Daneš (1970) proposes five common types of what he calls "thematic progression":

linear progression--the rheme of one sentence becomes the theme of the next:

2) Yesterday I saw Mary. She looked terrible.

continuous theme--one theme serves as theme of a series of sentences:

3) Henry hates pizza; he can't stand the smell; he can't stand the taste; he can't stand the texture.

derived theme--one central hyper-theme yields subordinate, derived themes:

4) Pizza is delicious. The sauce is spicy, the cheese is chewy and the crust is crispy.

split rheme--the rheme presents a class whose members become thematic:

5) There are many types of pizza. A mushroom pizza has mushrooms on it. A vegetarian pizza has no meat. etc.

thematic jump--one member of a thematic chain of the linear progression type is omitted but supplied by the context:

6) I just saw Mary. Her dress looks awful, doesn't it?

Underlying each of Daneš' five types of thematic progression is the assumption that information recoverable from the pre-text (i.e., "given" information) finds its way into a subsequent sentence as the theme. A survey of almost any text, however, will disclose that it need not be the case that the theme present given information; "new" information can also appear in thematic function, though, to be sure, the "given" theme is considerably more common than the "new" one.

Yet even among those themes that express a contextual link as in examples 2-6 above, the relation between theme and antecedent information especially in terms of thematic progression is quite diverse and not just a relation based upon the transmission of recoverable information across sentence boundaries, even when this is consistent with one of the above-mentioned progression-types. (Bierwisch's pseudo-text above satisfies this criterion.) One must bear in mind that the given/new distinction is not a binary taxonomy, but a polar one admitting of a whole spectrum of possibilities between the extremes of complete "givenness" and complete "newness". Accordingly, "given" thematic material may, and frequently does convey new information as well. Consider examples 7-9:

7) Paul tried to understand the thesis, but the thesis (or it) was too abstract for him.

8) Paul tried to understand the thesis, but the point was too abstract for him.
9) Paul tried to understand the thesis, but the formulation was too abstract for him.

Clearly, the semantic relationship between $rheme_1$ and $theme_2$ differs in each example based upon the degree to which, or manner in which, given/new information is transmitted. Although all three versions fall into one or the other of Daneš' progression types, only in example 7) does the theme express purely given information. In 8) the synonym, point, while conveying largely given information, does also contribute something new to the antecedent, thesis, which it replaces. The theme of example 9), while still context dependent and hence "given", adds considerable new information--in the form of a shift of emphasis from thesis to its formulation.

Daneš' formulation of progression takes into account the fact that in our examples $theme_2$ and $rheme_1$ are linked by virtue of their shared information.[2] This is both valid and important. As a complement to this backward-oriented information structuring, however, belongs the important aspect of development within the text--clearly, a product of the introduction of new information. Any definition of "thematic progression" must, I believe, fully account for this "pro-gressive", forward-oriented aspect of thematic information.

Textual linguistics has been quick to note the importance of the rheme in this regard, for the rheme characteristically conveys the core of the new information in a sentence. In fact, in the case of Daneš' continuous theme type, where the same theme is commented upon in a series of sentences, the rheme alone conveys new information. In example 3) above the development is from smell to taste to texture. In 7) too the rheme unilaterally indicates the informational development. In a word, the rheme provides the entire informational development whenever the theme contributes nothing but the link to the pretext, i.e., whenever the theme is purely "given" information.[2]

In many connected sentences, however, the theme not only establishes contextual dependence but conveys new information as well. Examples 8-9 above feature themes, point and formulation, which to lesser or greater degrees contribute to the message at hand. In sentences of these common types, the theme itself adds to or modifies the content of the information item in the pre-text that it replaces. The rheme in such sentences presents a statement on this modified thematic content.

These sentences and sentences like them demonstrate that at least as important to the question of thematic progression as Daneš' types is the manner in which, or the degree to which, new information is conveyed by recoverable material; for

as much as the theme provides a means by which successive sentences in a text may be informationally linked, its contribution to thematic progression throughout the text depends upon the newness it conveys. Hence, the "given" effects the cohesion while the "new" marks the semantic or informational development.

If it is so that thematic progression bears such a direct relation to the new information added by the theme, it behooves us to examine more closely some of the points along the spectral line between the extremes of given and new.[3]

repetition

Repetition represents the only case of the thematization of completely given information through morphological, lexical, and referential identity (cf. example 7). The substitution of a pro-word alters neither the coreferentiality nor the informational identity between the theme and its contextual referent:

10) John is ill. That's his reason for not coming.

Since the theme primarily serves as a means of linkage in such sentences, we must seriously question whether "thematic progression" is indeed involved in cases of repetition.

synonymic substitution

Synonyms convey essentially given information, but permit greater or lesser degrees of meaning divergence. In other words, while the synonym and its antecedent are coreferent, the synonym admits some degree of newness:

11) Peter went to see Othello. The drama really impressed him.
The tragedy really impressed him.

paraphrastic substitution

Like synonymy, paraphrase involves coreference, and effects the restatement of something in new terms, often in an expanded form. Paraphrase therefore conveys new information (and potentially to a greater extent than synonymy which is limited to lexical substitution):

12) . . . Queen Elizabeth. The monarch of Britain . . .
The mother of Prince Charles. . .

The selection of one or the other of an often vast array of possible paraphrastic substitutions represents of course an aspect of a speaker's thematic choice and is subject to what may be called his communicative strategy. Given his general communicative intent the speaker may select his sentence themes as signposts directing the hearer along the path of understanding his message.

derivation[4]

Derivation involves the selection by the speaker of a single component feature or aspect of a previously mentioned item for thematization. Consequently, the derived theme and its antecedent source are not coreferential. Clearly a vast array of thematic derivations is possible, from very close ones, in which the contextual referent may be said naturally to contain or possess the feature, to very loose derivations, whose connection is far less direct. An example of close derivation might be:

13) I just ran into John. His arm is still in a cast.

Compare with this the following lose derivations:

14) Yesterday there was a three-car collision on Highway 80. Several people were seriously injured.
15) Yesterday there was a three-car collision on Highway 80. A police spokesman reported that several people were seriously injured.

In these examples and others like them we see the introduction of essentially new information. At the same time, contextual dependence is achieved on the situational or pragmatic level. Indeed the more tenuous the derivation the more important the pragmatic aspect becomes. In example 14) the involvement of cars in a collision presupposes that people (drivers and possibly passengers) are also involved. In 15) such a collision entails that police attention will be drawn to the incident. Both examples display in a most transparent way the informational connection the speaker makes between the coupled clauses. The hearer, for his part, recreates for himself the relation between successive items of information as intended by the speaker.

new theme

Finally it is possible for a theme to introduce completely new information without any direct or indirect contextual link. In the case of the contextually independent theme we must again question whether the term "thematic progression" applies, since no connection exists between the theme and previous material. Rather, other structures or sentence elements function to link the sentences to one another. One of the most common alternative means of linkage is, not surprisingly, the conjunction. Consider the following example:

16) I'll travel to Denver, if the weather holds.

Here the conjunction if ties the clauses and indicates their relation to one another while no thematic connection exists and no thematic progression is involved. The same is true for the following example containing conjunctional linkage:

17) We enjoyed our picnic, until the sun went down.

The new theme also occurs with some frequency in the first sentence of a text (or text segment). Clearly, no thematic progression pertains in such a case. Rather, the theme introduces a statement that forms the subject of the text or text portion, as in the following examples:[5]

18) A convict has escaped from the state prison at San Quentin.
19) Many people believe that it's okay to steal from corporations.

Conclusion:

The notion of thematic progression proposed by Daneš is a most significant concept and one whose importance and relevance to our understanding of textual dependence may be fully appreciated. At the same time, it should be kept in mind that the theme not only marks contextual dependency by conveying recoverable material; it frequently introduces unknown information as well and hence exhibits a greater or lesser degree of contextual independence. Consequently, there is a need to extend Daneš' concept of thematic progression to account for the bidirectional orientation of the theme by encompassing the relation--essentially a semantic one--between the theme and its context in terms of the manner in which, or degree to which, new information is conveyed by recoverable material. Only then can a clear understanding of the dynamics of this form of textual

development emerge, especially as it relates to the larger question of a speaker's communicative intent.

Thus, the notion of thematic progression presented here pivots on the interaction of the thematic and the given/new functions. At the extremes, when either completely given information (repetition) or an entirely new theme is presented, the entire question of progression becomes a moot point. Instead, other syntactic and informational structures indicate the informational development from sentence to sentence.

The relevance of thematic progression to our understanding of how information is transmitted across sentence boundaries within a text is clear. Beyond this, the application of thematic progression in the analysis of specific performances, especially literary and poetic texts, should prove a most fruitful avenue of investigation.

NOTES

[1]The literature on theme/rheme articulation is considerable. Pioneered by V. Mathesius (1929) research in this area continues to the present especially by other members of the Prague School of Linguistics. Space will not permit a detailed survey of the scholarship, but for an overview cf. Daneš (1970), Firbas (1964), Dressler (1973), Halliday (1967-68), and Sgall et al (1973).

[2]The rheme may also disambiguate the ambiguous and expose the pseudo-text. In our example 1) the progression from sentence 1 to sentence 2, while it strikes us as awkward, is probably acceptable, perhaps interpreted as a parenthetical adjunct. The utter breakdown in acceptability occurs in sentence 3. Although the theme, singing, appears to repeat the singing of the first sentence the two are not in fact coreferent. It is the rheme, a word with 7 letters, that unequivocally indicates this.

[3]No claim to completeness is made regarding the categories included herein.

[4]This category overlaps in part Daneš' "derived theme" type but accounts for derivation from any thematic or rhematic source. Derivation concerns less the source of the theme and more the semantic relation the theme bears to its antecedent source in terms of given/new. Daneš' last three types do go beyond the distributional definition of thematic progression inherent in his first two types and form the beginning of a more semantically oriented approach to the subject.

[5]Although such introductory themes as these are common enough, especially in newspapers, magazines and other media news reportage, there is in fact considerable resistance to the "new" theme in the first sentence of a text, especially in spoken discourse. To avoid the new theme a speaker will begin his text with some situationally recoverable or informationally lean filler theme (often coupled with a verb of knowing or thinking) in order to present as its rheme what would otherwise be thematic if it stood alone. Cf. "I think . . .", "you know . . .", "guess what? . . ." "did you know . . .", "they say . . .", etc.

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Pragmatics and Social Deixis: reclaiming the notion of conventional implicature[1]

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0. Introduction

By 'Social Deixis' what I have in mind is the range of phenomena that includes honorifics, titles of address, second person pronominal alternates and associated verb agreements, and the like. The area provides such clear examples of pragmatically sensitive aspects of language that it deserves much more attention from pragmaticists. Here I shall touch on some of the syntactic problems raised, but I shall be especially concerned with what we should say about the meaning of socially deictic items; the upshot of this discussion will be that we had bettter reclaim the notion of *conventional implicature* from the inappropriate uses to which it has been put by Karttunen and Peters 1975. Finally I point out that there is another borderline, besides the semantics/pragmatics one, that pragmaticists will have to concern themselves with, namely the pragmatics/sociolinguistics one, which at least in this area turns out to not be too problematic.

1. The Scope of Social Deixis

Deictic items are those linguistic items that are *anchored* in some aspect of the speech event, that is "those formal properties of utterances which are determined by, and which are interpreted by knowing, certain aspects of the communication act in which the utterances in question have a role" (Fillmore 1971:219). The traditional categories of person, place and time deixis can naturally be extended by the addition of social deixis (Lyons 1968:280), "the study of that aspect of sentences which reflect or establish or are determined by certain realities of the social situation in which the speech act occurs" (Fillmore 1975:Deixis II:76). Fillmore unfortunately goes on to water down the concept of social deixis (including presentatives, speech acts and the like); I propose to restrict the term to those aspects of language structure that are anchored to the social identities of participants (including bystanders) in the speech event, or to relations between them, or to relations between them and other referents (with minor extensions to be noted below). There are of course many aspects of language usage that depend on these relations (see for example the long discussion of polite usage in Brown and Levinson 1978), but they are only relevant to social deixis in so far as they are grammaticalised.

The suggestion that honorifics and related phenomena are properly considered part of the deictic system of natural languages has a number of distinct advantages. For example, just like the word *come* only (generally) makes a definite statement about the direction of motion relative to the location of speakers and addressees, so a *Vous*-type pronoun (henceforth a V as opposed to a T pronoun) only makes a definite statement about the absolute rank of the addressee relative to the rank of the speaker. Secondly the deictic interpretation of honorifics and related phenomena correctly predicts limitations to the variety of such systems: every kind of honorific or the like must be anchored to some aspect of the speech event. For example, as far as I know there are no

languages in which it is possible by means of a standard grammatical form to express that the human subject of a sentence is more elevated in social rank than a human object without reference to their rank vis-a-vis a participant.[2]

The social dimensions that seem to get encoded in languages around the world are of two kinds. The first kind is *relational.* The relations that typically get expressed are those between:

i. speaker and referent (e.g. referent honorifics)
ii. speaker and addressee (e.g. addressee honorifics)
iii. speaker and bystander (e.g. bystander honorifics)
iv. speaker and setting (e.g. formality level).

The first three of these are isolated by Comrie 1976; examples of (i) include titles of address, and the familar Tu/Vous type alternates where the referent happens to be the addressee[3] (the honorific plural often carries over to the third person pronouns too); examples of (ii) can be found sparsely distributed all around the world, but proliferate in the 'speech levels' of S. E. Asian languages like Korean, Madurese, Javanese, etc.; examples of (iii) are rarer, and the best example is probably Dyirbal 'mother-in-law language'. (iv) is added to take account of grammaticalized formal style markers that can be found, for example, in Japanese *mas*-style, or in Tamil diglossic variants, which are potentially independent of social relations between participants. The term honorific should be restricted to the cases where the relations in (i) through (iii) express relative rank or respect; but other social dimensions like kinship and intimacy are also often encoded. For further details see Brown and Levinson 1978, Levinson 1977, 1978.

The second kind of social information encoded is *absolute* rather than relational. There are for example forms reserved for certain kinds of speakers, in which case we may talk (after Fillmore) of *authorized speakers.* For example in Thai *khrâb* is a polite particle used only by male speakers, the corresponding form for women being *khá* (Haas 1964). And there are forms reserved for *authorized recipients,* including some titles of address ('Mr. President', 'Your Honour'); in Tunica there were pronouns that differed not only with sex of referent, but also with sex of addressee (so there would be two words for *they* depending on sex of *addressee*; Hass ibid.).

These seem to be the main kinds of social information encoded in socially deictic items, and they are all anchored to aspects of the speech event. Notice that only the first kind, speaker-referent relations, imposes intrinsic limitations on the ways in which such information may be encoded in a linguistic system – namely in referring expressions, and grammatical agreements with them. The other kinds can be encoded just about anywhere in the linguistic system; addressee honorifics for example turn up in lexical alternates (Javanese), morphology (e.g. in Japanese), phonology (e.g. Basque palatalization; Corum 1975:96) and prosodics (e.g. Tzeltal honorific falsetto), not to mention the widespread use of special particles (e.g. Tamil). With this in mind we may now turn to look at the interaction of social deixis and just one aspect of form, namely syntax, including morphology.

2. Social Deixis and Syntax

The remarks here will be cursory and are merely intended to indicate the sorts of problems that arise; further discussion can be found in Levinson 1977, Brown and

Levinson 1978, and especially in the numerous recent works on Japanese honorifics (see e.g. Prideaux 1966, Makino 1970, Kuno 1973, Harada 1976). My illustrations will be drawn from Tamil, a language I happen to be familiar with; for similar remarks on Russian and other languages see Corbett 1976.

Referent honorifics raise important problems for statements of agreement rules; these come about in part because of the widespread use of plurality to indicate respect for singular referents, although there are many other common person/number switches used for the same purpose (see Levinson 1978 for some putative universals here). For example in Tamil, (1) is ambiguous between the glosses given:

1) niinka vantiinka
   you-plural have come
   you-sing-honorific have come

Note that if this was the only kind of relevant fact we could claim that the meaning of (1) is strictly speaking just the first gloss, while the second is *conversationally implicated.* However (2) is not ambiguous in the same way: it can only have the reading 'you-sing-honorific'.

2) niinka vaattiyaar
   you-sing-honorific (are the) teacher

For the you-plural reading to come across, the nominal predicate in (2) (*vaattiyaar*) must be morphologically marked as plural as in (3):

3) niinka vaattiyaar-kaL

The point is that finite verbs agree with the superficial plurality of the Vous-like pronoun *niinka*, whether or not it refers to one or more persons, while nominal predicates agree with real-world number, not superficial plurality. Comrie 1975 has used the widespread nature of this phenomenon to argue for a category squish; different languages make the distinction at different points along a scale from verbal to more nominal predicates. In Tamil superficial agreement stops in the middle of an adjectivally derived set of nouns; some such adjectival nouns will have to be marked as taking obligatory plural agreement in predicate position when preceded by a superficially plural pronoun, others as making a distinction based on real-world number.[4]

There are further agreement problems in Tamil. Some singular nouns, those referring to potentially respected persons, can take plural finite verb endings even though there is no superficial plurality in the subject:

4) periyammaa colraanka
   grandmother says (plural)

while other such nouns have an in-built honorific termination requiring agreement on one of four levels of respect; thus:

5) talaivar colraar
   *colraanka
   The head man says-sing-honorific-male
   *says-plural
   -sing-very-honorific

Moreover there is a confused area that arises between finite verbs and underived nominal predicates on the predicate squish, namely with nominal predicates derived from personal

adjectives; these interact with person and honorific level in a peculiar way. Example (6) illustrates that third person honorific pronouns will only take super-honorific agreements on such predicates, while second person pronouns tolerate honorific endings:

6) avaanka keTTikaaranka (they are/he-hon. is a clever person-plural)
*avaanka keTTikaarar (he-hon. is a clever person-sing.hon)
niinka keTTikaarar (you-hon. are a clever person-sing.hon)

And there are a lot of further problems introduced by the fact that there are not only singular/plural switches used to indicate respect, but also person and number switches: 'we-inclusive' can be used to indicate 'super-respected-you', 'it' to indicate 'you-neutral-honorific' and so on. Each of these usages have there agreement quirks. One may also use a third person title with second *or* third person verb agreement in honorific address.[5]

An entirely different set of problems tends to arise with respect to *addressee honorifics*; again I shall illustrate with a simple example from Tamil. There is in Tamil a bound morpheme *-nka*, underlying *nkaL*, a particle whose sole function is to indicate the speaker's (rather high) respect for the addressee. Naturally, there are rules of honorific concord governing co-occurrence with other honorific items. But the interesting thing about this particle is that while it is firmly bound into syntactic processes in some ways it isn't in others. It can be shown to be inserted at a specific point in the transformational cycle. Insertion precedes yes/no question formation, but follows WH-question formation. Thus in (7) the particle *nkaL* (italicised in the examples) is affixed to the verb *vantaan* before the question particle *aa* is attached. But in (8), a WH-question, *nka* is attached to the question particle itself.

7) muttee inke vantaan*unkaL*aa?
Did Muttu come here sir?

8) enkii*nka* pooveen?
Where shall I go sir?

Moreover, insertion respects the co-ordinate structure constraint and doesn't occur between adjective and noun or between adverb and following verb. However, beyond that its distribution can only be described as promiscuous. It can occur anywhere else with no respect for constituent bracketing. For example, in sentence (9) *nka* can occur in each of the slots marked (_):

9) naan(_) matraasukku(_) pooratanaale(_), nalla taksi(_) veeNum(_)
I to Madras in order to go, a good taxi need

Under what kind of a labelled node would such a thing be introduced? There is no traditional grammatical category that is appropriate. And if we invent one, then we will have to invent lots, because other such particles have quite different distributions.

Both the agreement and the particle problems discussed here seem to require rules relating aspects of syntactic form directly to aspects of pragmatic context. Rules like Lakoff's context-sensitive transderivational constraints (see Gordon and Lakoff 1971) would fit the bill, although Sadock 1975 has produced cogent arguments against them on methodological grounds. A formulation of these as filtering rules, along the lines of Gazdar and Klein 1977, seems to escape these objections in part.[6] To exemplify, the agreement problems with V-pronouns could be handled by the filtering analogue of the following insertion rule: let the logical form contain the unmarked T-pronoun, and let the V alternate be substituted just in case the context contains the associated pragmatic

significance, before the application of agreement rules where followed by a finite verb, but after such rules when the clause contains a nominal predicate. Or some refinement thereof (note that this will not handle example (4) above where there is no plural subject to trigger plural verb agreement).

3. The Semantics/Pragmatics of socially deictic items

Clearly socially deictic items have as part of their meaning their social significance (in some cases as with the Tamil particle *-nka* reviewed above, the social significance exhausts the item's meaning: in others, as in the Tamil V-pronoun *niinka* it is an addition to the primary denotation). The problem I want to address here is just how we are to capture this aspect of meaning within the range of semantic and pragmatic relations we have available in current frameworks. We may start by taking a simple example and working our way through those relations in search of a suitable candidate.

We can say that part of the meaning of the Tamil sentence (2), repeated here as (10), is (11) below:

10) niinka vaattiyaar
you-sing-honorific (are the) teacher

11) with respect to the speaker, the addressee is socially higher or of equal status but socially distant

What exactly is the relation between (10) and (11)? Could (10) entail (11)? This is ruled out by two considerations. First, it is intuitively the case that things like T/V oppositions are invisible to truth conditions: 'tu es Napoleon' and 'vous etes Napoleon' have identical truth conditions. Secondly, the inference (11) happily survives negation:

12) niinka vaattiyaar ille
you-honorific (are) not (the) teacher

What is preserved under negation? Semantic presupposition of course. However, negation is not the only sentential operator that fails to block (11), for the inference also survives modal contexts:

13) niinka vaattiyaar nnu irukkulaam
you-honorific (are the) teacher it may be (i.e you may be a/the teacher)

Here of course (11) continues to hold, rather than the mere possibility of (11). To capture this within the concept of semantic presupposition we would have to emend the notion so that it survived modal contexts; this was of course suggested by Karttunen 1971, but it was rapidly shown that no logical sense could be made of the emended relation in ordinary modal logic (Hertzberger 1971).[7] Besides we would have to resurrect the notion specifically for this purpose alone, against a storm of protest; on methodological grounds alone we had best look for some other relation between (10) and (11).

One of the few concrete suggestions for the treatment of the significance of honorifics is that the relation between (10) and (11) is that of *pragmatic* presupposition (Keenan 1971:51). Since the collapse of the notion of semantic presupposition, the class of pragmatic presuppositions has been swollen with their erstwhile semantic counterparts, so the concept has of course changed. Nevertheless it is worthwhile examining Keenan's suggestion.

The kinds of inferences gathered together under the rubric of pragmatic presupposition seem in general to share the following important properties:

i) the inferences are triggered by specific aspects of surface form, so that it is in general possible to find another sentence that has the same truth conditions but lacks the inferences in question

ii) the inferences are *defeasible* in the sense that they may be overtly denied ('Bill doesn't regret doing linguistics, because he never did') or suspended ('Bill doesn't regret doing linguistics if indeed he ever did'); or in the sense that they may be cancelled by the conversational context (see e.g. Thomason 1973, Gazdar 1976:172)

iii) the preservation or cancellation of the inferences in complex sentences is systematic, but requires a great deal of specially formulated apparatus to predict; attempts to solve the peculiarities of this *projection problem* in a sophisticated way can be found in Karttunen 1973, Karttunen and Peters 1975, and Gazdar 1976, and these clearly illustrate the nature of the problem.[8]

Definitions of pragmatic presupposition abound (see Gazdar 1976 for a very useful review) but there seems to be a broad agreement on the range of phenomena to be subsumed and its attendant properties.

Let us now ask whether the inference from (10) to (11) shares these properties. Socially deictic items usually come with a range of paradigmatic alternates, so property (i) will be met (it may not be so easy to find an alternate expression that has *no* socially deictic significance, but it will be a different one). But what about (ii)? Are the deferential aspects of honorifics *defeasible* by linguistic or non-linguistic contexts? Not in the way that pragmatic presuppositions are. Thus the presupposition that there is a king of France is cancelled in (14), but the honorific in (15) is not cancelled by a parallel construction:

14) You are not the present king of France, because there isn't one.

15) niinka vaattiyaar ille, eenaa mariyaate kuTukka maaTTeen
you-honorific are not the teacher, because I will not/am not giving you respect

The latter sentence if it makes sense at all, means that the reason you're not a teacher is that I don't give you respect in some other (non-linguistic) way. Nor can conversational contexts cancel the significance of honorifics like they can cancel or suspend presuppositions (Thomason 1973, Gazdar 1976). There are ironic and sarcastic usages of honorifics on the other hand, but then irony can 'cancel' most aspects of meaning, with the possible exception of presuppositions.[9] So honorifics, and these remarks extend to socially deictic items in general, do not share the crucial defeasibility properties of presuppositions.

What about property (iii), the particular mechanisms whereby the presuppositions of embedded clauses are preserved or blocked in complex sentences? Do honorifics behave in the same way? Again the answer is no, but to show this we must isolate some distinctive properties of presupposition projection that we can employ as a test.

One possible test would be whether honorifics survive embedding under predicates that are '*plugs*' (e.g. verbs of saying, believing, hoping, thinking and the like), which on Karttunen's theory are supposed to block the presuppositions of the embedded clauses (see Karttunen 1973, Karttunen and Peters 1975). So we could ask whether the honorific in (17) is cancelled just like the existential presupposition in (16) is supposed, on this account, to be blocked:

16) Mad old Jim says the present king of France is bald.

17) niinka vaattiyaar nnu raamu connaar
you-honorific are the teacher, Raamu said

The latter can be understood in two ways: one in which Ramu's actual words are reported in which he gave respect to his addressee, and another in which the pronoun is switched to the point of view of the present speech event in which the speaker gives respect to the addressee. *But* irrespective of whom the honorific refers to it retains its honorific component. Moreover the ambiguity in (17) illustrates that the projection problem for honorifics (and socially deictic items in general) is of an entirely different kind than that for presuppositions. In the case of honorifics the pragmatic inferences are not intra-sentially cancellable at all (except in jokes, ironies and other special usages), but the problem is to locate which speech event and what participants they are deictic with respect to.

The use of *plugs* as a test however is not uncontroversial: the only other major attempt to solve the projection problem for presuppositions does not utilize such a subcategorization of verbs, and in fact claims that insofar as the presupposition of (16) is blocked at all it is cancelled by other aspects of the context (Gazdar 1976). The one uncontroversial property of presupposition projection that both Karttunen and Gazdar accept is the filtering of presuppositions in complex sentences formed from the 'logical' connectives (*and, or, if-then*). Thus the presupposition of the second clause of (18), that Jack has children, is not carried by the whole sentence:

18) If Jack has children, then Jack's children will be blond.

According to Karttunen 1973 this is because there is an ad-hoc rule that if the antecedent entails a presupposition of the consequent, then the latter is blocked from becoming a presupposition of the whole; according to Gazdar 1976 the presupposition is cancelled, as presuppositions always are, by the conversational implicatures here carried by the *if-then* construction (namely, that it is both possible, and possibly not the case, that the antecedent is true). In most cases the effect of both accounts is exactly the same.

Let us therefore apply this filtering property as a test, to see whether honorifics pattern like presuppositions with respect to projection. According to this diagnostic, if honorifics were presuppositional they ought to be cancelled in sentences like (19) or (20):

19) mariyaate kuTuttaa, niinka vaattiyaar
If (I'm) giving (you) respect, you-honorific are the teacher.

20) niinka vaattiyaar, mariyaate kutikkireennaataan
You-honorific are the teacher, if indeed I am giving (you) respect

But again, the respect given by the speaker to the addressee is not in any way cancelled or blocked in such sentences.[10] We may therefore conclude that honorifics, and the same can be demonstrated for socially deictic items in general, do not have the crucial hallmark of defeasibility nor the specific projection properties that we associate with

presupposition. And to include them by fiat would only be to introduce unwarranted heterogeneity.

In eliminating presupposition as a possible way of capturing the significance of honorifics and related phenomena, we leave ourselves with just two possible pragmatic relations, One is conversational implicature (Grice 1975), and there are indeed many polite usages that can be shown to work conversationally in this sort of way (see Brown and Levinson 1978). Honorifics proper, however, are not like this: they do not have the crucial properties associated with conversational implicatures of cancellablility (as discussed in connection with presupposition) and 'non-detachability'. Non-detachability requires that it is not in general possible to find other words that express the same meaning that fail to have the inference in question (see discussion in Sadock 1978). But as we have seen honorifics share one property with presuppositions, number (i) above, and this is precisely that the significance associated with them is indeed detachable. Moreover there are other properties that Grice 1975 ascribes to conversational implicatures that honorifics do not have: they do not give rise on the whole to an indeterminate set of inferences, nor are they in general *calculable* in the sense that some inferencing has to be done to understand them.[11]

We are left then with the only surviving candidate for the relation between (10) and (11) above: Grice's (1975, 1978) *conventional implicature.* The only alternative, as pointed out by Gazdar 1976:183-5, who has also considered the dilemma posed by honorifics, would be to resuscitate semantic presuppostition, now with an indexical semantics; but as we have already seen this seems to be ruled out by the survival of socially deictic inferences in modal contexts (unless we are to adopt Martin's (1975) baroque logical machinery).

Grice introduces the notion of a conventional implicature cursorily (1975:44) to handle the conventional, non-cancellable elements of meaning that are nevertheless non-truth-conditional. Grice's example is the conjunction *therefore* which on his analysis 'indicates' but does not entail that the second conjunct 'follows from' the first. Other examples that have been suggested are *but* (or rather its difference from *and* Grice 1961), *even* (Kempson 1975), *yet* and the difference between words like *deprive* and *spare* (Wilson 1975). The properties of conventional implicatures are taken to be that they are non-cancellable, irrelevant to truth-conditions, detachable (i.e. depend on the particular linguistic form of what is said), and perhaps less importantly have relatively determinate meanings and are non-calculable or at least non-calculated (see Grice 1975, 1978, and discussion in Sadock 1978). We see immediately that honorifics have this set of properties and so in fact do the other socially deictic items we noted in section 1.

But in what way is an honorific like a V-pronoun similar to items like *but, yet* and so forth? More I think than at first meets the eye. But to see this we shall first have to remove some misfits from the class of proposed conventional implicatures. Wilson 1975:113ff has claimed that while the verbs *deprive* and *spare* share a common truth-conditional element with approximately the sense of *withhold,* the differences between them are conventionally implicated. But Gazdar (in press) points out that the additional difference in meaning is really presuppositional in nature, as is shown by the filter test applied in (21):

21) If there really is some criterion whereby my teaching is good for Bill, then I deprived him of it.

where the antecedent clause explicitly mentions the presupposition due to *deprive* in the consequent, and thus serves to block or cancel it. Removing this case from the class of conventional implicatures has the salutary effect of eliminating a misfit: most conventional implicatures seem to express attitudes that can only be attributed to participants in a speech event, whereas although this is possible with *deprive* and *spare* (Wilson 1975:114-7) here the attitudes in question can be attributed to the subjects of the verbs as well.

This leaves us with a mere handful of proposed candidates for the class (*yet, but, even,* and unconvincingly perhaps, *therefore*). The paucity of examples prompted Kempson 1975:219 to suggest that "at least a plausible case can be made for the view that the set of conventional implicatures does not contain any members at all". But in fact there are a host of words in English of similar ilk that seem to have been entirely ignored. I believe that at least in some of their uses, words like *however, moreover, anyway, well, still, furthermore, besides, although, okay, oh,* and phrases like *in fact, in a way, in any case, all in all, be that as it may,* will have to be treated as carrying conventional implicatures. In addition of course there are socially deictic elements like *sir, madam, mac* or *mate, your honor, professor,* and summons forms with socially deictic implication like *hey, excuse me,* and polite formulae like *how do you do.* A total inventory of such items would surely run into the hundreds, and perhaps the thousands, contrary to Kempson's view.

It seems clear that forms like these have at least an element of meaning that makes no difference to the truth conditions of utterances they may occur in, but it is worth establishing that this significance is not presuppositional either. Consider a word like *although,* which glosses roughly as 'despite the fact that', and which we may claim has a truth conditional element equivalent to *and* together with a conventional implicature to the effect that for a sentence of the form *p although q* there is an implicature that given q one would not expect p. So (22) conventionally implicates something like (23):

22) Bill came although Harry did.

23) Given that Harry came, one wouldn't have expected Bill to.

but the implicature does not seem to be cancelled in our test *if-then* sentences:

24) If given that Harry came one wouldn't expect Bill to come, then although Harry came, Bill came.

Exactly the same results are obtainable for all the candidate conventionally-implicating forms listed above, extablishing that they cannot be treated presuppositionally.

What then do all these items have in common, apart from being a residual category? Notice that there are essentially two kinds of element in the list above: there are socially deictic elements on the one hand, and on the other items that serve to indicate to the addressee how a particular utterance is to be taken as contributing to the discourse. Now Fillmore 1971, 1975 drew attention to two kinds of deixis beyond the traditional three categories of person, time and place; namely *social deixis* and *discourse deixis.* Just like social deixis, the elements of discourse deixis have received little descriptive and less theoretical attention. But there are a number of studies that indicate that there are languages that have large inventories of particles and other elements with no truth-

conditional meaning that serve precisely the function of indicating the discourse role of clauses and larger units. For example, Longacre 1976 reports on some particles found in Amerindian languages in Colombia and Ecuador that function to pick out the main versus subsidiary themes and participants in stories; Uyeno 1971 describes some Japanese particles, *ne* for instance, that serve to adjust speaker commitment to what is said, and a review of a large number of such particles in the Mayan language Tzeltal and the Indian language Tamil can be found in Brown and Levinson 1978:152-167. In many languages such particles are omnipresent and occur in almost all sentences. (See Gazdar 1978:22-6, and Brown and Levinson 1978 for further references).

I propose then that conventional implicatures are *essentially deictic in nature.* The examples given seem to have a set of specific properties that they share: they are non-cancellable, they express a direct relationship between an aspect of the context and a linguistic form (of the sort capturable by a context-sensitive transderivational constraint), and they have specific projection properties. These properties seem to follow from their deictic nature. The direct relationship between linguistic structure and context follows, of course, from the nature of deixis, while the non-cancellability seems to arise because the aspects of the context referred to are not easy to express verbally or even to make conscious. For example it is by no means easy to state what the conventional implicatures of *anyway, besides,* or *in fact* are; and if one cannot easily state them, one cannot easily overtly cancel them (for one thing the requisite metalanguage for talking about discourse or social relations simply does not exist).

The specific projection properties of conventional implicatures can be illustrated by comparing (25) to (17) above:

25) Bill said the new car is big but beautiful

where the view that big cars usually aren't beautiful - an implication due to the contrastive conventional implicature associated with *but* - can be attributed either to Bill or the speaker. The latter, perhaps unpreferred, reading can be forced in examples like:

26) The San Clemente News said Nixon was a tax-evader but honest!

Just as in (17) the ambiguity in (25) resides in which of the speech events (reported or actual) the relevant attitudes are to be attributed to.

The projection problem for conventional implicatures is thus quite distinct from that for presuppositions: the problem essentially consists in attributing the relevant attitudes to their appropriate sources. In general, in compound sentences we may expect the number of possible attributions to be directly related to the number of embedding clauses of saying, unless some of these are contextually ruled out, as in (26). As Wilson 1975:116 puts it, when conventional implicatures seem at first sight to be cancelled, they are "not really cancelled at all but merely interpreted as coming from someone other than the speaker". It may be a little harder to displace the relevent attitudes in the case of honorifics, but it is certainly quite possible to rule out the speaker as the source. For example in Tamil if a father talks to his daughter about his wife, he is likely to say something like:

27) atu ammaa cŏlraanka
that's (what) mother says-plural

where the plural verb ending indicates *not* his respect for his wife (a cultural impossibility

in India) but his daughter's respect for her mother.

My suggestion then is that the significance of socially deictic items (beyond whatever they happen to denote) can best be captured in terms of conventional implicature, and that moreover, honorifics (and other socially deictic items) actually seem to form a natural class with other non-truth-conditional non-cancellable implications which were the original core examples of conventional implicatures. The only problem with this assimilation is that Karttunen and Peters 1975 (and following them, Sadock 1978 and others) have misappropriated Grice's category to describe presuppositional phenemena.[12] But as we have seen, conventional implicatures have different properties, and Grice's original nomenclature clearly refers to this class of non-cancellable implications. Therefore I suggest that we should reclaim the term for its intended purpose. What's wrong with '*presupposition*' after all?

There's another thing in favour of the proposed nomenclatural revision. In a number of cases, and nowhere more clearly than with honorifics, it can be shown that there is a diachronic sequence from conversational implicature to conventional implicature (see Brown and Levinson 1978:263-85,203-208 for many examples); in fact it is possible to argue that there is a sequence from *particularized* through *generalized* conversational implicatures to conventional implicatures (see Levinson 1977:47-60). I know of no such arguments on the other hand for the diachronic emergence of presuppositions from conversational implicatures. What could be more natural then than to call the end product of a process of conventionalization of conversational implicatures, *conventional* implicatures?

There are two final loose ends to be tidied up. Recollect that the brief illustration of syntactic problems associated with socially deictic items indicated that a particular syntactic mechanism seemed to be required to state the constraints and relations between honorific forms and their contextual significance, namely the unlovely context-sensitive transderivational constraint. If the significance of socially deictic items is captured in terms of conventional implicature, then we can see clearly why we need such things: we need statements of constraints that directly link aspects of the context to aspects of linguistic form, unmediated by semantics. And Gazdar 1976, and Gazdar and Klein 1976, have shown that the notions of conventional implicature (in Grice's sense, not Karttunen and Peters's) and transderivational constraints (of the context-sensitive variety) are interdefinable.[13]

Finally, there is a problem with the notion of social deixis. With the introduction of indexical semantics there has been a tendency to consider the problems of deixis as semantic, and to retain the term pragmatics for more intractable material (see e.g. Gazdar 1976). However this absorption of deixis into semantics may well be premature, for the facts of deixis are by no means as simple as Montague, Lewis, Lakoff and others seem to have imagined (see Lakoff 1975 and references therein). Fillmore's (1975) discussion raises a great deal of problems for such a view, with his distinctions between non-deictic, gestural and symbolic usages of deictic words.[14] The gestural uses would be impossible to handle without an infinity of pragmatic indices (as noted by Cresswell 1973). My belief is that the unabashedly pragmatic nature of social deixis will prove to be the last straw for the view that deixis can be adequately handled by indexical semantics.

4. Boundary Problems?

Morris 1938 defined pragmatics as the study of the relation between signs and their users. Literally construed this includes a lot of things that linguists are unlikely to be interested in - for example the slips of the tongue investigated by Freud in the *Psychopathology of Everyday Life.* It would also notably include the entire field of sociolinguistics, broadly understood to include the Ethnography of Speaking and so on. On the assumption that this is an embarrassment, we might try some boundary-drawing activity of the sort utilized by Katz and Fodor 1963: the upper bound for pragmatics would be semantics, the lower bound (especially) sociolinguistics. The upper bound has received massive attention (more perhaps than boundary-drawing activity deserves), the lower none, as far as I know.

The study of social deixis can be expected to throw some light on the nature of this lower bound to pragmatics. One of the things that emerges fairly clearly from the study of honorifics is that a basic distinction must in fact be made between the *meaning* and *usage* of social deixis items. This is not an uncontroversial claim: Fillmore 1973 talks of a 'direct sociolinguistic interpretation' for some such items, and the familiar use of flow-chart formalisms in sociolinguistics to describe the usage of address forms and the like implicitly carries the claim that for socially deictic items, *meaning = usage* (the formalisms originate with Geoghegan 1973). The reasons why we must make the distinction between meaning and use in this area are numerous (see Levinson 1977 for full discussion); for example informants can volunteer abstract meanings, not merely specifications for use, and they can extend their usage to new situations on the basis of the relevant meanings. But there are two more important arguments. The first is that honorifics, for example, can be used *metaphorically* and *ironically*; but such usages are parasitic on a previously established meaning. Secondly if we had no unitary package of significance to associate with socially deictic items (but only an extended recipe for their usage) we could not easily state the systematic relations between their syntax and their pragmatics (using for example, context-sensitive transderivational constraints).

We therefore have a neat solution to our lower boundary problem in this area: the meaning and the (pragmatic conditions on) associated syntax of socially deictic items lies firmly in the domain of pragmatics, while specifications for the use of such items in concrete, classified, social contexts can be assigned to sociolinguistics. Thus a Vous-type pronoun can be said to have as part of its meaning that the addressee is socially distant or of higher social rank to some specified degree (depending on the range of alternates in the language), while the fact that one uses it, *inter alia*, in addressing matrilateral cross-cousins only if they are older than one's brother's wife can thankfully be left for someone other than a pragmaticist to describe. And this distinction coincides with the kind of information that on the one hand one would expect, and on the other expect not, to find in a grammar, whether theoretical or practical.

I do not mean to insinuate that matters of language usage always lie outside the pale of pragmatics - that would be absurd. But it is worth drawing attention to an ambiguity in the way in which we use the word *pragmatics.* On the one hand we have in mind principles that govern language usage of the sort exemplified by Grice's maxims. Grice was at pains to point out of these that they have no intrinsic connection to language at all. On the other hand we use the word to refer to aspects of language structure that are

context-dependent, for example pragmatic conditions on linguistic rules. The two happen in some instances to be related, but if they weren't (and when they aren't) it would be possible to claim the principles of usage are none of the linguist's business. He might have a methodological interest in them, it is true, in so far as he has difficulty distinguishing the side effects of such principles from semantics, but strictly they would lie outside his domain.

On this view, then, pragmatics is concerned with principles of language usage just in those cases where they impinge on or interact with aspects of language structure; linguistics remains the study of *language structure*. But there is another possible view, which requires of pragmatics that it provides, with semantics, an account of *language understanding*. The latter view has quite different implications: Grice's maxims would still be part of the domain of pragmatics even if they had no structural implications. On this view, my neat boundary between the pragmatics and sociolinguistics of social deixis breaks down. Consider, for example, what kind of knowledge would be required in order to know that a particular use of a V pronoun was meant to be understood as ironic; you might indeed need to know that in Tamil village parallel cousins of the same age usually exchange T pronouns with one another, or the like - i.e. particular sociolinguistic rules for pronominal usage.

Since in my own work I adopt the one view in some circumstances and the other in others, I shall continue to perch on the fence; but I have the feeling that the second view is the more interesting program.

Footnotes

1. This paper was presented to the Pragmatics Symposium at the Linguistic Society of America's Linguistic Institute, July 24th 1978, at Urbana, Illinois. I am grateful to the organizer, Georgia Green, for an invitation to attend and the provision of facilities; and to the University of Cambridge for a travel grant. Gerald Gazdar and Penelope Brown both commented on a proto-draft and I have incorporated substantial revisions that resulted. I am grateful too for comments by Stan Peters, Alice Davison, Larry Horn and Georgia Green.

2. Of course there may be specific titles that can indicate which person is of higher rank, or given two proper names we may simply happen to know. But the prediction is that there won't be things like special kinds of verb agreement, or a particle, that serves this function. Note that by referring back to the present speech event one can easily achieve this statement of relative rank between two third persons, by encoding their relative rank to oneself, in languages that provide honorific third person pronouns and the like.

3. It may seem peculiar to call respectful pronouns of address *referent* honorifics rather than *addressee honorifics*; but as Comrie (1976) points out what is peculiar to the latter class is that it is possible to say things like "this soup is good", which make no reference to the addressee, and still deliver him respect - this is done by lexical alternation, special particles and the like. Secondly, polite pronouns often form part of an entire paradigm in which first and third person pronouns are all distinguished on degrees of politeness in the same way.

4. Compare for example:

1) avaanka nallavanka

3rd.pl.pro. + Adjectival Noun+plural ending
they are good men / he-honorific is a good man

2) avaanka keTTikaaranka
they are clever people / he-honorific is a clever man

3) *avaanka keTTikaarar
Adj.Noun+ sing.male, honorific ending
he-honorific is a clever man

4) niinka keTTikaarar
2nd.pl.pronoun + Adj.Noun + male honorific sing. ending
you-honorific are a clever person

In (1) and (2) the adjectival noun takes plural agreement with the honorific and superficially plural third person pronoun; so they are ambiguous between real plurality and honorific plurality. Third person pronouns will not take a singular honorific termination to such adjectival nouns, as shown in (3). But superficially plural second person pronouns (referring to honoured singular addressees) will take such singular terminations. So there is a considerable amount of morphological mess in this area where there is a transition from superficial agreement to agreement with real world number.

5. Thus one can say for something like 'your Lordship says' any of the following in rural Tamil:

1) esamaanka colraanka
Lord says-3rd person plural

2) esamaanka colriinka
says-2nd person plural

3) esamaanka colroom
says-1st person inclusive plural

where the 'we-inclusive' verbal ending in (3) is standardly used to implicate 'you-sing-super-honorific'.

6. The filtering analogue will serve to keep the sntax unsullied, although I am not sure that is solves the problems raised for syntactic argumentation.

7. Martin 1975 in fact showed that such a relation could be handled in four valued two dimensional logic. Martin's demonstration has had little affect on the declining fortunes of semantic presupposition because its rescue seems scant motivation for the recasting of semantics in such a baroque mould.

8. The different theories use quite different apparatus, and this together with substantive differences of opinion about the data make it impossible to isolate and state the basic properties of presupposition projection in an uncontroversial way. On the view of Karttunen and Peters 1975 there are two basic ways in which the presuppositions of a compound sentence can come to be less than the sum of the presuppositions of its parts: presuppositions are blocked by some higher predicates ("plugs") - especially verbs of saying, believing, thinking, hoping etc. - and in addition are filtered out in complex sentences formed by use of the connectives in specifiable circumstances. (Strictly on this account there is no *cancellation*: plugs block presuppositions before they mature so to speak, and filtering is achieved by generating vacuous presuppositions. But I shall continue to talk of presupposition cancellation because the mechanisms must at least simulate this).

On Gazdar's account on the other hand, there are no plugs. He provides examples

like (1)

1) The repairman didn't tell me that my camera was suitable for colour too

which seems to presuppose (2) and (3)

2) I have a camera

3) it is suitable for black and white pictures

even though the higher verb *tell* is a plug. Karttunen and Peters must attempt to produce the suppositions (2) and (3) by conversational implicature. Where *tell* and the like do block presuppositions this seems to be achieved, Gazdar claims, by a mechanism whereby presuppositions are always cancelled by contrary knowledge held by participants in the context. For Gazdar then the projection problem essentially consists of achieving mechanisms that will (a) generate all potential presuppositions along with the forms that gives rise to them, (b) cancel all those that are inconsistent with everything that is already known in the context, such knowledge being built up by the entailments, implicatures and presuppositions of what is said, added in that order, (c) achieve the filtering required by sentences built up with the 'logical' connectives by the same mechanisms as in (b).

9. I toyed with the idea that this might prove to be a distinguishing criterion for conventional implicatures, i.e. that whereas one could derive conversational implicatures from all that is 'said' in Grice's terms, including conventional implicatures, one would not be able to derive conversational ones from presuppositions. For example it is easy to produce ironic conventional implicatures (e.g. honorifics) but hard to produce ironic presuppositions - not however impossible it seems, as the following example due to Gerald Gazdar makes clear:

1) it is a wonderful party, *even* Harry came

which presupposes:

2) one wouldn't expect Harry to come

but which could be used ironically in a context where Harry is well known to never miss a party.

10. Larry Horn and Alice Davison reminded me that in French one can say *si je peux te tu toyer, tu ...* (that is 'If I can call you 'tu', then tu are ...'), which might be claimed to cancel the conventional implicature associated with *tu*. But it is not clear that it does: in counter-argument Gerald Gazdar pointed out that it is perhaps closer to "If I may speak frankly to you ..." where *frankly* is not cancelled. Secondly the cancellation mechanism, if such it is, is not the one in question: one is not mentioning the *meaning* of the *tu* form and thereby cancelling it.

11. Honorifics often derive diachronically from conversational *implicata*; and hence may be in theory calculable just as their original conversationally implicating uses were. For example the Japanese pronoun *watakusi* (*I*, most formal) originally meant 'slave' or 'servant' (see Brown and Levinson 1978:283); it presumably came to be a polite first person pronoun through usages in which (as in 'your slave is at your service') it was used to conversationally implicate that the speaker was at the addressee's service, and moreover to convey that since the speaker was relatively so humble, the addressee must be relatively very grand. The form is now frozen, but is presumably still calculable (at least by those with some historical knowledge of Japanese). The point is that it is important to be clear about the distinction between calculable-in-principle (by some analyst) and actually calculated in discouse (by participants).

12. To an oral version of this paper, Stan Peters suggested the following way of handling the facts in accord with the Karttunen-Peters framework, which I feel duty bound to record. The conventional implicatures of *but* etc, in so far as they survive plugs (as in my example (25)) do so by conversational implicature. Honorifics are different in kind, and should be thought of like *felicity conditions* on speech acts, which also are non-cancellable (according to Karttunen and Peters 1977). There are though, I believe, a number of things wrong with this approach. First, felicity condition is not a well-defined concept, and indeed it has generally been assumed that it would reduce to presupposition or conversational implicature. Secondly, as Andy Rogers 1978 has shown, most presuppositions are not cancellable in performative usages either, so it is doubtful that this assimilation of honorifics to felicity conditions is explanatory in any way. Thirdly, Rogers points out that the ability felicity condition on directives does *not* survive negation, questioning or modal contexts, whereas we have shown that the implications of honorifics do. Fourthly, Peters's motivation is to capture the intuition, he feels, that whereas *but* and the like add to the *content* of what is said, honorifics do not. But I am not sure the intuition is correct. For example in Tamil the items most like the honorific particle *nka* from a syntactic and pragmatic point of view are discourse deictic particles. In addition honorifics can and do perform important conceptual functions: in Tamil oral narrative one often keeps track of the referents of pronouns by means of the degree of respect given to the protagonists (where in English one would have to use explicit distinguishing descriptions or identifiers).

13. That is, simply, that a conventional implicature can be defined as the pragmatic conditions (the significance attached by participants) under which the linguistic item which gives rise to it can be inserted (or equivalently, is not filtered out) by a transderivational constraint. And a transderivational constraint is whatever attaches conventional implicatures to linguistic forms. There are in fact technical problems with the Gazdar-Klein formulation, which I assume could be patched up.

14. The distinctions are between usages like those of *now* in the following examples:

(1) Now as I was saying . . . (non-deictic use)

(2) Steve is now on holiday/now in Urbana (symbolic use)

(3) Don't shout now, but NOW! (gestural use)

The same distinctions show up in social deixis, which is yet another reason for considering the phenomena truly deictic. For example there are suppletive forms *Taa/Teey* in Tamil, addressee dishonorifics, where the first is used sybolically and the second only gesturally (as a call where it picks out an addressee of the right rank relative to the speaker). Kinship terms are often divided into deictic and non-deictic (non-addressive) sets; even in English one cannot address one's cousin Bill as 'cousin Bill'.

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Syntactic, or Lexical, Zero in Natural Language*

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This article is an attempt to answer some of the questions posed by A.A. Xolodovič [1] concerning the elaboration of a consistent theory of grammatical voice and the description of voice systems in natural languages. The following are three of his questions.

Question 1. What is the relationship of voice to such constructions as the Russian indefinite-personal agent construction of (1)

(1) Ivana priglasili k trem časam
I. invited to three o'clock
(acc) (3pl)
'Ivan was invited for three o'clock'
(lit. '(they) invited Ivan...')

or the Russian impersonal construction of (2)?

(2) Ivana oprokinulo
I.(acc) knocked over(neut sg)
'Ivan got knocked over' (lit. '(it) knocked Ivan over')

Question 2. Are constructions (1) and (2), or examples such as (3), in Ukrainian,

(3) Bulo organizovano ekspedyciju
was organized expedition
(neut sg) (neut sg) (acc)
'an expedition was organized'

grammatically subjectless? The same question may be asked of the following Spanish construction:

(4) Aquí se vende periódicos
here sell newspapers
'newspapers are sold here' (lit. 'here (it) is-sold newspapers')

Question 3. For Russian sentences such as (5)

(5) Ivan byl priglašen k trem časam
Ivan was invited to three o'clock
(nom) (p part, masc sg)
'Ivan was invited for three o'clock'

why do we speak of an agentless passive, rather than positing an unspecified personal agent? Clearly (5), the true passive, is perfectly synonymous with (1), and (1) is a classic example of the unspecified personal agent construction (in Russian traditional grammar, indefinite personal).

To respond to these questions requires, first of all, clarification of the notion 'syntactic, or lexical, zero'. This in turn presupposes a theoretical account of linguistic-1 zero in general. [2] More generally, it presupposes an account of sentential incompleteness, which includes ellipsis (deletion of some of the lexical nodes), missing arguments, unfinished utterances, etc. Since these problems could not be fully investigated in a short paper, I will restrict myself here to the problem of zero in syntax. In the absence of a unified theory of syntactic incompleteness, my conclusions are of a preliminary and programmatic character.

To avoid overburdening the exposition I have refrained from reviewing the question and have provided only minimal references. For a detailed presentation of the problem of zeroes, and copious references, see Meier 1961; my main source of inspiration is the excellent analysis of Haas 1957. On zero affixation in word derivation see Lopatin 1966, Kastovsky 1969; remarks pertinant to zero expression of categories are found in Aschmann and Wonderly 1952. An insightful analysis of zeroes in syntax is provided by Wierzbicka 1966.

I will be working within the linguistic-2 framework of meaning-text theory, the basic assumptions of which I will presume the reader knows (see Žolkovskij and Mel'čuk 1967, 1969; Mel'čuk 1967, 1972, 1974a, 1976:26-62). I adopt the following plan of exposition.

In section 1, syntactic, or lexical, zeroes such as the zero wordform or (better) zero lex (see fn. 10) and zero lexeme are introduced as generalizations of such morphological zeroes as zero morphs and zero morphemes. The notions of zero morph and zero morpheme are sufficiently clear and intuitively accessible to be taken as basic, at least in certain instances, e.g., the zero genitive plural ending of Russ. spin-Ø 'of (human) backs', plit-Ø 'of slabs'; the zero masculine singular past ending of vstal-Ø '(he) arose', mog-Ø '(he) was able'; the zero masculine singular ending of zdorov-Ø '(he is) healthy', vzjat-Ø '(he is) taken'. All these zeroes contrast with non-zero endings elsewhere in the respective paradigms.

In section 2, the concepts of zero lex and zero lexeme are tested on certain types of Russian sentences.

In section 3, I discuss a use of the term zero verb (the notion is logically a particular instance of the notion 'syntactic, or lexical, zero') current in linguistic-2, par-

ticularly Russian, literature; the goal is an improved organization of terminology for zeroes. Some of the uses of this term correspond not to the notions I propose but to phenomena sharply distinct from zero - in particular, ellipsis. As early as half a century ago Bally (1922) insisted that ellipsis must be strictly distinguished from syntactic zero (see also Vardul' 1969).

In section 4, answers to Xolodovic's questions are proposed, and several connections are noted between the theory of grammatical voice and the approach to zero lexes and lexemes outlined here.

1. A generally recognized example of a morphological zero is the zero ending in such Russian wordforms as /ruk/ 'of hands' (cf. nom. sg. ruka 'hand'). The ending is a zero morph: ruk-Ø - gen. pl.

The term morph is to be understood as follows. A morph X is an elementary linguistic-1 sign, i.e., an ordered triple of the form: [3]

(6) X = < /X/; 'X'; x >, where:

/X/ is the signifiant of the morph, i.e., a string of phonemes (possibly with a complex of prosodemes), or a string of graphemes if a written text is considered; 'X' is the signifié of the morph, i.e., the symbol or complex of symbols which represents its meaning; and x is the syntactics of the morph, i.e., the set of all necessary data about the combinatorial possibilities of the morph X with other morphs. Syntactics may include cooccurrence restrictions based on part of speech, grammatical gender, phonological and/or morphological environment; selectional restrictions of all kinds; etc.

For example, the two non-zero genitive plural endings of Russian:

(7) -éj = < /éj/; 'pl., gen.'; ξ = nominal ending, second declension, non-neuter gender, not after palatalized or hushing consonants,...>;
-ov = < /of/; 'pl., gen.'; ξ = nominal ending, second declension, non-neuter gender, not after palatalized or hushing consonants,...>

Examples: /kon' + éj/ konej 'of horses', /krovat' + éj/ krovatej 'of beds', /mor' + éj/ morej 'of seas', /nož + éj/ nožej 'of knives'; vs. /stol + of/ stolov 'of tables', /tigr + of/ tigrov 'of tigers', /treugol'nik + of/ treugol'nikov 'of triangles', etc.

(8) Eng. -d = < /d/; 'past'; ξ = verbal ending, in weak verbs, after vowel or voiced consonant other than /d/,...>;
-ed = < /d/; 'past'; ξ = verbal ending, in weak verbs, after /d/ or /t/,...>
-t = < /t/; 'past'; ξ = verbal ending, in weak verbs, after voiceless consonants other than /t/, or in specified strong verbs,...>

Examples: echoed, cared, dubbed, raged, struggled,...; faded, patted,; missed, stopped, kicked; slept, meant,...

A zero morph is a morph whose signifiant is the empty string (of phonemes or graphemes):

(9) Russ. Ø - pl, gen = < Λ ; 'pl., gen.'; ξ = nominal ending, first or second declension; not after palatalized or hushing consonant (if the noun is masculine, further specification is required)...>

Like any non-zero morph, a zero morph has both a signifié and syntactics. The signifié in the case of (9) coincides with that of the non-zero morphs of (7); the syntactics provides for the fact that the zero morph of (9) is restricted to certain types of Russian nominal stems.

Morphs having identical signifiés and sufficiently similar distributions (stated with phonological and/or morphological rules) are united into one morpheme. Thus the English morphs of (8) are allomorphs of the morpheme {PAST}; the Russian morphs -éj, -ov, and Ø - pl, gen are allomorphs of the morpheme {PL. GEN}, Ø - pl, gen being the zero allomorph of this morpheme. [4]

It is well known that there are morphemes with only one allomorph. For example, in Russian the morpheme {PL. LOC} for adjectives contains only one allomorph, -ix. The sole allomorph of a morpheme can also be zero: a morpheme that has only a zero allomorph is naturally called a zero morpheme, e.g., the nominal and adjectival singular morpheme in Spanish, {SG}, contains just one allomorph, zero. [5]

It follows that the expression 'morphological zero' can be understood in one of two precise senses: either (i) it is a zero morph, i.e., a morph whose signifiant is an empty string; or (ii) it is a zero morpheme, i.e., a morpheme having zero as its sole allomorph. We may make the following generalization:

(10) A linguistic zero either is a zero sign, i.e., a sign whose signifiant is an empty string; or it is the corresponding zero '-eme', i.e., the set of equivalent signs which contains only one zero 'allo-' (one zero sign).

However, the morphological considerations used so far and the syntactic considerations of interest here are two very different things. In order to relate them we must resort to a more abstract level of analysis.

In morphology, the set of wordforms is considered given. A wordform is generally a complex, i.e., non-elementary, linguistic-1 sign: the signifiant of a wordform is a string of phonemes or graphemes (plus, probably, prosodemes), and its signifié is a formal expression. [6] The deep morphological representation of a wordform used in the meaning-text model is such a formal expression; it consists of the name of the lexeme and a notation of morphological categories. (The syntactics of the wordform is irrelevant to the present discussion and can be safely omitted.) The goal of morphology is to describe the set of all wordforms of a language in a more concise manner than by simply listing them. This goal can be achieved to the extent that wordforms are complex signs, i.e., insofar as their signifiants have recurring components corresponding to recurring components in their signifiés. Here is one generally accepted approach to the construction of such a morphological description.

Consider the following set of signifiants of Russian wordforms:

(11) /ruk/ 'of hands', /st'en/ 'of walls', /l'in'ij/ 'of lines',...
/nocej/ 'of nights', /put'ej/ 'of ways', /nozej/ 'of knives',...
/stvolof/ 'of (gun) barrels', /ostrovof/ 'of islands', /bojcof/ 'of soldiers',...

and the corresponding set of deep morphological representations depicting their signifiés:

(12) RUKA-pl, gen STENA-pl, gen LINIJA-pl, gen
NOČ'-pl, gen PUT'-pl, gen NOŽ-pl, gen
STVOL-pl, gen OSTROV-pl, gen BOJEC-pl, gen

We must establish correspondences between sets (11) and (12) in the most economical way possible, without simply recopying all the pairs. To accomplish this the following morphs are introduced:

(13) ruk = < /ruk/; 'RUKA'; ξ = stem, noun, fem, I decl,...>;
sten = < /st'en/; 'STENA'; ξ = stem, noun, fem, I decl,...>;...

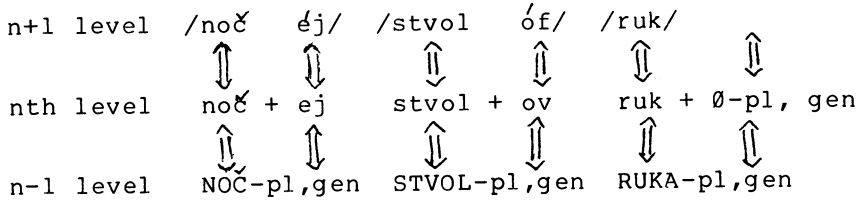
ostrov = < /ostrov/; 'OSTROV'; = stem, noun, masc, II decl,...>;
bojec = < /bojec/; 'BOJEC'; = stem, noun, masc, II decl,...>

-Ø-pl, gen = < ; 'pl, gen'; = nominal ending, either I decl or...> (see (9) above);
-ej = < /ej/; 'pl, gen';...> (see (7) above);
-ov = < /of/; 'pl, gen';...> (see (7) above)

The morphs of the language described must be given in a list. Obviously this list will contain far fewer items than the full list of wordforms. (For instance, if we take into account regular word formation rules of Russian, the list of Russian wordforms is at least 100 times the size of the list of morphs.) The correspondence of (11) to (12) can be described in a trivial manner: in the transition from (11) to (12), the signifiant of the wordform is broken into signifiants of the appropriate morphs in accordance with with their syntactics; then the signifies of these morphs are combined to produce the deep morphological representation of the wordform. Conversely, in the transition from (12) to (11) the underlying deep morphological representation of the wordform is broken into the signifies of the morphs in accordance with their syntactics, then the signifiants of these morphs are combined to produce the signifiant of the wordform. (This description of the correspondence between signifiants of word forms and their deep morphological representation is very tentative. Accentuation and morphophonological alternations have not even been discussed.) By following this approach we arrive at an intermediate representation of wordforms - a representation in terms of morphs. Thus from a morphological point of view we need at least three levels for representation of wordforms:

an upper (n + 1th) level - the signifiant of a wordform, a string of either phonemes or graphemes;
an intermediate (nth) level -- a string of morphs;
a lower (n - 1th) level -- the deep morphological representation of the wordform

For example:



An upper level is (closer to) text, a lower level (closer to) meaning. The double arrow symbolizes correspondence in both directions.

This schema makes explicit the distinctive formal property of zero morphs: a zero morph is the symbol in an intermediate representation of the nth level such that:

in the transition n ===> (n-1) it corresponds to some (usually non-empty) symbol or complex of symbols, while
in the transition n ===> (n+1) it corresponds to an empty string; and on its own nth level it combines with other symbols of the same level according to fully specified rules of the language which are captured in its syntactics.

A similar formal property must be inherent in any zero sign in language: a zero sign is a symbol of the nth level of representation which always corresponds, on the n+1, more nearly surface, level to an empty string and which is justified either from below (it corresponds to non-zero symbols on the n-1 level) or on its own level (it is governed by well-specified rules of cooccurrence with other symbols of level n.) [7]

In meaning-text theory and in many other systems another level of morphological representation is postulated: here, n'. The n' level is the '-emic' level lying between n and n-1. At the n' level a wordform is represented as a set of morphemes: {NOC'} + {PL. GEN}, {STVOL} + {PL. GEN}, {RUKA} + {PL. GEN}. (Recall that a morpheme is a set of morphs. Thus {NOC'} = [noč ~ nač], {STVOL} = [stvol ~ stvol' ~ stval ~ stval'], and {RUKA} = [ruk ~ ruk' ~ ruč]. The variant morphs represent Russian morphophonemics.)

Now we can construct syntactic analogs of zero morphs and zero morphemes. Note, however, that the analogy between syntax and morphology cannot be complete: the differences between the two are so fundamental that the parallels I will draw are little more that heuristic considerations.

Before discussing the zeroes of syntactic level n we must determine the n+1 and n-1 levels of syntactic representation. I emphasize that from the viewpoint of the problem of zeroes these levels must be taken as axiomatic - the levels n+1 and n-1 must be determined independently of and prior to an inquiry into the question of zero on the n level. In syntax the set of sentences is considered as given (thus a sentence is to syntax what a wordform is to morphology). A sentence is a complex of linguistic-1 signs, one which has a signifiant and a signifie but lacks syntactics. [8] The signifiant of a sentence is a phonemic string plus relevant prosody (intonation contour, stresses, pauses); it constitutes the upper, or n+1, level. [9] The signifié of a sentence - its semantic representation - is a graph introduced to represent the meaning of the sentence; it is the lower, n-1, level. The syntactic analogs to morphs, the building blocks of the wordform, are wordforms, the building blocks of the sentence. Henceforth, I will use the term lex, which is not fully synonymous to wordform, but is preferable here in that it makes explicit the proportion morph : morpheme = lex : lexeme. [10]

Therefore an intermediate representation on the level n in syntax is a sequence of lexes, each of them represented by its respective deep morphological representation. Thus for (14)

(14) Fedor snova polez na mačtu
F. again began to climb on mast
'Fedor began to climb the mast again'

the representation of level n in syntax will be

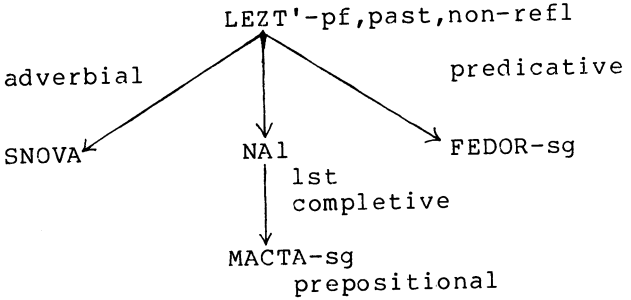
(15) FEDOR-sg,nom SNOVA LEZT'-pf,past,non-refl,sg,m NA1 MAČTA-sg,acc [11]

On the level n', i.e., in terms of syntactic '-emes', the sentence is represented by surface syntactic structure. The surface syntactic structure of a sentence is a dependency tree whose nodes are not ordered from left to right and which stand in a one-to-one correspondence with all the lexes (including zero lexes) of the sentence. Each node is labelled with the name of the lexeme to which its lex belongs. The name of the lexeme is provided with indices of all the meaning-bearing morphological characteristics of the lex: number in nouns; tense, aspect, and mood in verbs. (Syntactically conditioned, i.e., non-semantic, morphological characteristics such as case in nouns and person, number, or gender in verbs, are omitted from surface syntactic structure. Each branch of the tree

is labelled with the name of the corresponding surface syntactic relation. The surface syntactic relations make explicit the interword connections that are ordinarily expressed in the language by such devices as word order and 'syntax-oriented' morphology - agreement and government. The fact that in surface syntactic structure there are no means other than the labelled syntactic relations to describe interword connections will be essential below.

The surface syntactic structure of (14) is:

(16)



(For the surface syntactic relations see Mel'čuk 1974a: 221ff.)

Now the notion 'syntactic zero' can be made explicit. A zero wordform (or zero lex) which has as its signifiant an empty string of phonemes is the syntactic analog of a zero morph. It is the symbol on the nth level of the syntactic representation of a sentence such that it always disappears on movement upward, toward the text; it corresponds to an empty string on level n+1. Conversely, on movement downward, toward the meaning, the zero wordform corresponds to an identifiable complex of symbols on level n-1.

A zero lexeme, a one-element set of lexes which contains only a zero lex, is the syntactic analog of a zero morpheme. The symbol for a zero lexeme, together with the symbols for other lexemes, label the nodes of the syntactic tree on the n' level of syntactic representation.

As was true for zero morphs, a zero lex is deficient only with respect to its signifiant: normally it has a fullfledged signifié and a fullfledged syntactics. It has specific, identifiable meaning and specific, identifiable combinatory possibilities and effects on other words.

A zero lex either belongs to a lexeme that has other, nonzero lexes as well; or it is the sole allolex of a zero lexeme. An example of a zero lex is the zero present tense form of the Russian lexeme BYT' 'be' (copula and existential verb); cf. Evreinov 1973. An example of a zero lexeme is the indefinite personal agent of Russian, discussed

below.

As zero morphemes should be contained in the list of morphemes of a language, so zero lexemes should be contained in the dictionary as separate entries. Zero lexes should also be mentioned in the dictionary entries of their lexemes, just as zero morphs of nonzero morphemes are indicated by the morphological rules. While essentially lexical units, zero lexes and lexemes might also be loosely called syntactic zeroes, in view of the fact that they are introduced and motivated at the syntactic level of lingustic-1 representation. This explains both the title of this paper and my use of the two expressions.

2. This section applies the notions of zero lex and zero lexeme to Russian examples. In (17) and (18)

(17) Bocman bol'šoj šutnik
boatswain big joker
'the boatswain is a great joker'
(18) Fedor v sosednej komnate
F. in neighboring room
'Fedor is in the next room'

the zero lexes Ø-be-1 and Ø-be-2 are normally postulated. These lexes belong to the lexemes BYT' 1 (copula) and BYT' 2 'be located'.

Next consider (19) vs. (2Ø):

(19) Ulicu zasypali peskom
street strewed with sand
acc 3pl past instr
'the street was strewed with sand'
(2Ø) Ulicu zasypalo peskom
strewed
neut past
'the street got strewed with sand'

There is a clear difference in meaning. For (19) it is unquestionably people who strewed the street with sand (although just who these people were is not specified), while (2Ø) implies that it was some elemental force (wind, sandstorm, etc.). Thus the meanings of (19) and (2Ø) may be conventionally represented in level n-1 as:

(19') <people> strewed the street with sand
(2Ø') <elements> strewed the street with sand

where <people> and <elements> designate the understood agents. These are complex, highly specific meanings distinct from those of the ordinary words people and elements (R. ljudi, stixii). [12, 17]

What expresses the meanings '<people>' and '<elements>' in (19) and (20)? One possibility is that (19) and (20) contain zero nominal wordforms, respectively Ø-people and Ø-elements, i.e., that these symbols appear on the nth level of sentence representation. It would be natural, then, to label the corresponding nodes in the syntactic structures of these sentences (on level n') with those zero lexemes.

And indeed, not positing zero lexes in (19) and (20), and thus not positing zero lexemes in the syntactic structures of these sentences, leads to difficulties of two types.

Semantic difficulties. If (19) and (20) do not contain zero lexes, and corresponding zero lexemes do not appear in their surface syntactic structures, then evidently the sole source of the meanings '<people>' and '<elements>' would be the verb. But then we would have to admit that almost every Russian verb, taken by itself, is ambiguous in the 3rd person plural and the 3rd person singular neuter. Pisut (3pl) 'they write' would mean either (21) or (22):

(21) PISAT'-imperf, pres, nonrefl, 3pl
(22) '<ljudi> pišut', '<people> write'

Similarly, taščilo (neut past) 'it dragged' would be ambiguous between (23) and (24):

(23) TAŠČIT'-imperf, past, nonrefl, neut
(24) '<stixii> taščili', '<elements> dragged'

as in (25):

(25) Ego taščilo po kamnjam, udarjalo o bereg
him dragged along rocks smashed on shore
acc neut past neut past
'he got dragged along the rocks, smashed against the shore'

On this analysis supplementary homophonous forms with the meanings '<people>' and '<elements>', and possibly others mentioned below, would be posited for all Russian verbal paradigms. It is bad enough that we would then have to augment every verb paradigm by eight forms: six in the indicative ('<people>' and '<elements>' in the three tenses) plus two in the subjunctive. Moreover, forms like pišut and taščilo are not actually perceived as ambiguous by native speakers; and in fact Russian verbal forms are almost never ambiguous (the single exception is the ambiguity of indicative and imperative second plural forms of a few

second conjugation verbs, unrelated to the present question).

A more serious problem with this analysis is that we would then have to ascribe to grammatical forms (or endings) very complex and specific meanings of the type carried by no other Russian grammatical ending. It is more plausible to postulate two strongly marked and unique lexemes than to posit two homophonous, strongly marked, and unique grammatical endings.

Alternatively, we could say that these indefinite personal and impersonal meanings are present only in certain constructions, namely those where the grammatical subject is materially absent and not recoverable from context. That is, we would claim that the meanings '<people>' and '<elements>' are expressed by the construction as a whole, i.e., by the verb in the given form plus the absence of an overt grammatical subject. But this tantamount to attributing these meanings to the absence of the grammatical subject, which in turn implies that in a formal description of the construction a symbol should be present to point to the absence of grammatical subject. And such a symbol is, in essence, exactly what I am calling a zero lex (functioning as grammatical subject).

Syntactic difficulties. If (19) and (2Ø) lack zero lexes and their surface syntax lacks the corresponding zero lexemes, we have no natural way of accounting for the number, person, and (in the past tense) gender of the finite main verb in these sentences. As has been noted, the morphology of agreement is not expressed in surface syntax. [13] Therefore, in the surface syntax of (19) and (2Ø) the lexeme ZASYPAT' 'strew' cannot have indices of person, number, and gender, since these are determined by the grammatical subject and the grammatical subject (on this analysis) is not present.

Rather than resort to ad hoc means, a zero grammatical subject as the source of verb agreement should be posited here, and agreement provided for by the usual mechanism. In (19) the zero grammatical subejct is the lexeme Ø-people, which triggers 3rd person plural agreement (it is a plurale tantum). In (2Ø) the lexeme Ø-elements triggers 3rd person singular neuter agreement (it is a neuter singulare tantum).

Thus the two zero lexemes allow us to easily avoid both of the difficulties. This, in turn, leads to the conclusion that Ø-people and Ø-elements should appear in a dictionary of Russian, provided with semantic definitions and detailed descriptions of their semantic behavior. [14] The latter point is important, since Ø-people and Ø-elements have highly specific signifiés and syntactics, as illustrated below.

First, the Russian '<people>' is more than simply the negation of the signifié '<elements>', and vice versa: the two are not simply logical complements. Neither (26) nor (27)

(26) Ego vsego iscarapali Ø-people
him all scratched up
acc acc 3pl
'he was all scratched up (by someone)'
(27) Ego vsego iscarapalo Ø-elements
neut sing

can refer to animals. For example, neither can be used to describe a situation in which someone is scratched by cats. [15]

Second, Ø-people and Ø-elements have no synonyms in Russian. This means that the corresponding signifiés cannot be adequately and naturally expressed in Russian by any other single means. Curiously, neither Ø-people nor Ø-elements coincides in meaning with French on and il or German man and es. Expressions with on and man are not always translatable into Russian by expressions with Ø-people (see Clas 1970 for English and German translation equivalents to on). The same is true of il and es with respect to Ø-elements.

Third, zero lexemes have limited distribution (possibly due to the nature of their signifiés; much further research remains to be done here). Thus, Ø-people cannot be the subject of a passive: active (28) is correct while passive (29) is not. [16]

(28) Tam rasstreljali geroev-partizan
there shot (3pl) heroes-guerrillas (acc)
'guerrilla heroes were shot there'
(gram. subj. = Ø-people)
(29) * Tam byli rasstreljany
were (3pl) shot 3pl past part.
palačami
by executioners
'there they were shot by executioners'
(gram. subj. = Ø-people)

Ø-people does not combine with certain verbs, such as naxodit'sja 'be situated', snit'sja 'appear in dreams':

(30) * Mne vse vremja snjatsja
me all time appear in dreams (3pl)
'they (unspecified people) appear all
the time in my dreams'

Nonetheless, it combines freely with reflexive and reciprocal verbs:

(31) Tam umyvajutsja
there wash up (3pl)
'(people) are washing up there'
(32) Tam celujutsja
kiss (3pl)
'(people) are kissing there'

Presumably this behavior depends on the signifie, which must contain a component 'action' or 'actor' excluding the use of Ø-people with passive, 'actionless' predicates.

Fourth, Ø-people and Ø-elements are marked for case as well as person, number, and gender. However, they can have only the nominative case, since they appear only in the role of grammatical subject, and in Russian the grammatical subject is normally nominative. (Nouns having only one case are attested elsewhere in Russian. Cf. _ščec_ 'some endearing cabbage soup', _drovec_ 'some endearing firewood', _drožžec_ 'some endearing yeast', which have only the partitive.) In much the same way, French _on_ and German _man_ can only be grammatical subjects.

(33) is synonymous with neither (26) nor (27):

(33) On byl ves' iscarapan
he was all scratched up
masc

Nothing in (33) alludes to who or what scratched him. (33) is, however, the syntactic converse of both (26) and (27). The loss of information about the subject in (33) is obligatory because under passivization the demoted subject must appear in the instrumental - which is impossible with a zero lexeme, since it has no instrumental. [17]

Fifth, both Ø-people and Ø-elements control the gerund just as any ordinary grammatical subject does. It is one of the strictest laws of Russian syntax that a gerund may be used only if it semantic subject (which cannot be overt) coincides semantically and referentially, with the grammatical subject of the governing verb.

(34) Uvidja nas, on vyšel
seeing us he went out
gerund
'seeing us, he went out'

(35) is a famous jocular example of a typically non-Russian, ungrammatical construction with a 'dangling' gerund:

(35) * Pod"ezžaja k stancii, u menja
riding up to station by me
sletela šlajapa
fell off hat
'Riding up to the station, my hat fell off'

Yet with zero subjects gerunds are perfectly acceptable:

(36) Sjuda kazdyj den' privozjat kirpič,
here every day bring (3pl) brick
razgružaja ego u dorogi
unloading it by road
gerund
'Every day they bring bricks here, unloading them by the road'

It is not stated explicitly who brings bricks: it is Ø-people. But those who bring them are the same as those who unload them.

The same is true of (37):

(37) Liš' v avguste 1539 goda, special'no
only in August 1539 year, specially
izmeniv dlja ètogo pravila,
having changed for this rules
gerund
Kardano prinjali v kollegiju vračej
Cardano accepted into collegium of doctors
Milana
of Milan
'Only in August 1539, having specially changed the rules for it, (they) admitted Cardano to the collegium of doctors of Milan'

Likewise, with Ø-elements:

(38) Iz èlektrorevolvera xlopnulo, osvetiv
from electric revolver it cracked lighting
neut sing
vse vokrug zelenym svetom (Bulgakov)
all around with green light
'From the electric revolver (it) cracked, throwing green light on everything around'

Again, we do not know what produced the cracking noise from the revolver, but it was the same mysterious 'it'

that lighted the environment in green.

Sixth, there is a suggestive parallel between word order adjustments caused by a zero lex, and morphophonemic adjustments caused by a zero morph. The zero morph in Russian cannot carry word stress, for obvious reasons. Thus paradigms with fixed ending stress show automatic retraction of stress onto the stem-final syllable when the ending is zero:

(39) durák-Ø 'fool' (durak-Ǿ would be phonetically impossible)
durak-á
durak-ú
durak-á
durak-é
durak-óm

In much the same fashion, the zero lex cannot fill a word order position, and another word will automatically be moved to the slot of the zero lex. Russian has a general rule that if the subject is overt and precedes the verb, then the direct object follows the verb:

(40) Neožidannyj tolčok sbil ego s nog
unexpected push knocked him from feet
S V DO
'an unexpected push knocked him off his feet'

But where no overt subject precedes the verb - where the subject is nonovert or where the subject follows the verb - the direct object is preverbal. (Other orders are possible but marked.) Thus (41), with zero subject:

(41) Neožidannym tolčkom ego sbilo s nog
unexpected push him knocked from feet
instr DO V
id. (= 40)

Thus the zero subject affects the normal position of the direct object, just as the zero ending affected the normal position of stress in (39).

A syntactic zero lexeme meaning 'something indefinite' has been proposed for Polish and Russian by Wierzbicka 1966, on the basis of the socalled impersonal sentences of both languages. Wierzbicka's zero must serve as grammatical subject in sentences of the type Svetaet '(it) dawns', Morozit '(it) freezes'; in sentences like U menja stučit v viskax 'my temples are pounding', lit., 'by me (it) pounds in temples', Skrebet v glotke '(it) scratches in (the) throat'; and, finally, in sentences like Polja pobilo gradom '(it) crushed the fields with hail', Ego

ranilo oskolkom lit. '(it) wounded him with a shell splinter'.

In addition to Ø-people and Ø-elements, there further appears to be a zero lexeme Ø-any, whose sole (zero) lex has the signifie 'anyone', often in the sense of 'everyone'. Ø-any would be a singular pronoun capable of appearing as the direct object (with verbs governing the accusative case):

(42) Podobnye poručenija očen' obremenjajut
such errands very burden
nom pl
'such errands are very burdensome',
lit. '...burden (everyone) very (much)'

(43) V internate zastavljajut spat'
in boarding force to sleep
school 3pl
posle obeda
after dinner
'In boarding school they make (everyone) take a nap after dinner'

(44) Takoe otnošenie očen' raduet
such attitude very makes happy
nom sg neut 3sg
'Such an attitude makes (everyone) happy' [18]

as an oblique object, with verbs governing the dative case:

(45) Izvestno, čto Zemlja vraščaetsja
it is known that earth revolves
vokrug Solnca
around sun
'It is known (to everyone) that the earth revolves around the sun'

(46) Nel'zja tak govorit'
mustn't so talk (inf)
'No one should talk that way',
lit. '(one) mustn't...'

(47) Kurit' vospreščaetsja
smoke (inf) is forbidden (3sg)
'smoking is not allowed',
lit. 'it is forbidden (to all) to smoke'

(Izvestno, nel'zja, and vospreščaetsja govern the dative: mne izvestno, lit. 'to me (it) is known, mne nel'zja 'I shouldn't', lit. 'to me (it's) impossible', mne vospreščaetsja lit. 'to me (it) is forbidden', all with dative mne 'to me'.) Ø-any may also appear as an adnominal, e.g., possessive, modifier. In (48) it is reflexive under

identity to the zero object of tjanet 'burdens':

(48) Svoja (one's) own — noša burden nom sg — ne not — tjanet burdens 3sg
'Your own load isn't a burden',
lit. '(anyone 's) own load does not burden (anyone)'

Ø-any cannot be the grammatical subject or the object of a preposition. In this respect it resembles the reflexive pronoun sebja 'self', which also has only oblique cases and therefore cannot be the grammatical subject.

3. So far I have postulated three zero lexemes for Russian: the pronouns Ø-people (nominative only), Ø-elements (nominative only), and Ø-any (genitive, dative, accusative). In addition, the verb byt' 'be' presents zero wordforms: the present tense zero lexes Ø-be 1, Ø-be 2,... This list of zero words and wordforms is undoubtedly open-ended, and more zero lexemes may prove necessary. Two likely candidates come to mind: Ø-ego in impersonals such as mne xolodno (bol'no, smešno...) 'I'm cold (in pain, amused) = 'my ego experiences cold (pain, humor)'; and Ø-surroundings in impersonals such as zdes' xolodno (grjazno, nakureno,...) 'here it's cold (dirty, smoky) = 'here the surroundings are cold (dirty, smoky)'. Nothing prevents the discovery of additional zeroes. A number of syntactic zeroes have already been proposed by other investigators; to gain a clearer picture of the relevant constructions I will first provide the following classification of linguistic-2 terminology pertaining to zeroes.

The different uses of the word zero which have appeared in linguistic-2 literature are largely based on Bally 1922 and Jakobson 1938, and can be divided into two classes:

(a) 'zero' as applied to linguistic-1 items: zero phoneme, zero sound, zero affix, zero ending, zero sign,..., zero article, zero verb,..., zero predicate, zero grammatical subject, zero grammatical object,...

(b) 'zero' as applied to entities other than linguistic-1 items: zero paradigm, zero contrast, zero word order, zero stylistic characteristics, zero predicative link, zero valence,...

As a rule, the uses of type (b) constitute metaphors. They lack a precise common meaning and are replaceable in any particular instance by a different expression. For example, zero paradigm = unmarked paradigm; zero word order = neutral word order; zero valence = absence of valence; etc. Such terminology should be avoided if the meaning of the word zero is not to become completely obscured (cf. Haas 1957: 43, fn. 1).

We must also introduce some order into the uses of type (a) above by assigning a standard and precise meaning to the word zero. In accordance with sections 1 and 2 above I suggest applying the term zero only to the following disjunction: either to linguistic-1 signs (e.g., morphs, lexes) or to sets of synonymous signs distributed according to simple rules (e.g., morphemes, lexemes). Adopting this proposal entails two consequences.

First, terms such as 'zero sound', 'zero phoneme', 'alternation of phoneme /x/ with zero', 'zero signifié', 'zero meaning', etc. are unsatisfactory since sounds, phonemes, and signifies are neither signs nor sets of signs. In these instances the word zero designates simply 'absence', and thus has a meaning completely different from its meaning in e.g. zero affix. Note that in the morphological representation of a text zero morphs are shown obligatorily (a zero morph is not equal to the absence of a morph), while zero phonemes or phones are never written in phonological or phonetic transcription.

Second, terms such as 'zero predicate', 'zero grammatical subject', 'zero grammatical object', 'zero verb', 'zero noun', 'zero article', 'zero syntactic element', 'zero variant of a word' can be used only to designate zero lexes or lexemes. Thus a zero predicate is a predicate expressed by a zero lex; a zero verb is a zero verbal lexeme; a zero variant of a word is a zero lex of the word, etc.

At the end of section 1 I gave a criterion for evaluating the usefulness of zero signs and corresponding zero '-emes'. That criterion is the investigator's readiness to include the zero sign or zero '-eme' in the same list that contains all similar nonzero signs or '-emes', and to provide the sign or and combinatorial possiblities. Just as a zero affix appears in the inventory of affixes in the language, a zero lexeme, together with its dictionary entry, should appear in the dictionary.

Although this criterion is far from formal, it can obviously be formalized. To do this we need only establish the conditions for defining the willingness or lack thereof of the investigator to include such items in inventories as part of the description of the language. These conditions are probably nothing more than maximal compactness and standardness of inventories; as a rule, linguists try not to enlarge inventories unless it is absolutely necessary. They also seek to avoid duplicating items in such inventories and to avoid grouping unlike items together. The more precise formulation of these conditions is a separate task that I will not deal with here. At present it suffices to strictly correlate the abstract, less intuitively obvious question of the existence of a

zero item to the concrete and much more obvious question of the inclusion of a zero item in the appropriate inventory.

Now we have the apparatus necessary to analyze utterances in the search for syntactic zeroes. I have shown that linguists, when speaking about 'zero X' on the syntactic level, have actually been speaking either of a zero lex or a zero lexeme; and the motivation for postulating a zero lexeme can be verified by the linguist's willingness to include it in the dictionary.

Now let us ask to what extent linguists would be willing to include in dictionaries the 'zero verbs of motion' proposed by Galkina-Fedoruk 1962. She proposes 'zero verbs of motion' as predicates in such sentences as (49). (Here and below, the English words without overt Russian correspondents are capitalized.)

(49) Tat'jana v les, medved' za nej
T. into forest bear after her
'Tat'jana RAN into the forest, the bear FOLLOWED her.' (Pushkin)

However, Širjaev (1967, 1973) has demonstrated that carrying this proposal to its logical conclusion would require postulating 'zero verbs of assault' for sentences that are fully analogous to (49) in structure:

(50) A my ee po tolstym mjasam
and we her acc across fat behind
'She's GONNA GET IT on her fat behind', more lit. 'and we're GONNA GIVE IT TO HER on her fat behind'

as well as 'zero verbs of communication':

(51) Pro svoi deliški on mne ni slova
about his affairs he to me not word
'he didn't SAY a word to me about his affairs'

and 'zero verbs of playing':

(52) My s nej uže vtoruju partiju
we with her already second game (acc)
'she and I are already PLAYING the second game'

Evidently there are few, if any, verbal meanings that could not be expressed by such a 'zero verb'. Even <u>differencirovat'</u> 'differentiate' (in the mathematical sense), for example, is replaceable by a 'zero verb':

(53) A my èto sejčas po t
and we this now by t
'Now we will DIFFERENTIATE this by t.'

It follows that if we understand the expression 'zero verb' (of motion, speech, assault, etc.) as a zero lex or zero lexeme we will have the following alternative. Either we include a zero lex (which does not distinguish person, number, or tense) in practically every verbal lexeme; or we introduce a great number of zero word synonyms for almost every verb lexeme in the Russian lexicon. However, those who speak of 'zero verbs' would hardly agree to this. Thus it is clear that in (49-53) there are no 'zero verbs' which could be analogous to the zero nouns Ø-people, Ø-elements, and Ø-any. The word zero in the phrase zero verb is used by Galkina-Fedoruk and Širjaev in a completely different sense than it carries in such phrases as zero affix, zero lexeme.

For (49-53) we would do better to speak of ellipsis (as proposed by Popova 1963: 55-63). The surface syntactic structures of these sentences need to include a top node (as in (16)) labelled by the symbolic name of a specific lexeme. This lexeme carries an essential part of the sentence's meaning; and it determines the form (preposition or case) of the governed noun. Note that case and prepositional government is an exclusively lexical matter: it is conditioned by a lexeme rather than simply by its meaning. Compare the different government patterns of synonymous verbs in (54-55).

(54) A on nam matematiku
and he to us (dat) mathematics (acc)
'he TEACHES us math'

(55) A on nas matematike
us (acc) mathematics (dat)
'he TEACHES us math'

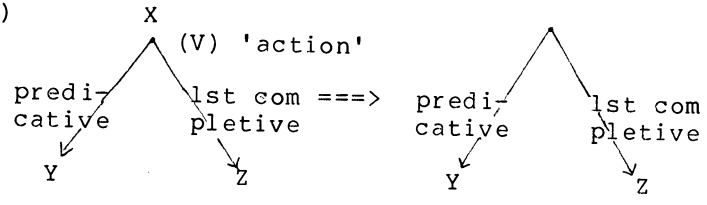
Clearly the surface syntactic structure of (54) must contain prepodavat' 'teach (+Dat +Acc)', while (55) contains učit' or obučat' 'teach (both +Acc +Dat)'. The lexeme in the top node of the surface syntactic structure cannot be zero, as has been established above. And if it is not zero, its government pattern identifies it as a specific lexeme or group of lexemes.

However, on level n-l, i.e., in actual sentences such as (54-55), the top lexeme is not overtly represented. We cannot consider it to be represented by its zero lex: otherwise, as established above, we would have to introduce zero lexes as members of virtually all Russian verbal lex-

emes.

We must therefore accept that in the transition from surface syntactic structure to deep morphological representation the top lexeme is deleted from (54-55). This operation can be described by the following rule.

(56)



Informally stated, in surface syntactic structure the topmost verb, if it denotes an action rather than a state and governs a first complement, may be eliminated; the resulting sentence exhibits a colloquial and expressive character. This rule can apply only to previously morphologized syntactic structures, i.e., the predicate lexeme may be eliminated from surface structure only after the surface markings of the grammatical objects are specified.

Rule (56) is a rule of ellipsis, one of many ellipses possible in Russian. Some details have been omitted from this exposition: the rule is probably not applicable to all verbs designating actions, nor is it always applicable when only a first object is present. For present purposes, however, it suffices simply to characterize ellipsis as a particular type of linguistic rule.

A somewhat different type of ellipsis is observed in imperatives of many languages. In (57-8) the subject is not a zero lex or lexeme, but a deleted second person pronoun.

(57) Stand up!
(58) Behave yourselves!

Sometimes, e.g., under emphasis, the subject can be retained:

(59) You stand up, and you remain seated.
(6Ø) Don't you talk back to your mother!

A very different type of ellipsis appears in (61-3):

(61) Upon arriving, you should go to the passport office. (= upon your arrival)
(62) I met a friend. (= a friend of mine)
(63) She wants to see the film. (= she wants that she should see the film)

In these sentences there are no identifiable zero lexes, distinct from all other English lexes, which convey specific meanings not attributable to other lexes. Nor can we speak of deletion of surface material that has left syntactic traces in the form of agreement, nonsaturated valences, etc. Rather these involve (obligatory and optional) nonappearance in surface syntax of specific deep syntactic actants.

These examples are far from exhausting the logically possible types of ellipsis; but they suffice to clearly show the difference between syntactic, or lexical, zeroes and ellipses.

Zero and ellipsis, then, are clearly distinguishable, and they contrast in language. Zero is a sign or a set of signs - either a particular sign that has an empty string as its signifiant, or a one element set which contains such a sign. Ellipsis is a rule - one which eliminates certain signs in certain contexts (where they are essentially redundant). Generally, zero conveys meaning, i.e., bears information of some kind. Ellipsis normally does not change meaning but is required by grammatical or stylistic considerations.

Both zero and ellipsis belong to langue rather than parole. Evidence that ellipsis belongs to langue, not parole, is the fact that different languages have different rules of ellipsis. For example, ellipsis of the grammatical subject ja 'I' is stylistically obligatory for Russian performative verbs: prošu vas 'please', lit. 'am asking you'; pozdravljaju vas 'congratulations', lit. 'am congratulating you'. This is not possible in English. Therefore it is incorrect to contrast ellipsis and zero as respectively a phenomenon of parole and a unit of langue (see Bally 1922): both belong to langue. (For zero vs. ellipsis see also Skovorodnikov 1973: 118-9).

While zeroes go into the dictionary, ellipsis is instead included in the grammar among the other syntactic rules (a similar argument for including rules of ellipsis in the grammar is found in Shopen 1972). Syntactic zero and ellipsis as described here do not cover the entire range of phenomena traditionally connected with syntactic incompleteness.

4. I will now answer the questions of Xolodovic mentioned at the beginning of this paper, i.e., I will explain how my analysis can be applied to the problem of grammatical voice in the world's languages.

Question 1. From the viewpoint of voice, (1) contains nothing special:

(1) Ivana priglasili k trem časam
I.(acc) invited(3pl) for three o'clock
'Ivan was invited for three o'clock'

(1) is an ordinary active construction with Ø-people as its grammatical subject. Syntactically, (1) is in no way distinguished from Russian constructions with nonzero grammatical subjects.

Sentences such as (2) are not as straightforward, however.

(2) Ivana oprokinulo
I.(acc) knocked over(neut sg)
'Ivan got knocked over'

If, as proposed here, (2) contains the zero grammatical subject Ø-elements, then we can assign such sentences to the active voice. This is the solution I favor, although the following difficulty must be pointed out: if (2) is active it will be necessary to consider the following (a) and (b) pairs nonsynonymous:

(64a) Polja pobilo gradom
fields(acc) crushed(neut sg) by hail
'the crops were destroyed by hail'
b) Grad pobil polja
hail(masc nom) crushed(masc sg) fields(acc)
'hail destroyed the fields'
(65a) Glaza rezalo na svetu
eyes(acc) irritated(neut sg) in light
'(my) eyes were bothered by the light'
b) Svet rezal glaza
light(masc nom) irritated(masc sg) eyes(acc)
'the light bothered (my) eyes'
(66a) Sil'nym udarom ego
by strong(instr) blow(instr) him(acc)
sbilo s nog
knocked off(neut sg) from feet
'he got knocked off his feet by a strong blow'
b) Sil'nyj udar sbil
strong blow(masc nom) knocked(masc sg)
ego s nog
him(acc) from feet
'a strong blow knocked him from his feet'

The (a) sentences must be understood as '<elements>

crushed the fields with hail', etc., and the (b) sentences as 'hail crushed the fields', etc. In other words, the relationship between the (a) and (b) sentences in (64-66) is the same as that between (67a) and (67b):

(67a) Karandaš provel tonkuju
pencil(masc nom) drew(masc sg) thin(acc)
liniju
line(acc)
'the pencil drew a fine line'

b) Ivan provel karandašom tonkuju
I.(nom) pencil(instr)
liniju
'Ivan drew a fine line with the pencil'

where (67b) has an additional overt actant corrresponding to '<elements>' of (64-66b).

I am prepared to accept the interpretation of the pairs as nonsynonymous. (64a-b) would appear to be a counterexample, since they are perceived by native speakers as semantically identical. However, since hail is an 'element' itself, both of these (nonsynonymous) sentences have one and the same real world referent and therefore seem to have identical signifiés. That (66a-b) are not synonymous is more readily apparent: (66a) indicates that what struck him was something unclear or incomprehensible, while there is no such meaning in (66b). This difference underlies the unacceptability of (68) vs. the acceptability of (69):

(68) Soldaty brosilis' na Ivana, i srazu že
soldiers rushed at I. and immediately
*sil'nym udarom ego sbilo
strong blow(instr) him(acc) knocked(neut sg)
s nog
from feet
'the soldiers rushed at Ivan and immediately he got knocked off his feet by a strong blow'

(69) Soldaty brosilis' na Ivana, i srazu že
sil'nyj udar sbil ego s nog
(masc nom) (masc sg)
'the soldiers rushed at Ivan and immediately a strong blow knocked him off his feet'

Likewise, the nonsynonymity of the second clauses is evident in (70-71):

(70) Ivan otkryl kran, i *vodoj
I.(nom) opened faucet and by water(instr)
srazu že zalilo plastinu
immediately flooded photographic plate
(neut sg) (acc)
'Ivan turned on the faucet and the plate was immediately flooded with water'

(71) Ivan otkryl kran, i voda srazu že
(fem nom)
zalila plastinu
(fem sg)
'Ivan turned on the faucet and water immediately flooded the plate'

The alternative to this solution is to consider the (a) and (b) pairs synonymous. This would entail positing for Russian, and assigning to (2) and (64-66a) a special voice category, 'impersonal' or 'subjective impersonal'. Then the forms oprokinulo in (2), pobilo in (64a), and rezalo in (65a) would cease to be personal forms requiring agreement. The dummy subject would no longer be needed to provide for their morphological shape, since they would simply be impersonal voice forms that lack personal conjugation (much like the Estonian impersonal voice of (77-78) below). There are at least two unpleasant consequences to this alternative solution. First, all third person singular neuter verb forms in Russian would become ambiguous, between '3sg, neut, indicative' and 'impersonal'. Second, there would no way to explain the ungrammaticality of (68) and (70).

Question 2. (1-4) are not subjectless sentences: each contains a grammatical subject in the form of a zero lexeme which figures in their surface syntactic structures but does not materialize in the transition to the actual sentence. Moreover, for Russian and all other languages where the main verb obligatorily agrees with the grammatical subject (Spanish, English, etc.) there can be no subjectless finite sentences at all. Elliptical sentences are of course possible. If, however, a sentence contains a finite verb, the verb must agree with something, and this can only be the grammatical subject, including one expressed by a zero lexeme. The following Russian sentences are bipartite, i.e., they consist of (zero) subject + VP:

(72) Cypljat po oseni sčitajut
chicks(acc) in fall count(3pl)
'chicks are counted in the fall'
(a proverb, roughly 'don't pass judgment prematurely')

(73) Morozit
freeze(3sg)
'it is freezing'

much as Russian lexes such as ruk 'of hands' (gen pl), nos 'nose' (nom sg) are bimorphemic. In light of this, (73) is not subjectless; it is, however, impersonal, since its grammatical subject can only be Ø-elements. [19]

Similarly, (3) is not subjectless, since it is also bipartite:

(Ukrainian)
(3) Bulo organizovano ekspedyciju
was(neut sg) organized(neut sg) expedition(acc)
'an expedition was organized'

It has a zero grammatical subject (neuter zero pronoun) plus a predicate (neuter singular, in agreement with the subject) with its direct object. From the viewpoint of voice, (3) is active. More specifically, it has subjective impersonal voice (see Mel'čuk & Xolodovič 1970: 118), where the meaning of the human agent is imparted by the verbal form in -to/-no (cf. zavezeno '(they) have brought'). The Spanish example (4) is also a subjective impersonal, rather than a passive, construction.

Note that constructions such as (3) and (4) contain an unusual kind of zero grammatical subject. It is a semantically empty zero lexeme, i.e., a zero lexeme with an empty semantic graph for a signifié. Empty lexemes are attested in many languages: strongly governed prepositions and conjunctions, various filler words (e.g. the Persian izafet), and 'dummy' ('grammatical', 'expletive') subject pronouns. Examples of the latter are Eng. it, Fr. il, Ger. es as in:

(74) It is evident that the parser shouldn't...
(75) Il s'agit ici de trois difficultés suivantes
lit. 'it is dealt here with three following difficulties'
(76) Es ist hier viel Ski gefahren
'people ski here alot', lit.
'it is skied here very much'

It in (74) has the signifiant /it/ and a very complex syn-

tactics, but its signifié is an empty set of semes:

it = </it/; ' Λ '; ξ = anticipatory pronoun in such constructions as...>

The same holds of Fr. il and Ger. es in (75-76). The Ukrainian dummy grammatical subject in (3) is likewise empty; but unlike it, il, es it is also materially zero. The only component spared this mutilated pronoun is its syntactics: it is singular neuter as shown by the verb agreement, it can be used only in a strictly limited type of construction, etc.

The mere presence of syntactics as manifested in agreement is sufficient basis for postulating a zero lex and corresponding lexeme. Such signs, simulataneously empty and zero, represent a degenerate case and are rarely encountered. [2Ø]

It should be emphasized that no zero lex subject may be postulated where the verbal form does not exhibit agreement. Thus in Estonian forms in -takse (subjective impersonal voice) are not inflected for person or number at all:

(77) Kuulatakse muusikat
is listened to music(acc)
'music is listened to'

(78) Haalikut [o] haaldatakse nii
sound(acc) is pronounced so
'the sound [o] is pronounced like this'

No zero lex can be posited here.

Question 3. A zero agentive complement with indefinite personal meaning is not postulated for sentences such as (5)

(5) Ivan byl priglašen k trem časam
I. was invited for three o'clock
(nom) (masc sg) (masc sg)
'Ivan was invited for three o'clock'

because the meaning '<people>' is not expressed in such constructions (see the discussion of (33)). Likewise, in (33) and (79) there is no reference whatsoever to who or what scratched him or knocked him over - it could be people, the elements or animals.

(33) On byl ves' iscarapan
he was(masc sg) all scratched up(masc sg)
'he was all scratched up'

(79) On byl oprokinut
knocked over(masc sg)
'he was knocked over'

(79) is not synonymous to either (8Ø) or (81):

(8Ø) Ego oprokinuli
him(acc) knocked over(3pl)
'he was knocked over (by people)'
(81) Ego oprokinulo
(neut sg)
'he got knocked over (by the elements)'

In addition to the lack of semantic basis, there is also no natural syntactic basis to justify a 'zero agent' in such constructions as (5), (33), and (79): the presence of such an agent would never be manifested in surface phenomena such as agreement. It is true that the agent is perfectly recoverable in (5), and that it is identifiable as 'people', i.e., (5) is synonymous with (1):

(1) Ivana priglasili k trem časam
I.(acc) invited(3pl) for three o'clock
'(they) invited Ivan for three o'clock'

However, this synonymity depends on the particular meaning of the verb priglašat' 'invite' and on our knowledge of the real world. Insofar as only people (including people in a broad sense - collectives, institutions, organizations, etc.) can be engaged in the activity of inviting, the meaning 'people' (as agent) in (5) emerges from the verb priglašat'. This accounts for the synonymity of (1) and (5). As we have seen, verbs that do not describe specifically human actions lack such synonymity (see (65) and (66) above).

(Translated from Russian by Mark Green, Cornell University)

FOOTNOTES

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critic; L.N. Iordanskaja, who went through the final version pinpointing inconsistencies and obscure statements; and Johanna Nichols, who edited it. Needless to say, I am alone responsible for surviving drawbacks and blunders.

1 Aleksandr Aleksandrovic Xolodovič, one of the leading Russian theoretical linguists and a brilliant Japanologist and Koreanologist (his partial bibliography is found in Narody Azii i Afriki, 1966: 3. 215-17; 1976: 6. 229) died of heart failure in 1977. For more than twenty years he had been my linguistic guru and, more important, a friend. May the present paper be a modest contribution to preserving his memory.

2 The English adjective linguistic is ambiguous between 'pertaining to language(s)' (Ger. sprachlich) and 'pertaining to linguistics' (Ger. sprachwissenschaftlich). Since in this paper the distinction is crucial, I will use the following: linguistic-1 denotes the first sense, linguistic-2 the second.

3, Elementary X = X which cannot be represented in terms of other X's.

4 Thus, in my use of the term a morpheme (or a lexeme - see below) is not a sign but a set of signs.

5 For insightful remarks about zero suffix morphs in English see Smirnickij 1959: 20-3. As regards the much discussed zero morpheme of singular in English nouns, I think it is a zero morph but not a zero morpheme, since beside zero (as in house-Ø, bird-Ø, leg-Ø) we also find some nonzero morphs (phenomen-on, alumn-us, formul-a). Although the latter are few in number and found only in Latin borrowings (most in carefully written texts), I feel their presence justifies postulating a nonzero morpheme for English: {SG} = -Ø-sg, -on, -us, -a,....

6 Zaliznjak (1967: 19) uses word segment for 'signifiant of a wordform'.

7 In section 4 we will see that in principle neither justification - justification from below alone, or justification on the same level alone - is sufficient grounds for postulating a zero sign. In fact, empty zero signs with only the syntactics nonempty are possible. Conditions on postulating zero forms are discussed at lenghth and clearly in Haas 1957.

8 See in this connection the wellknown paper by Benveniste 1964.

9 Generalizing Zaliznjak's concept (fn. 6), we might say sentence segment.

10 A lex is a (grammatical) form of a lexeme; it can be either a wordform or a phrase representing an analytical form of the lexeme in question. some lexes of the English lexeme SEE: see, sees, will see, was seen,....

11 na-1 is the preposition na 'onto' governing the accusative case, as opposed to na-2 'on', which governs the prepositional case.

12 For English, something may be a more felicitous rendition of the second zero than elements, the literal translation of Russ. stixii. This is also what Wierzbicka suggests (1966: 188,191,193).

13 I cannot justify such a surface syntactic structure here. I will only point out that insofar as the linguist's surface syntax has as its goal an explicit and homogeneous description of the syntactic makeup of actual sentences, then purely syntactic devices such as syntactically conditioned prosody, word order, and syntax oriented morphology (agreement, government) should not be depicted in surface syntactic structure, tels quels, as a motley, confusing, and ambiguous set. They should be represented more abstractly and formally by means of surface syntactic relations, designed by the analyst in much the same way transcriptions are designed to represent actual sound. Thus the syntactic devices in and of themselves are not preserved in the surface syntax of the actual sentence. For more on surface syntactic relations, syntactic trees, etc. see Mel'čuk 1979.

14 This conclusion fully coincides with the opinion of Panov (1960: 11): 'the grammatical subject can be zero, there being in Russian several homonymous zero grammatical subjects, as in svetaet '(it) dawns', cypljat po oseni sčitajut '(they) count chicks in the fall', etc. Cf. corresponding nonzero subjects in other languages, e.g., Ger. es, man.

15 Some complexities, however, remain, for further investigation. Consider such normal sentences as the following:

(i) Nado že, vse sklevali
it's incredible everything pecked up(3pl)
'I can't believe everything got pecked up',
lit. '...(they) pecked everything up'

(ii) Bednen'kij, kak tebja pokusali!
poor thing how you(acc) bit(3pl)
'Poor thing, you got all bitten up!',
lit. '(they) bit you all up'

In these sentences the zero grammatical subject would designate birds and insects, respectively. Compare the following unacceptable sentences:

(iii) *Takoj silos ne edjat
such sileage(acc) not eat(3pl)
'such sileage (they) don't eat'
(where (they) = cows)

(iv) *U nas pasutsja na bol'šom lugu
at us graze(3pl) in big pasture
'we have (them) grazing in the big pasture',
'(they)'re grazing...'

Nonovert subjects can be understood to refer to birds or insects, but not cattle. It is not unlikely that there is ellipsis of the grammatical subject, rather than a zero lexeme, in (i) and (ii).

16 Sentence (29) may be correct if read as elliptical, i.e., the result of deleting the grammatical subject oni 'they' by coordinate reduction:

(i) Tam i byli sxvačeny geroi-partizany.
there were captured heroes-guerrillas
(nom pl)
Tam byli rasstreljany palačami.
'It was there that the guerrilla heroes were captured. There they were shot by executioners'

17 For interesting data about the semantics and syntax of Ø-people see Nakhimovsky 1978, esp. Ch. 3 ('Syntactic zeroes'). His claims may be roughly summarized as the two relevant properties of this zero lexeme.

First, Ø-people is semantically much like the Russian indefinite pronouns kto-nibud', kto-to 'someone', etc. For instance, Ø-people forces the epistemic reading on what would elsewhere be ambiguous sentences with moč''can, may', just as indefinite pronouns do.

(i) On možet priglasit' Dimu k obedu
he can/may invite D. for dinner

(i) means either 'he is physically able/allowed to invite Dima to dinner' or 'it is possible (it may happen) that he will invite Dima to dinner'. With Ø-people or kto-nibud' in an independent clause only the epistemic reading is possible:

(ii) Kto-nibud' možet priglasit' Dimu k obedu
someone

(iii) Dimu mogut priglasit' k obedu
can/may(3pl)

Both (ii) and (iii) can be understood only as 'it is possible that someone will invite Dima to dinner', or (for (iii)) 'Dima just may get invited to dinner'. In this respect Russ. Ø-people seems to be in sharp contrast with Fr. on, Ger. man.

Second, Ø-people may refer not only to many people but also to a single person, including the speaker or the hearer:

(iv) Utrom že tebe žrat' davali...
in morning you(dat) to eat gave(3pl)
Ili net, èto ja tebe včera daval
or it(s) I yesterday gave
'You were fed in the morning, weren't you... Actually you weren't - it was yesterday that I fed you' (man speaking to his cat; quoted from Nakhimovsky 1978: 109)

However, reference to the speaker is excluded in contexts like the following:

(v) Ja obeščaju, čto Dimu priglasjat
I promise that D. will invite(3pl)
k obedu
for dinner
'I promise that Dima will be invited to dinner'

(v) can only mean that someone other than the speaker with invite Dima. The same is probably true of Fr. on and Ger. man.

A fairly exhaustive review of the various uses of the Russian indefinite personal construction is offered by Gasparov (1971). Many interesting examples and penetrating remarks on the meaning and contrastive use of Fr. on, Ger. man, and Eng. one, anybody, people and the passive construction are found in Clas 1970.

18 This allows us to consider the direct objects of the transitive verbs of (42-44) as strictly obligatory. The nonovert status of the direct object conveys specific information and is thus treated as a zero lex of the zero lexeme Ø-any. This is not true of verbs such as čitat' 'read', verit' 'believe', pet' 'sing', and others: for these the direct object is syntactically facultative, and its absence conveys no specific information. In the following sentence nothing is said about what he is reading:

(i) On sidel i čital
he sat and read
'he sat and read'

(Cf. also in this connection Lehrer 1970).

19 Interestingly enough, all the claims made in this paragraph were stated in completely explicit form as early as 1935 by Jakobson (1935 (1971): 21): 'The Russian norm does not know personal sentences without grammatical subject. The so-called impersonal sentences exhibit a zero subject. Russian has lost all types of unipartite narrative sentences.' Jakobson even offers a diachronic explanation, relating the appearance of the zero lexeme subject in Russian to the disappearance of inflected enclitics in all the northeastern Slavic languages. Cf. also the insightful remark of Hetzron (1969: 141): 'In Italian piov-e 'it rains' the grammatical subject is zero rather than simple absence, since its presence is signalled indirectly by the suffix of the verb [3sg - IAM]'.

20 Another example of an empty zero lex is reported by Hetzron (1969: 152-3): his zero object in some Hungarian idiomatic constructions:

(i) X megjár-ja Y-kel 'X has trouble with Y'
(ii) X beér-i Y-kel 'X satisfies himself with Y'
(iii) X megér-i Y-nek 'X is worth doing for Y'

Here all the verbs are in the socalled objective conjugation, shown by the hyphenated 3sg object suffix. The Hungarian objective conjugation ordinarily indicates agreement in number and person with a definite direct object, but in these constructions no direct object is overtly present. The verb agreement leads Hetzron to postulate a zero direct object - a dummy definite noun that is semantically void. It does not contribute any specific meaning to the above expressions, yet its presence is crucial for their idiomatic meaning: megjár means 'pass by', while megjár + Ø direct object means 'have trouble'; beér means 'catch up with', while beér + Ø direct object means 'satisfy oneself with'; megér means 'cost', while megér + Ø direct object means 'be worth doing'.

Constructions with a zero empty subject, similar to (3), are typical of north Russian dialects:

(i) Molodu ženščinu sxvačeno medvedicej
young woman taken by she-bear
(acc) (pass part neut)
'A young woman has been carried off by a she-bear'

(ii) Babuška -to gde poxoroneno?
Grandma ptc where buried
(acc) (pass part neut)
'where is Grandma buried?'

(iii) Otpravleno bylo syna
sent off was son
(pass part neut) (neut) (acc)
'(my) son was sent away'

(quoted from Babby & Brecht 1975: 347). For all these sentences a zero empty subject (functionally equivalent to Eng. expletive it) may be posited to account for the neuter gender of the predicate. For more such examples see Kuz'mina & Nemčenko (1971: 27-106). This is not the only possible analysis. Another approach is suggested by Timberlake (1976): in the following sentences the prepositional phrase u + noun is taken as subject:

(iv) U menja bylo telenka zarezano
at me was calf slaughtered
(neut) (acc) (neut)
'I have slaughtered a calf'

(v) Vodu u ej naneseno
water(acc) at her brought(neut)
'she has brought water'

The agreement rule is as follows: if the grammatical subject is the phrase u + noun, then the main verb is in the neuter gender. But too many things remain unclear to pass definitive judgment.

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The meeting of East and West: confrontation and convergence in contemporary linguistics *

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1. Sometimes the history and current state of a discipline can be better clarified by schematizing than by close documentation of trends and individual stances. This paper reduces the variety of theoretical orientations in twentieth-century linguistics to two polar opposites. In spite of radical differences, recent years give evidence of coincidence in issues of major concern and, more striking, spontaneous convergence in theoretical claims.

To recent historiography of linguistics, the question of first interest would be whether the two schools are paradigms in the sense of Kuhn 1962. I will argue that they are not, although they may well be exemplars in the sense of Kuhn 1970. The more interesting issue, however, is the ongoing convergence. The similarities have greater implications for the history of linguistics than the differences do. The patterning of similarities can provide evidence bearing on the motive forces and evolutive tendencies of modern linguistics. The frankly speculative final section of this paper explores two such tendencies.

2. The two opposed schools are the mainstream trends known as generative and structuralist. My use of these terms will depart in two respects from standard usage. First, I will extend them beyond their usual referents, to identify trends, individuals, and traits to which the terms would not ordinarily be applied. Second, they are used below to refer to prototypical representatives which are nowhere attested. The prototypical representatives will be sketched out on the basis of selected examples, but the illustration will be necessarily schematic. 1) The thesis of this paper is that certain recent developments can be explained as convergence between the generative and structuralist schools, which in their prototypical forms are polar opposites. Since the relevant trends are identifiable only in retrospect, several of the issues taken up here may appear somewhat dated.

The generative school is represented by the development from Chomsky to post-Chomskyan generative semantics to relational grammar and beyond. This list subsumes $\bar{X}$ syntax, interpretive semantics, and formal variation theory in sociolinguistics (e.g. the works of Labov). Of the various incipient and non-mainstream trends this paper investigates only role and reference grammar (Foley & Van Valin MS, Van Valin & Foley 1979).

The Russian grammatical tradition provides the most suitable example of a structuralist school, since it is the only structuralist tradition to have given rise to a fully explicit formal system which in its scope and content bears comparison with the generative school. In this paper, then, the structuralist school is represented by the development from traditional Russian grammar, on the

one hand, and European interwar structuralism, on the other, to what may be called Soviet 'establishment' grammar, represented in the Academy grammars of 1960 and 1970, to meaning-text grammar (Mel'čuk 1974). 2)

While there has been only one generative tradition, structuralism is obviously not limited to the Russian tradition. Saussure, American descriptivism, the Prague school, the London school, tagmemics, glossematics, Jakobson, and Kuryłowicz, among others, are structuralist.

The generative and structuralist schools as presented below both lie wholly within formal grammar. Most work on language in context falls under neither rubric. I assume the opposition of formal grammar to language in context is a higher-order one, and the generative-structuralist opposition applies only to formal grammar.

The defining property of structuralism is what Lyons (1968:50) calls the structural approach: '...each language is regarded as a system of relations (more precisely, a set of interrelated systems), the elements of which...have no validity independently of the relations of equivalence and contrast which hold between them' (emphasis in original). A major goal of structuralist research is to determine whether phenomena are elements in the same system, and if so whether they contrast. In its extreme development, therefore, structuralism is taxonomic. In all of its forms it sees grammar as an inventory of elements.

The defining property of generativism is its use of derivations. Where structuralism is occupied with classifying linguistic phenomena, generativism is concerned with characterizing the notion 'sentence' (or 'utterance' or whatever). Formal characterization of utterances lends itself naturally to generation in the mathematical sense: grammatical description is replaced by rule-based specification of an infinite set of sentences, i.e. of a corpus.

These opposed orientations stand out in the phonological literature of the 1960's. Structuralist phonology was concerned with determining whether segments belonged to phonetic, phonemic, or morphophonemic systems; and with determining the membership of each system by demonstrating contrast or non-contrast between segments at a given level. Generative phonology was concerned with formalizing rules which predicted the surface forms of morphemes, words, and phrases. In retrospect, the polemics of the early generative literature (Halle 1959, Chomsky & Halle 1968, Postal 1968) reflect cross purposes between the two approaches rather than competing solutions to a single problem. To the structuralist, it is of crucial importance that discrete systems (phonetic, phonemic, morphophonemic) be so defined, and that elements be compared only within systems; otherwise the central analytic concepts of contrast and equivalence will be defined on categorically disparate elements. To the generativist, these operations are simply not part of grammar or of linguistic analysis, and therefore cannot be assumed as a priori conditions on analyses.

3. This section enumerates several respects in which the two schools differ conspicuously. Some are corollaries of the defining

principles cited in §2; some are frequent, but not necessary, consequences of those principles; and some reflect historical accident.

Wherever Russian and American linguists have discussed the same phenomena we have minimal pairs — analyses which differ only in the generative vs. structuralist orientation. The examples below include several such minimal pairs.

3.1. Corollary: Technical abstractions. In a generative system, abstractions are typically trans-derivational: they span the history of a single derivation, from deep to surface. An indication of the extent to which abstractions are assumed to be trans-derivational is the fact that the term global, ordinarily 'comprehensive', etc., in generative writings means only 'trans-derivational' (e.g. Lakoff 1970).

Obvious examples are the various trans-derivational and global definitions of syntactic phenomena. In fact, virtually every element of generative syntax can be said to be defined by its derivational history. For instance, the relations of subject and object are not defined on surface structures alone; they are the result of subject-selecting and object-creating rules, promotion, etc. (Before Fillmore 1968, however, they were defined configurationally, at a single level: Chomsky 1965:71.) Babby (1974) describes the morphological parts of speech of Russian as the product of derivational history. Throughout the generative tradition passivization is a process, and the passive construction is the result of application of this process. In Chomskyan and early post-Chomskyan syntax the basic syntactic units (NP, V, S, etc.) were gradually refined only in terms of the rules they underwent or triggered in the course of a derivation; and it was precisely on the evidence of rules undergone or triggered that, e.g., auxiliaries could be asserted to be main verbs (Ross 1969a), adjectives classed as NP's (Ross 1969b), or nouns claimed to be underlying predicates (Bach 1968). Relational grammar culminates this trend by extending trans-derivational perspective to syntactic transcription: a single tree diagram, with its numbered strata and arcs, records derivational history at a glance. 3)

In contrast to these examples, the abstractions of a structuralist grammar are all what may be called cross-derivational: they span, not derivational history, but a number of discrete sentences. (They are paradigmatic in the Saussurean sense, and in this respect Pettit's term paradigmatic for the structuralist school is most felicitous.) Typically, a structuralist definition is a generalization over a class. For instance, in the Russian grammatical tradition voice is never analyzed as the result of a process of passivization; it is a grammatical category defined notionally, by generalizing over its members. (Voice is usually defined as a category involving the relation of the verb to its subject and/or object. The history of the question is reviewed in Korolev 1969, Isačenko 1960:345ff. Typically, the substance of that relation is said to be that the passive construction portrays the subject as receiving, or undergoing, the characteristic denoted by the verb.) Russian

grammar defines parts of speech in the same cross-derivational manner; contrast Babby 1974, mentioned above, where they are defined trans-derivationally. An extreme example of cross-derivational abstractions is the syntax of the 1970 Academy grammar and the papers by Švedova (1967, 1969) on which it is based. The theoretical framework consists entirely of degrees of abstraction. It is a classification of sentence types, viewed as morphosyntactic structures, into more and more general groupings. The most general is the structural scheme, an abstract template capturing a basic sentence type. Structural schemes subsume a number of regular realizations, less abstract classes of sentences. Problems as diverse as valence and mood categories are captured in the system of sentence types.

Another minimal opposition is the treatment of Russian reflexive verbs in the two traditions. The Russian grammarians take the distinctive morphological class of reflexives as given, and generalize over its content. Most view reflexives as a set of subtypes (Korolev 1968, Isačenko 1960:376ff., 1970 Academy grammar:353ff.). Occasionally a single invariant characterization is applied to all reflexive verbs, usually when reflexive has been identified with voice (Fortunatov 1899; also, outside of mainstream Russian grammar, Jakobson 1957). American linguists see reflexivization as a process: the verb becomes reflexive when its object is made subject (Channon 1968) or is otherwise moved or deleted (Babby 1975a); or when its agent is not made surface subject or is not selected in deep structure (Babby & Brecht 1975).

The literature on reflexives reveals another property of descriptions in the two schools. Since the Russian grammarians' approach is cross-derivational, they can take the class of reflexives as given and need not predict further reflexives. They need not ask why some non-reflexive verb is not reflexive, or vice versa. Their generalizations over the class of reflexives are characterizations rather than tight definitions which would generate all and only reflexives. The American linguists must ensure that their statements generate only reflexives. But since their approach is trans-derivational they typically consider a fairly narrow range of data. Each of the American studies mentioned handles only a subset of the classes of reflexives considered in the Russian grammars. Ordinarily this difference would be considered one of analytic vs. synthetic grammar. This paragraph is intended to show that it can also be ascribed to the respectively cross-derivational and trans-derivational abstractions.

3.2. Corollary: Non-unique status. Generative description requires any given element of grammar to be simultaneously more than one thing. Both the deep and the surface status, as well as intermediate statuses, are true of that element. A surface subject, for instance, is also a deep object and a semantic patient, or a deep subject and a semantic experiencer, and so on.

A prototypically structuralist approach cannot permit simultaneous non-unique status. Since structuralism relies on the notions of contrast and class membership, it is in principle limited to consideration of one level of description at a time, if it is not to

compare categorically unlike phenomena. If a structuralist theory does recognize both deep and surface grammar, it is forced to see them as autonomous levels of description, as meaning-text grammar does (and stratificational grammar before it: Lamb 1962).

3.3. Corollary: Theoretical standing. In a generative system, an element has theoretical standing if and only if it enters into the formal statement of some rule, or can be shown to be crucially affected by some rule. In a structuralist system, an element has theoretical standing if and only if it can be shown to be in contrast with some other element of the same system.

3.4. Grammar and metagrammar. What is grammar to the structuralist is metagrammar to the generativist; and vice versa. By grammar is meant basic, first-order description: a model, or partial model, of language (or whatever is being modeled). Metagrammar is observation on the grammar.

At least in the Russian tradition, the object of structuralist analysis is language — sentence structure, morphological categories, etc. In contrast, the object of generative analysis is not language but what to the structuralist is the grammar itself — the rules, their formal statement, the elements that enter into them. To the structuralist, statements about the form and content of rules are second-order observations that could be drawn from a survey of grammatical descriptions. To the generativist, statements of class membership and contrast are secondary observations that could be derived by scanning rules and derivations. (In practice, the classic generativist feels either that the classic structuralist analysis is not derivable in its accepted form from his rules; or that to make it so derivable would complicate his grammar. This is the thrust of Halle's argument, 1959:19-24, and this stance becomes standard in subsequent works.)

Discussions of verbal valence in the two traditions form an extended minimal pair. Generative linguists are most concerned with describing the rules, the semantic relations, and the surface-syntactic relations involved in valence. The primary goal of analysis is to formalize rules of promotion, demotion, passivization, case assignment, and the like. To meaning-text grammar these are secondary issues. The primary object of research is to account for all the valence patterns of any (and ideally each) verb of the language.

Consequently, meaning-text grammar has produced a dictionary (Apresjan et al. MS) which describes exhaustively the various valence patterns of Russian predicates. American linguistics has produced nothing comparable. On the other hand, American linguistics has produced a wealth of discussion on voice, subjects, object creation, case marking, and the like. While meaning-text grammar can discuss these topics (cf. e.g. Mel'čuk & Xolodovič 1970, Mel'čuk 1979b), it does so only secondarily. The meaning-text literature includes a number of publications (e.g. Apresjan et al. 1970a, 1972, 1973; Birjulin & Iordanskaja 1975) which are simply statements of lexical entries. Such publications are rare in the generative literature (Fillmore 1971a is an example — and by other criteria given below it is a structuralist work). Lexical entries are given in

e.g. Chomsky 1965:107, 164ff.; Fillmore 1968:passim, 1971b; but they are only illustrations of syntactic or semantic principles being argued. In most of the literature on valence, no lexical entries are given.

To the generative grammarian a complete statement of the patterns of any given verb would be an observation derivable from formal rules plus semantic input, hence metagrammar. To the meaning-text grammarian, generalizations about the patterns of verbs, and/or their prediction by rule, would be secondary observations derivable from scanning lexical entries. The literature of each school includes some metagrammatical investigations, but these follow substantial grammatical research.

Another minimal pair is the analyses of comparative constructions given by Bresnan (1977 and references therein) and Mel'čuk (1979c). Both examine constructions of the type more...than, as... as. Bresnan asks what formal elements appear in rules, and captures generalizations about syntactic categories. Mel'čuk asks whether comparative constructions represent one surface-syntactic relation or several, and presents principles for determining contrast and non-contrast in surface relations.

Another example is Babby's use (1978) of lexical functions. Lexical functions, a contribution of meaning-text grammar (see Apresjan et al. 1970b), represent a form of componential analysis of lexemes and phrases. They include recurrent semantic parameters and recurrent conversion types. To meaning-text grammar, lexical functions are an object of analysis. A major goal of Apresjan et al. MS is to describe the valence patterns of Russian predicates as lexical functions. To Babby, lexical functions are not a goal of analysis but a means to an end. They are the crucial element in the solution of a problem: they predict the application of a particular syntactic rule of Russian.

Even abstract pronouncements about the goal of linguistics reflect grammar and metagrammar. To the Russian tradition, the purpose of linguistics is to formalize our intuitions about language, i.e. to formalize the speaker's knowledge of the correspondence of meaning to text (Apresjan 1973:9-10, 25; Mel'čuk 1974:15). A variant statement is: Truth is what's in the head of a good linguist (Mel'čuk 1976). Such statements claim that the task of linguistics is to describe language (whose structures are intuitively accessible). The generative tradition, in contrast, has produced Chomsky's claim (1965:15-16) that the goal of linguistics is to account for the speaker's ability to produce and interpret an infinite corpus of new sentences, or the more recent claim (Perlmutter & Postal 1977:404, Morgan 1977) that the goal is to establish how languages are alike and how they differ. Both claims in effect assert that the goal of linguistics is to explain or otherwise generalize on the descriptions of particular languages.

3.5. Formal vs. substantive. The importance of contrast in determining theoretical standing in structuralist systems leads to the extreme, formalist view in which substantive properties are denied theoretical standing and only contrast is recognized (Saussure, Hjelmslev). As mentioned in fn. 1, structuralist systems need not

be entirely formalist. The Russian tradition recognizes positive properties, although it gives them less emphasis than it gives to contrast. The generative school takes the opposed, substantive stance: positive properties are all-important, and the issue of contrast is almost never raised.

An example is the history of semantic roles in the two traditions. In American linguistics, the precise number of such roles is debated to this day. The grounds for positing a new role, splitting or lumping old ones, are intuition about semantics, simplification of grammars, and cross-linguistic morphological treatment (Fillmore 1968, 1977; Stockwell et al. 1973:8ff.; Foley & Van Valin MS). In meaning-text grammar the inventory of semantic roles has been fairly constant from the beginning, largely because contrast was used as a criterion for deciding independent status. Positive semantic content is not a primary criterion for classification, and is given less importance in description. Thus separate roles of agent and experiencer are not posited, since these two do not contrast; there is only a single role of (semantic) subject. (For semantic roles in meaning-text grammar see Apresjan 1974:119ff.)

It is interesting that the American tradition has recognized a criterion for determining contrast and non-contrast from the first study of semantic roles (Fillmore 1968:22: only non-contrasting roles can be coordinated, and only contrasting roles may cooccur uncoordinated in a single clause). Yet this criterion is not ordinarily invoked in settling difficult cases.

Another example is the development of the basic syntactic concepts NP, V, S in the generative literature of the 1960's. The inventory of basic elements was established not by contrast but by intuition and consideration of behavior with respect to rules (see §§3.1, 3.3). A representative paper is Bach 1968. Many of the issues are summarized in Stockwell et al. 1973.

Predictably, only the generative tradition has produced an explicit theory of prototypes (Lakoff 1972, Fillmore 1975).

3.6. The structure of scientific discourse. Throughout the generative tradition, the favored mode of presentation in academic writing has been argument (a classic example is Lakoff 1968). Structuralist writing proceeds by definition and illustration rather than argument (an example is Mel'čuk, this volume). Argumentation may, but need not, place data before generalizations, recapitulating the discovery process. In any event it assumes the burden of proof and shows that the generalization made is a necessary one. Illustration, in contrast, attempts only to show that the generalization is sufficient. Documentation which is merely illustrative does not ordinarily include starred examples. (Meaning-text grammar, however, does use ungrammatical examples, following a precedent set for the Russian tradition by Ščerba 1928.) Argument usually entails a more intensive documentation of any given generalization than does illustration. (This statement does not rank the total proportions of data used in generative and structuralist writings. While illustration uses less intensive documentation, it may have a broader range of data, as mentioned in §3.1.)

Each school regards the other's presentation as beside the point (e.g. Apresjan 1974:22 on Lakoff 1968), uninteresting, naive, and/or opaque. (This statement is based on personal communications from several sources, and my own initial reaction to the Russian works.)

Minimal pairs include Bresnan 1977 (argument) and Mel'čuk 1979c (illustration), on comparative constructions; Heath MS or Jake 1978 (argument) and Mel'čuk 1979b (illustration), on Dyirbal ergativity; Babby 1975b (argument) and the Russian sources he cites (illustration), on Russian gerunds.

3.7. Syntactic relations. The Russian structuralist tradition uses dependency grammar for its basic analysis of syntactic relations (for dependency grammar see Mel'čuk 1979a; also Hays 1964, Tesnière 1966). The American tradition uses immediate-constituent grammar (for a review of postwar IC theories see Postal 1964). Both cases reflect historical accident. The Russian grammatical tradition has used IC grammar since Fortunatov (1904); the American tradition has used IC grammar since Bloomfield. The choice of dependency grammar for the Russian tradition may well have been facilitated by the free word order and obvious case government of Russian; the use of IC grammar in the American tradition may well have been facilitated by the fixed word order and absence of morphological signaling of most grammatical relations in English. In any event the type of syntactic theory is not determined by the structuralist or generative approach: American interwar structuralism used IC grammar, and the American literature on machine translation, which was to some extent generative, used dependency grammar.

3.8. The differences mentioned above concern the form, organization, and goals of linguistic analysis — what may be called world view. They are differences of some consequence, and may render publications mutually unintelligible; but they are not differences in actual content, or in the primary linguistic data considered. In fact, it is striking that popular issues have tended to coincide. In recent years both schools have witnessed flurries of interest in causatives (e.g. Xolodovič ed. 1969; Shibatani ed. 1976); ergativity, subjects, and voice (e.g. Xolodovič ed. 1974; Li & Thompson eds. 1976); valence (see §3.4); semantic roles (see §3.5); and a growing emphasis on lexical semantics (works of Apresjan; Fillmore). In each instance the parallel developments appear to have been spontaneous: there is little evidence of mutual influence (the major Russian publications coincide with the American ones or precede them by a few years; yet the American bibliographies rarely include the Russian publications). If all issues overlapped, of course, the coincidences would be automatic and hence uninteresting. But the overlap is not total. The Soviet literature does not indicate fads for word order as a typological feature, formal logic akin to Montague grammar, relative clauses; the American literature indicates no widespread interest in parts of speech, sign theory, or predicativity.

4. While the generative and structuralist schools in many respects, and in particular in their extreme developments (Chomskyan

syntax; the Academy grammars), represent polar opposites, the most recent descendents of each school display striking convergences in world view. Convergence ranges from fairly trivial coincidences in formal notation to major claims about the structure of language. Like the overlap in popular issues, convergence appears to have been spontaneous. In most instances it involves incorporation of structuralist traits into generative systems; changes in the opposite direction are rare.

Convergence in formal notation is evident in the tree diagrams of relational grammar, which approximate the dependency trees of meaning-text grammar. Both use labeled arcs ending in arrowheads. Both use numbered, rather than labeled, terminals. Both lack nodes (except for the highest, clausal node of relational grammar — perhaps its only overt concession to IC grammar).

An instance — apparently the single instance — of incorporation of a generative trait into a structuralist theory is the introduction of deep and surface levels of description into meaning-text grammar. However, as mentioned in §3.2, this trait receives a structuralist cast in meaning-text grammar. Each level is an autonomous inventory of elements; and even transitions between levels are not ordered rules but inventories of possible changes in trees.

Structuralist elements in the generative tradition are numerous. Relational grammar, like meaning-text grammar, has discrete levels of derivation. Relational grammar is structuralist in its approach to grammatical relations: it treats them as an inventory of elements, and one of its legitimate research goals is to determine the precise membership of that inventory.

Some structuralist traits arose early. Deep syntax, since McCawley 1968, has been an inventory of tree types rather than the output of generative phrase-structure rules. Lexical semantics is inherently structuralist: it deals with a set of objects having obvious recurrent formal and semantic components (cf. Pettit 1976: 25ff.).

Both schools now view subjects as just one clausal NP relation among others. To dependency grammar the subject, like objects and circumstantials, is a dependent of the verb. To most generative linguists there is no longer a VP node, so subjects, like objects and obliques, are immediately dominated by S.

The topic of this year's CLS parasession, 'The elements', promises a look at grammar as a series of inventories of elements, and the call for papers invites explicit debate over the membership of classes.

Role and reference grammar has progressed furthest toward viewing grammar as an inventory of elements rather than the output of derivations. There are no derivations; there are not even ordered levels of analysis, but simply kinds of analysis. (The term level is used, but it implies no progression from deep to surface: there is sentence-level analysis, clause-level, phrase-level, etc.)

These areas of convergence, taken together with the coincidences in areas of interest mentioned in §3.8, yield considerable similarity but are still far short of producing complete convergence. The differences that remain — trans-derivational vs.

cross-derivational abstractions, theoretical standing, the role of contrast, grammar vs. metagrammar, argument vs. illustration — still constitute major obstacles to mutual understanding.

5. The two schools having been described in some detail, it can now be asked just what they are. It is fairly clear that they are not paradigms in the sense of Kuhn 1962 (and thus not disciplinary matrices in the more precise terms of Kuhn 1970). Neither school, as they have been defined here, represents the achievement of a single genius (although early generative syntax was Chomsky's singlehanded achievement). Each subsumes a variety of theories, often contradictory. Neither represents the best of competing theories; and the two schools themselves do not compete, but rather converge. (Some of these points are argued in Hymes 1974, Percival 1976.)

Furthermore, in several respects modern linguistics recalls Kuhn's description (1962:10ff.) of a pre-paradigmatic field. Linguists write books. Books, and even papers, often start from the very foundations of linguistic theory and build up a whole theoretical system (e.g. Chomsky 1965, Chafe 1970, Mel'čuk 1974). We do not have excellent, standard textbooks; the beginning teacher of general linguistics is faced with difficult questions of what to teach. Current linguistic research is not normal science: it is not directed at puzzles which articulate paradigms (in Kuhn's terms). In fact, the canonical publication in linguistics for both schools ends on an open note, frequently referring to uncanny phenomena (a familiar example is Chomsky & Halle 1968:Ch. 9). There are many competing theories. There is no uniform assent as to what is to be modeled: various theories model language, speech, description, the corpus (Apresjan 1973:111ff., 119).

While not paradigms, generativism and structuralism may well be exemplars in the sense of Kuhn 1970. An exemplar is an abstract, implicit solution type. Clearly structuralism implies a solution type in which the linguist establishes contrast in order to define an inventory of elements. Generativism implies a solution type in which he models a corpus and determines the formal apparatus needed for his model, without establishing contrast or equivalence.

That we are dealing with solution types rather than paradigms is supported by the fact that almost nowhere is either school found in pure form (see fn. 3). Evidence that the solution types are only implicit is the recurrent tendency to see conflicts between the schools simply as alternative solutions to particular problems. Thus Halle (1959:19-24) attacks structuralist phonemics on the grounds that inclusion of an autonomous phonemic level necessitates stating certain phonological rules twice (one produces phonemes, one allophones). His implicit solution type is the generative model (in this case, of the notion 'possible phonological string in Russian'). Since the solution type is not the subject of explicit discussion, he attributes the same goals to the structuralist literature and judges it by its failure to meet them. But to the structuralist, of course, generation of strings is not the goal of grammar; the structuralist solution type is determination of

phonemic status for Russian phones, and this goal would similarly be complicated by accommodation of generative concerns.

In similar fashion, Postal (1964) uses generative capacity as his sole criterion for comparison of different grammatical theories. Even radical differences in grammatical type emerge as differences in strong generative capacity (Chomsky 1965:60–62). In such cases, an implicit solution type has been attributed to a different school just because it is implicit. Such interpretations would never have occurred had solution types been made explicit. One goal of this paper has been to show that the solution types can be made explicit without imposing value judgments and without assuming a third theoretical stance.

6. Consideration of the differences between the generative and structuralist schools can make positive contributions to the issue of paradigms in the history of linguistics, and may eventually bridge some of the misunderstandings between the two schools; but it tells us rather little about linguistics itself. In fact the similarities tell us more about the character of contemporary linguistics and some possible future developments than the differences do. Two of the issues mentioned above appear to have some predictive value.

The convergent analysis of subjects in the two schools seems simply to be the result of correct analysis. The early structuralist literature debates whether the subject is the head of the sentence. The early generative literature uses the VP node to separate the subject from the other NP's in the clause. Both of these analyses are due to failure to distinguish syntactic from pragmatic and/or discourse phenomena. Syntactically, the subject is just one of several ad-verbal NP's. Only in pragmatic and discourse organization is it in any sense the 'head' of the sentence.

This example shows that convergence can result from progress in linguistics. Specifically, in this instance, progress means awareness that there are different kinds of facts. Separation of syntactic from pragmatic and/or discourse facts produced the single correct analysis of subjects.

A second diagnostic issue concerns the interpretation of technical abstractions, primarily those bearing on non-unique status. Both generative and structuralist analyses may be divided into strong vs. weak subtypes. A weak generative analysis simply posits deep and surface levels and grammatical rules. Chomsky is weak; the relational grammar of Perlmutter & Postal 1977, Perlmutter 1978, this volume, is weak; the major figures throughout the generative tradition are weak. A strong generative analysis not only posits these grammatical elements; it furthermore ascribes psychological or other reality to the trans-derivational process itself. Derwing 1973 is representative of works which see derivations as real-time models (St. Clair 1975) of linguistic performance. Halle 1962, Kiparsky 1968 seem to present generative rules as historically real.

A weak structuralist analysis simply points out cross-derivational facts, levels, contrast, etc. All the structuralist contributions mentioned above are weak. A strong structuralist analysis further interprets these facts as diachronically or otherwise

real. For example, there is a tendency in the Soviet literature to interpret the descriptive and typological problems of ergativity as diachronic issues (Klimov 1973, 1977; Čikobava 1967).

The weak analyses give the phenomenon a minimal interpretation in terms of the structuralist or generative solution type; the strong analyses impose a further specific interpretation on the solution. Both are capable of noting the obvious facts which any theory must describe, but the strong analyses make additional claims.

It is my impression that strong analyses are typical of the early stages of a given theory (although they have their advocates in all stages); specifically, they are typical of the years before the theory arrives at its most delicate classification of types of facts. The diachronic interpretations of ergativity arose before structuralists could speak of different levels of derivation (Klimov postdates meaning-text grammar but does not use it). Strong generative views are typically held by proponents of some variant of a standard theory, in which semantics and pragmatics are only interpretive. As more different types of facts are gradually recognized as such, strong claims disappear.

The increase of weak analyses, then, may be another instance of convergence. Like the convergent analysis of subjects, it is due to progress in linguistics. Taken together, these two trends suggest that the more advanced theory is one which makes minimal claims; and minimal claims are facilitated by recognition of more types of facts. 4)

7. Conclusions. The popularity of Kuhn's work, and the uncritical attitude of linguists toward his notion of paradigm, have fostered a view of contemporary linguistics as a series of confrontations between mutually incompatible theories of language, a view held even by proponents of a non-paradigmatic linguistics. This paper has taken an unorthodox stance in selecting candidates for the status of paradigm, and can therefore motivate what might otherwise be seen as random developments. Comparison of exactly the above schools, as prototypes, allows us to recognize ongoing convergence and suggest its possible implications.

Footnotes

* Earlier versions of this paper were given at the University of California, Berkeley (April 1977, June 1978), University of Nevada-Reno (Linguistics Group, February 1978), and University of California, Davis (Linguistics Colloquium, April 1978).

1 A similar polarizing approach is taken in Pettit 1976, where Saussure and Chomsky are compared as respectively paradigmatic and syntagmatic. Pettit uses structuralist as a generic term for a group of disciplines including linguistics (the standard usage among non-linguists). Apart from these differences in terminology and scope of inquiry, Pettit's dichotomy differs from mine in that he does not distinguish the corollary of formal vs. substantive orientation (§3.5 below) from the defining properties of the two schools. That formal vs. substantive and generative vs. structuralist (in my terms) are distinct issues is clearly shown in Harris's review (1941)

of Trubetzkoy's Grundzüge. Both Harris and Trubetzkoy are solidly structuralist; but Harris isolates, and criticizes, Trubetzkoy's substantive approach against the background of his own formalist orientation. Finally, Pettit describes attested theories rather than ideal prototypes.

2 The term meaning-text is written 'Meaning⇐⇒text' by its own practitioners (in Russian, 'Smysl⇐⇒tekst'). (The double-headed double arrow symbolizes the transformative character of meaning-text grammar.) The capitalization, quotes, and special symbol are all due to the fact that Russian cannot form compound attributive modifiers like meaning-text. I use the latter as a neutral English equivalent.

3 Several of these issues support my claim, above, that the generative school is a prototype nowhere attested. Chomsky, the most strongly generative linguist in the school, uses a basically structuralist definition of syntactic relations. Fillmore, whose perspective on the lexicon is fairly structuralist, nonetheless made the trans-derivational view of syntactic relations standard. Relational grammar, the most structuralist of the mainstream generative trends (see §4), is the only one to use trans-derivational tree diagrams.

4 The terms weak and strong are used, mutatis mutandis, in the sense in which Chomsky uses them of generative power (1965:60ff.). (The mutanda are considerable, however, because theory types are plainly not generative rules.) Outside of the Chomskyan system the connotations of the words weak and strong become inappropriate: while the terms were effective rhetorical devices when strong generative capacity was valued, they do not lend rhetorical support to the claim that weak analyses represent progress.

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Working ls and Inversion in Italian, Japanese, and Quechua*

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1. Goals

1.1 Empirical Evidence for Inversion

The first goal of this paper is to provide empirical evidence for the Inversion construction, thereby adding to the evidence for this construction in various languages.[1] The Inversion construction is motivated in some detail for Italian, and then it is shown how the same type of argument can be used for Japanese and Quechua.

The predicates that occur in the Inversion construction in Italian include the following:

(1)
piacere	'like'
dispiacere	'dislike, sorry'
rincrescere	'regret, sorry'
seccare	'bother'
bastare	'(be) sufficient'
mancare	'lack'
capitare	'happen'
riuscire	'succeed, manage'
sembrare	'seem'
parere	'appear'
chiaro	'clear'
evidente	'evident'
possibile	'possible'
impossibile	'impossible'
facile	'easy'
difficile	'difficult'

Consider a typical Inversion construction:

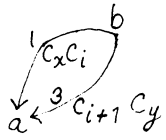
(2) Gli piacciono le sinfonie di Beethoven.
him/DAT like the symphonies of
'He likes Beethoven's symphonies.'

In the Inversion construction in Italian, a nominal that is (in most cases) semantically an Experiencer or Cognizer appears in the Dative form (gli in (2)). I call this nominal the 'Inversion nominal.' It does not control verb agreement. In (2), piacciono is third person plural in agreement with le sinfonie di Beethoven.

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The first goal of this paper - motivating the Inversion construction - involves showing that the RNs associated with sentences like (2) involve subnetworks of the form[2]

(3)



In the case of (2), I argue that gli heads both an initial 1-arc and a final 3-arc in the clause. To show this, I give five arguments for the final 3hood of Inversion nominals and four arguments for their 1hood.

Showing that Inversion nominals are initial 1s but final 3s has several important theoretical consequences. First, it shows that linguistic theory must countenance demotions - that is, constructions in which a nominal heads a GR_x arc in the c_k stratum and a GR_y arc in the c_{k+1} stratum, where GR_x outranks GR_y on the hierarchy of R-signs: 1>2>3>Nonterm R-signs. Second, it removes what would otherwise be a class of counterexamples to the claim that initial-stratum grammatical relations in a clause are universally predictable from nominals' semantic roles in clauses. For example, compare (2) with its English equivalent:

(4) He likes Beethoven's symphonies.

It is (presently) uncontroversial that he is both the initial and final 1 of (4). If gli were initial 3 of (2) as well as final 3, (2) and (4), taken together, would show that initial grammatical relations cannot be predicted from semantic roles, since both he and gli in these examples represent Experiencers, yet their initial grammatical relations in their respective clauses would be different. If, on the other hand, gli represents an initial 1 in (2), as is argued here, then both of these Experiencers are initial 1s, and (2) - (4) do not counterexemplify the claim that initial grammatical relations are universally predictable from semantic roles. Both of these points are discussed at greater length in Perlmutter (to appear a), so I will not discuss them further here.

There are predicates in Italian that can appear in two different grammatical configurations - one involving Inversion and the other not. This is the case with mancare 'lack' and ruiscire 'succeed, manage.'

(5) a. I bambini non mancano di energia.
the children NEG lack of energy
'The children don't lack energy.

b. Ai bambini non manca energia.
to-the children NEG lacks energy
'The children don't lack energy.'

(6) a. Riuscirò a farlo.
succeed/1SgFUT to do-it.
'I will succeed in doing it; I will manage to do it.'

b. Mi riuscirà di farlo.
'me/DAT succeed/3SgFUT of do-it
'I will succeed in doing it; I will manage to do it.'

In (5 a), i bambini is the final 1 and controls plural agreement on mancano. In (5 b), on the other hand, it is the final 3, appearing with the dative preposition a and not controlling verb agreement; manca is third person singular in agreement with energia. Similarly, in (6 a) the first person singular nominal is final 1, controlling verb agreement on riuscirò. In (6 b), on the other hand, it is the final 3, appearing in the dative form mi and not controlling verb agreement. If i bambini were initial 1 in (5 a) and initial 3 in (5 b), and if the first person singular nominal were initial 1 in (6 a) and initial 3 in (6 b), these examples would counterexemplify the claim that initial grammatical relations can be predicted from semantic roles, since the semantic roles in the (b)-sentences are the same as those in the corresponding (a)-sentences. Under the Inversion analysis proposed here, however, i bambini is the initial 1 of both (5 a) and (5 b), and the first person singular nominal is the initial 1 of both (6 a) and (6 b). The difference is that the (b)-sentences involve Inversion, while the (a)-sentences do not.

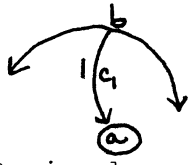
1.2 Motivating the Notion 'Working 1' in Linguistic Theory

The second goal of this paper is to motivate the notion of 'working 1' in linguistic theory.

(7) Working 1 (Definition)
A nominal is a working 1 of clause b if and only if:
i) it heads a 1-arc with tail b
and ii) it heads a final-stratum Term arc with tail b.

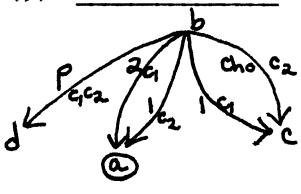
Since Term arcs are arcs with R-signs '1,' '2,' or '3,' any nominal that heads a 1-arc and a final-stratum 1-arc, 2-arc, or 3-arc with tail b is a working 1 of clause b. A nominal that heads a final-stratum 1-arc qualifies as a working 1 by this definition, which covers the following cases. First, in monostratal clauses, the nominal that is both initial and final 1 is a working 1, as in (8).

(8) Monostratal clauses



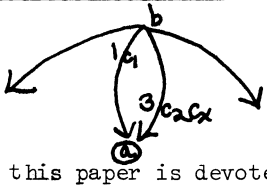
Second, in Passive clauses, the nominal heading a final-stratum 1-arc is a working 1, but the nominal heading a final-stratum Cho arc is not, since it does not satisy (7-ii).[3] Thus, in (9), a is a working 1, but c is not:

(9) Passive clauses



Finally, in Inversion clauses, the Inversion nominal is a working 1, since it satisfies both conditions in (7):

(10) Inversion clauses



§3 of this paper is devoted to showing that four phenomena in Italian syntax must be stated in terms of the notion 'working 1,' and that Inversion nominals behave like working 1s with respect to the phenomena in question. This provides evidence both for incorporating the notion 'working 1' in linguistic theory and for the 1hood of Inversion nominals, since if they were initial 3s as well as final 3s they would not qualify as 'working 1s' with respect to the phenomena in question. In §7-8 it is shown that the notion 'working 1' is also needed in the grammars of Japanese and Quechua, and that the phenomena that must be stated in terms of this notion likewise provide evidence for the Inversion construction in those languages.

2. Arguments for the Final 3hood of Inversion Nominals in Italian

2.1 Argument One: Case

The rule stated informally below must be included in the grammar of Italian:[4]

(11) Dative Marking
The nominal heading a final-stratum 3-arc in a clause must have dative marking.

The grammar must specify that dative-marked nominals are marked with the preposition a, as in (12 a), while clitic pronouns have special dative forms like gli in (12 b).

(12) a. Darð questi libri ai bambini.
'I will give these books to the children.'

b. Gli darð questi libri.
'I will give him these books.'

If Inversion nominals are final 3s, the fact that they appear in dative forms (e.g. gli in (2) and ai bambini in (5 b)) will be automatically accounted for by the same rule(s) that account for the appearance of these forms in examples like (12 a-b).

2.2 Argument Two: Verb Agreement

The grammar of Italian must include the verb agreement rule stated informally below:

(13) Verb Agreement
The nominal heading a final-stratum 1-arc in a finite clause controls agreement on the verb of that clause.

If Inversion nominals are final 3s, the fact that they do not control verb agreement will be a consequence of (13) and their final 3hood.

2.3 Argument Three: Equi

In Italian, the complements of certain verbs are in the subjunctive and are introduced by the complementizer che if the final 1 of the complement is distinct from the controlling nominal in the matrix clause:

(14) Non voglio che i bambini rimangano qui.
'I don't want the children to remain here.'
(Lit: 'I don't want that the children remain here.')

(15) Non voglio che i bambini siano arrestati dalla polizia.
'I don't want the children to be arrested by the police.'
(Lit: 'I don't want that the children be arrested by the police.')

However, if the final 1 of the complement is also the controlling nominal,[5] a subjunctive complement with che is impossible.

Instead we find an infinitive complement.

(16) a. *Non voglio che io rimanga qui.
'I don't want that I remain here.'

b. Non voglio rimanere qui.
'I don't want to remain here.'

(17) a. *Non voglio che io sia arrestato dalla polizia.
'I don't want that I be arrested by the police.'

b. Non voglio essere arrestato dalla polizia.
'I don't want to be arrested by the police.'

It is impossible for sentences like (16 b) and (17 b) to contain a surface realization of the final 1 of the complement. I will refer to the construction exemplified by (16 b) and (17 b) as 'Equi,' using the terminology that gained wide acceptance in transformational grammar, and to the nominal that can have no surface realization in the Equi construction as the 'Equi victim.'[6] The condition on Equi victims in this class of constructions in Italian can be stated informally as follows:

(18) Only the final 1 of the clause can be an Equi victim in this class of constructions.

(18) accounts for the possibility of Equi in both active and passive examples like (16 b) and (17 b). It also accounts for the fact that final 3s cannot be Equi victims here. Consider, for example, sentences like

(19) a. Telefoniamo a Giorgio dopo le otto.
'We telephone (to) Giorgio after eight.'

b. Gli telefoniamo dopo le otto.
'We call him after eight.'

If such a sentence is embedded beneath Giorgio preferisce 'Giorgio prefers' (preferire is a verb that governs Equi), the final 3 cannot be an Equi victim. We get a subjunctive complement with che:

(20) Giorgio preferisce che gli telefoniamo dopo le otto.
'Giorgio prefers that we call him after eight.'

An infinitival complement with Equi is impossible.

Evidence for the final 3hood of Inversion nominals comes from the fact that they cannot be Equi victims. Thus, if a clause with piacere 'like' is embedded beneath an Equi trigger

like volere 'want' or preferire 'prefer,' the Inversion nominal cannot be an Equi victim:

(21) *Giorgio preferirebbe piacere le sinfonie di Beethoven.
'Giorgio would prefer to like Beethoven's symphonies.'

The structure in question must be realized with a subjunctive complement with che:

(22) Giorgio preferirebbe che gli piacessero le sinfonie di Beethoven.
'Giorgio would prefer to like Beethoven's symphonies.'

The inability of Inversion nominals to be Equi victims shows up clearly in examples with mancare 'lack' and riuscire 'succeed,' which are possible either with or without Inversion. Without Inversion, the initial l is also the final l, and so it can be an Equi victim:

(23) a. Le mogli mancano di soldi.
'The wives lack money.'

b. Le mogli non vogliono mancare di soldi.
'The wives don't want to lack money.'

(24) a. Riesco a farlo.
'I succeed in doing it.'

b. Voglio riuscire a farlo.
'I want to succeed in doing it.'

In the Inversion construction, however, the initial l is a final 3, and so it cannot be an Equi victim. Thus, the (b)-sentences below are ungrammatical:

(25) a. Alle mogli mancano soldi.
'The wives lack money.'
(Lit: 'To the wives lacks money.')

b. *Le mogli non vogliono mancare soldi.
'The wives don't want to lack money.'

(26) a. Mi riesce di farlo.
'I succeed in doing it.'
(Lit: 'To me succeeds in doing it.')

b. *Voglio riuscire di farlo.
'I want to succeed in doing it.'

The structures in question must be realized with subjunctive complements with che:

(27) Le mogli non vogliono che a loro manchino soldi.
'The wives don't want to lack money.'
(Lit: 'The wives don't want that to them lack money.')

(28) Voglio che mi riesca di farlo.
'I want to succeed in doing it.'
(Lit: 'I want that to me succeed in doing it.')

In sum, the fact that Inversion nominals cannot be Equi victims provides an argument that they are not final 1s.

2.4 Argument Four: Omission of Subject Pronouns

In Italian, nonemphatic pronominal final 1s are freely omitted. Thus, sentences such as the following are perfectly normal:

(29) Siamo stati criticati da tutti.
'We were criticized by everyone.'

The subject pronoun noi 'we' does not appear in (29); if it were present, there would be emphasis on noi, or noi would be contrasted with some other nominal.

Nonemphatic final 3s, however, are not omissible. Thus, (30) is not synonymous with (31):

(30) Giorgio mi ha dato i soldi.
'Giorgio gave me the money.'

(31) Giorgio ha dato i soldi.
'Giorgio gave the money.'

If the final-3 pronoun mi were omissible, these sentences would be synonymous.

Like other final 3s, pronominal Inversion nominals are not freely omissible. Thus, (32) is not synonymous with (33).

(32) Mi piacciono le sinfonie di Beethoven.
'I like Beethoven's symphonies.'

(33) ??Piacciono le sinfonie di Beethoven.
'Unspecified likes Beethoven's symphonies.'

The question of whether or not ??(33) is acceptable is not at issue here; the point is that it is not synonymous with (32), which it would be if the pronoun mi in (32) were freely omissible.

The contrast in pronominal omissibility between final 1s and Inversion nominals can be seen clearly with mancare and riuscire, which can occur either with or without Inversion. Without Inversion, the initial 1 is also the final 1, and if pronominal it is omissible: [7]

(34) a. Mia moglie manca di energia.
'My wife lacks energy.'

b. Mia moglie lavora troppo e manca di energia.
'My wife works too much and lacks energy.'

(35) a. I miei figli riusciranno a farlo.
'My sons will succeed in doing it.'

b. I miei figli lavorano molto e riusciranno a farlo.
'My sons work a lot and will succeed in doing it.

With Inversion, however, the initial 1 is final 3, and so it is not omissible:

(36) a. A mia moglie manca energia.
'My wife lacks energy.'

b. *Mia moglie lavora troppo e manca energia.
'My wife works a lot and lacks energy.'

(37) a. Ai miei figli riuscirà di farlo.
'My sons will succeed in doing it.'

b. *I miei figli lavorano molto e riuscirà di farlo.
'My sons work a lot and will succeed in doing it.'

In sum, the fact that pronominal Inversion nominals cannot be omitted (as pronominal final 1s can) provides an argument that they are not final 1s.

2.5 Argument Five: Floating Quantifiers

The quantifiers tutti 'all' and ciascuno 'each' in Italian can, under certain conditions, appear outside the nominal they modify. This phenomenon, generally known as 'floating quantifiers,' provides arguments both that Inversion nominals are not final 1s, and that they **are** final 3s.

One condition on floating quantifiers in Italian must be stated in terms of the notion 'final 1.' I give it here very informally: [8]

(38) Quantifier Float from Non-Pronominal Nominals
A quantifier can float from a non-pronominal nominal only if it heads a final-stratum 1-arc.

Quantifier float from non-pronominal final ls can be seen in the following examples:

(39) a. Tutti i professori sono arrivati in ritardo.
'All the professors arrived late.'

b. I professori sono tutti arrivati in ritardo.

c. I professori sono arrivati tutti in ritardo.
'The professors all arrived late.'

(40) a. Tutti i candidati sono stati criticati dalla stampa.
'All the candidates have been criticized by the press.'

b. I candidati sono tutti stati criticati dalla stampa.

c. I candidati sono stati tutti criticati dalla stampa.
'The candidates have all been criticized by the press.'

It follows from (38) that quantifiers cannot float off non-pronominal final 3s:

(41) a. Ho dato delle caramelle a tutti i bambini.
'I gave candy to all the children.'

b. *Ho dato delle caramelle ai bambini tutti.

Evidence that Inversion nominals are not final ls comes from the fact that quantifiers cannot float off non-pronominal Inversion nominals:

(42) a. A tutte le donne piacciono i concerti di Mozart.
'All the ladies like Mozart's concertos.'

b. *Alle donne piacciono tutte i concerti di Mozart.

This can be seen clearly with mancare and riuscire. Without Inversion, the initial l is also the final l, and quantifier float is possible:

(43) a. Tutti i giovani mancano di esperienza pratica.
'All the young people lack practical experience.'

b. I giovani mancano tutti di esperienza pratica.
'The young people all lack practical experience.'

(44) a. Tutti i miei figli riusciranno a farlo.
'All my sons will succeed in doing it.'

b. I miei figli riusciranno tutti a farlo.
'My sons will all succeed in doing it.'

With Inversion, however, the initial 1 is final 3, and so quantifier float is impossible:

(45) a. A tutti i giovani manca esperienza pratica.
'All the young people lack practical experience.'

b. *Ai giovani manca tutti esperienza pratica.

(46) a. A tutti i miei figli riuscirà di farlo.
'All my sons will succeed in doing it.'

b. *Ai miei figli riuscirà tutti di farlo.

Thus, the fact that quantifiers cannot float off non-pronominal Inversion nominals provides an argument that they are not final 1s.

The evidence that Inversion nominals are final 3s comes from consideration of quantifier float from objects. Very roughly and informally stated, the relevant condition is that quantifiers can float from final objects (final 2s and 3s) only if they appear as clitic pronouns. The following examples involve quantifier float from final objects:[9]

(47) Giorgio ci ha visti tutti.
'Giorgio saw us all.'

(48) Giorgio ci ha dato dei soldi a tutti.
'Giorgio gave us all money.'

(49) Giorgio ci ha telefonato a tutti.
'Giorgio telephoned us all.'

Ci is the first person plural clitic used for final 2s and 3s. In each of these examples, we have a floated quantifier modifying the nominal that appears as the clitic pronoun ci. If the quantifier floats from a final 3, it appears with the preposition a that marks final 3s in Italian. This is the case in (48) and (49). These examples would be ungrammatical without a, and a is impossible in (47), where the quantifier floats from a final 2:

(50) a. *Giorgio ci ha visti a tutti.
b. *Giorgio ci ha dato dei soldi tutti.
c. *Giorgio ci ha telefonato tutti.

Quantifier float from final Obliques is impossible in Italian. For example, consider:

(51) a. Giorgio ha pensato a tutte quelle cose.
'Giorgio thought about all those things.'

b. Giorgio ha pensato a tutte le donne.
'Giorgio thought about all the ladies.'

In (51), tutte quelle cose and tutte le donne bear an Oblique relation whose nature is presently obscure. The crucial point, however, is that it is not one of the three Term relations. Since these nominals are non-pronominal but are not final 1s, quantifier float is impossible here:

(52) a. *Giorgio ha pensato a quelle cose tutte.
b. *Giorgio ha pensato alle donne tutte.

Interestingly, the pronominal clitic used for this Oblique relation is ci - i.e. it has the same phonological shape as the first person plural clitic:

(53) Giorgio ci ha pensato.
'Giorgio thought about them.'

But quantifier float is impossible:

(54) *Giorgio ci ha pensato (a) tutte.

*(54) thus contrasts with (47 - 49), showing that quantifiers can float from clitics that represent final 2s and 3s, but not from final Obliques.[10]

Evidence for the final 3hood of Inversion nominals comes from the fact that they allow quantifier float if they appear as clitics:

(55) Ci manca energia a tutti.
'We all lack energy.'

(56) Cose di quel genere ci dispiacciono a tutti.
'We all dislike things of that kind.'

The contrast between (55 - 56) and *(54) is evidence that Inversion nominals are final objects rather than final Obliques. Further, quantifiers floated from Inversion nominals must be accompanied by the preposition a:

(57) a. *Ci manca energia tutti.
b. *Cose di quel genere ci dispiacciono tutti.

This is evidence that Inversion nominals are not final 2s but final 3s.

Thus, floating quantifiers provide evidence that Inversion nominals are not final 1s, final 2s, or final Obliques, and that they are final 3s.

2.6 Conclusions

The fact that Inversion nominals do not behave like final 1s with respect to verb agreement, Equi, the omission of subject pronouns, and floating quantifiers provides arguments that they are not final 1s. The fact that they appear in dative forms and allow quantifier float under the same conditions as final objects, and the fact that the floated quantifier must appear with the preposition a, provide arguments that they are final 3s. If they are final 3s, their behavior with respect to all these phenomena will be accounted for by the independently motivated formulations of the relevant rules.

3. Arguments for the 1hood of Inversion Nominals in Italian

In §3 I present four arguments for the 1hood of Inversion nominals in Italian. In each case, I argue that the phenomenon in question must be stated in terms of the notion '1working 1.' Since Inversion nominals are shown to behave like 1working 1s with respect to the phenomena in question, and since it has already been concluded that they are final 3s, it follows that they must be 1s in an earlier stratum. I therefore conclude that Inversion nominals are initial 1s and final 3s.

3.1 Argument One: Consecutive DA + Infinitive

The first argument for the 1hood of Inversion nominals in Italian was pointed out to me by Carol Rosen. It is based on the so-called "consecutive da + infinitive" construction. This construction occurs with forms such as tanto 'so much, so many,' talmente 'so,' abbastanza 'enough,' and several others:

(58) Giorgio non ha abbastanza soldi da poter pagare il riscatto.
'Giorgio doesn't have enough money to be able to pay the ransom.'

(59) a. Giorgio mi ha rimproverato tante volte che mi ha fatto paura.
'Giorgio rebuked me so many times that he scared me.'

b. Giorgio mi ha rimproverato tante volte da farmi paura.
'Giorgio rebuked me so many times that he scared me.'

The crucial point about the consecutive da + infinitive construction is that a nominal in the matrix clause is understood as the subject of the infinitive occurring with consecutive da. I will refer to this nominal as the controller. In (58) and (59 b), the controller is Giorgio.

The condition on controllers of this construction can be given informally as follows:

(60) Condition on controllers of the consecutive DA + infinitive construction
The controller must be a working 1 of the matrix clause.

Since Giorgio is both initial and final 1 of the matrix clause in (58) and (59), it qualifies as a working 1 and therefore satisfies (60). The 2 in (61) is not a working 1, and so *(61 b) is ungrammatical:

(61) a. Le difficoltà finanziarie preoccupavano tanto Mario che si è ammalato.
'Financial difficulties preoccupied Mario so much that he got sick.'

b. *Le difficoltà finanziarie preoccupavano tanto Mario da ammalarsi.

Similarly, note the contrast between (62 b) and *(63 b):[11]

(62) a. La mamma mi ha rimproverato tante volte che si è rotta le scatole.

b. La mamma mi ha rimproverato tante volte da rompersi le scatole.
'My mother reprimanded me so many times that she got fed up.'

(63) a. La mamma mi ha rimproverato tante volte che mi sono rotto le scatole.

'My mother reprimanded me so many times that I got fed up.'

b. *La mamma mi ha rimproverato tante volte da rompermi le scatole.

La mamma, the 1 of the matrix clause, can control the consecutive da + infinitive construction, but mi, the matrix 2 cannot.

Crucial to the present argument is the fact that a nominal that is both initial and final 3 of the matrix clause cannot control the consecutive da + infinitive construction:

(64) a. Ho telefonato a Giorgio tante volte che si è arrabbiato.
'I telephoned Giorgio so many times that he got angry.'

b. *Ho telefonato a Giorgio tante volte da arrabbiarsi.

(65) a. Gliel'ho detto tante volte che si è arrabbiato.
'I said it to him so many times that he got angry.'

b. *Gliel'ho detto tante volte da arrabbiarsi.

Note also that a 3 cannot control the consecutive da + infinitive construction even if it is in initial position and there is no other possible controller:

(66) a. A Giorgio è stata detta la stessa cosa tante volte che è diventato matto.
'The same thing was said to Giorgio so many times that he went crazy.'

b. *A Giorgio è stata detta la stessa cosa tante volte da diventare matto.

This eliminates the possibility that the condition on possible controllers might be one of the following:

(67) a. The highest-ranking nominal in the clause (with respect to its grammatical relation on the hierarchy of grammatical relations) that would be semantically possible as controller is the controller.

b. The nominal in initial position is the controller.

A condition along the lines of (67 b) is also ruled out by examples such as the following:

(68) a. A queste donne Giorgio ha dato tanti fiori che sono diventate matte.
'To these ladies Giorgio gave so many flowers that they went crazy.'

b. *A queste donne Giorgio ha dato tanti fiori da diventare matte.

The ungrammaticality of *(68 b) shows that queste donne cannot control the consecutive da + infinitive construction, although it is in initial position.[12] This follows from the condition in (60).

Final ls in the Passive construction are working ls by the definition in (60) and therefore qualify as controllers of the consecutive da + infinitive construction:

(69) a. Sono stato rimproverato dalla mamma tante volte che mi sono rotto le scatole.

b. Sono stato rimproverato dalla mamma tante volte da rompermi le scatole.
'I was rebuked by my mother so many times that I got fed up.'

Crucially, Passive chômeurs do not head final Term arcs. They therefore do not satisfy condition (ii) in (7). Thus they are not working ls and cannot control the consecutive da + infinitive construction:

(70) a. Sono stato rimproverato dalla mamma tante volte che si è rotta le scatole.
'I was rebuked by my mother so many times that she got fed up.'

b. *Sono stato rimproverato dalla mamma tante volte da rompersi le scatole.

The condition on controllers of the consecutive da + infinitive construction, formulated in terms of grammatical relations in (60), cannot be stated in terms of semantic roles. This can be seen in active-passive pairs. In (62 - 63), la mamma can control consecutive da + infinitive while the first person nominal cannot, but in (69 -70) the situation is reversed. The semantic roles of these nominals are the same in both cases, but the grammatical relations they bear are

different. Their differential ability to control consecutive da + infinitive in actives and passives is accounted for by the formulation of the condition in terms of grammatical relations in (60), but would not be accounted for by a formulation in terms of semantic roles.

The contrast between (58), (59 b), (62 b), and (69 b), on the one hand, and *(61 b), *(63 b), *(64 b), *(65 b), *(66 b), and *(68 b), on the other, shows that a nominal must head a 1-arc in order to control the consecutive da + infinitive construction. However, the ungrammaticality of *(70 b) shows that heading a 1-arc is not sufficient. The data adduced so far could be accounted for by a formulation either in terms of the notion 'final 1,' or in terms of the notion 'working 1,' as in (60). The crucial evidence to decide between these two formulations comes from consideration of Inversion nominals. Since Inversion nominals are final 3s, if they can control the consecutive da + infinitive construction the condition cannot be formulated in terms of the notion 'final 1.' If Inversion nominals, though final 3s, are initial 1s, they qualify as 'working 1s' by the definition in (7). Thus, if Inversion nominals can control the consecutive da + infinitive construction, that fact will simultaneously provide evidence for the lhood of Inversion nominals and for the formulation in terms of the notion 'working 1,' as in (60).

A crucial example showing that Inversion nominals can control the consecutive da + infinitive construction (a letter to the astrological column of an Italian magazine) was brought to my attention by Carol Rosen:

(71) Sono nata nella Vergine e ho sposato, per amore, un uomo del Toro (proprio il 21 aprile, è venuto al mondo: Toro del primo giorno). Abbiamo avuto due bellissimi figli, di sette e due anni, oggi. All' improvviso, a mio marito è talmente piaciuta una compagna d'ufficio da lasciarci tutti quanti e andare a vivere con lei, dimenticando tutte le sue responsabilità di uomo e di padre. Che cosa accadrà adesso? (Una delle tante disperate)

'I am a Virgo, and I married (for love) a Taurus (he was born on April 21, the first day of Taurus). We have had two beautiful children, who are now seven and two years old. Unexpectedly, my husband took such a liking to a co-worker at the office that he left us all and went to live with her, forgetting his responsibilities as a man and a father. What will happen now? (One of so many desperate women)'

The crucial part of the example is underlined. Mio marito 'my husband' is an Inversion nominal, marked with the dative preposition a and occurring with piacere 'like.' Crucially, it controls the consecutive da + infinitive construction (da lasciarci tutti quanti. . . . 'that he left us all . . . ') The formulation of the condition on controllers of this construction in terms of the notion 'working 1,' together with the Inversion analysis of piacere clauses, predicts the grammaticality of examples like (71). The grammaticality of such examples thus provides evidence both for the formulation of condition (60) in terms of the notion 'working 1,' and for the lhood of Inversion nominals in Italian.

The ability of Inversion nominals to control consecutive da + infinitive can also be seen with mancare and riuscire:

(72) Gli sono mancate vitamine tanto da ammalarsi.
'He lacked vitamins to such an extent that he got sick.'

(73) Gli è riuscito tante volte da averne abbastanza.
'He succeeded (at it) so many times that he had enough of it.'

Similar examples could be provided for Inversion nominals with other predicates.

3.2 Argument Two: Equi in the Gerund Construction

Italian has a gerund construction illustrated by:

(74) Avendo la polizia accettato di aiutarci, potremo risolvere il problema.
'The police having agreed to help us, we'll be able to solve the problem.'

In this example, the 1 of the gerund clause (la polizia) is distinct from the (first person plural) 1 of the main clause. If the two 1s are not distinct, the 1 of the gerund clause does not appear overtly:

(75) Avendo accettato di aiutarci, la polizia non ha risparmiato sforzi per risolvere il problema.

'Having agreed to help us, the police spared no efforts to solve the problem.'

I will refer to this phenomenon as 'Equi in the gerund construction.' The nature of Equi is not at issue here; what is relevant to the present argument is the condition determining which nominal can act as controller.

The condition can be given informally as follows:

(76) Condition on controllers of Equi in the gerund construction
Only a working 1 of the matrix clause can control Equi in the gerund construction.

The following example illustrates the fact that a 1 can control Equi in the gerund construction but a 2 cannot:

(77) Avendo criticato la politica estera del governo, i membri dell'opposizione hanno attaccato il loro leader.
'Having criticized the government's foreign policy, the members of the opposition attacked their leader.'

(77) means only that the members of the opposition criticized the government's foreign policy; it does not mean that their leader criticized the government's foreign policy. This follows from (76).

The fact that a final 3 that is also inital 3 cannot control Equi in the gerund construction can be seen in the following examples:

(78) a. Essendo appena tornata in città, Maria ha telefonato a Giorgio.
'Having just returned to town, Maria called Giorgio.'

b. *Essendo appena tornato in città, Maria ha telefonato a Giorgio.

(79) a. Essendo appena tornata in città, Maria ha dato i soldi a Giorgio.
'Having just returned to town, Maria gave the money to Giorgio.'

b. *Essendo appena tornato in città, Maria ha dato i soldi a Giorgio.

(78 a) and (79 a) indicate that Maria is the one who has just returned to town. This is reflected in the fact that the past participle tornata is feminine singular in agreement with the subject of the gerund clause. Giorgio, the 3 of the main clause, cannot control Equi in the gerund construction. This is reflected in the ungrammaticality of the *(b)-sentences, in which the participle tornato is masculine.

The fact that a nominal need not be an initial 1 to

control Equi in the gerund construction can be seen in the following examples, where an initial 2 that is final 1 in the Passive construction controls it:

(80) Avendo derubato la Banca Nazionale dell'Agricultura, l'autore del delitto è stato festeggiato dagli amici brigatisti.
'Having robbed the Banca Nazionale dell'Agricultura, the culprit was feted by his friends in the brigade.'

(81) Avendo criticato la politica estera del governo, il leader dell'opposizione è stato attaccato dai membri del suo partito.
'Having criticized the government's foreign policy, the leader of the opposition was attacked by the members of his party.'

(80) means that the culprit (l'autore del delitto) robbed the bank, and (81) means that the leader of the opposition criticized the government's foreign policy. Crucially, (81) does not mean that the members of his party criticized the government's foreign policy. This illustrates the fact that a Passive chomeur cannot control Equi in the gerund construction. Since Passive chomeurs do not head final-stratum Term arcs, this fact follows from the formulation of the condition in (76).

The contrast between (77) and (81) illustrates the fact that the condition on controllers of Equi in the gerund construction, formulated in terms of grammatical relations in (76), cannot be stated in terms of semantic roles. In such active-passive pairs, the semantic roles are the same but the grammatical relations are different. The fact that relationally different nominals control Equi in the gerund construction in (77) and (81) follows from the formulation in (76), but would not be accounted for by a formulation in terms of semantic roles.

Now consider Inversion nominals. If they can control Equi in the gerund construction, that will simultaneously provide evidence for their 1hood and for the formulation of the condition on controllers in terms of the notion 'working 1,' as in (76). And Inversion nominals can control Equi in the gerund construction:[13]

(82) Avendo lavorato tutta la giornata, gli manca energia.
'Having worked all day, he lacks energy.'

(83) Essendo appena tornato a casa, gli dispiaceva non trovare nessuno.

'Having just returned home, he disliked not finding anyone there.'

In these examples, the dative Inversion nominal gli controls Equi in the gerund construction. Their grammaticality provides evidence both for the formulation of the condition on controllers in terms of the notion 'working 1,' as in (76), and for the lhood of Inversion nominals in Italian.

3.3 Argument Three: Equi in the Participial Absolute

The participial absolute construction in Italian is exemplified by:

(84) Uscite le donne, gli uomini hanno cominciato a discutirle.
'The ladies having left, the men began to discuss them.'

Here the final l of the participial absolute clause (le donne) is distinct from the final l of the matrix clause (gli uomini). If the ls of the two clauses are not distinct, the l of the participial absolute clause does not appear overtly:

(85) Uscite alle due, le donne hanno passato il pomeriggio in spiaggia.
'Having left at two o'clock, the ladies spent the afternoon at the beach.'

Note that the participle uscite in this example is feminine plural in agreement with the Equi victim. Again, I refer to this phenomenon as 'Equi,' but nothing of substance hinges on this term. At issue is not the nature of Equi, but rather the condition that determines which nominal can act as controller. The argument for the lhood of Inversion nominals based on Equi in the participial absolute has the same form as that based on Equi in the gerund construction. First I show that the condition on Equi controllers must be stated in terms of the notion 'working 1,' and then I show that Inversion nominals behave like working ls with respect to this condition.

Before proceeding to the argument, however, it is first necessary to dispose of an alternative analysis. It might be thought that the participial absolute is only a variant of the gerund construction with the auxiliary verb (avendo or essendo) absent from the surface string. Under this hypothesis, (84) and (85) would be variants of (86) and (87) without essendo:

(86) Essendo le donne uscite, gli uomini hanno cominciato a discutirle.
'The ladies having left, the men began to discuss them.'

(87) Essendo uscite alle due, le donne hanno passato il pomeriggio in spiaggia.
'Having left at two o'clock, the ladies spent the afternoon at the beach.'

If this hypothesis were correct, and (84) and (85) were mere variants of (86) and (87), then the argument for Inversion based on Equi in the participial absolute would not be an argument distinct from that based on Equi in the gerund construction. However, it can be shown that the participial absolute is not a simple variant of the gerund construction without the auxiliary verb.[14]

First, the class of verbs that can appear in the participial absolute is more restricted than the class that can appear in the gerund construction.[15] The following examples illustrate this:

(88) a. Avendo lavorato tutta la mattinata, sono andato in spiaggia.
'Having worked all morning, I went to the beach.'
b. *Lavorato tutta la mattinata, sono andato in spiaggia.

Second, a past participle in the gerund construction cannot agree with its 2, while the past participle in the participial absolute must agree:

(89) Avendo derubato (*derubata) la Banca Nazionale dell'Agricultura, l'autore del delitto è stato festeggiato dagli amici brigatisti.
'Having robbed the Banca Nazionale dell'Agricultura, the culprit was feted by his friends in the brigade.'

(90) Derubata (*derubato) la Banca Nazionale dell'Agricultura, l'autore del delitto è stato festeggiato dagli amici brigatisti.
'Having robbed the Banca Nazionale dell'Agricultura, the culprit was feted by his friends in the brigade.'

Third, the gerund construction may manifest both a final 1 and a final 2 in the surface string, while the participial absolute does not allow this:

(91) Avendo la stampa criticato il governo, nuove elezioni cominciano a parere più probabili.
'The press having criticized the government, new elections are beginning to seem more probable.'

(92) a. *Criticato/criticata la stampa il governo, nuove elezioni cominciano a parere più probabili.

b. *La stampa criticato/criticata il governo, nuove elezioni cominciano a parere più probabili.

Fourth, the gerund construction may be passive, but the participial absolute cannot be:

(93) a. Il governo essendo continuamente criticato dalla stampa, nuove elezioni cominciano a parere più probabili.
'The government being continually criticized by the press, new elections are beginning to seem more likely.'

b. *Il governo continuamente criticato dalla stampa, nuove elezioni cominciano a parere più probabili.

In sum, the participial absolute cannot be dismissed as a mere variant of the gerund construction without the auxiliary.

The condition on controllers of Equi in the participial absolute can be given informally as follows:

(94) Condition on controllers of Equi in the participial absolute
Only a working 1 of the matrix clause can control Equi in the participial absolute.

The fact that a 1 can control Equi in the participial absolute while a 2 cannot is illustrated by the following examples:

(95) Criticata la politica estera del governo, i membri dell'opposizione hanno attaccato il loro leader.
'Having criticized the government's foreign policy, the members of the opposition attacked their leader.'

(95) means that the members of the opposition criticized the government's foreign policy, not that their leader did.

The fact that a nominal that is both initial and final 3 cannot control Equi in the participial absolute is illustrated

by the following examples:

(96) a. Appena tornata in città, Maria ha telefonato a Giorgio.
'Just returned to town, Maria called Giorgio.'

b. *Appena tornato in città, Maria ha telefonato a Giorgio.

(97) a. Appena tornata in città, Maria ha dato i soldi a Giorgio.
'Just returned to town, Maria gave the money to Giorgio.

b. *Appena tornato in città, Maria ha dato i soldi a Giorgio.

In the grammatical (a)-sentences, the participle tornata is feminine singular in agreement with its final 1, the Equi victim. This shows that Maria is the controller. The fact that Giorgio, the 3 of the main clause, cannot control Equi in the participial absolute is reflected in tha fact that the participle cannot be masculine singular, as in the *(b)-examples.

Passive 1s, which are working 1s, qualify as controllers:

(98) Criticata la politica estera del governo, il leader dell'opposizione è stato attaccato dai membri del suo partito.
'Having criticized the government's foreign policy, the leader of the opposition was attacked by the members of his party.'

(98) means that the leader of the opposition criticized the government's foreign policy. Crucially, it does not mean that the members of his party did. This example thus illustrates the fact that Passive chomeurs cannot control Equi in the participial absolute. This follows from the formulation in (94), which limits controllers to nominals heading a final-stratum Term arc. The contrast between (95) and (98) also illustrates the impossibility of stating the condition on possible controllers in terms of semantic roles, since the controllers in (95) and (98) are different, while the semantic roles are the same.

The data cited so far would justify a formulation of the condition on controllers of Equi in the participial absolute either in terms of the notion 'final 1' or in terms of the notion 'working 1.' Inversion nominals provide the data deciding

between these two alternatives. And Inversion nominals can control Equi in the participial absolute:

(99) Appena congedato, mi è rincresciuto dover tornare a lavorare.
'Just discharged, I regretted having to go back to work.'

(100) Appena congedato, gli è riuscito di trovare un buon posto.
'Just discharged, he managed to find a good position.'

(101) Appena tornato in città, gli è capitata una cosa stranissima.
'Just returned to town, something very strange happened to him.

Note the contrast between *(96 b-97 b), and (99 - 100). The Inversion nominals in (99 - 100), though final 3s, are initial 1s and therefore working 1s. Given the formulation in (94), they qualify as controllers of Equi in the participial absolute. The 3s in *(96 b-97 b), on the other hand, do not head 1-arcs in any stratum and therefore cannot control Equi in the participial absolute. The fact that examples like (99 - 101) are grammatical provides evidence both for the formulation of the condition on possible controllers in terms of the notion 'working 1,' as in (94), and for the 1hood of Inversion.

3.4 Argument Four: Adverbial Infinitival Clauses

The fourth argument for the 1hood of Inversion nominals is based on adverbial infinitival clauses introduced by a preposition, as in:

(102) Giorgio ha telefonato a Gilda giusto prima di tornare in città.
'Giorgio called Gilda just before returning to town.'

As in the case of gerund constructions and the participial absolute, these adverbial infinitival clauses involve control by a nominal in the main clause. In (102), the adverbial clause is controlled by Giorgio, the 1 of the main clause. It cannot be controlled by Gilda, the 3 of the main clause. Thus, (102) means that Giorgio called Gilda before he returned to town, not that he called her before she returned to town. The latter meaning would have to be expressed by means of a subjunctive complement introduced by che:

(103) Giorgio ha telefonato a Gilda giusto prima che (lei) tornasse in città.

Similarly, in (104) only the 1 and not the 3 can control the adverbial infinitival clause:

(104) Ho dato i soldi a Gilda giusto prima di partire per l'estero.
'I gave the money to Gilda just before leaving for abroad.'

(104) means that I gave the money to Gilda before I left for abroad, not that I gave it to her before she left for abroad.

The fact that a 2 cannot control adverbial infinitival clauses is illustrated by:

(105) La mamma ha rimproverato Mario giusto prima di andare a dormire.
'(His) mother scolded Mario just before going to bed.'

(105) means that his mother scolded Mario before she went to bed, not that she scolded him before he went to bed.

In the corresponding passive, however, the control facts are different:

(106) Mario è stato rimproverato dalla mamma giusto prima di andare a dormire.
'Mario was scolded by his mother just before going to bed.'

(106) means that Mario was scolded by his mother before he went to bed, not that she scolded him before she went to bed. Thus, a Passive 1 can control adverbial infinitival clauses, but a Passive chomeur cannot. This precludes the possibility of stating the condition on possible controllers in terms of semantic roles, since the semantic roles in (105) and (106) are the same, but the possibilities of control are different. The grammatical relations, however, are different in the two examples.

The condition on possible controllers can be given informally as follows:

(107) Condition on controllers of adverbial infinitival clauses in Italian
Only a working 1 of the matrix clause can control adverbial infinitival clauses.

(107) correctly accounts for the control data presented so far, but so would a formulation in terms of the notion 'final 1.' As before, the crucial evidence deciding between these two formulations comes from Inversion nominals, which can control adverbial infinitival clauses:

(108) A Giorgio non è riuscito di finire tutto il lavoro prima di partire per l'estero.
'Giorgio didn't manage to finish all the work before leaving for abroad.'

(109) Mi bastavano pochi soldi prima di trasferirmi a Parigi.
'Little money was sufficient for me before moving to Paris.'

(110) Gli capita sempre la stessa cosa dopo aver dato le demissioni.
'The same thing always happens to him after resigning.'

(111) Gli riescono poche cose senza farsi aiutare da nessuno.
'He succeeds at few things without getting someone to help him.'

(112) Cose di quel genere gli seccavano prima di riacquistare fiducia in se stesso.
'Things like that bothered him before he regained confidence in himself.'

The Inversion 3s in (108 - 112) contrast with the 3 in (102), which does not head a 1-arc in any stratum. Their contrasting behavior with respect to adverbial infinitival clauses follows directly from (107) and the Inversion analysis. The data cited here thus provides further support both for the Inversion analysis and for the formulation of the condition on controllers of adverbial infinitival clauses in terms of the notion 'working 1.'

3. Conclusions

In §3 it has been argued that four conditions in Italian grammar must be stated in terms of the notion 'working 1:' the conditions on control of the consecutive da + infinitive construction, of Equi in the gerund construction and the participial absolute, and of adverbial infinitival clauses. In each case, the fact that Inversion nominals can control the phenomenon in question provides evidence both for the 1hood of Inversion nominals and for the formulation of the condition in question in terms of the notion 'working 1.'

An obvious alternative would be to deny the 1hood of Inversion nominals and to formulate each of the four conditions in terms of a disjunction of the following form:

(113) Only a final 1 or an Inversion nominal can control Phenomenon X.

While conditions of this form would account for the data, they must mention two classes of nominals in each case - final 1s and Inversion nominals. Such conditions implicitly claim that these two classes of nominals have nothing in common, and that it is therefore accidental that they behave alike with respect to the phenomena in question. The formulations in terms of the notion 'working 1,' as proposed here, claim that final 1s and Inversion nominals have something in common - namely 1hood (reflected formally in terms of heading 1-arcs in RNs). The statement of the relevant condition in terms of the notion 'working 1' thus provides a means of capturing the generalization that unites what would otherwise be two distinct classes of nominals.

4. On the Class of Inversion Triggers

(1) lists a subset of the predicates that manifest the Inversion construction in Italian. While I have made no effort to compile a complete list of such predicates, in §4 I point out that this class includes a number of predicates whose final 3s otherwise might not be thought to be initial 1s. Relevant evidence is given, showing the final 3s of the predicates in question to behave like working 1s with respect to the four phenomena discussed in §3. I conclude that in each case, the final 3 is indeed an initial 1. In most cases, the nominal in question has the semantic role of Experiencer or Cognizer.

The first subclass of Inversion predicates not discussed above includes sembrare 'seem' and parere 'appear.'

(114) Consecutive da + infinitive:
Mi sembrava talmente strano da non crederci.
'It seemed so strange to me that I didn't believe it.'

(115) Equi in the gerund construction:
Essendo tornato dopo cinque anni, mi sembrava che tutto fosse cambiato.
'Having returned after five years, it seemed to me that everything had changed.'

(116) Equi in the participial absolute:
Tornato dopo cinque anni, mi sembrava che tutto fosse cambiato.
'Having returned after five years, it seemed to me that everything had changed.'

(117) Adverbial infinitival clauses:
Prima di andare all'estero, l'Italia mi sembrava una nazione ricca.
'Before going abroad, Italy seemed a rich country to me.'

Predicates taking semantic Cognizers such as chiaro 'clear' and evidente 'evident' also manifest the Inversion construction:

(118) Consecutive da + infinitive:
Gli era così evidente da non comprendere come non lo fosse a tutti.
'It was so evident to him that he couldn't understand how it wasn't to everyone.'

(119) Equi in the gerund construction:
Essendo tornato in città, gli era chiaro che preferiva la campagna.
'Having returned to the city, it was clear to him that he preferred the country.'

(120) Equi in the participial absolute:
Tornato in città, gli era chiaro che preferiva la campagna.
'Having returned to the city, it was clear to him that he preferred the country.'

(121) Adverbial infinitival clauses:
Senza neppur pensarci, mi era evidente che i problemi si sarebbero risolti.
'Without even thinking about it, it was evident to me that the problems would be resolved.'

Finally, the class of predicates that includes possibile 'possible,' impossibile 'impossible,' facile 'easy,' and difficile 'difficult,' can be shown to manifest the Inversion construction.

(122) Consecutive da + infinitive:
Mi era così difficile da voler rinunciare.
'It was so difficult for me that I wanted to give up.'

(123) Equi in the gerund construction:
Essendo appena tornato in città, gli era difficile/impossibile ricominciare a lavorare.
'Having just returned to town, it was difficult/impossible for him to get back to work.'

(124) Equi in the participial absolute:
Appena tornato in città, gli era difficile/impossibile ricominciare a lavorare.
'Having just returned to town, it was difficult/impossible for him to get back to work.'

(125) Adverbial infinitival clauses:
Prima di vivere negli Stati Uniti, mi era difficile capire l'inglese.
'Before living in the United States, it was difficult for me to understand English.'

The fact that the final 3s of predicates in these classes can be shown to be initial 1s has several interesting consequences for linguistic theory.

First, as already pointed out in §1.1, it bears on the question of whether the grammatical relations nominals bear in the initial stratum of their clauses is universally predictable as a function of semantic roles. If these Inversion final 3s were initial 3s, they would constitute an important counterexample to any such claim. While it cannot establish the predictability of initial grammatical relations from semantic roles,[16] the demonstration that Inversion 3s are initial 1s eliminates a significant class of counterexamples.

Second, this matter has consequences for another problem of linguistic theory - that of characterizing the class of possible raising constructions in natural languages. This is due to the fact that sembrare and parere are Subject Raising triggers, while impossibile, difficile, and facile are Object Raising triggers:

(126) Giorgio mi pareva un po' nervoso. [Subject Raising]
'Giorgio seemed a bit nervous to me.'

(127) Questi libri sono difficili da leggere [Object Raising]
'These books are difficult to read.'

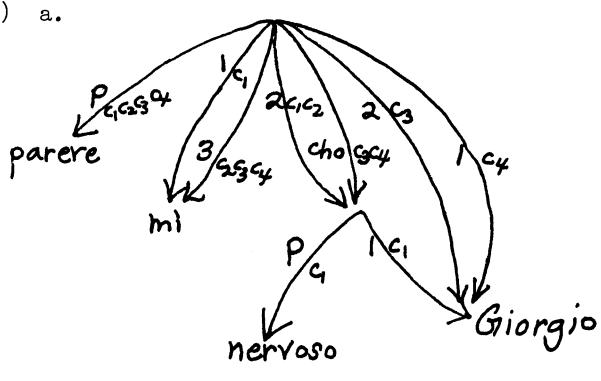
The basic question at issue is this:

(128) What is the initial-stratum grammatical relation of the complement out of which the ascendee ascends?

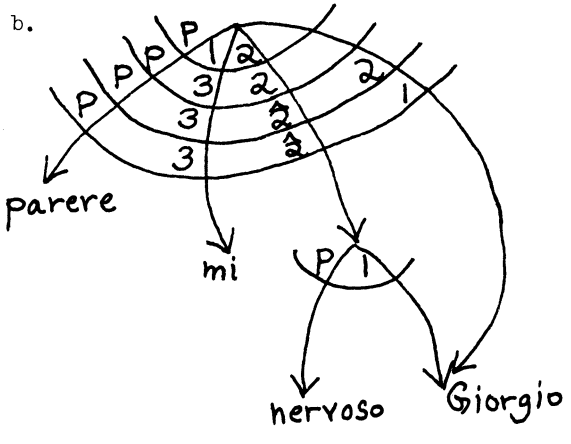
Under one analysis of these constructions, the complement is the initial 1 of the clause whose predicate is the raising trigger.[17] Under another analysis, the complement is the initial 2. The demonstration that the final 3 of *sembrare*, *difficile*, etc. is the initial 1, taken together with the Stratal Uniqueness Law. [Perlmutter and Postal (1977, to appear b)] forces an answer to (128). This law claims that it is impossible for a well-formed clause to have two (or more) distinct 1-arcs in the same stratum. Since the Inversion nominal heads a 1-arc in the initial stratum, the complement that serves as host of the ascension cannot do so. Thus the evidence for the 1hood of the final 3 of raising triggers is indirectly evidence for the initial 2hood of the complement.

The structure I propose for (126) (in two equivalent notations) is:[18]

(129) a.



b.



In (129), the initial stratum of the matrix clause contains a 1-arc and a 2-arc, and the second stratum, in which the initial 1 heads a 3-arc, is an unaccusative stratum in the sense of Perlmutter and Postal (to appear c) and Perlmutter (1978). The ascendee, ascending out of a 2-complement, is a 2 in the matrix clause; this is predicted by the Relational Succession Law [Perlmutter and Postal (to appear a)]. It advances to 1 by Unaccusative Advancement. The crucial point about this analysis is that it does not involve raising out of a 1. This is of interest in view of the claim in Perlmutter and Postal (to appear d) and the Editor's Afterword to Perlmutter and Postal (to appear a) that all raising[19] is out of 2s. Thus, the evidence for the 1hood of Inversion nominals with raising triggers such as sembrare, difficile, etc. indirectly provides evidence for the claim that raising is universally out of 2s and never out of 1s.[20]

5. Some Clauses with Two Working 1s

As the RN in (129) makes clear, there are clauses in Italian that have two working 1s - the final 1 and the Inversion nominal. If the formulation of the four conditions in §3 in terms of the notion 'working 1' is correct, there should be sentences in which both working 1s can control the phenomena in question. And this is the case.

First, both working 1s can control adverbial infinitive constructions. Thus, (130) is ambiguous:

(130) Prima di partire per l'estero, Giorgio mi sembrava un po'nervoso.
'Before leaving for abroad, Giorgio seemed a bit nervous to me.'

(130) can mean either 'before Giorgio left for abroad' or 'before I left for abroad.'

Second, both working 1s can control Equi in the gerund construction:

(131) a. Essendo appena tornato in città, Claudia mi pareva più bella del solito.

b. Essendo appena tornata in città, Claudia mi pareva più bella del solito.
'Having just returned to town, Claudia seemed more beautiful to me than usual.'

The masculine singular participle tornato in (131a) shows that the controller is mi, while the feminine singular form tornata in (131b) shows that the controller is Claudia. In each case, the participle

agrees with the final 1 of the gerund clause. (131 a) means that I have just returned to town, while (131 b) means that Claudia has.

Third, both working 1s can control Equi in the participial absolute:

(132) a. Appena tornato in città, Claudia mi pareva più bella del solito.

b. Appena tornata in città, Claudia mi pareva più bella del solito.
'Just returned to town, Claudia seemed more beautiful to me than usual.'

As the agreeing participles make clear, mi is the controller in (132 a), while Claudia is the controller in (132 b).

Fourth, both working 1s can control the consecutive da + infinitive construction:

(133) Alla mamma Giorgio pareva talmente nervoso da non poter dormire.
'To his mother Giorgio seemed so nervous as not to be able to sleep.'

(134) Alla mamma Giorgio pareva talmente nervoso da volerlo far visitare da un specialista.
'To his mother Giorgio seemed so nervous that she wanted to have him examined/visited by a specialist.'

In (133) the controller is Giorgio, while in (134) it is la mamma.[21]

The fact that in clauses with two working 1s, both can control the phenomena in question is of interest for two reasons.

First, this fact follows directly from the formulation of the relevant condition in terms of the notion 'working 1.' These examples thus provide additional support for that formulation.

Second, these examples provide a different kind of indirect support for the arguments for the 1hood of Inversion nominals developed in §3. The basis of those arguments is the contrast between the behavior of Inversion nominals with respect to the four control phenomena discussed there and the behavior of nominals that are both initial and final 3s. The fact that the latter can not control the phenomena in question was generally shown by means of sentences with both a 1 and a 3, where only the 1 could act as controller. Now, an alternative formulation of the conditions on control of the phenomena in question might be proposed along the following lines:

(135) The only nominal that can control Phenomenon X is the nominal whose final-stratum grammatical relation ranks highest on the hierarchy of grammatical relations.

(135) would account for most (but not all) of the data in §3. If (135) were adopted for each of the phenomena discussed there, most of the arguments in §3 for the 1hood of Inversion nominals would no longer go through. That is the second reason why examples like (130-134) are significant. (135) is based on the assumption that in a given clause, no more than one nominal can control the phenomenon in question. (130-134) show that this is not true. Thus, the conditions formulated in terms of the notion 'working 1' in §3 cannot be replaced by a condition such as (135). This indirectly supports the arguments for the 1hood of Inversion nominals, which are based on the formulation of the relevant conditions in §3 in terms of the notion 'working 1.'

6. Working 1s and Inversion in Japanese

6.1 The Problem

In §6 I argue that the notion 'working 1' is needed in the grammar of Japanese, and that the phenomena for which it is needed provide evidence for Inversion in Japanese.

In Japanese, final 1s are marked with the particle ga, final 2s with o, and final 3s with ni, as in the following example:

(136) Dono hito ga musuko ni sono hon o kuremasita ka?
which person NOM son DAT that book ACC gave ?
'Which person gave that book to my son?'

However, there are sentences of Japanese that exhibit a different case marking pattern:

(137) Kimura-san ni sono mondai ga wakaru.
DAT that problem NOM understand
'Mr. Kimura understands that problem.'

Here we are concerned with only one aspect of the case marking pattern in (137) - the fact that Kimura-san is marked with ni. I argue here that Kimura-san in (137) is an Inversion nominal, heading a 1-arc in the initial stratum and a 3-arc in the final stratum.

The most obvious evidence for the final 3hood of Kimura-san in (137) is the dative particle ni. If Kimura-san in this example is not a final 3, some otherwise unmotivated device will have to be added to the grammar of Japanese to account for such instances of ni. If these are Inversion nominals, however, the presence of the particle ni in such examples will be accounted for by the same rule that accounts for ni in (136).

A second piece of evidence for the final 3hood of Inversion nominals in Japanese comes from their inability to launch floating quantifiers. Final 1s in Japanese can launch floating quantifiers, as in:[22]

(138) a. Sannin no kodomotati wa iti do ni nakihazimeta.
three GEN children TOP at-once cry+began
'Three children began to cry at once.'
b. Kodomotati wa sannin iti do ni nakihazimeta.

In (138b), the quantifier sannin has floated from the nominal kodomotati. However, quantifiers cannot float from final 3s:

(139) a. Kimura-san wa sanbiki no inu ni mizu o yatta.
TOP three GEN dog DAT water ACC gave
'Mr. Kimura gave water to three dogs.'
b. *Kimura-san wa inu ni sanbiki mizu o yatta.

Quantifiers cannot float from Inversion nominals either:

(140) a. Korera no sannin no kodomotati ni eigo ga wakaru.
'These three children understand English.'
b. *Korera no kodomotati ni sannin eigo ga wakaru.

If Inversion nominals are final 3s, no special device need be added to the grammar to account for the ungrammaticality of sentences like *(140b); it will follow from the rule that also accounts for the ungrammaticality of sentences like *(139b).[23]

Thus, Inversion nominals in Japanese behave like final 3s with respect to case marking and floating quantifiers. The question is whether there is evidence in Japanese that they are initial 1s. We now turn to that evidence.

6.2 Argument One: Reflexives

In Japanese, only a 1 can serve as antecedent of a reflexive.[24]

(141) Dono hito$_i$ ga Ando-san$_j$ ni zibun$_i$ no koto ni tuite
which person NOM DAT REFL GEN thing about
hanasimasita ka?
talked ?
'Which person$_i$ talked to Mr. Ando$_j$ about himself$_i$?'

(142) Dono hito$_i$ ga Ando-san$_j$ ni zibun$_i$ no syasin o
which person NOM DAT REFL GEN picture ACC
misemasita ka?
showed ?
'Which person$_i$ showed Mr. Ando$_j$ a picture of himself$_i$?'

In (141-142), only the 1 (dono hito) can be the antecedent of the reflexive zibun; the 3 (Ando-san) cannot be. Similarly, a 2 cannot antecede a reflexive in Japanese:

(143) Yamada-san$_i$ wa Ando-san$_j$ o zibun$_i$ no ie de
TOP ACC REFL GEN house LOC
korosita.
killed

'Mr. Yamada$_i$ killed Mr. Ando$_j$ in his$_i$/*his$_j$ own house.'

However, a Passive 1 can antecede a reflexive:

(144) Ando-san$_j$ wa Yamada-san$_i$ ni zibun$_j$ no ie de
TOP CHO REFL GEN house LOC
korosareta.
was-killed
'Mr. Ando$_j$ was killed by Mr. Yamada$_i$ in his$_j$ own house.'

This shows that the condition on antecedents of reflexives cannot be stated either in terms of initial grammatical relations or in terms of semantic roles.[25] Given only this data, the condition on possible antecedents of reflexives in Japanese could be formulated either in terms of the notion 'final 1' or the notion 'working 1.' The evidence deciding between the two formulations comes from Inversion nominals, which can antecede reflexives:

(145) Kimura-san ni zibun no koto sika wakaranai.
DAT REFL GEN thing only understand
'Mr. Kimura understands only things pertaining to himself.'

Thus, the condition can be given informally as follows:[26]

(146) Condition on antecedents of reflexives in Japanese
Only a working 1 of a clause b can serve as antecedent of a reflexive in clause b.

The fact that Inversion nominals can antecede reflexives in Japanese provides evidence both for the formulation of the condition in terms of the notion 'working 1' and for the lhood of Inversion nominals.

6.3 Argument Two: The -NAGARA Construction

The second place in Japanese grammar where the notion 'working 1' is necessary concerns the -nagara construction:

(147) Arukinagara, daitooryoo wa gamu o kande ita.
walk+while president TOP gum ACC chewing was
'While walking, the president was chewing gum.'

(147) attributes the walking to daitooryoo, the 1 of the main clause. This is accounted for in a grammar of Japanese in which daitooryoo is the 1 of the -nagara clause as well as the main clause, but does not appear in the surface string because it is an Equi victim, Equi being controlled by the 1 of the main clause. While I assume such an analysis here, the argument does not depend on it. It depends only on the lhood of the controller in the main clause.

A 3 cannot control the -nagara construction:

(148) Sono koto o kangaenagara, Tanaka-san ni denwa sita.
those things ACC think+while DAT telephoned
'While thinking about those things, I phoned Mr. Tanaka.'

(148) means that I was thinking about those things, not that Mr. Tanaka was. Thus, the -nagara construction in (148) is controlled only by the first person subject of the main clause (which does not appear overtly), not by Tanaka-san, the 3 of the main clause.

(149) *Sono koto o kangaenagara, Tanaka-san ni denwa ga kakatta.
DAT phone NOM connected
'While thinking about those things, Mr. Tanaka got a phone call.'

*(149) uses the intransitive verb kakaru, which can be used with a 3 to mean that someone got a phone call (literally: 'to someone the phone connected'). But since Tanaka-san is a 3 in *(149) and not a 1, it cannot control the -nagara construction, and *(149) is ungrammatical.

A 2 cannot control the -nagara construction:

(150) Hooritu no senmon-ka de arinagara, Katoo-san wa Yamamoto-san o damasita.
law GEN expert being+while TOP ACC deceived
'Though (he was) an expert on law, Mr. Katoo deceived Mr. Yamamoto.'

(150) means only that Mr. Katoo was an expert on law, not that Mr. Yamamoto was. In the corresponding passive, however, we find the opposite:

(151) Hooritu no senmon-ka de arinagara, Yamamoto-san wa Katoo-san ni damasareta.
'Though (he was) an expert on law, Mr. Yamamoto was deceived by Mr. Katoo.'

(151) means only that Mr. Yamamoto was an expert on law, not that Mr. Katoo was. Thus, the condition on controllers of the -nagara construction cannot be stated in terms of initial grammatical relations or in terms of semantic roles.

To decide between formulations of the condition in terms of the notions 'final 1' and 'working 1,' we turn to Inversion nominals. Though final 3s, they can control the -nagara construction:

(152) Sutoraiki o yatte inagara, roodoosya ni sono mondai
strike ACC doing be+while workers DAT that problem

ga dandan wakatte kita.
NOM gradually understand came
'While on strike, the workers gradually came to understand that problem.'

(153) Sutoraiki o yatte inagara, roodoosya ni subete ga muzukasiku omoete kita.
everything NOM difficult seem came
'While on strike, everything began to seem difficult to the workers.'

Thus, the condition can be given informally as follows:

(154) Condition on controllers of the -NAGARA construction
Only a working 1 of the matrix clause can control the -nagara construction.

The grammaticality of sentences like (152-153) with Inversion nominals controlling the -nagara construction provides evidence both for the formulation of the condition in terms of the notion 'working 1' and for the lhood of Inversion nominals in Japanese.

6.4 Argument Three: Honorifics

Japanese has a system of honorific verbal forms that are used if the nominal designating a personage to be honored bears the appropriate grammatical relation in the clause.[27] The subject honorific is used if the 1 is a nominal designating a personage to be honored. This can be seen in the contrast between (155) and (156), where (155) has the plain (polite) verbal form and (156) has the subject honorific.

(155) Dono hito ga Naomi-tyan ni sono mondai ni tuite
which person NOM DAT that problem about
hanasimasita ka?
talked ?
'Which person spoke to (little) Naomi about that problem?'

(156) Dono sensei ga Naomi-tyan ni sono mondai ni tuite
which NOM DAT that problem about
o-hanasi ni narimasita ka?
talked/1-HONORIFIC ?
'Which sensei talked to (little) Naomi about that problem?'

Use of the subject honorific in (155) would be inappropriate.

If the 3 is a nominal designating a personage to be honored, an object honorific form can be used:

(157) Naomi-tyan wa Yamada-sensei ni sono mondai ni tuite
TOP DAT that problem about
o-hanasi simasita.
talked/OBJ-HONORIFIC
'(Little) Naomi talked to Yamada-sensei about that problem.'

A subject honorific cannot be used in this case:

(158) *Naomi-tyan wa Yamada-sensei ni sono mondai ni tuite
o-hanasi ni narimasita.
talked/1-HONORIFIC

Turning to Inversion sentences, we see that an Inversion nominal behaves not like a 3 but rather like a 1 with respect to honorifics:

(159) Yamada-sensei ni sono mondai ga o-wakari ni naru.
DAT that problem NOM understand/1-HON.
'Yamada-sensei understands that problem.'

Since only a 1 can trigger a subject honorific, the fact that Inversion nominals trigger subject honorifics provides a further argument that they are 1s. Since they are final 3s, we have here another argument for Inversion in Japanese.

6.6 Conclusions

In §6 it has been shown that the conditions on antecedents of reflexives and controllers of the -nagara construction in Japanese must be stated in terms of the notion 'working 1.' This provides further support for the incorporation of that notion into linguistic theory. At the same time, these phenomena, together with honorifics, case marking, and floating quantifiers, provide evidence for Inversion in Japanese.

7. Working 1s and Inversion in Quechua

The notion of 'working 1' proposed in this paper provides a solution to a problem in the grammar of the Imbabura dialect of Quechua noted by Hermon (1978). Basing herself on Cole and Jake (1978), who studied the Inversion construction in Imbabura, Hermon confronts its interaction with Equi, which she states is "otherwise restricted to deleting subjects in Imbabura."[28] Passive 1s can be Equi victims in Imbabura, as in:

(160) Warmi-ca mana muna-n-llu runa maca-shca ca-na-ta.
woman-TOP NEG want-3-NEG man hit-PSTPRT be-INF-ACC
'The woman doesn't want to be hit by the man.'

Passive chomeurs cannot:

(161) *Runa mana muna-n-llu warmi-ca maca-shca ca-na-ta.
'The man doesn't want the woman to be hit by him.'

(160) and *(161) show that the condition on Equi victims cannot be stated in terms of the notion 'initial 1.' The fact that it can-

not be stated in terms of the notion 'final 1' can be seen in the fact that Inversion nominals can be Equi victims. For example, warmi in (162) is an Inversion nominal, appearing in what Hermon calls the "accusative case:"

(162) Warmi-ta nana-ju.
woman-ACC hurt-PROG
'The woman is hurting/hurts.'

However, it can be an Equi victim:

(163) Warmi mana gushta-n-llu nana-ju-na-ta.
woman NEG like-3-NEG hurt-PROG-INF-ACC
'A woman doesn't like to hurt.'

Hermon considers this a serious problem, and reluctantly concludes that such phenomena "need to be handled by rule ordering." However, the problem is caused only by the unavailability of the notion 'working 1.' With that notion in linguistic theory, the condition on Equi victims in Imbabura Quechua can be given informally as follows:

(164) Condition on Equi victims
Only a working 1 of a clause can be an Equi victim.

(164) accounts for the data, with no problems. Although a researcher in a derivational framework was forced to resort to rule ordering to account for the data, the generalization governing Equi victims in Quechua is exactly the same as is needed to state various phenomena in the grammars of Italian and Japanese. A linguistic theory that provides RNs as syntactic representations and incorporates the notion 'working 1' can state the correct generalization. The usefulness of the notion 'working 1' for Quechua lends further support for its incorporation in linguistic theory.

8. Possible Generalization of the Notion 'Working 1' to 'Working $Term_x$'

The question arises as to whether the notion of 'working 1' defined in §1.2 and shown to play a role in the grammars of Italian, Japanese, and Quechua should be generalized to a broader notion of 'working $Term_x$,' of which the notion 'working 1' would be a special case. The most straightforward generalization would be:

(165) Working $Term_x$ (Definition)
A nominal is a working $Term_x$ of clause b if and only if:
i) it heads a $Term_x$ arc with tail b
and ii) it heads a final-stratum Term arc with tail b

Under this definition of 'working $Term_x$,' a 2 that advances to 1 in either the Passive or the Unaccusative Advancement construction would be a working 2, as would a 2 that demotes to 3 in the 2-3 Retreat construction. Similarly, a 3 that advances to 2 in the 3-2 Advancement construction, a 3 that advances to 2 and then to 1, and a 3 that advances directly to 1 would all be working 3s. While it is conceivable that the notion of 'working $Term_x$' defined in (165) will be shown to play a role in the grammars of natural languages, I know of no empirical instances motivating the notions 'working 2' or 'working 3' as they are defined in (165).

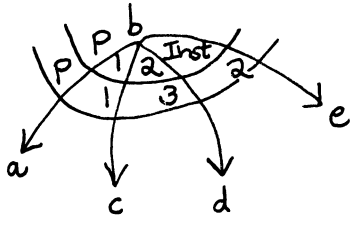
A more restricted definition of the notion 'working $Term_x$' can be given, however, which seems more likely to be needed in the grammars of natural languages:

(166) Working $Term_x$ (Definition)
A nominal is a working $Term_x$ of a clause b if and only if:
i) it heads a $Term_x$ arc with tail b
ii) it heads a final-stratum $Term_y$ arc with tail b
and iii) the $Term_y$ R-sign does not outrank the $Term_x$ R-sign on the hierarchy of R-signs (1>2>3>Nonterm R-signs)

Under this definition, a 2 is a working 2 only if its final Term relation is 2 or 3. Further, there is no notion of 'working 3' distinct from 'final 3.' However, the notion of 'working 1' defined and motivated in this paper is a special case of (166).

The question of whether a generalized notion of 'working $Term_x$' such as that in (165) or (166) should be incorporated into linguistic theory and, if so, which of these two definitions should be adopted, are empirical issues that can only be decided by future research. I would like to point out here a class of cases where the notion in (166) might be needed. Consider a case where an Oblique advances to 2 and the 2 demotes to 3, as in the following example (given here in a stratal diagram):

(167)



An analysis like this is proposed for Kinyarwanda in Perlmutter and Postal (to appear b, §8). If a language exhibiting a construction like that in (167) has rules stated in terms of the notion 'working 2,' the nominal d will behave like a 'working 2' with respect to those rules. To motivate statement of the rules in question in terms of the notion 'working 2' in such a case, it would be necessary to show that d is not a final-stratum chomeur, so that the rules in question cannot be stated in terms of the notion 'act-

ing 2' (Perlmutter and Postal (to appear d)). Similarly, it would have to be shown that the rules in question cannot be stated in terms of the notion 'nominal heading a 2-arc.'[29]

The extension of the notion 'working 1' to that of 'working $Term_x$' as defined in (166) seems plausible, but cannot be made unless it is shown that this notion is needed in the grammars of natural languages. To show that the notion of 'working $Term_x$' defined in (165) is necessary, much additional evidence above and beyond that needed to motivate (166) would be necessary. While it seems unlikely that evidence needed needed to motivate the latter notion empirically will be forthcoming, the possibility cannot be ruled out a priori. The question of whether either of these notions should be incorporated into linguistic theory is an empirical one that can only be answered by future research.

9. Conclusions

In this paper, the Inversion construction has been motivated in some detail for Italian, with five arguments for the final 3hood of Inversion nominals and four arguments for their 1hood. The latter four arguments involve phenomena stated in terms of the notion 'working 1.' It has been shown that this notion is needed not only for Italian, but also for Japanese and Quechua. It is concluded that the notion 'working 1' will be found to play a role in the grammars of additional languages, and that phenomena stated in terms of this notion will provide evidence for the Inversion construction in those languages.

Postscript

In §3, where it was argued that the conditions governing various control phenomena in Italian must be stated in terms of the notion 'working 1,' only in the case of consecutive da + infinitive was it pointed out explicitly that the condition cannot be stated in terms of the notion 'nominal in initial position.' The examples below show this for the other three phenomena.

(168) Equi in the gerund construction:
  a. Essendo appena tornato dall'estero, ai figli di mia sorella ho dato tutto quello che rimaneva dell'eredità.
  'Having just returned from abroad, to my sister's children I gave all that remained of the inheritance.'
  b. *Essendo appena tornati dall'estero, ai figli di mia sorella ho dato tutto quello che rimaneva dell'eredità.

(169) Equi in the participial absolute:
  a. Appena tornato dall'estero, ai figli di mia sorella ho dato tutto quello che rimaneva dell'eredità.
  'Just returned from abroad, to my sister's children I gave all that remained of the inheritance.'

b. *Appena tornati dall'estero, ai figli di mia sorella ho dato tutto quello che rimaneva dell'eredità.

(170) Adverbial infinitival clauses:
Prima di partire per l'estero, ai figli di mia sorella ho dato tutto quello che rimaneva dell'eredità.
'Before leaving for abroad, to my sister's children I gave all that remained of the inheritance.'

In (168-169), the fact that the past participle must have the masculine singular form tornato shows that only the first person singular 1 of the main clause can control Equi in these constructions. Although the 3 of the main clause (i figli di mia sorella) is in initial position, it cannot control Equi here, as indicated by the sentences in which the past participle has the plural form tornati. Similarly, (170) means only 'before I left for abroad,' not 'before my sister's children left for abroad.' Thus, the only possible controller is the 1 of the main clause, not the nominal in initial position.

Footnotes

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1. For evidence for Inversion in various other languages, see Harris (to appear a, b) and Perlmutter (to appear a).

2. This paper is written in the framework of relational grammar. For explanation of the various concepts employed ('arc,' 'stratum,' 'initial,' 'final,' etc.) and of the notation of relational networks (RNs), see Perlmutter and Postal (1977, to appear b).

3. I assume the characterization of Passive clauses proposed in Perlmutter and Postal (1977).

4. The formulation in (11) is actually an oversimplification in that it ignores situations (such as causatives and other Clause Union constructions) where a nominal heads arcs with different clause nodes as tail. Since this paper is not concerned with those constructions, this formulation is sufficient for present purposes.

5. I use this phraseology because I assume such cases are to be handled by "multiattachment" - cf. Perlmutter and Postal (to appear d, §4) and Perlmutter (in preparation).

6. I ignore here the issue of the nature of Equi and how it is to be represented in RNs, since that issue is not relevant to the present discussion, which concerns only the condition on Equi victims in Italian. Likewise, in §3, where various types of Equi are discussed, only the condition governing possible controllers is relevant, so the issue of the nature of Equi itself is ignored.

7. The present argument assumes that the lack of an overt final l in the second conjunct of sentences like (34b) and (35b) is another instance of the omissibility of subject pronouns in Italian that is illustrated by (29). If, on the other hand, this is another phenomenon that is restricted to final ls in coordinate structures, it would probably provide an additional argument for the final non-lhood of Inversion nominals.

8. I ignore here questions concerning the nature of quantifier float, since only the conditions governing which nominals can "float" quantifiers are relevant to the argument developed here.

9. I ignore here the question of the interaction between cliticization and quantifier float, and that of how these two phenomena are to be represented formally.

10. It is necessary to distinguish between quantifier float, where a quantifier appears <u>detached</u> from its nominal, and cases where a quantifier may have more than one position <u>within</u> its nominal. With pronominal objects of prepositions, the quantifier may either precede or follow the head:

(i) a. Giorgio ha pensato a tutti noi.
b. Giorgio ha pensato a noi tutti.
'Giorgio thought about us all.'

In (i-b), however, the quantifier <u>tutti</u> is not floated <u>off</u> its nominal, but is merely following the head <u>within</u> it. One piece of evidence for this is the fact that other elements cannot appear between <u>noi</u> and <u>tutti</u> in (i-b).

11. The expression rompersi le scatole 'get fed up' appears with a reflexive pronoun that necessarily agrees in person and number with the subject. Thus, in the da-clause in (62b), we have the third person reflexive si, in agreement with the subject of the clause (the Equi victim). If the first person singular 2 could control the consecutive da + infinitive construction, we would get rompermi le scatole with the first person singular reflexive mi, as in *(63b). This mi prevents speakers from interpreting this sentence as having la mamma as the controller. Similarly, the third person reflexive si in *(64b) and *(65b) prevents speakers from interpreting these examples as having the first person subject of the matrix clause as controller.

12. The adjective matte in *(68b) is feminine plural, which is the form it would have if queste donne could be the controller. This feminine plural form prevents speakers from interpreting it as having Giorgio as controller.

13. (71) also illustrates this point. In that example, the Inversion nominal mio marito controls Equi in the gerund construction beginning with dimenticando.

14. I limit myself here to pointing out certain differences between the gerund construction and the participial absolute. A more thorough analysis of these constructions is beyond the scope of this paper.

15. For the basic condition on the participial absolute construction, see Perlmutter (in preparation).

16. There are significant problems that any attempt to predict initial grammatical relations from semantic roles must solve. To cite only one, there are some Experiencers that would appear to be initial 2s:

(i) That **surprises me.**

An analysis of (i) in which that is not an initial 1 but an advancee to 1 would entail violations of the 1-Advancement Exclusiveness Law (Perlmutter and Postal (to appear c)) in sentences like:

(ii) I am **surprised** by that.

However, discussion of alternative analyses for such examples is beyond the scope of this paper.

17. This analysis, which shares certain crucial features with some analyses proposed in a transformational framework, is given in Perlmutter and Postal (to appear a), which was actually written in 1972.

18. (129) ignores the question of whether Giorgio is the initial 1 or initial 2 of the complement, assuming the former because the issue has no bearing on the present discussion. At issue is whether

the complement is initially unaccusative or unergative in the sense of Perlmutter and Postal (to appear c) and Perlmutter (1978).

19. The term 'raising' refers to an ascension where the host is clausal (cf. Perlmutter and Postal (to appear a)). Thus, while all raisings are ascensions, not all ascensions are raisings.

20. This has other empirical consequences. For example, as shown in Perlmutter and Postal (to appear d), together with certain proposed universals it predicts the universal ungrammaticality of impersonal passives of intransitive raising triggers.

21. (133) has the possibility of a second reading in which it is the mother that cannot sleep, but the pragmatics of the situation generally make speakers assume initially that it is Giorgio that can't sleep. The possibility of a second reading with Giorgio as controller in (134) is ruled out by the nonreflexive pronoun lo referring to Giorgio. Together, (133) and (134) show that either working 1 of the matrix clause can control the consecutive da + infinitive construction.

22. Example (140) is taken from Shibatani (1977). Shibatani also notes the facts discussed in §6.2 and §6.4.

23. Because an overall account of floating quantifiers in Japanese involves a number of complications that are not relevant to the present paper, I do not attempt to give an explicit statement of the conditions governing quantifier float here.

24. For discussion of the subject condition on antecedents of reflexives in Japanese, see Kuroda (1965), McCawley (1972a, 1972b, 1976), Kuno (1973), Howard and Niyekawa-Howard (1976), and Inoue (1976).

25. The reflexive facts provide evidence for the proposal, which I adopt here, that the so-called "direct passives" of Japanese have RNs that include subnetworks of the form (9). McCawley (1972a, 1972b) and Kuno (1973) made an analogous proposal within a transformational framework, pointing out that this data motivates positing a structural distinction between "direct passives" and "indirect passives." Howard and Niyekawa-Howard (1976) propose an alternative account of the difference between direct and indirect passives with respect to reflexives, but their proposal does not account for the data concerning control of the -nagara construction (discussed in §6.3) in direct and indirect passives. That data provides additional evidence that direct passives involve subnetworks of the form (9), while indirect passives do not. The fact that direct passives involve verbal forms with the suffix -rare- that is also found in indirect passives can be accounted for by positing structures for direct passives in which subnetworks of the

form (9) are embedded as complements of clauses that have -rare- as predicate, while indirect passives involve embedding of non-passive clauses as complements of -rare-. Discussion of this proposal, however, is beyond the scope of this paper.

26. I ignore here cases where a nominal in one clause serves as antecedent of a reflexive in another clause.

27. For a detailed study of honorifics in Japanese, see Harada (1976). The terms 'subject honorific' and 'object honorific' are taken from Harada. Since a precise formulation of the conditions governing honorifics involves many complications that are not relevant to the present argument, I do not attempt such a formulation here. I also ignore what Harada calls 'performative honorifics.'

28. Hermon assumes a derivational theory of grammar and thus speaks of "deletion," "rule ordering," and other concepts rooted in derivational assumptions.

29. The Stratal Uniqueness Law (Perlmutter and Postal, 1977, to appear b, d) would rule out the possibility of the initial 2 also being a final 2.

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Semantic Mechanisms of Humor

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0. Introduction-cum-Summary. Recent developments in semantic and pragmatic theory and practice, viz. interpretive and generative semantics, presuppositional analysis, truth-conditional and possible-world semantics, speech act theory and implicatures, etc., have contributed significantly, though not conclusively, to the study of the linguistic and extra-linguistic context of the utterance. It is maintained throughout this paper that these and some other developments have set the goals of semantics (and pragmatics) so much higher than it was thought possible only a decade ago that it should not seem absurd to undertake a semantic investigation of humor. The problems involved in formal analysis of humor should not exceed in contextual complexity those of the above-mentioned methods and approaches. Both in terms of feasibility and in terms of the ontological commitments, a study of humor of the kind presented here is comparable to other contemporary semantic/pragmatic ventures.

The linguistic study of verbal humor is undertaken here, against the background of those recent developments, as an application of a tentative formal script-oriented semantic theory. On this theory, the lexicon entries for the constituents of a sentence call for certain scripts out of a finite repertoire. The scripts are thought to represent the "common sense" cognitive structures stored in the mind of the native speaker. Unlike in artificial intelligence (computational semantics), the scripts are motivated and justified in terms of grammaticality-cum-meaningfulness-cum-appropriateness. The scripts are designed to describe certain standard routines, processes, etc., the way the native speaker views them and thus to provide semantic theory with a restricted and prestructured outlook into the extra-linguistic world. It is never argued that it is feasible, or even theoretically possible, to provide a complete "scriptization" of reality. However, no claim to the contrary is made, either.

The semantic interpretation of a sentence is defined on a set of all the compatible combinations of the scripts invoked by the constituents of the sentence as a (partial) realization of any one of these combinations.

The object of the research is verbal humor. The purpose is to develop a formal semantic analysis in terms of which each joke-carrying text would be identified as possessing a certain semantic property such that the presence of this property would render any text humorous. The main hypothesis is that this humorous element is the result of a partial overlap of two (or more) different and in a sense opposite scripts which are all compatible (fully or partially) with the text carrying this element.

The first part of the paper is devoted to general information about humor as a phenomenon and to the problem of the applicability of some recent developments in semantics/pragmatics directly

to the analysis of verbal jokes. The second part introduces the notion of a script-oriented semantic theory which is then applied to humor. A few examples of party jokes, English limericks and Russian chastushkas are analyzed in terms of overlapping scripts. A possible source of counterexamples is indicated.

For reasons of space a not entirely consistent attempt has been made to keep the paper as self-contained as possible and the number of references is reduced to an absolute minimum. For the same reason, the examples of jokes in this paper have been selected mostly for their illustrative rather than purely humorous qualities. (Further information on the subject and somewhat better examples of jokes are provided in a monograph, now in progress, with the same title.)

Part 1. Humor ± Semantics

1.1. The nature of humor. Humor as a phenomenon, its philosophical, psychological and physiological nature, its aesthetic value, its relation to truth, ethical standards, customs and norms, its use in literature, its dependency on the society and culture have occupied the minds of a great number of thinkers for centuries. Attempts have been made to explain humor in various ways: as a ridicule of a human fault or error, but not too serious, because then it would not be an appropriate cause for laughter (Aristotle), as an exhibition of superiority over somebody else but again, not too serious (Stendhal), as an attempt to abase, denigrate a person or a cause of high stature (Bain) or to lower a value (Propp, Stern), as a metamorphosis of tense expectation into nothing (Kant), as a switch of one's mind and attention from something big and significant to something small and insignificant (Spencer), as an incongruent treatment of things, in deviation from the customary norm (Hegel, Schopenhauer). The purely human character of humor was somewhat chauvinistically emphasized (Bergson) - a property humor seems to share with lying.

All these attempts to account for humor tended to treat it holistically and generally and, naturally, no formal analysis of the linguistic aspect has ever been undertaken. Freud (1905) came the closest to such an analysis in his observations on the nature of verbal humor and in his classification of its types. Thus, his very first example of a joke (1) is aptly described as a result of a condensation of the two similar German words, familiär 'as an equal' and Millionär 'millionaire' (pp.47-51). The terms he uses in his classification (condensation, multiple use of the same material, double meaning) are rather vague and do not account for all the techniques which are used in jokes, and there is a heavy emphasis on what amounts basically to lexical ambiguity as virtually the only source of humor, both in his examples and in his comments.

(1) he treated me quite famili on är
(milli) (är)

Naturally, Freud's methods, goals and frame of reference are radically different from the present approach. However, the one thing the latter shares is Freud's interest to linguistic mechanisms underlying humor.

1.2. Humor and recent developments in semantics. Many jokes can be successfully explained in terms of the semantic notions which have emerged in the last 10 to 15 years. Thus, if presupposition is thought of in terms of enablement, i.e. as one of those statements which should be true, or one of those conditions which should obtain, or one of those states of affairs which should have taken place, in order for the sentence in question to be comprehensible, appropriate, etc. (for further discussion of this notion of presupposition, which seems to include both the "logical" presupposition and most of the "pragmatic" presupposition, see Raskin, 1978a, Section 5), then many jokes are based on the knowledge of a presupposition shared by the speaker and the hearer(s). Thus, (2), also quoted by Freud, would not be funny or even comprehensible if the speaker and the audience did not share a certain presupposition which may be tentatively presented as (3).

(2) This girl reminds me of Dreyfus, the army does not believe in her innocence.
(3) Dreyfus was a French officer accused of treason. The army thought him guilty while many others considered him innocent. He was tried, convicted and imprisoned.

It should be noted that while Dreyfus was later rehabilitated it was not known at the time the joke was made and used, and had it been known the joke would have lost most of its value since the same analogy would then lead to the conclusion that the girl's innocence was also restored. Allusion of this kind is a typical process within the general framework of semantic recursion (see Raskin, op.cit., Section 4) and an allusion to Dreyfus nowadays would elicit information about injustice, antisemitism, scapegoats, etc., which would be completely foreign to the simple frivolous joke in (2).

If implicature is construed as using a sentence not in its literal meaning many jokes can be explained in terms of implicature, e.g., (4), where the second sentence really means something like (5).

(4) "My wife used to play violin a lot but after we had kids she has not had much time for that." - "Children are a comfort, aren't they?"
(5) Your wife cannot possibly play violin well so it is a comfort to you that she does not any more and you owe it to your children.

If possible worlds are understood in the usual superficial way as minor "impossible" deviations from the "real" world, many

jokes can be treated in terms of possible worlds, e.g., (6).

(6) A man objects to the price a prostitute has charged him, and attempts to have intercourse with her violently in and around her navel, shouting, "At these prices, I am going to make my own goddam hole!" (Legman, 1975, p.295)

Even if the applicability of these and perhaps other semantic notions to a large number of jokes can be proven - and this depends on the postulation and justification of an explicit framework for each of the notions - this would still fall short of the goal of this paper. At most (and with luck) those notions would contribute to the formulation of (partial) necessary conditions for the text to be humorous while this paper is concerned with the necessary and sufficient conditions.

Speech acts have been formulated since they were systematically introduced by Searle (1969) as the sets of sufficient and necessary conditions for assertions, questions, promises, etc. It is not too difficult to propose a definition of the speech act of making a joke (7), the way it has been done for other types of utterances, even though all the usual speech acts (see, for instance, Searle, op.cit., pp.66-67) were defined for the bona fide communication mode only and joking, just as lying again, exists outside this mode.

(7) Proposition Content: A proposition p or set of propositions P
Preparatory Condition: 1. S considers p or P appropriate to the situation
2. S is not committed to the literal truth of p or P
Sincerity Condition: S considers p or P funny
Essential Condition: Counts as an attempt to make H laugh

However, this treatment of humor would not be revealing or enlightening, either, since as all the other speech acts (and for that matter, most of the philosophy of language) (7) is an example of what I call "reductionist taxonomy", which comprises attempts, often quite respectable, to reduce a large set of very diverse notions to a much smaller set of more basic notions, where the latter are usually indiscriminately considered to be "intuitively given". To become a part of formal linguistics, with its aspired, even if possibly unachievable level of explicitness (see Raskin, 1978b), each of the underlined notions of (7) needs a formal definition some of which would turn out to be circular and others infinitely regressive.

We will seek a solution of the problem in the framework of a script-oriented semantic theory. In this paper we will not be able to demonstrate that some of the notions mentioned in this section are, in fact, built into the theory at the necessary level of formalization.

Part 2. Humor and Scripts

2.1. Script-oriented semantics. It is argued here (and further elaborated on elsewhere - see Raskin, 1978a, Section 4, and 1971, Ch.4) that our understanding of the sentence, or our calculation of its semantic interpretation (meaning), depends, among others, on the two sources, the lexicon and our knowledge of certain things about the world we live in. It was the largely negative experience of early machine translation which proved that the demarkation line between the "dictionary" and the "encyclopedia" was not at all clear, though perhaps this is not how this result was viewed at the time (cf. Bar-Hillel, 1964, pp.176-177). There has been some doubt, and much controversy, in recent semantic theory as to how much of the encyclopedia should, in fact, go into the dictionary, though again, the problem has not always been formulated in these terms (see, for instance, Weinreich, 1966; Bar-Hillel, 1967; Bar-Hillel and Raskin, 1975). It seems obvious that the comprehensibility of sentences (7'a), (8a) and (9a) and, more specifically, the correct usage of and in them depends on our knowledge of certain extra-linguistic facts, viz. the basic "commodities - money - commodities" formula, the fact that "black cats are unlucky", and that in some cultures men (still) stand up when women come into the room, respectively. The absence of any such structures for the (b) sentences in (7'-9) renders these sentences incomprehensible or at least not entirely comprehensible, and and in them inappropriate.

(7') (a) John was a dime short and had to do without milk
(b) *John was a dime short and had to do without family
(8) (a) Mary saw a black cat and immediately turned home
(b) *Mary saw a black cat and immediately sent the letter
(9) (a) Mary came into the room and all the men fell in love with her even before they sat back
(b) *Mary came into the room and all the men fell in love with her even before they sneezed

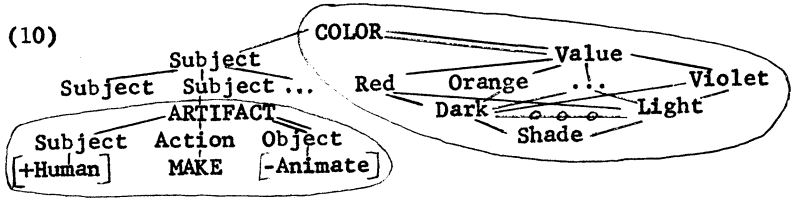
It appears that a certain repertoire of cognitive structures is stored in our minds just as the meanings of the words of the language(s) we speak are internalized by us. These cognitive structures may constitute what is loosely labelled here "common sense" and may represent our knowledge of a number of certain routines, standard procedures, basic situations, etc., or in still other words, our knowledge of what people do in certain situations, how they do it, in what order, etc. (The vagueness of the terms here does not mean that the notions do not exist.) We will be referring to these cognitive structures as 'scripts'.

The lexicon associated with a script-oriented semantic theory consists of the lexical entries directly invoking the script(s) with which the lexical item is compatible. Thus, bachelor may invoke such scripts as MARRIAGE and ACADEMIA, among others, or perhaps more elementary scripts on which these two may be based. The

script information is just that part of the encyclopedic knowledge which must be let into the lexicon to ensure the comprehensibility of the sentences. It is emphatically asserted that resorting to scripts in the lexicon does not constitute any stronger ontological commitment that the commitment involved in the compilation of any formal lexicon.

Technically, scripts may be represented as trees named after their dominating nodes or more precisely, as certain underlined nodes of graphs with their immediate environments (in block letters in (10) - encircled are the entries for the lexical items color and artifact in the lexicon).

(10)



However, below they will be represented informally in terms of certain conceptual slots and fillings and their format, justified elsewhere, may be considered arbitrary for the purpose of this paper.

The semantic interpretation of the sentence is calculated on the set of one or more combinations of scripts compatible with all the lexical items making up the sentence. Thus, to combine two hackneyed examples, the 12 scripts of (12) seem to be invoked by the lexical items of sentence (11) and the 25 compatible combinations of them (13) out of the 64 theoretically possible must correspond to the 25 readings of the sentence. The process of the calculation of the compatible combinations of scripts is not unlike (even if more complicated than) the notorious process of amalgamation in interpretive semantics and some such process seems inevitable - even for the calculation of the meaning of the simplest sentences corresponding to the elementary formulae of predicate calculus so favored by what used to be generative semantics (and certainly, for the calculation of the meaning of this sentence!). Needless to say, the names of the scripts in (12) should also be considered, within this paper, as arbitrary.

(11)	The	paralyzed	bachelor	hit	the	colorful	ball
(12)		1.DISEASE 2.MORAL	1. MARRIAGE 2. ACADEMIA 3. WARFARE 4. ANIMAL	1.COLLISION 2.DISCOVERY		1. COLOR 2.EVALUATION	1.ARTIFACT 2.ASSEMBLY

(13) 11111, 11112, 11212, 11222, 12111, 12112, 12212, 12222,
13111, 13112, 13212, 13222, 14111;
21111, 21112, 21212, 21222, 22111, 22112, 22212, 22222,
23111, 23112, 23212, 23222.

Three examples of scripts are presented in (14-16). Two of

them, (14) and (15), are going to be used in 2.2 for an analysis of a joke (18). It should be noted that (16) is a more elementary script than, say, (14) since the latter includes it. Such a relation between scripts, i.e. elementary VS non-elementary, is not at all unusual, which should have become clear from (10) - see also below. ('>' in time refers to the past, '=' - to the present.)

(14) DOCTOR
Subject: [+Human] [+Adult]
Activity: >Study medicine
=Receive patients: patient comes or doctor visits
doctor listens to patient's complaints
doctor examines patient's body
=Cure disease: doctor diagnoses patient's disease
doctor prescribes medicine
=(Take patient's money)
Place: >Medical School
=Patient's home or doctor's home or doctor's reception room or hospital
Time: >Many years
=Every day
=Immediately
Condition: Face to face

(15) LOVER
Subject: [+Human] [+Adult] [+Sex: x]
Activity: Makelove
Object: [+Human] [+Adult] [+Sex: $\bar{x}$]
Place: Secluded
Time: >Once
=Regularly
Condition: If subject or object married spouse(s) should not know

(16) HOME
Subject: [+Human]
Activity: To live in:
IN: To have family there
To take meals there
To sleep there
To receive guests
To stay in when nothing to do
OUT: To go out when something to do
Object: Artifact, Space inside
Place: Settlement
Time: Long
Condition: Own

(Note the culture- and subculture-dependency of the scripts, especially, (15).)

Systematic attempts are made to motivate and justify the semantic material of the scripts in terms of the non-well-formedness, according to the notion of grammaticality-cum-meaningfulness-cum-

appropriateness, of those sentences which are incompatible with at least one notion in the fillings. A few such non-well-formed sentences contradicting certain rubrics (in parentheses) of (14) are listed in (17).

(17) (i) This kestrel is our village doctor (Subject)
(ii) After elementary school I took a three-week crash course and became a doctor (Time)
(iii) Our village doctor has never treated a patient in his life (Activity)
(iv) A deaf doctor is the best doctor (Activity)
(v) Our doctor never examines his patients (Activity)
(vi) Our doctor never knows what is wrong with you (Activity)
(vii) I am not going to cure you, I am a doctor (Activity)
(viii) As your doctor I would like very much to finally meet you after 40 years of active correspondence (Condition)

2.2. Semantic mechanisms of humor. It is claimed here that much of verbal humor depends on a partial or complete overlap of two or more scripts all of which are compatible with the joke-carrying text. Thus, (18) is readily representable as a partial overlap of (14) and (15).

(18) "Is the doctor at home?" the patient asked in his bronchial whisper. "No," the doctor's young and pretty wife whispered in reply. "Come on right in."

The underlined elements constitute the trigger which serves as a signal that a competing script should be discovered and taken into account for the comprehension of the text. At No, (18) loses its compatibility with (14) and becomes compatible with (15) instead. We will not have anything to say here about the heuristic strategy of humor, i.e. how and where to look for the right competing script.

The popularity of (equally uninspiring) jokes based on the polysemy/homonymy of certain lexical items as in (19) and (21) is easily explained in terms of the underlined elements serving as regular and obvious triggers (calculable from the lexicon - though in (21) some syntactic ambiguity is also involved) between the pairs of scripts in (20) and (22), respectively, none of which, it should be noted, is elementary.

(19) The Junior String Quartet played Brahms last night. Brahms lost.
(20) MUSIC $\prec$ SPORTS
(21) An English bishop received the following note from the vicar of a village in his diocese: "Mylord, I regret to inform you of my wife's death. Can you possibly send me a substitute for the weekend?"
(22) CHURCH $\prec$ SEX

It appears that the worst and most shallow jokes render them-

selves readily to such an analysis. What seems to take place is that only such jokes are the result of an overlap of just two more or less elementary scripts. More usually, and leading to better though much more complicated jokes, several overlaps occur simultaneously, often in a certain hierarchy. Thus, in (23) the joke seems to be based on three overlaps (24), based in turn on two ambiguities.

(23) "Any big men born round here?" a tourist asked in a condescending voice. "No," responded the native. "Best we can do is babies. Different in the city, I suppose."

(24) (i) born (BIRTH : LIFE (after birth))
(ii) big (SIZE : FAME)
(iii) (CITY : VILLAGE)

The function of the ambiguous words as the triggers of numerous jokes is made especially explicit in the modern Israeli joke (25) where the character, Dudu, a minister in the government and the target of dozens of silly jokes in 1977-78, mistakes one disambiguating complement of the polysemous verb nosea 'drives, travels', yaguar 'Jaguar', for another, yanuar 'January' - presumably out of ignorance. (The joke is further complicated by two secondary overlaps of less elementary scripts.)

(25) "Dudu, haim ata yodea shehaozer shelkha nosea beyaguar?" "Az ma? Nosea beyaguar - yahazor befebruar." "Dudu, do you know that an assistant of yours drives a Jaguar?" "So what? He is travelling in January and coming back in February."

While an overlap may well be an important necessary condition of humor it is less than sufficient since an overlap of any two scripts does not necessarily produce a humorous effect - cf. (11). The two overlapping scripts should be opposite in a certain sense, only in this case they will produce the unexpected effect frequently emphasized by many thinkers mentioned in 1.1. What exactly it takes for some two scripts to be distinct or opposite enough so that their overlap would produce a humorous effect is one of the central issues of the approach. Most of the observed overlaps are easily explained in terms of the oppositeness or distinctness of certain semantic features of the scripts. However, it is much more interesting to be able to predict the funny combinations on the basis of certain relations between the involved scripts rather than to perform such an analysis retroactively. In this paper we will be able to deal briefly only with the simplest case when such a prediction seems to be working quite well.

It seems that there is a number of standard universally "funny" scripts which always produce a baser and more primitive kind of humor when overlapping with most other scripts. These scripts usually involve some obscenity and are largely language-independent. Thus, in (26) the described event is not at all funny

and the only thing which may be claimed to produce a humorous effect, if any, is the overlap of the script ACCIDENT with the universally "funny" script EXCREMENT.

(26) There was a young man of Loch Leven
Who went for a walk about seven.
He fell into a pit
That was brimful of shit,
And now the poor bugger's in heaven. (Legman, 1976, p.99)

(Here and elsewhere we ignore, at a certain price, the nonsemantical aspects of humor.)

A similar function is frequently performed by another standardly "funny" script, SEX, which is solely responsible for whatever comical effect there is to the Russian equivalent of the limerick as a genre, chastushka, in (27).

(27) Traktorist ty, Jaška,
Pod toboju tjažko.
Pogljadi-ka na mežu:
Pravil'no li ja ležu

Tractor driver Grisha,
Don't feel right beneath you.
Down the furrow take a sight,
Check up that I'm lying right.
(Rendered into English by Dr.Gerry S. Smith of the University of Birmingham)

It should be noted that both (26) and (27) are easy on obscene words. What renders (28) hilariously funny for the less sensitive and completely unprejudiced Russians is the rich combination of the two obscene scripts actually overlapping with each other plus a selection of obscene words.

(28) Kak u našem u kolxoze
Ebut devok u navoze.
Ix ebut, oni perdjat -
Bryzgi v storonu letjat.
(Kabronskij, 1978, p.53)

In our kolkhoz they fuck girls in manure. They fuck them, they /the girls/ fart and splashes fly around.

The less elementary are the involved scripts, i.e. the higher up are they in the hierarchy of the available scripts, the more complicated is the analysis of a joke and, quite often, the better is the joke. It is likely that a similar hierarchy can be observed among the clichés of a language. It is argued that the clichés are also a suitable target for the script analysis. What links the clichés to humor immediately is that one of the most complicated kinds of verbal humor uses verbal clichés of a higher level parodically. It is such sophisticated jokes (or antijokes?) as (29) which make any attempt at their script analysis so cumbersome that they should, in fact, be considered counterexamples.

(29) A man sitting in his living room in front of a TV set turns to his wife and says, "Funding for the 'Dick Cavett Show' has been provided by this station and other public-television sta-

tions, and by a grant from the Chubb Group of Insurance Companies, with additional funding from Allen Services Corporation."

(A verbalization of Stan Hunt's cartoon, The New Yorker, Vol.LIV, No.52, February 12, 1979, p.31)

Certain modifications of the theory are being contemplated to accomodate such and other counterexamples.

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Temporal Connectives and Logical Form

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0.0 The infusion of logic into linguistic semantics has been both a bane and a salvation. Its rigor and its requirement that semantics must relate language to the world have lead to a clarity of purpose and important insights, but the tendency to abstract away from or ignore the intricacies and richness of natural language in favor of exploring more well-behaved formal languages has suggested to some that formal semantics is artificial and limited in its usefullness. But one must be careful here to distinguish limitation in practice from limitation in principle. Following Montague (1973) we reject the contention that important differences exist between formal and natural languages. The question to ask, then, is not whether language is like logic, but rather, what type of logic does language have?

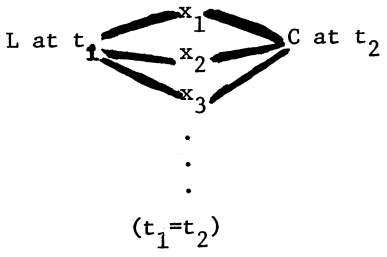
We assume that semantics proceeds by defining a translation relation between syntactic structure and representations in a disambiguated language called logical form (LF). LF's are then given an interpretation in a model. Our particular task is to give a truth-conditionally adequate semantics for certain adverbial clauses in English containing the adverbs when, before, and after in their use as temporal connectives. We also investigate the properties of Verbphrase Deletion (VPD) as it applies in temporal adverbial clauses.

0.1 (1)-(3) present examples of the relevant data.

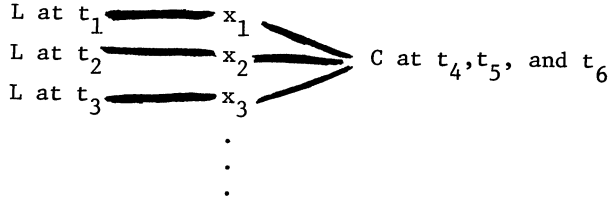
(1) Leslie greeted everyone when Chris greeted everyone.
(2) Leslie greeted everyone when Chris greeted 'em.
(3) Leslie greeted everyone when Chris did.

Note that (1)-(3) are each ambiguous. (1) has two readings: one where Leslie gives one mass greeting to all involved at the same moment that Chris does, and a second where Leslie greets each member of the domain, and at each of these greeting times, Chris collectively greets everyone involved. These two readings, which we call group/group and individual/group respectively, are schematized in (4)-(5).

(4) GROUP/GROUP READING



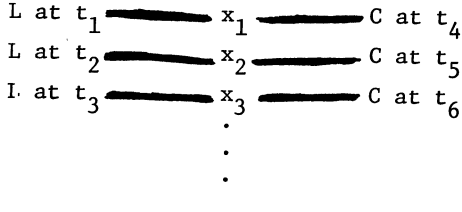
(5) INDIVIDUAL/GROUP READING



$(t_1=t_4,\ t_2=t_5,\ t_3=t_6)$

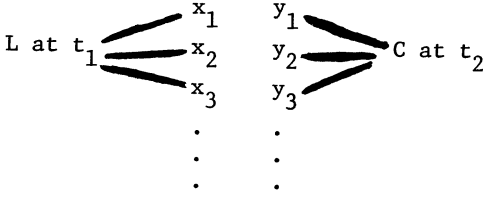
(2) introduces two new readings. On the first, (2) requires that Leslie and Chris each give individual, simultaneous greetings to everyone. On the second, Leslie gives one collective greeting to everyone at issue at the same time that Chris collectively greets some group which is contextually determined, perhaps by previous discourse. This second group may be identical to the group identified as "everyone" in the matrix clause, but it need not be. The two readings, which we call individual/individual and discourse Them readings, are schematized in (6) and (7), respectively.

(6) INDIVIDUAL/INDIVIDUAL READING



$(t_1=t_4,\ t_2=t_5,\ t_3=t_6)$

(7) DISCOURSE THEM READING



$(t_1=t_2,\ \Diamond x=y)$

Finally, note that sentence (3) shares one reading with each of (1) and (2). It bears both the group/group and individual/individual interpretations. (8) summarizes the facts to be accounted for.

(8)

SENTENCES	READINGS 4	5	6	7
1	+	+	-	-
2	(+)[1]	(+)	+	+
3	+	-	+	-

0.2 Our analysis of these facts proceeds as follows. Adopting in important respects the syntax of when-clauses suggested by Bresnan and Grimshaw (1978), we define a class of explicit translation rules which map from superficial syntactic structure onto logical form. The mapping disambiguates the English, providing a correct account of the number and type of readings inhering in sentences containing temporal adverbials. Second, we provide independent motivation for our conception of LF by demonstrating the manner in which VPD is sensitive to its syntax. As was first argued by Lakoff, the possiblity of applying VPD to a sentence depends crucially on certain aspects of its logical structure. Following Sag (1976, forthcoming), we extend this insight by illustrating how VPD is sensitive to matters of quantifier scope and variable binding. The logical forms we assign to (1)-(3) lead to just the right predictions about where VPD can apply, hence providing additional support for our proposal.

0.3 If correct, our arguments support four conclusions: 1) We provide evidence for a surface structure oriented semantics as being developed in Montague Grammar, or, as we assume, through an integration of Montague Grammar and Transformational Grammar. 2) Our analysis supports a weakened version of Frege's principle of compositionality which allows that scope assignments may be assigned via a technique known as storage due to Robin Cooper. 3) The facts we examine prove to undermine the view that two unrelated identity conditions on VPD-- one syntactic and one logical-- apply. A single condition applying at logical form is argued to be sufficient and probably necessary as well. 4) Finally, as a consequence of our analysis, some, but not all pronouns must be represented as bound variables in the standard sense at logical form. In this way, our initial results concerning temporal connectives and logical form point to important consequences for a general theory of anaphora.

1.0 In a nutshell, we argue that when, before, and after translate as temporal operators at LF. Their semantics requires that two sentences in the scope of the temporal operator be true at times whose orientation to each other is determined by the choice of the temporal connective. Thus, a sentence of the form P when Q will translate into a formula of the form when(P,Q) which is true just in case P and Q are each true at the same moment of time.[2] On analogy, after(P,Q) is true iff P is true at a time which is later than a time at which Q is true, and before(P,Q) is true iff P is true at a time prior to a time at which Q is true. The different readings located in (1)-(3) can be described as resulting from the different scope possibilities obtaining between the quantifiers

which translate everyone and the operators which translate temporal connectives. That is, given the semantics for when just described, the following logical schemata correspond to the readings previously established.

(9) when$((\forall x_0).P,(\forall x_1).Q)$ (GROUP/GROUP READING OF (1))
(x_0 free in P, x_1 free in Q)

(10) $(\forall x_0).$when$(P,(\forall x_1).Q)$ (INDIVIDUAL/GROUP READING OF (1))
(x_0 free in P, x_1 free in Q)

(11) $(\forall x_0).$when (P,Q) (INDIVIDUAL/INDIVIDUAL READING OF (2))
(x_0 free in P,Q)

(12) $(\forall x_0).$when (P,Q) (DISCOURSE THEM READING OF (2))
(x_0 free in P, ξ_0, a discourse variable, free in Q)

1.1 Given this background, the purpose of this section is to sketch the logical language we develop and to illustrate the nature of the translation process which maps superficial syntactic structures into LF.

1.1.1 The syntax of our logical language is an extended version of standard predicate calculus. Modifications include the use of restricted quantification, the abstraction operator λ, and sentence operators which occur in the translations of tense and temporal connectives. The semantics of LF follows most recent standard treatments (eg. Montague, Cresswell, Davidson, etc.), except that we leave open the question of the role that intensions play in the interpretation. We exclude them with some malice aforethought, but one might suppose this to simply reflect their irrelevance for our present purposes. Thus, presuming a standard semantics for restricted quantifiers and the lambda operator, we include the following formal rules giving the semantics for past tense and the temporal connectives.

(13) $\ulcorner$Past(P)$\urcorner$ is 1 at t_i iff $\ulcorner$P$\urcorner$ is 1 at t_j for some $j < i$.

(14) $\ulcorner$when(P,Q)$\urcorner$ is 1 at t_i iff $\ulcorner$P$\urcorner$ is 1 at t_i and $\ulcorner$Q$\urcorner$ is 1 at t_i.

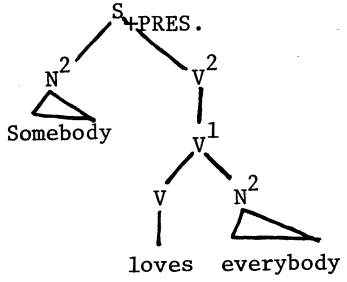
(15) $\ulcorner$after(P,Q)$\urcorner$ is 1 at t_i iff $\ulcorner$P$\urcorner$ is 1 at t_i and $\ulcorner$Q$\urcorner$ is 1 at t_j for some $j < i$

(16) $\ulcorner$before(P,Q)$\urcorner$ is 1 at t_i iff $\ulcorner$P$\urcorner$ is 1 at t_i and $\ulcorner$Q$\urcorner$ is 1 at t_j for some $j > i$.

1.1.2 The translation rules we employ to take superficial syntactic structures into LF function in a bottom-up fashion. That is, a verb translation applied to an NP translation yields a VP translation, an NP translation combines with a VP translation to yield an S translation, etc. A second important feature of the translation system is the use we make of storage. In certain cases, quantifiers and operators can attain wider scope at LF than they have at superficial syntactic structure. Although a simple bottom-up translation procedure requires identical scopes at both the syntactic and logical levels of a derivation, we allow quantifiers and temporal connectives

to be temporarily "stored" while the part of the syntactic tree in which they appear is translated, permitting them to be retrieved from storage and assigned wider scope at a later point in the translation procedure. Thus, schematically, we can represent how the use of the storage mechanism allows us to represent a crossed-scope reading of (17) where the quantifier translating everybody has widest scope at LF.[2a]

(17)



$N^2 \Rightarrow \langle x_1, \langle \forall x_1 \rangle \rangle$

MAIN TRANSLATION — STORAGE

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.
.

$S \Rightarrow \langle (\exists x_2).love(x_2,x_1), \langle \forall x_1 \rangle \rangle$

MAIN TRANSLATION — STORAGE

$\langle (\forall x_1)(\exists x_2).love(x_2,x_1), \langle \emptyset \rangle \rangle$

MAIN TRANSLATION — STORAGE

In effect, the storage mechanism allows us to build up VP translations consisting of the translation of a transitive verb and a free variable, and that free variable becomes bound when the quantifier in storage is assigned scope at the sentence level of the translation. The other properties of the translation system and especially the translation rules we employ will be presented in detail as part of our analysis of temporal connectives.

2.0 Since all scope-taking expressions may be optionally put in storage and assigned a wider scope at LF than they exhibit at superficial syntactic structure, our translation procedure yields multiple representations for (1)-(3) at LF. In (1), for example, the universal quantifier translating the matrix direct object everyone may be assigned narrower scope than the translation of when as in (18) which schematizes the group/group reading of (1).

(18) $when((\forall x_0).greet(c,x_0),(\forall x_1).greet(k,x_1))$

On a second derivation the matrix universal quantifier remains in storage while the translation of when is assigned scope. (19) illustrates this stage.

(19) $\langle \underbrace{\text{when}((\forall x_0).\text{greet}(C,x_0),\text{greet}(L,x_1))}_{\text{MAIN TRANSLATION}}, \underbrace{\langle(\forall x_1)\rangle}_{\text{STORAGE}} \rangle$

When $(\forall x_1)$ is retrieved and assigned scope, the result, given in (20), establishes wide scope for the matrix universal quantifier with respect to the translation of when, symbolizing the reading we call individual/group.

(20) $\langle \underbrace{(\forall x_1).\text{when}((\forall x_0).\text{greet}(C,x_0),\text{greet}(L,x_1))}_{\text{MAIN TRANSLATION}}, \underbrace{\langle\emptyset\rangle}_{\text{STORAGE}} \rangle$

Informally, the difference in truth conditions signalled by the different scopal relations in (18) and (20) turns on the fact that (18), but not (20), requires a single time at which both Chris's and Leslie's greetings take place. Since when's translation has wide scope in (18), the semantics requires simultaneous greetings. In (20), however, since $(\forall x_1)$ has widest scope, the truth conditions require that for all individuals, each time Leslie greets one of them must be a time at which Chris greets all of them. Thus, since $(\forall x_1)$ has narrower scope than the translation of when, Chris's greetings must be collective, but since $(\forall x_1)$ includes the translation of when inside its scope, Leslie's greetings may be individual.

The differences in the syntax of logical form established by our analysis produces different interpretations given our semantics, correctly describing the group/group and individual/group readings of (1). (21) and (22) give detailed derivations for each of these readings of (1) (on the next two successive pages).[2b]

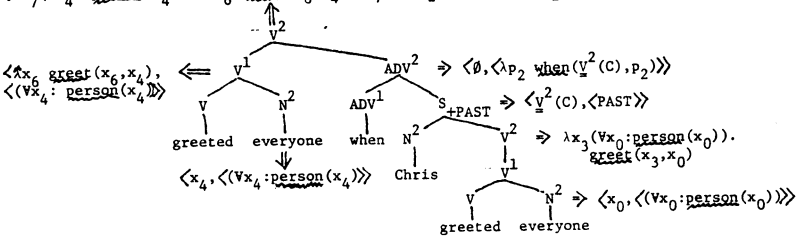
2.1 The individual/individual reading of (2) can be derived given the tradition assumption that pronouns whose antecedents are quantifiers translate as bound variables at LF. When the translation of the embedded VP in (2) is built up, greet 'em is represented as an open expression containing the free variable x_0. By the final stage of the derivation, this free variable must be bound by the quantifier which translates everyone. Recall that the last two derivations demonstrated two scope possibilities for the matrix direct object, and these two scope possibilities are again produced.

(23) $\text{when}(\text{greet}(C,x_0),(\forall x_0).\text{greet}(L,x_0))$
(24) $(\forall x_0).\text{when}(\text{greet}(C,x_0),\text{greet}(L,x_0))$

Note that in (23) x_0 is free in the translation of the embedded sentence constituting an ill-formed expression in the logic. Thus, (24) is the only possibility here, and it follows that whenever the pronoun 'em translates as an individual variable, the quantifier translating the matrix direct object must take widest scope to

(21) Leslie greeted everyone when Chris greeted everyone. (Group/Group Reading)

$\lambda x_8[\lambda p_2\ \underline{when}(\underline{\underline{V}}^2(C),p_2)](\lambda x_7(\forall x_4\colon \underline{person}(x_4)).\underline{greet}(x_7,x_4)](x_8))$
$\langle\lambda x_7(\forall x_4\colon \underline{person}(x_4)).\underline{greet}(x_7,x_4),\langle\lambda p_2\ \underline{when}(\underline{\underline{V}}^2(C),p_2)\rangle\rangle \rightsquigarrow$
$\langle\lambda x_7(\forall x_4\colon \underline{person}(x_4)).[\lambda x_6\ \underline{greet}(x_6,x_4)](x_7),\langle\lambda p_2\ \underline{when}(V^2(C),p_2)\rangle\rangle =$



$V^2 \Rightarrow$.
$\lambda x_8[\lambda p_2\ \underline{when}([\lambda x_3(\forall x_0\colon \underline{person}(x_0)).\ \underline{greet}(x_3,x_0)](C),p_2)]$
$([\lambda x_7(\forall x_4\colon \underline{person}(x_4)).\ \underline{greet}(x_7,x_4)](x_8))$

$= \lambda x_8\ \underline{when}([\lambda x_3(\forall x_0\colon \underline{person}(x_0)).\ \underline{greet}(x_3,x_0)](C),$
$[\lambda x_7(\forall x_4\colon \underline{person}(x_4).\ \underline{greet}(x_7,x_4)](x_8))$

REST OF DERIVATION: PAST$\dagger$[λx_8...](L)$\dagger$

$=$ PAST$\dagger$[$\lambda x_8\ \underline{when}([\lambda x_3(\forall x_0\colon \underline{person}(x_0)).\ \underline{greet}(x_3,x_0)](C),$
$[\lambda x_7(\forall x_4\colon \text{person}(x_4).\ \text{greet}(x_7,x_4)](x_8))](L)\dagger =$

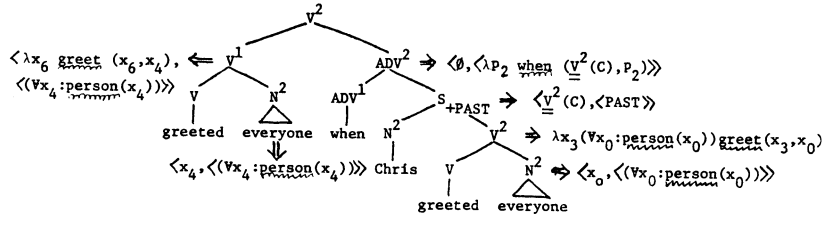
PAST$\dagger$[$\underline{when}([\lambda x_3(\forall x_0\colon \underline{person}(x_0).\ \underline{greet}(x_3,x_0)](C),$
$[\lambda x_7(\forall x_4\colon \underline{person}(x_4).\ \underline{greet}(x_7,x_4)](L)) =$

PAST$\dagger$[$\underline{when}((\forall x_0\colon \underline{person}(x_0)).\ \underline{greet}(C,\ x_0),$
$(\forall x_4\colon \underline{person}(x_4)).\ \underline{greet}(L,x_4))\dagger$

(22) Leslie greeted everyone when Chris greeted everyone. (Individual/Group Reading)

$\lambda x_8(\forall x_4: \underline{person}\ (x_4)).[\lambda x_7....](x_8)$

$\langle \lambda x_7[\lambda P_2\ \underline{when}\ (\underline{V}^2(C), P_2)]([\lambda x_6\ \underline{greet}\ (x_6, x_4)](x_7)), \langle(\forall x_4: \underline{person}\ (x_4))\rangle\rangle$ ⇝



$V^2 \Rightarrow \lambda x_8(\forall x_4{:}\underline{person}(x_4)).[\lambda x_7[\lambda P_2\ \underline{when}([\lambda x_3(\forall x_0{:}\underline{person}(x_0)).\ \underline{greet}(x_3,x_0)](C), P_2)]$
$([\lambda x_6\ \underline{greet}(x_6,x_4)](x_7))](x_8)$

$= \lambda x_8(\forall x_4{:}\ \underline{person}(x_4)).[\lambda P_2\ \underline{when}([\lambda x_3(\forall x_0{:}\underline{person}(x_0)).\underline{greet}(x_3,x_0)](C), P_2)]$
$([\lambda x_6\ \underline{greet}(x_6,x_4)](x_8))$

$= \lambda x_8(\forall x_4{:}\ \underline{person}(x_4)).\underline{when}([\lambda x_3(\forall x_0{:}\underline{person}(x_0)).\underline{greet}(x_3,x_0)](C),$
$[\lambda x_6\underline{greet}(x_6,x_4)](x_8))$

REST OF DERIVATION: PAST↓[λx_8...](L)↓

$=$ PAST↓[$\lambda x_8(\forall x_4{:}\underline{person}(x_4)).\underline{when}([\lambda x_3(\forall x_0{:}\underline{person}(x_0)).\underline{greet}(x_3,x_0)](C),$
$[\lambda x_6\underline{greet}(x_6,x_4)](x_8))$](L)↓

$=$ PAST↓$(\forall x_4{:}\underline{person}(x_4)).\underline{when}([\lambda x_3(\forall x_0{:}\underline{person}(x_0)).\underline{greet}(x_3,x_0)](C),$
$[\lambda x_6\underline{greet}(x_6,x_4)](L))$↓

$=$ PAST↓$(\forall x_4{:}\underline{person}(x_4)).\underline{when}\ ((\forall x_0{:}\underline{person}(x_0)).\underline{greet}(C,x_0),$
$\underline{greet}(L,x_4))$↓

achieve proper binding. Furthermore, this implies that everyone will always have wide scope over the translation of when in such translations yielding the desired individual/individual reading, given the scope conventions of the system. (25) shows the derivation of (2) on the individual/individual reading in greater detail (see next page).[2c]

2.2 There is a final derivation of (2) which differs only minimally from the one just sketched. Instead of translating 'em as an individual variable, we can also translate it as the discourse variable ξ_0. ξ_0, unlike x_0, may appear free in well-formed expressions at LF. Furthermore, the extension of ξ_0 is determined by extra-semantic factors-- context, for example. Therefore, alongside (24), we also generate (26).

(26) $(\forall x_0).\underline{\text{when}}(\underline{\text{greet}}(C,\xi_0),\underline{\text{greet}}(L,x_0))$[3]

This allows the discourse Them reading of (2) since ξ_0 is free to take as its value a group different from that signified by everyone. Except for the variable notation, the derivation of the discourse Them reading of (2) is as illustrated in (25) (again, please see the next page).

Thus far we have presented the analysis of (1)-(2). The next section presents some of our assumptions about the nature of VPD. Then we give an account of (3) which supports our approach and which focusses several interesting claims about deletion and anaphora.

3.0 As we noted in the introduction, (3) shares the group/group reading with (1) and the individual/individual reading with (2). We could give a principled account of these facts were we to use VPD to derive (3) from each of (1) and (2). In addition, notice that (3) does not have any of the other readings supported by (1) or (2). Therefore, an adequate account of the facts requires that (1) and (2) each correspond to structures underlying (3), but only on one of their readings.

Consider the statement of VPD given in (27).[4]

(27) VPD (SYNTACTIC VERSION)

$$W_1\text{--}V^2\text{--}W_2\text{--}[+\text{AUX}]\text{--}V^2\text{--}W_3$$

1 2 3 4 5 6

1 2 3 4 $\emptyset$ 6

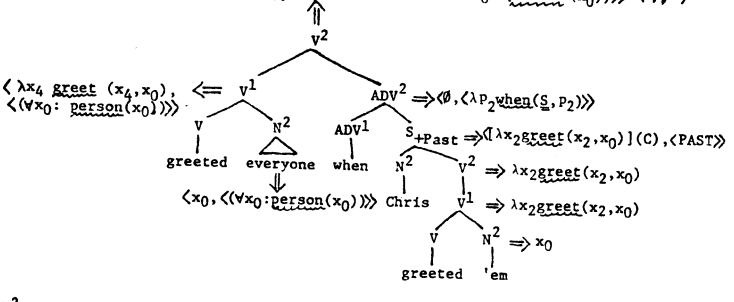
CONDITION: 2=5

It is the identity condition requiring syntactic identity between controller and target VP's-- a standard feature of syntactic accounts of VPD-- which runs afoul of the facts just described. Neither (1) nor (2) correspond to syntactic structures which sanction the application of VPD to derive (3). One problem is that (1) and (2) are apparently[5] antecedent-contained deletions since the target VP is part of the controller. Thus, the identity

(25) Leslie greeted everyone when Chris greeted 'em. (Individual/Individual Reading)

$\lambda x_6\ (\forall x_0$: person$(x_6)).[\lambda x_5[\lambda P_2$ when $(\underline{S}, P_2)]\ ([\lambda x_4$ greet $(x_4, x_0)](x_5))](x_6)$

$\langle \lambda x_5[\lambda P_2$ when $(\underline{S}, P_2)]\ ([\lambda x_4$ greet $(x_4, x_0)](x_5)), \langle (\forall x_0$: person $(x_0))\rangle\rangle$ ⇝



$V^2 \Rightarrow \lambda x_6(\forall x_0$: person $(x_0)).[\lambda x_5[\lambda P_2$ when $([\lambda x_2$ greet $(x_2, x_0)](C), P_2)]$
$([\lambda x_4$ greet $(x_4, x_0)](x_5))](x_6)$

$= \lambda x_6(\forall x_0$: person $(x_0)).[\lambda P_2$ when $([\lambda x_2$ greet $(x_2, x_0)](C), P_2.)]$
$([\lambda x_4$ greet $(x_4, x_0)](x_6))$

$= \lambda x_6(\forall x_0$: person $(x_0))$.when $([\lambda x_2$ greet $(x_2, x_0)](C),$
$[\lambda x_4$ greet $(x_4, x_0)](x_6))$

REST OF DERIVATION: PAST$\ddagger[\lambda x_6 \ldots](L)\ddagger$ = .

PAST$\ddagger[\lambda x_6(\forall x_0$: person $(x_0))$. when $(\lambda x_2$ greet$(x_2, x_0)](C), [\lambda x_4$ greet$(x_4, x_0)](x_6))](L)\ddagger$

= PAST$\ddagger(\forall x_0$: person $(x_0))$. when $([\lambda x_2$ greet $(x_2, x_0)(C), [\lambda x_4$ greet $(x_4, x_0)](L))\ddagger$

= PAST$\ddagger(\forall x_0$: person $(x_0))$ when (greet (C, x_0), greet $(L, x_0))\ddagger$

condition is not satisfied, and the VPD is incorrectly blocked. Assuming this problem could be overcome, (2) will still fail to provide a source for (3) since the matrix VP [$_{VP}$ greet everyone] is not identical to the embedded VP [$_{VP}$ greet 'em]. Finally, note that even if this problem were overcome, a purely syntactic analysis which derives (3) from both (1) and (2) fails to predict that (3) shares only one reading with each of its sources.

3.1 All three of these difficulties with VPD-- its antecedent-contained structure, the non-identity of [$_{VP}$ greet everyone] and [$_{VP}$ greet 'em], and the semantic relationship between the elliptical sentences and their sources-- disappear given the logical theory of deletion proposed by Sag (1976, forthcoming). Next we sketch the leading ideas of this analysis and then we return to the analysis of (3).

3.1.1 The version of VPD we adopt is given roughly in (28).

(28) VPD (INCLUDED IN THE LOGICAL THEORY OF DELETION)

W_1--[+AUX]--V^1--W_2

1 2 3 4

1 2 $\emptyset$ 4

In lieu of a syntactic identity condition, our analysis of VPD falls under a recoverability principle stated in the metatheory. We maintain that VPD is possible only when the translation of the VPD target is redundant at LF. That is, VPD will delete a target VP only when the λ-expression which translates the VP finds a second λ-expression with the same semantic value at LF as reflected by a parallelism of internal structure and identity of free variables. Given this approach, we are in a position to make two predictions: 1) syntactic identity is neither a necessary nor a sufficient condition for the application of VPD, and 2) insofar as the different readings a sentence supports translate into distinct LF, it is possible for a sentence to sanction deletion on one of its readings but not on another. These predictions, we maintain, lead to just the right mechanism to account for (3).

3.2 Let us first examine how our analysis predicts that (1) is a source for (3) on its group/group reading. The boxed line in (21) represents the complete translation of the matrix VP. The $\lambda x_3(\ldots)$ expression is the translation of the embedded V^2, and since this has the same semantic value as $\lambda x_7(\ldots)$, we predict that VPD is possible on this reading. Note that although the embedded V^2 is contained within the matrix V^2, the relevant lambda expressions are disjoint at LF, hence the problem with antecedent-contained deletion is avoided.

We can also successfully block the derivation of (3) from (1) when (1) bears the individual/group reading. As the boxed line in (22) shows, the logical structure of the second reading of (1) does not satisfy the logical identity condition on VPD. Here, $\lambda x_6(\ldots)$, which translates the matrix V^1 has x_4 bound by a quantifier extern-

al to the lambda expression while the only potentially redundant lambda expression, $\lambda x_3(\ldots)$, which translates the embedded V^2, has all of its variables bound internally. VPD is not possible in this case, and we correctly predict that (1) is a source for (3) only on its group/group reading.

We also predict that (2) is a source for (3) on its individual/individual reading. As the boxed line in (25) shows, the lambda expression $\lambda x_2(\ldots)$, which translates the embedded V^2, has the same semantic value as $\lambda x_4(\ldots)$. In particular, both contain the variable x_0 which is bound externally by the universal quantifier. Thus, despite the fact that (2) fails to meet the syntactic identity condition, (which we reject), our logical theory of deletion does derive (3) from (2). Fianlly, note that in the other derivation of (12), where δ_0 appears instead of x_0 in the translation of the embedded V^2, $\lambda x_2(\ldots)$ will not be redundant for the free variable δ_0 will not match x_0 in $\lambda x_4(\ldots)$. Thus VPD will be blocked in this case.

This completes the analysis of the data. All objections to the satndard approach to VPD have been surmounted, and the convergence of our theory of VPD with the truth conditionally adequate semantics already provided for the data lends independent support to our account.

4.0 Although the present analysis presents but a splinter of a fragment of English, we nevertheless believe that our work endorses several important conclusions. First, we show that it is possible to give a precise characterization of certain ambiguities reflected by sentences containing temporal connectives in English. The characterization utilizes the standard technique of scope variation between universal quantifiers and the logical operator which translates the temporal connectives. Second, our analysis crucially requires that certain pronouns translate both as bound variables and as discourse variables. Third, there is a smooth interface between our multiple scope theory of temporal ambiguities and current work on logical theories of deletion. In particular, our analysis predicts the observed set of readings for (1)-(3). Finally our analysis illustrates how the use of a highly structured logical language whose sytax is determined in important respects by superficial syntactic structure can form the core of an interesting semantic theory. We conclude that the facts we discuss provide strong evidence for a surface semantic analysis based on an independently motivated syntax. Thus, our analysis militates against semantic representations of the sort suggested by transformational grammarians of many persuasions where no particular structural connections are established between the syntactic and semantic levels of representation.

NOTES

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prior author should thank the alphabetically subsequent author for doing the rest of the typing.

[1]When the discourse variable is assigned as its value the same set signified by everyone, the possibility of a group/group and an individual/group reading for (2) emerges. Although there are no problems we know of for our analysis lurking in this domain, we will ignore these possibilities, for the most part, in what follows.

[2]Words with squiggly underlining are expressions in the logic which translate the orthographically related English lexical items. In this paper we ignore certain natural extensions of our analysis to comprehend a much wider range of data. For example, the temporal connectives can also have a semantics where the operators which translate them orient two propositions in intervals of time rather than with respect to moments of time. There also may be a possibility of construing temporal connectives more like universal quantifiers rather than giving them the strictly existential force we do here. These possiblilities are investigated in some detail in Weisler (1978a,b)

[2a]This storage mechanism is developed by Cooper (1975, ms.) within a Montague Grammar framework. Our use of it differs only slightly from his.

[2b]We use the notation "$\rightsquigarrow$" to indicate retrieval of stored elements. Note that in (21), (22), and (25), storage retrieval is proceeding up the page. Two other notational quirks should be pointed out. We are using restricted quantification. Thus $(\forall x_4\colon \underset{\sim}{\text{person}}(x_4))$ is a restricted quantifier, syntactically on a par with $(\forall x_4)$. Finally, $\underset{=}{V^2}$ is a shorthand for "the translation of V^2".

[2c]It may be possible to do away with our distinction between discourse and individual variables. For a detailed discussion of this point, see Cooper (to appear).

[3]Since $\underset{\sim}{\xi}_0$ is a discourse variable which need not be bound in well-formed expressions at LF, the analogue of (23) with $\underset{\sim}{\xi}_0$ substituted for the free appearance of $\underset{\sim}{x}_0$ is well-formed, and a new reading is derived for (2). See note 1 for discussion.

[4]Many features of this purported analysis may be straw-like in fiber, but the criticisms we make challenge most syntactic approaches to VPD of which we are aware. However, see Weisler (1978c) for an attempt to give a purely syntactic analysis of antecedent-contained deletion.

[5]We say apparently because most interesting analyses of antecedent-contained deletion involve a level of analysis at which the two VP's involved in the transformation (or their translations) are, in fact, disjoint. See Sag (1976, forthcoming) and Weisler (1978c) for discussion.

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HOW NOT TO TELL A PASSIVE: THE CASE OF OLD PERSIAN manā krtam RECONSIDERED

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This paper takes a fresh look at the argumentation which has led traditional Indo-Europeanists to a characterization of the Old Persian (OP) participial construction exemplified by tya manā krtam 'what I have done' (lit.'what of/to-me (is) done') as either an "active perfect of possessive expression" (Benveniste (1952)), or as a participial passive (Cardona (1970)), by placing the problem in a broader comparative and typological perspective.

The anatomy of this controversy is instructive in raising some general questions concerning the definition of the category passive in Indo-European (IE), and in pointing out the lack of explicit syntactic criteria for identifying participial passives as such. It is shown that upon closer examination the arguments presented by both lines of interpretation highlight the impossibility of adequately characterizing the syntactic pattern Passive Participle plus (BE) in Old Persian (and Indo-European in general) in terms of the accompanying oblique arguments alone. This, in turn, permits a general reconsideration of the notion 'passive agent' in IE and the syntactic-semantic properties underlying the passive periphrasis Participle plus BE.

Section 1 presents the attested OP examples of the syntactic pattern under examination; section 2 reviews the traditional controversy and the arguments which have been used for and against their passive interpretation; and section 3 redefines the OP construction as passive on the basis of comparative evidence and universal properties of passive structures.

1. The OP construction involving the passive participle formed with the reflex of the suffix *-to consists of a surface subject which agrees in number/case/gender with the passive participle, plus an optionally expressed copula BE and an oblique (OBL) case argument.[1] Thus a literal rendition of tya mana krtam 'what I have done' is 'this(tya) of/to-me(manā) (is) done(krtam)'. Because of the limitations of the corpus, the attested usable examples of this controversial syntactic pattern show little variation, and are illustrated by the following formulaic sentences.[2]

(1) tya manā(OBL) krtam utā tyamaiy pissa(OBL) krtam
'that of/to-me (is) done and that of/to-my-father (is) done

(2) utāmaiy(OBL) vasiy astiy krtam
'still of/to-me much is done' (with the enclitic =maiy instead of the full pronoun manā)

(3) avaišām(OBL) avā naiy astiy krtam yaθa manā(OBL) ... krtam
'of/to-them is not done as much as of/to-me ... done'

(4) avaθāšam(OBL) hamaranan krtam
'thus of/to-them battle (is) done'

(5) tyataiy(OBL) gaušayā [xšnūtam]
'that of/to-you by-your-2-ears (is) heard'

In addition to these non-finite forms, OP (following a common Indo-Iranian trait) displays an inflectionally formed passive with imperfect force (cf. example (6) below) which shows the suffix -ya as its characteristic marker. This ya-passive may be expanded by the preposition hačā 'from' governing the ablative (ABL). It was this difference in the expression of the passive agent (oblique case vs. hačā+ABL) that led Benveniste to dispute the passive status of manā krtam.

2.1 The traditional view that the Old Persian type manā krtam is a passive construction[3] was contested by Benveniste (1952) who posed the following questions which are still with us (:154)[4].

> By what criterion do we recognize that this construction is passive? Can we consider that a construction in which the actor is in the genitive-dative and the verb is represented by the verbal adjective is by this very fact to be defined as passive? In order to produce irrefutable proof, it would be necessary to find this construction in an utterance whose passive nature is confirmed by the use of a verbal form of the morphological class of passives. We have then to inquire how a verbal form provided with marks of the passive was constructed in Old Persian and, especially, how the form of the agent was then expressed.

He proves the non-agentive status of the genitive-dative manā (and therefore the non-passive force of the participial construction as well) by showing that in the ya-passive (whose syntactic function is indisputably passive) the agent is expressed by the prepositional phrase hačā+ABL. Compare

(6) tyašām hačāma aθahya 'that which by-me was-commanded them'

On the basis of this demonstration, he concludes that (:155)

> This suffices to ruin the traditional notion that the perfect tya manā krtam is a passive expression. The difference in the case form of the pronoun, manā on the one hand, hačāma on the other, shows that the perfect must be interpreted in a category of its own, and that it is in any case distinct from the passive.

Taking the oblique form manā as the defining property of the periphrasis Benveniste proceeds to assess the manā krtam structure as "an active perfect of possessive expression" -- of/to-me is done= I have done -- exactly parallel to the Old Persian possessive structure like

(7) utātaiy(OBL) tauhmā vasiy biyā 'and may you have much seed' (lit.'of/to-you much seed may-be')

where a genitive-dative pronoun =taiy plus the auxiliary BE (biyā) is used to express the possessive relationship. The possessive interpretation gained wide acceptance and remains predominant even today.[5]

Cardona (1970), on the other hand, argues that Benveniste's definition of the OP participial periphrasis as possessive is not valid and that manā krtam is actually passive (as it had been traditionally assumed). He, too, demonstrates his thesis focusing on the expression of the passive agent and presents the following example (8) of a 'real' ya-passive which, instead of the expected hačā+ABL complement, contains the very same oblique phrase that the problematic periphrastic structure does, namely a genitive/dative case of the enclitic pronoun =šam 'of/to-them' (as in the examples (3) and (4) above):

(8) avaiy ūvjiyā arikā āha utāšām auramazdā naiy ayadiya
'The Elamites were faithless and Ahuramazda was-not-revered by-them' (lit. of/to-them)

This illustration, as Cardona puts it "supplies a criterion by which A (viz. manā krtam H.S-H.) can be called a passive construction". Thus, by showing that the oblique case pronoun may accompany a ya-passive, he claims to have produced what Benveniste considered as the "irrefutable proof" for also defining the participial construction as passive. Moreover, in keeping with the assumption that 'agentive' phrases exclusively define a passive structure as such, Cardona proposes a tripartite system for the expression of the passive category in Old Persian which he illustrates with the following OP sentences rendered into Latin (L) with parallel passive structures:

(9)	participial passive+gen/dat	Type A.	tya manā krtam(L 'quod mihi factum(est)') 'that which (is) done by-me'
(10)	ya-passive +hačā+ABL	Type B.	tyašām hačāma aθahya(L 'quod illis a me imperabatur') 'that which was-commanded to-them by me'
(11)	ya-passive +gen/dat	Type D.	utāšām ..naiy ayadiya(L 'neque illis colebatur') 'and he was- not -revered by-them'

Note that the pivotal element in Cardona's analysis of the OP passives is the type of agentive complement used. In fact his classification results in a bifurcation of the ya-passive (and the Latin r-mediopassive) on the basis of the two possible complements that may accompany them. He posits a type B for the ya-passive constructed with hačā+ABL (10) and a distinct type D

for the same ya-passive whenever used with an oblique case (11). He compares the situation in OP to that in Latin where there are also two passives (the participial and r-passive) which also display a variety of agentive complements[6], and he concludes that "Similarly, once the comparison of the Old Persian construction D and A has established that the latter is a passive construction, type D is plausibly explained as resulting from the spread of the syntax of type A to sentences where finite passive forms (of R-ya stems) were used."

2.2 The review of this traditional controversy illustrates the difficulty, if not absurdity, that a definition of passives may encounter under the premise that agentive phrases constitute an intrinsic part of a 'true' passive. It also elicits some of the typical and recurrent questions with which a viable characterization of the category passive must come to grips in Indo-European: Is the presence of an agentive phrase a necessary or sufficient criterion for identifying a construction as passive? How can we tell a passive agent from an oblique argument? What does a 'true' passive look like and how do we know when we have one? Why are there two or more passives and passive agents within one and the same language?

Though the optional presence of an independent oblique case or a prepositional phrase, identical to the semantic (or underlying) subject of a corresponding active sentence, is often taken implicitly or explicitly as diagnostic for passives, on a closer examination, this procedure is misleading and inapplicable to IE for the following well-known reasons.[7] In the first place, overtly expressed agents are extremely rare or non-existent with passive sentences in the earliest attestations of Indo-European , and one cannot talk sensibly of the existence of an agent deletion rule unless there are other more numerous typical instances in which an agent surfaces.

Furthermore, even when passives are expanded by an adjunct that leads to an agentive interpretation (as in the case of OP and Latin) it is not possible to decide unarbitrarily which one of the attested prepositions or independent cases is the 'real' agent and whether it can or should be treated differently[8] from its non-passive uses within the same language. In fact all the prepositions and cases that have served in IE at one time or another to elaborate passive sentences maintain intrinsic semantic content and can always be equated with meaningful elements within the same language. Typically they denote origin, cause, means, instrument, personal interest or involvement, and can be accounted for by the very same structure (or rule) one must independently postulate in their grammar for their general usage. Although these passive complements may all 'translate' into English with BY, this should not be taken as evidence for treating the diversity in meaning and shape of passive 'agents' as being the

'accidental' output of a transformational or relational change; internally to their grammars they have different semantic consequences which follow from (and can therefore be explained with reference to) their 'active' and historically prior adverbial functions.

Another consideration that precludes the treatment of passive 'agents' in terms of a demoted underlying subject is the sheer multiplicity of means for expressing agency within the same language.[9] Note that this variety in the expression of passive 'agents' is not governed by either the morphological or semantic type of the passive they accompany. In other words, it is not the case that, say, medio-passives select one group of agents while another type of agent is used with participial or reflexive-passives. For all these reasons, the fact that there are many ways in which IE passives can be expanded, should not be taken as evidence for assuming a priori that passivity is equivalent to a rule of subject demotion. Rather, I would claim that taking the 'agentive' phrases at face value sheds light on the syntactic behavior not only of the passives but also of the agentive phrases themselves by postulating unifying sources for the various oblique complements.[10]

Placing the OP controversy in the context of the general characteristics of IE passive agents noted above, the assessment of the syntactic status of manā krtam appears to be ill-defined by the advocates of both positions. For there is no justification whatsoever in assuming that the passive or non-passive meaning of the periphrasis Participle-to plus (BE) is derived from the inclusion of the oblique case alone; neither the oblique case nor the prepositional phrase introduced by haćā+ABL can serve as the point of departure in defining the passiveness of manā krtam or the inflectional ya-passive. By taking the agentive phrases as a mechanical device for identifying passives, both analysts have mistaken a symptom for a cause and created a pseudo-problem which, in turn, clouds the syntactic properties underlying the pattern V-ed plus BE. Although the passive interpretation of manā krtam is a justifiable historical inference, it cannot be supported by the kind of evidence and the reasoning underlying Cardona's demonstration. In a sense he is right for the wrong reasons.

To begin with, sentence (8) which is the crucial and single example that Cardona uses for establishing the fact that a dative/genitive may accompany the real ya-passive too, is interesting, in my view, not for providing the 'irrefutable evidence' for interpreting the OP participial construction as a passive, but for showing that the analysis of the latter cannot be based solely on the existence of the oblique arguments. In fact, the very presence of the genitive/dative form in a variety of functions within OP[11] -- possessive (7), ya-passive (8), and participial (1) to (5) -- seems to me to be one of the reasons for questioning its intrinsic 'agentive' function and rejecting its heuristic value in

the syntactic assessment of the periphrasis under examination.

The very fact that the oblique case is interchangeable with haČā+ABL in the use of the ya-passive is an additional piece of evidence that the genitive/dative form does not constitute an intrinsic part of either the ya-passive or the participial one, and that their characterization should appeal to different syntactic properties. Cardona, however, takes this free distribution of the oblique case and the haČā+ABL as necessary and sufficient grounds for recognizing two distinct types of ya-passives (cf. type B and D in (10) and (11)). Such an approach pushed to its logical conclusion and applied to well-attested languages which display not two but a wider range of apparent passive agents can easily lead to a reductio ad absurdum by imposing an unwarranted proliferation of putatively distinct passive patterns in order to account for the diversity in form and meaning 'agentive' phrases show within one and the same language.

Once the focus of the problem is taken from the agentive phrase as the essence of the phenomenon and the right questions are asked, the OP development becomes clear. The key to an understanding of the problem at hand is the realization that the syntactic pattern Passive Participle plus BE (an instance of which is the OP construction) embodies some universal passive properties and can be defined as passive in its own right. Thus Cardona's notion that the OP periphrasis is a real passive can now be demonstrated with reference to both comparative IE evidence as well as to a general theory of passives.

3.1 The reflexes of the nominalizing suffix *-to (as in OP krtam) have been employed par excellence in forming the so-called 'perfect passive participles' which, when combined with an auxiliary verb BE or BECOME, independently developed into passive constructions in a number of IE daughter languages. Since the periphrasis containing a participle-to is amply attested outside OP, it seems worthwhile to first turn to the cognate structures and examine their syntactic function in the rest of the daughter languages.

To begin with, the OP manā krtam has exact counterparts within Indo-Iranian. Both in Vedic (12) and Avestan (13) this periphrasis when used with transitive verbs has a clear passive meaning. Compare:

(12) RV.1,110,1a (Debrünner (1954:582))
tatám me ápas tád u tāyate púnaḥ
'my work (has-been) done and is-being-done again'

(13) Vidēvdāt 3.21 (Reichelt (1909:329))
yezica hē anya aγa šyaoθna fravarštа paitita hē čiθa
'and if other crimes (have been) committed by him, then the penalty for them (is) paid'

Unlike OP, these branches of Indo-Iranian employ an instrumental form of a nominal to expand their passive constructions, though non-instrumental 'agents' are also found sporadically (in the genitive, dative, and ablative cases).[12] However, the instrumental agent rarely appears with the participial passives and the notion of the passive agent in general plays a marginal role in the expression of passive voice. The cognates from within Indo-Iranian come in support of the passive (rather than the possessive) interpretation of the OP periphrasis and confirm the view that such an interpretation should not rely on the oblique argument.

Outside Indo-Iranian the construction involving the participle in -to with transitive verbs always serves a passive function as well. This is attested in Italic (cf. (9) L mihi factum est 'This has-been done by-me (Dative)'), in Celtic (cf. Old Irish -breth '(he-was)brought'), while in Germanic (restricted to the 'weak' verbs), Slavic and Baltic the to-participle co-occurs with passive participles showing the nominalizing suffixes *-mo and *-no.[13] Note that when viewed comparatively no particular type of oblique complement can be singled out as bound to the to-participial passive. However, the presence of the genitive/dative form manā in OP can scarcely be considered an anomaly in view of the fact that both genitive and dative cases are possible complements of passive constructions (participial or otherwise) in a number of IE languages. An independent genitive is found in Lithuanian, Armenian, Tocharian, and marginally in Vedic and Avestan as a later innovation. If manā, on the other hand, represents an original dative, Old Persian would simply parallel the dative (dativus auctoris)[14] attested in Latin (cf. (9)), Greek, Germanic, and Indo-Iranian.

The diverse possibilities in the expression of the 'agent' with the to-participial passives belie the claim[15] that possessive periphrases can be distinguished from passive ones on the basis of the case of their oblique complement. Rather, their difference in this respect lies in that in possessives the oblique argument is intimately linked with the auxiliary BE to form a stative locution functionally equivalent to the verb HAVE.[16] In the case of the participial passives, on the other hand, the oblique argument -- qua agent -- is neither obligatory nor fixed and the essential part of the periphrasis consists of the auxiliary BE combined this time with a participle of the main predicate of the sentence.

Thus judging from the combined testimony of Indo-Iranian, Italic, Celtic, Germanic, and Balto-Slavic, Old Persian conforms to the pan-Indo-European usage in employing the Participle-to plus BE as the main predicate of a 'passivized' sentence, and the passive analysis of manā krtam is a legitimate interpretation. Moreover, such an analysis restores the unity of the Indo-Iranian

development and integrates it into the parallel evolution of Participle plus BE within the other IE languages.

But this leads to a broader question: what makes the configuration Participle plus BE apt for expressing the passive category? In a somewhat paradoxical fashion, just because a participle plus an auxiliary BE/BECOME is the typical IE passive structure, its implications for a universal characterization of passivity have been ignored.[17] The choice of a nominalized structure accompanied by the at the time current form of the verb BE for the realization of 'passivization' has been taken as an accomplished fact of IE grammar, too obvious for explanation. Is the fact that the IE languages arrived at this particular pattern, via independent innovations, an accidental inner-IE development, or does it 'mean' something about the expression of passive notion in general?

The nature of this pan-IE passive construction, I would claim, becomes clear if one thinks of it not as the mere output of a transformational or relational change of a corresponding active sentence; rather, such passives must be viewed as the surface realization of a distinct passive underlying representation (which involves a nominalized clause with unspecified subject embedded to a stative-existential BE) along the lines introduced by Langacker and Munro (1975) for Uto-Aztecan and Yuman, and by Statha-Halikas (1977) for Indo-European (cf. Figure 1).

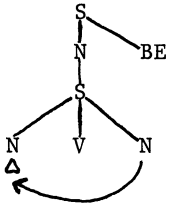


Figure 1.

Under this characterization of the passive notion a) embedding to a stative-existential BE, b) unspecified semantic subject, and c) topicalization (or 'foregrounding') of the semantic object constitute a cluster of mutually independent passive properties rather than a 'fixed' structure. The agentive phrase is regarded as a peripheral, non-intrinsic part of the passive structure per se, and whenever it occurs, it is derived from an external source such a conjoined clause. A principal difference between this and other non-transformational treatments of passives (cf. Hasegawa (1968) , and R. Lakoff (1971)) lies in the recognition of 'prototypical' passives (with all the proposed passive properties present) as well as semi-passives whose underlying structure includes one or two of these properties.[18]

Turning now to the question posed by Benveniste in the beginning of section 2, I would claim that the proposed definition of passives supplies criteria for arriving at a principled assessment of the passive status of OP manā krtam. I take the presence of a stative auxiliary BE (astiy), the overt nominalization of the main predicate into a participle (krtam) and the function of the semantic direct object as the surface subject of the sentence (tya) (cf. examples (1) to (5)) as evidence for treating the OP pattern as a canonical stative-passive with the syntactic-semantic properties outlined above.

This conclusion provides a rationale for the behavior of the agentive phrases, the restriction of manā krtam to the perfect tense, and the replacement of the main predicate of the 'passivized' clause by a cluster of BE plus a nominalized form of this same verb. But it also paves the way to an understanding of the further syntactic and morphological evolution of this construction in Middle Persian (Pahlavi) and Modern Persian[19], and the affinity among passive, perfective[20], and possessive structures.

FOOTNOTES

1. Due to syncretism the distinction among the original oblique cases is lost in OP, and both genitive and dative have merged as a single oblique (or genitive-dative) form.
2. The OP sentences are from Benveniste (1952:53-54).
3. Geiger (1893) refers to it as passive.
4. Page references to the English translation of Benveniste (1952) in Problems in General Linguistics (trans. by M.E. Meck) Univ. of Miami, Press.
5. Anderson (1977) bases his analysis of Pashto upon the possessive interpretation of the OP,and he remarks (fn. 7): "The difficulty with this (viz. the passive interpretation H.S-H.) is that passive agents in OPersian generally appear in the instrumental, or in a prepositional phrase with the ablative, rather than in the genitive-dative. The latter, on the other hand, is typical for possessive constructions."
6. On the basis of the alternation of agentive phrases, Cardona (1970) recognizes the following competing constructions in Latin.

A (1) Participial passive +AB+ABL
(2) Participial passive +DAT
D (1) r-mediopassive +AB+ABL
(2) r-mediopassive +DAT

Actually simple ABL, DE+ABL, EX+ABL, PER+ACC can also be added to Latin passives (cf. Ernout (1908)).

7. This was sensed very accurately by several traditional analysts;cf. Kuryłowicz (1973a), and Meillet (1921:196) who observes: "Le vrai rôle du passif est d'exprimer le procès là où l'agent n'est pas considéré .... Si, près d'un passif, on marque l'agent, c'est comme un point de départ de l'action, non comme un agent proprement dit: le latin occiditur a Marco «il est tué par Marcus» signifie proprement: « il est tué » et «le point de départ de ce fait est Marcus » ; les expressions analogues du slave et du grec le montre tout aussi clairement."

Cf. Chantraine's (1963:180) remarks on Homeric Greek: "On pourrait penser que la valeur passive d'une forme est définie par la présence d'un complément d'agent. Mais ce critère n'est pas valable. D'une part, en effet, des compléments d'agent sont attestés avec des verbes qui n'appartiennent pas au système passif; ainsi Z 453 avec πίπτειν . D'autre part, avec un verbe «passif» , l'emploi d'un complément d'agent est rare, et d'ailleurs exprimé par des procédés divers.

8. Either as the output of a transformational operation (postposing of the preverbal NP) or as chômeur.

9. In classical Greek, for instance, the repertory of apparent agents includes the prepositions hypó, ek, pros, pará, diá, apó and the simple dative. Cf. also footnote 6 for Latin.

10. I assume that each oblique complement (marked by either an oblique case ending or a preposition) has a single general 'core' meaning represented by an abstract predicate, from which all its contextual and specialized interpretations can be derived.

11. Cf. also manā pita 'my father' and sentence (6) in which the indirect object 'to-them' shows the genitive-dative enclitic pronoun =šam. The functions of the 'agentive' preposition haćā 'from' are summarized by Kent (1953:87): "It governs place-names as the starting-point from which there is motion or action (DB 3.80) or extension (DPh 5,7) or separation (XPh 16); names of persons of whom fear is felt, from whom commands proceed (=agent), from whom rebellion takes place, from whom something is taken away (DB 1.61); adverbs of time as starting-point; names of persons and things and abstracts from which protection is to be given (DPd 16f, etc.)."

12. Cf. Jamison (to appear) for an overview of the agentive phrases and her remark (:4): "When the past participle appears with an agent, it very seldom carries the verbal notion of the sentence. In other words, it is not often used to form the predicate of a complete clause but is embedded in a sentence already containing a finite verb."

13. The IE participial constructions are discussed in detail in Statha-Halikas (1977b).
14. See Seiler (1973) for a discussion of the dative-agent.
15. Cf. Benveniste (1952:155): "We have two exactly superimposable expressions, one possessive, *manā pusa astiy, and the other in the perfect, manā krtam astiy. This complete parallelism reveals the meaning of the Persian perfect, which is possessive. For just as manā pusa astiy 'mihi filius est' is equivalent to 'habeo filium', so manā krtam astiy is to be understood as 'mihi factum est,' equivalent to 'habeo factum'.". And Anderson's (1977: 341) remark: "Within the indo-Iranian branch of Indo-European, we find both of these sources employed as perfects: the passive in Indic, and the possessive in Iranian. In individual cases, it is often quite difficult to be sure which of the two possibilities is at the root of a given language's perfect forms, on internal evidence alone. This is because the only ultimate difference between them is that S$_t$ will appear in (the reflex of) the instrumental if the construction was originally passive, but in (the reflex of) the dative or genitive if it was originally possessive."
16. For the semantics of possession see Benveniste (1960), and Langacker (1975).
17. To be sure, Hasegawa (1968) and R. Lakoff (1971) treat BE as a main verb with a complement clause.
18. The applicability of this framework to IE is demonstrated in Statha-Halikas (1977) and (to appear).
19. Along the lines proposed by Watkins (1969).
20. Langacker and Munro (1975:824) for the relationship between passives and perfectives.

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FOCUS OF CONTRAST ASPECTS IN MAKUA: SYNTACTIC AND SEMANTIC EVIDENCE

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1.0. Introduction

Makua, a Bantu language spoken in Tanzania and Mozambique, exhibits a dichotomy in the tense/aspect system such that one set of aspect markers signals focus while a second set does not.[1] In this paper, the nature of Makua aspectual focus is defined and its syntactic and semantic parameters outlined. The data, which comes from the Imit^{h}upi dialect of Makua spoken in Tanzania, is based on texts as well as native speaker elicitation.

The first section of the paper explores the nature of Makua focus. It is argued that the focus aspects mark verbs in sentences which serve to pick out some individual or individuals from a set and assert that such an individual is believed to be the correct choice by the speaker. This type of focus is nearly identical to Chafe's (1976) definition of focus of contrast.

The second section of the paper establishes how, in addition to aspectual morphology, Makua marks focus. Two correlates, post-verbal position and tone, are shown to be relevant.

In the third section, some semantic and pragmatic properties of Makua contrastive focus are explored. As has been pointed out by Chafe (1976), there has been a tendency to confuse focus of contrast with new information in a sentence. It is demonstrated that the focused information may be either new or given information in Makua and, in addition, that there are no restrictions on focusing definite and indefinite nouns.

2.0. A working definition of Makua focus.

We begin the discussion of the nature of Makua focus of contrast by comparing sentences which exhibit focus of contrast aspect with those that do not. In (1a) below is a sentence which is marked with focus aspect, in this case, the perfective which is signalled by the suffix -ile. The meaning of such a sentence is that 'Sepete forged a spear' (with emphatic stress on 'spear') and not a hoe, for example, or any other forgeable item. I have used cleft sentences in translation only because they are easier to read than the more accurate English translations with emphatic stress. In (1b), the perfective aspect is absent. All other variables, grammatical relations, word order, and tense, are held constant. In this second example, no contrast is intended. (1b) is a simple statement that something happened, that 'Sepete forged a spear.'

(1) a. hín-sepété aa - han - ílé nivaka
Sepete SP/T-forge-perf spear
'It's a spear that Sepete forged'

b. hín-sepété áhó - hán - á níváka
Sepete SP/T-forge-A spear
'Sepete forged a spear'

We can conclude that the examples in (1) are not equivalent and that the difference resides in the status of the object noun nivaka 'a spear.' In (1a) it is contrastive and in (1b) it is not. The tonal change on the nouns in focus, while important, is not sufficient to account for the focus. I will return to the tonal phenomena later in the paper.

Similar pairs of sentences can be cited in the present tense, a near past tense, and the future tense, although in the interest of brevity, these examples have not been included here. What is important is that the focus phenomenon is not restricted to the past tense. A further limitation on the data in this paper must also be cited. Only affirmative main clauses are discussed since, although crucial to the whole picture of focus, negatives and interrogatives present additional complications.

Support for the claim that the difference between sentences like (1a) and (1b) lies in the contrastive nature of (1a) comes from the addition of contrastive statements like those in (2). (2a) is a statement which may be tacked on to (1a). It contrasts nivaka 'a spear' with ihipa 'a hoe' and it is acceptable. Contrasting the subject as in (2b) is not, as is indicated by the ¢ (for contrast) with a slash through it. Contrasting the verb as in (2c) or both the verb and object as in (2d) is likewise unacceptable.

(2) a. ...k^{h}áá - han - ílé ihipa
neg/SP/T-forge-perf
'...he didn't forge a hoe'
¢ b. ...k^{h}áá - han - ílé hím-mpúhíya
neg/SP/T-forge-perf Mpuhiya
'...Mpuhiya didn't forge (one)'
¢ c. ...ahó - thúm - a
SP/T-buy-A
'he bought (one)'
¢ d. ...ahó-hán-á imáta
SP/T-cultivate-A field
'he cultivated a field'

The examples in (2) suggest that indeed the only item that is contrasted in (1a) is the object noun. Significantly, (1b) without contrastive aspect cannot be appropriately followed by any of the contrastive statements in (2), presumably because no focus is intended.

Having established that examples like (1a) are contrastive in a way that sentences like (1b) are not, we turn to the business of defining the nature of the focus. Definitions of such notions are often slippery, but Chafe's (1976) definition of focus of contrast provides a partially testable hypothesis. His definition has three parts: 1) part of the contrastive sentence is background knowledge,

that awareness shared by both speaker and hearer, 2) a set of possible candidates for focus, and 3) the assertion of the speaker's belief of which candidate is his choice. I now take up each of these factors in turn and discuss whether it may be tested and how the Makua data behave with respect to these tests.

2.1. Background knowledge.

Background information, the first of the factors in the definition of contrastive focus, is intended by Chafe to cover that knowledge shared by the speaker and hearer. Implicit in Chafe's definition is the claim that what is not focused in a contrastive sentence constitutes the background. Kuno (1975) suggests that information is old, i.e. background, if it is recoverable with a high degree of predictability from the preceding discourse context. He suggests that a wh- word question can be used to establish a context in which all but the wh-word serves as background knowledge for the answer. As has been pointed out by Chafe, however, contrastive focus sentences may differ in function from answers to wh-word questions. If this is the case, then the use of wh- questions as tests for background knowledge would not be indicative of the role of a sentence like (1a) when it is not used as an answer. However, if a speaker should wish to answer a question in Makua without implying that all other candidates are impossible in the answer, then he resorts to a non-focus aspect in the answer. This strategy assures that an answer to a wh-question when in focus aspect is contrastive so that we can, in Makua at least, use wh- questions as a test for background information. In a sentence like (1a), both the subject and verb would be background knowledge according to Chafe's definition, since they are not in focus. To establish that this is indeed the case, we can use a question like (3a) 'what did Sepete forge?' below which introduces both Sepete and the action into the discourse. (1a) is an appropriate answer to (3a). But questions which do not introduce the verb or subject such as (3b) 'what did Sepete do?' or (3c) 'who was forging?' cannot have (1a) as an answer.

(3) a. hín-sepété aa - han - ílé - ni
Sepete SP/T-forge-perf-what
'what did Sepete forge?'
b. hín-sepété aa - pang - ílé - ni
Sepete SP/T - do - perf-what
'what did Sepete do?'
c. apání aa - han - ílé nivaka
who SP/T-forge-perf
'who forged a spear?'

The fact that a sentence like (1a) can only be used appropriately in a context where the non-focused information is known suggests that the non-focused information in Makua must be background knowledge.

2.2 Set of candidates.

We now turn to the second factor, the set of candidates. That there must be a set does not seem debatable since everything belongs to some set. Thus the claim that there must be a set of candidates for focus does not seem testable. Nevertheless, two points should be made about the notion of set of possible candidates.

First, what is important is how the set may be defined. To begin with, there is a trivial constraint, the selectional restrictions of the verb. Thus, uhana 'to forge,' for example, limits the set of candidates to things that can be forged. More interesting are grammatical constraints such as the demonstratives. When a noun appears in focus with both a demonstrative prefix and suffix, the contrast can only be with another item of the same kind. Thus in (4a) below, nnanivakanna 'this spear' can only be contrasted with another spear and not with a hoe. To contrast 'this spear' with 'this hoe' the suffix form of the demonstrative must be used alone. This is illustrated in (4b).

(4) a. aa - han - ílé nná-níváka-nna, {k^{h}i-hiwéná nné-níváka-nne / neg -be dem-spear-dem}
SP/T-forge-perf dem-spear-dem, ¢ {k^{h}i-hiwéná íle-híp-éle / neg-be dem-hoe-dem}
'it's this spear he forged, {it's not that spear' / ¢ it's not that hoe'}

b. aa - han - ílé nivaka-nna, k^{h}i-hiwéná ihip-éla
SP/T-forge - perf spear-dem, neg-be hoe-dem
'it's this spear he forged, it's not this hoe'

In general, however, the set of candidates for focus is constrained by the context and not by the grammar. The set may under these circumstances be assumed or made explicit. Thus someone may ask a question like (5a) 'who left the dance early, Sepete or Mpuhiya?' where the set consists of just two individuals. A question like (5b) 'who left the dance first?', on the other hand, relies on a common knowledge about who was at the dance.

(5) a. aa-tham-ílé ukomání waakúva hín-sepéte, hím-mpúhíya
SP/T-leave-perf dance early Sepete Mpuhiya
'was it Sepete or Mpuhiya who left the dance early?'

b. apání aa - tham - ílé ukomání waakúva
who SP/T-leave-perf dance early
'who left the dance early?'

(6) below, is an appropriate answer to both (5a) and (5b), (5a) because it chooses one of the two and (5b) because the question asks for an answer in the singular.

(6) aa - tham - íle hín-Sepéte
SP/T-leave-perf Sepete
'it' Sepete who left'

Thus, the set of candidates may be as wide as the semantics of the verb or as narrow as a noun flanked by demonstratives. More often than not, however, it is the discourse context which determines the focusable items.

The second point to be made about the set of candidates is that contrastive focus serves to restrict the set. One (or more) individuals is selected out of the set of possible candidates and the remainder of the set is implied not to be candidates. In a pair of examples like (5a) and (6), for instance, the set of 'Sepete' and 'Mpuhiya' is restricted to just 'Sepete.'

The notion "set of candidates" while not empirically testable, is crucial to the definition of contrastive focus. We have seen that the set may be defined in several ways and that the contrastive focus sentence serves to restrict the set.

2.3. The assertion of choice.

The third factor in Chafe's definition, and the most important one, is the assertion by the speaker that he believes the focused item to be the correct choice. The question here is whether the assertion of speaker belief is really part of the grammar of Makua focus (i.e. conventionally implied) or merely an implication of the meaning (i.e. conventionally implied). Scepticism about tests for distinguishing conventional vs. conversational implicature is merited as Sadock (1978) has pointed out. Nonetheless, results of cancelability and reinforceability tests do suggest that the assertion of belief is part of the grammar and is, in other words, conventionally implied.

First of all, a speaker cannot cancel his belief. This is illustrated in (7) below which is judged to be contradictory.

(7)*hín-sepéte aa-han-íle nivaka, nanso k^{h}a-ki-naámíni
Sepete SP/T-forge-perf spear but neg-I-A/believe
'it's a spear that Sepete forged, but I don't believe (it)'

If some part of the meaning is not cancelable the argument is supposed to go, the part of meaning in question is part of the grammar. Still, a speaker is generally held to be responsible for the information that he gives, so that to deny belief may simply be infelicitous and the cancelability test in this case might be rendered invalid.

To remedy this problem one can use as a test, a construction which implies that the speaker may not have reason to believe what he is reporting rather than asserting his disbelief as in (7). Thus, if the speaker signals that he either may or may not believe what he is reporting we can avoid an outright denial of belief. There is in Makua a construction employing a near past tense and a complementizer which means 'I have heard that X' and which implies that the speaker

is skeptical about the truth of the complement. We find that a focus sentence cannot be embedded under this construction as illustrated in (8a).

(8)*a. ki - heéwá eti aa - góng - íle múútuka-áyá hín-sepéte
SP-T/hear that SP/T wreck-perf car-poss Sepete
'I have heard that it's Sepete who wrecked his car'
b. kahééwá wiírá aa-góng-íle múútuka-áyá hín-sepéte
SP/T/hear that SP-wreck-perf car poss Sepete
'I heard (and I have reason to believe that it's true) that it's Sepete who wrecked his car'
c. ki-heéwá eti hín-sepéte ahaa- góng - á múútuka-áya
SP/T-hear that Sepete SP/T/O -wreck-A car - poss
'I have heard that Sepete wrecked his car'
d. kahééwá wiírá hín-sepéte ahaa-góng-á múútuka-áya
SP/T/hear that Sepete SP/T/O -wreck-a car-his
'I heard that Sepete wrecked his car'

Significantly, a far past tense and a different complementizer implying that the complement sentence is believed by the speaker does allow embedding of focused sentences as (8b) shows. Non-focus sentences (8c) and (8d) are embeddable under either of the complementizers. We can conclude then, that in a focus sentence, belief cannot be either canceled or suspended.

The cancelability test alone does not show that the belief of the speaker is being asserted, only that the speaker must believe what he says. Evidence that the focus sentences do assert the belief of the speaker comes from reinforcing the notion of belief by putting 'I believe' in front of a contrastive sentence. In (9a) below we find that a native speaker judges the sentence with 'I believe' to be redundant and clumsy. The native speaker says that "you are telling the hearer that's what you believe, why say it twice?". Importantly, as illustrated in (9b), a non-focus sentence can be preceded by 'I believe' and such a sentence is not judged to be redundant.

(9)*a. ki-náámíni wiírá hín-sepéte aa - gong - íle muutuk-aáyo
SP-A/believe that Sepete SP/T-wreck-perf car-poss
'I believe that it's his car that Sepete wrecked'
b. ki-náámíni wiírá hín-sepéte ahaa- góng - á muutukaáyo
SP-A/believe that Sepete SP/T/OP -wreck-A car-poss
'I believe that Sepete wrecked his car'

We can conclude, I think, that there is a difference in the status of speaker belief in (9a) and (9b). Taken together, the evidence that belief cannot be suspended or denied in a focus sentence (although it can be in a non-focus sentence) and the fact that asserting belief is judged to be redundant in focus sentences (but not in non-focus sentences) suggests that the belief of the speaker about his choice of candidate is an assertion and properly part of the grammar of Makua focus.

3. Syntactic and tonal correlates of contrastive focus.

We now turn to the syntactic properties of contrastive focus. In addition to the aspectual morphology signalling focus, syntactic position and tone work together to mark which item or items are in focus. So far, the examples have included only NP's in focus. It should be mentioned that in focus aspect, adverbs, adjectives, and a subset of complement clauses can also be focused. Again, I will restrict the data here to just nouns in the interest of clarity. Verbs cannot be focused in affirmative main clauses with focus aspect, although there is no a priori reason why a verb cannot be contrasted (he forged a spear rather than repaired it, for example). This is a peculiarity of Makua focus and requires more explanation than I have time for here.

With respect to the syntactic position of focus in focus aspectual sentences, (1a) and (6), we find in two of the contrastive examples discussed so far, that the focused item was in postverbal position. In (1a) this item was an object and in (6) the item was a subject. In fact, there is a definite link between postverbal position and focus so that in order to be focused an item must be in postverbal position. Furthermore, when the verb is marked with one of the focus aspects, something must be in focus. These two properties, the requirement of focus and its postverbal position, work together so that in a simple SV affirmative sentence, the word order must be VS. This is illustrated in (10).

(10)*a. hín-sepéte aa-soócyé-éle
Sepete SP/T-be a little tired-perf

b. aa-soócyé-élé hín-sepéte
SP/T-be a little tired-perf Sepete
'it's Sepete that was a little tired'

c. hín-sepéte ahó-sóócyá-a
Sepete SP/T-be a little tired-A
'Sepete was a little tired'

d. ahó-sóócyá-a hín-sepéte
SP/T-be a little tired-A Sepete
'Sepete was a little tired (and others may have been too)'

(10a) is judged to be unacceptable because it is incomplete; there is no focus. (10b), where the subject follows the verb is all right, and the subject is in focus. (10c), by way of contrast, shows that a subject may precede an intransitive verb in a non-focus aspect. (10d) shows that VS word order is also all right in non-focus aspect, so that it is not possible to impute a rule of subject postposing with the function of focus. Likewise, SOV word order may appear in non-focus aspect while it may not in focus aspect unless there is another focusable element following the verb. Compare (11a) below with SOV word order in non-focus aspect with (11b) in focus aspect. (11b) is not acceptable in Makua as a sentence. Nothing is in focus and the verb is marked for focus.

(11) a. hín-sepété níváka-nne ahó-hán-a
sepete spear-dem SP/T-forge-A
Sepete did forge that spear'
*b. hín-sepété níváka-nne aa-han-íle
Sepete spear-dem SP/T-forge-perf

Syntactic processes constrained by similar factors are left dislocation (which moves a noun to preverbal position), object deletion, and passive agent deletion just in case they move out a focused item and have the verb final in an affirmative main clause.

We now turn to the role of tone marking in focus sentences. If you are a tone watcher you probably noted that the object noun in (1a) had lo tone while the non-focused noun in (1b) did not. And if you were very astute you noted that in (6), on the other hand, the focused noun did not have lo tone. All nouns in Makua that are not in focus or are in citation form have at least one hi tone. Thus, lo tone represents a deviation from the norm. Lo toned nouns are also permitted in other constructions, possessives, for example, but the meaning signalled by such a noun is not focus of contrast so that it cannot be claimed that lo tone marks solely focus. Rather, the tonal phenomena coincide with focus in some instances.[2] Some nouns, such as the subject noun in an example like (6), do not ever have lo tone. A principled delineation of which nouns can have lo tones when in focus is hard to give. For instance, proper names with honorific prefixes like hin or hin-Sepete do not have lo tone in focus, while the same name without the prefix may have lo tone in focus. In any case, tone can help in certain cases to distinguish which item is in focus. To illustrate how tonal alternations may coincide with focus, I have used a sentence with two objects. In (12a) 'It's a school that he bought chairs for,' the noun isuule 'school' has lo tone and it is in focus. In (12b) 'It's chairs that he bought for the school,' ihice 'chairs' is in focus and it has lo tone. In (12c) 'It's chairs for a school that he bought,' both nouns are in focus and both have lo tone. Yes, you can have multifocus sentences. Hi tone on both nouns in (12d) renders the sentence incomplete (i.e. without focus).

(12) a. aa-thum-énle isuule ihice
SP/T-buy-app/perf school chairs
' or a school that he bought chairs'
b. aa-thum-énle isúule ihice
SP/T-buy-app/perf school chairs
'it's chairs he bought for a school'
c. aa-thum-énle isuule ihice
SP/T-buy-app/perf school chairs'
'it's chairs for a school that he bought'
*d. aa-thum-énle isúule ihíce
SP/T-buy-app/perf school c

The tonal phenomena are somewhat more complicated than I have indicated here but I think that the data are sufficient to indicate

that while focus is signalled by the verbal morphology, it interacts with tone and syntactic position as well.

4. Semantic and pragmatic correlates.

We take up the question of semantic and pragmatic properties of focus by looking first at the question of definiteness. As (1a) illustrates, an indefinite noun can be focused. In (6) there was an example of a definite noun. Other kinds of definite nouns, i.e. demonstratives as in (4), possessives as in (8) and pronouns as in (13) below are amenable to focus.

(13) kaa-nenév-íle míi
SP/T-be fat-perf I
'it's I who was fat'

A second parameter, this one pragmatic, is that of new vs. old information. It is often claimed that focus is tied to new information. But the restricted definition of focus used here does not seem to restrict a priori the focused item to new information. As a test of new information, we can use indefinites since they can be old information only under very special circumstances. In an example like (1a) I think it is safe to say that the hearer is not aware of any particular spear and hence the focused item is new.

To test for old information, we use a noun suffixed (but not prefixed) by the distal demonstrative as in (14).

(14) aa-han-íle nivaka-nne
SP/T-forge-perf spear-dem
'it's that spear (that we were talking about) that he made'

A noun so-marked in Makua may be used to refer to a noun previously mentioned in the discourse. Previous reference is presumably old information so that the acceptability of focus for these nouns shows that old information can be focused as easily as new information.

5.0. Conclusion

5.1. Implications

This concludes the brief look at the function of focus aspects in Makua. In the remaining time I would like to comment on the implications of the Makua data.

First, Makua focus aspect along with the tonal and syntactic correlates should be added to the list of devices languages can use for contrastive focus along with English stress and Navaho particles for example. As bizarre as focus aspect might seem at first, Makua appears to fit into a larger system in Bantu. As noted by Givon (1975), Zulu, Bemba, and Rwanda exhibit certain particles in the aspectual morphology which indicate which constituent, whether a verb or something following it, is emphasized. While the nature of

this emphasis is not strictly parallel to the Makua focus of contrast, it is important to note that on a comparative basis the tenses and aspects in which these markers appear coincide with Makua focus aspects. Recently, Hyman (personal communication) has cited the case of Aghem, a Cameroonian language which also has focus aspect.

Secondly, Makua provides valuable data illustrating the intimate connection between what is essentially a discourse function and the syntax of a language. How should the contraints on word order and deletion phenomena be formalized? Should they be part of the syntax at all? A much more detailed exposition of the syntax of focus needs to be given before such questions can be answered, of course, but the Makua data seems fertile ground for such research.

Finally, the data provides some confirmation for Hopper and Thompson's recent work on the discourse basis of transitivity. Regardless of whether their correlations should be ascribed to transitivity, the Makua data do support their claim that the perfective aspect is particularly amenable to focus. Indeed, the Makua perfective, along with a couple of other aspects seems to have grammaticalized a particular kind of focus, contrastive focus.

5.2. Summary

The data in this paper has illustrated how Makua, a Bantu language, marks contrastive focus. First, a definition of contrastive focus was outlined. Tests were developed and it was concluded that in Makua, 1) what is not contrasted is background knowledge, 2) that focus restricts a set of possible candidates and 3) that a focus sentence functions to assert speaker belief about the choice of items in the set. Secondly, it was illustrated that focus is signalled by the aspectual morphology of the verb and that focus position is tied to postverbal position as well. Finally, it was demonstrated that the contrastive items may be either new or old information.

FOOTNOTES

1. Particular thanks go to the language consultant, John Wembah Rashid. In addition, I would like to thank Prof. Charles W. Kisseberth and Prof. Alice Davison for comments on this paper. Any errors that remain are, of course, my own.
2. The tone lowering in examples like (1a) appears to be optional but, is, more often than not, used to mark the item in focus.

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PEAKS VARY, ENDPOINTS DON'T: IMPLICATIONS FOR INTONATION THEORY

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Phoneticians have occasionally remarked that the final fundamental frequency (F_o) value of intonation contours with terminal falls is generally constant over many different utterances by the same speaker. The phenomenon seems to be common knowledge, borne out by the personal observations of a number of researchers, but it has not been adequately studied or documented in the literature. Some reference to it may be found in instrumental work (Phillips 1970, Maeda 1976, Sorenson & Cooper 1978), but in none of these cases was it an important subject of discussion; it seems to have been regarded as an interesting, physiologially plausible, but incidental fact about intonation.

In this paper we show how we confirmed the presence of this phenomenon of end-point stability for the spontaneous speech of a larger set of speakers. We then show that this simple fact may have interesting implications for the theory of intonation.

Method: Sample. The corpus consisted of six parent-child conversations which were recorded by Jean Berko Gleason's research group (at Boston University) as part of a larger study of parent-child communication. The tapes were made in a laboratory playroom; three mother-child and three father-child conversations were analyzed. The children were between the ages of of 2:0 and 4:0[1]. These conversations are probably as spontaneous as can be obtained when the participants know that they are being taped.

Each sample consisted of about 100 successive utterances. Normally about 65 of these were uttered by the parent and the other 35 by the child. About half of the total output of each speaker consisted of falling-contour utterances which were judged to sound 'complete'; the rest was made up of rising contour sentences, questions with tag endings, and falling-contour sentences which were judged to sound unfinished. Most of the falling-contour sentences were declarative statements and wh-questions. Imperatives were found with a variety of contours.

Data: The data analyzed in this paper are measurements of the maximum F_o reached in each clause and the endpoint of each falling-contour sentence (see figs. 1a and 1b). We included one-word utterances as sentences; both interjections and nouns were frequently found in isolation, especially as answers to questions.

F_o was measured by a pitch extraction program developed by W. Henke of MIT. This program handles both parents' and children's voices with a high degree of accuracy (error being within approximately 5 Hz). Narrow-band spectrograms were used to supplement our data, and also used routinely to check the accuracy of the computer data in 5 to 10% of the cases. The degree of accuracy obtainable in spectrogram data is more variable but was estimated to be within 10 to 15 Hz.

With respect to measuring endpoints, Philip Lieberman and others have called attention to the problem of deciding exactly where in time an utterance ends, since it may fade into inaudibility, be embellished by a change of register, or be otherwise obscured. Since most of our utterances ended quite cleanly, this was not a problem for us; repeated measurements of points yielded consistent results. In addition, the pitch at the end of most falling contour utterances has a rather small rate of change, as though it were approaching an asymptote. Thus, most errors due to temporal impreciseness of the endpoint are small. If the speaker dropped into creaky voice (which happened very seldom in our sample, the value of the last few pitch periods of the normal speaking register was taken to represent endpoint frequency.

The peak values of fundamental frequency in sentences presented little problem in measurement, being louder and better defined than falling-contour endpoints.

Noise, of course, is typically a problem in work with natural speech. We had several kinds: traffic noises coming from outside the playroom were the greatest nuisance. Here, low-pass filtering enabled us to recover the F_o of all but the worst sections of discourse. We did have to discard some utterances when speakers moved too far from the microphones, and some points were lost to the usual crashes, bangs, and clanks of toys. A few endpoints were also lost when one speaker interrupted another. However, most of our sentences were quite usable. Moreover, parent-child conversations have significant advantages for discourse analysis which more than compensate for the toy-noises. First, the increased pitch range gives much more variance to work with than one would find in adult-adult conversation. This increases the likelihood that any systematic variation that we find is of sufficient magnitude to work with: for adults speaking to two-year olds, F_o ranges over at least an octave and a half, sometimes two, while for the usual reading voice study, F_o ranges over just about one octave. Second, as is well known, parents' speech to children is simpler in many ways than adult-adult conversation. Semantically it is more concrete and less involved with subtle shades of meaning; the syntax is also simpler, and a higher proportion of sentences is fully grammatical. We suspect that intonation, as well, will be more repetitive and less subtle than in adult-adult conversation, although it probably does carry a higher affect load.

Results: When we examined endpoint values of those sentences judged to sound 'finished' for each speaker, we found that they seemed to show remarkable stability of the terminal endpoint F_o. On the other hand, the F_o values for all clause peaks varied tremendously and without regard to sentence type. This initial impression was confirmed when we looked at the statistical distributions of the peaks and endpoints of each speaker. Standard deviations of 'finished' falling-contour sentences ranged from 3 to 14% of the (logarithmic) mean endpoint value. In musical terms, this is about one-half to two and one-half semitones. Peak F_o, on the other hand, had a standard deviation ranging from 22 to 39%, or

from three and three-fourths to six and one-half semitones from the mean peak value. These results held both for the adults and the children in our sample.[2] Note that the endpoint as we defined it is not always the minimum of the sentence; however, we found that it seemed to correspond in general to the lowest value of the speaker's range, as observed within our sample (See Table 1).

Discussion: Our research initially focused on the problem of interpreting clause-peak variation in these conversations (see Menn & Boyce 1978). However, Boyce noticed early on how stable the falling-contour endpoints were, and we began to wonder what the theoretical significance of the difference between these two parameters might be. We hypothesized that they were carrying different kinds of information.

Now, it has always been agreed that intonation carries many different kinds of messages. Traditionally, these have included attitudinal or affect messages, such as anger, affection, and fear (Bolinger 1978, Stevens 1972), speaker identity, and linguistic messages such as boundary and stress position (Fry 1958, Lehiste 1970).

Peak pitches have been assumed to vary according to the type of contour used, the degree of accent or emphasis placed on certain words, and the emotional overtones conveyed (Bolinger 1978). Endpoint pitch contributes to the gross differentiation among rising, steady, and falling contours; Bolinger, at least, seems to claim that falling-contour endpoint does vary, being lowered "to convey an attitude of finality (as in argument...)" or at the end of a "paragraph or discourse" (p.475, op.cit.).[2]

Our data cannot prove Bolinger wrong, because it is quite possible that our discourses do not contain the types of interchanges that he was referring to. But they do make it clear that we should construct an intonation theory in which fixed falling-contour endpoints are the norm, leaving large deviations from that norm as being highly marked cases.

So let us consider what such a theory would be like. What might be the communicative value of speaker-specific endpoints? What can we say about the different communicative roles of peaks and endpoints? In Menn & Boyce 1978 we presented evidence that peak variation from one clause to the next, regardless of the placement of the peak within the clause, is used to signal certain pragmatic and linguistic aspects of discourse structure, especially change of topic, pursuit of same objective, and back-channel ('contentless') responses vs. responses with message content. Although this was an interesting result, it brought up an even more interesting question. Why should clause-peak height, rather than some other variable such as clause-average F_o, be a clear indicator of discourse structure? Together with our data on endpoints, this finding seemed to favor a theory of intonation in which peak height is chosen for reasons external to the structure of the sentence, and in which endpoint values are chosen on the basis of the intonation contour type of the sentence.

At this point, we need to stop and acknowledge some problems inherent in the notions we are working with. First, we are still characterizing the significance of the measurements we are making in the subjective terms in which this area abounds: 'affect', 'style', 'excitement', 'disagreement', etc. However, we see this as a temporary intermediate stage: we have tried to formulate these hypotheses in such a way that our personal judgements can be be tested by perceptual experiments when vocoded or synthesized materials become available.

Second, linguistic/phonetic/musical literature is full of terms with overlapping meaning for even the simplest concepts about intonation. A brief discussion of terms may be in order. We make a distinction between the word contour, used to refer to generalized intonational shapes associated with certain broad categories of sentences, as in "declarative intonation contour", "wh-question contour", etc., and the word tune, used to refer to a member of a set (lexicon) of possible configurations which conveys a specific and specialized intonational meaning, such as 'contradiction'. Although we more or less adopt Liberman's notion that a lexicon of such 'tunes' exists (Liberman & Sag 1974, Ladd 1978a),we will be more concerned with the characteristics of contours. We use the word contour for the sake of convenience; this does not mean that we have taken sides in the 'levels' vs. 'contours' controversy (Bolinger 1951, Ladd 1978).

Consider a theory in which peak height reflects discourse structure and attitude, while endpoint values are chosen on the basis of the intonation contour type of the sentence except for completeness/incompleteness signals. Such a theory would account for all our findings. Summarized below, these are:

1) For rising contour sentence types, such as yes/no questions, the endpoint is often the maximum. The height of its rise is variable.

2) For falling-contour 'finished' sentence types, such as wh-questions and declaratives, endpoints are fixed and maximum peaks are variable.

3) Sentences with continuation rises (Maeda 1976, O'Shaughnessy 1976), sentences which are members of an itemized list, and sentences which for other reasons sound 'unfinished' stop above the preferred endpoint. (Note here that some authors have suggested that the major division among intonation contour types is that of 'finished' vs. 'unfinished' and that questions as well belong to the latter category (Lea, forthcoming)).

In addition, such a theory fits in well with what is known about the range of the normal human speaking-voice register, namely, that range is indefinitely more expandable in the higher regions than in the lower (Abramson, pers. comm.).

Our results are also compatible with recent work by J. Pierrehumbert (formerly Breckenridge) on synthesis of intonation. Without going too deeply into the details of this work, let us just sketch the salient points here.

If a line is drawn connecting the F_o peaks of an utterance and

another line connecting the valleys, the area between is called the 'envelope' of the utterance. Although for individual sentences the slopes of both lines may vary (Pierrehumbert, pers. comm., M. Liberman, lecture) superimposing contours of the same type and duration (Henke, pers.comm.) reveals a typical envelope pattern. In a typical declarative envelope the top line drifts down at a much faster rate than does the baseline. In a typical yes/no question envelope the top line drifts up and the bottom line drifts down. Since yes/no question envelope patterns are practically unstudied to date, the following discussion will refer to declarative contours only.

Pierrehumbert's synthesis program is built on the envelope model. Keeping all other parameters, such as segmentals, duration, etc., of her 'model' speaker constant, she uses a slightly concave parabolic formula to derive topline envelope shape from preset peak parameters. These peaks are assumed to represent the highest stress levels in the sentence. Assignment of all other, secondary, stress accents is determined (in modified SPE tree fashion) relative to the highest pitch peaks. In order to do this she divides the envelope into horizontal regions, each corresponding to a different stress level. A diagram of this idealized envelope is presented in Fig. 2 . Note that, as the top-line drifts downward, each region narrows along with it.

This model is important for our theory for two reasons. First, envelope shape is determined by preset peak parameters. Of these, since the direction and relative amount of declination in a normal non-contrastive declarative sentence is quite predictable (Sorenson & Cooper 1978), the most important variable is the pitch of the highest peak. Second, Pierrehumbert found that, when the height of the preset F_o peak was varied, and the relative values of secondary peaks kept constant, listeners had difficulty hearing much difference between the variants, beyond a certain greater excitment or 'emphasis' that seemed to go along with higher peak height (Pierrehumbert, informal presentation in seminar).

Such a model, if accurate, suggests that the highest peak of a sentence may be the free-est variable a speaker has in his production of a particular sentence, assuming that he has already chosen the 'tune' and accentual pattern he wants to use. Again, this dovetails with our findings on the variability of clause-maximum F_o height (compared to endpoints) and our previously reported results on the correlation of clause-maximum F_o variation and discourse structure. It makes sense that a variable which is relatively free (i.e., unassigned) at a lower level of structure should be obligatorily assigned at a higher level.

It is not our intention, at the present time, to claim that this or any other model is the correct one for description of intonation behavior. We simply want to indicate that, of all the models we have seen to date, this one comes closest to capturing the generalizations implied by our data.

The present results bring up some interesting implications for the perception of intonation. Linguists have always had the following problem: if different gradients of pitch have such

specific and subtle meanings for speakers, and different speakers have different vocal ranges, how does the hearer know how to interpret a certain pitch as meaning such-and-such in the speaker's system? We suggest that the hearer quickly determines the limits of the speaker's range, at least roughly, and then interprets contours with respect to those limits. Our results seem to suggest that the bottom line of this range is more-or-less fixed at the speaker's teminal fall endpoint, and that pitch interpretation may take place only in the higher limits of the range, as 'measurable (perceptible) degree of excursion from a fixed reference point'. This hypothesis is attractive in that it seems to simplify the process of intonation perception, since, in general, we do form expectations of usage norms for other aspects of language. It also has the advantage of being testable.

This model also provides a framework to account for one of the most prominent phenomena of speech addressed to children. It has been almost universally remarked that adults 'sound high' when they speak to very young children. It has also been remarked that the intonation contours used by adults are exaggerated, presumably for language-teaching purposes. Phillips (1970) showed that when the speech of mothers to children and mothers to other female adults was compared, mean minimum F_o remained the same, regardless of addressee, but that mean peak F_o was higher in the speech addressed to children. This result, together with our findings, indicates that when parents' voices 'sound high' in addressing children, it is because they raise their peak F_o. Now, suppose that there is a physiological 'floor' that essentially determines each person's preferred endpoint. Then, as A.W.F. Huggins has pointed out to us (pers. comm.), this would mean that if parents wish to exaggerate their contours in order to communicate more clearly, they must do so by raising their pitch peaks.

We can derive another theoretical result from our data. Musical notation has been advocated by a number of people as being appropriate for the description of intonation contour (a recent example is Gardiner 1978, summer LSA). There is no question that one can use pitch notation at least as well as sketches of curves or arrays of numbers to describe a particular contour. But, as we all know, there is more in the choice of notation than its ability to describe an event. If a notation is appropriate for a theory, it must make it easy to preserve the right invariances --- that is, if the theory says that two terms belong to the same class, the notation must make these two items look more alike than two items that the theory says belong to different classes. If a notation cannot capture this basic 'mapping' requirement, it is useless.

Musical notation recognizes two invariances: identity of pitch and identity of intervals. To our knowledge, it has never been suggested that pitch invariance is useful for the classification of contours. We would argue from our present findings that identity of intervals is not a useful invariant for the study of contours either --- at least, not according to the notion of

'sameness of contours' we described earlier.

Consider: Suppose we have two contours, one reaching a peak twice as high as the other (i.e., an octave higher). If each of these contours were composed of the same sequence of intervals, the endpoint of the first contour would have to be twice as high as the endpoint of the second contour. But we have shown that complete falling-contour sentences for the same speaker will have virtually the same endpoints regardless of the height of the peaks.

Therefore, either every peak height defines a different contour (contrary to any theory of contour that we know, and contrary to Pierrehumbert's findings with synthesis) or an interval-preserving theory is wrong.

Summary: We have one simple result: peaks vary a great deal more than falling-contour endpoints. In particular, we have confirmed sentence-by-sentence the fact that Phillips (1970) reported for means: the impression of high pitch in parents' speech to young children is a function of the higher pitch of sentence peaks. We have offered one firm interpretation that can be drawn from these results, namely, that the use of musical notation as a system for representing intonation contours can be ruled out. In addition, we have offered another, less firm, interpretation of the difference in variability between peaks and endpoints --- that is, that peaks and endpoints are carrying different types of information. We also proposed that parents' use of high pitch in speaking to children can be explained as a device to exaggerate their pitch signalling in the light of the constancy of endpoints.

The rest of what we offer is suggestions, hypotheses, or questions. Let us conclude by reviewing what we consider to be the major issues raised here, and the most interesting questions to explore in the future.

The major issues are:

1) Can the influence of discourse structure and speaker attitude on intonation be separated from such sentence-level phenomena as placement of stress and 'tune' assignment? And can the influences of discourse structure and speaker attitude be separated from one another?

2) What is the underlying explanation for the observed stability of falling-contour endpoints? Is it determined by a physiological floor? How consistent is it for each speaker on different days and in different situations? Whether it is stable from one session to the next or just stable for single sessions, to what degree is this stability physiologically automatic and to what degree is it a form of learned behavior? And if it is learned or is unstable from one session to the next, what social, cultural, or linguistic factors control it?

Questions of lesser scope include the following:

1) What are the factors (semantic, pragmatic, segmental, and intonational) that are sufficient to make an utterance sound complete? Which are necessary?

2) How much are listeners aware of the preferred endpoint of the speaker? How necessary is such awareness for interpretation of

the speaker's intonational meaning? What information is needed for the listener to form judgements of the expected range of the speaker? What would happen if an experimenter artificially manipulated sentence endpoints?

We have been assuming that our data on adult-child discourse is generalizable to adult-adult conversation. This seems probable in the light of Phillips' (1970) result that mean minimum F_o for mothers' (spontaneous) speech to children is the same as the mean for their (spontaneous) speech to another adult female, and the common-knowledge facts about adult 'read' speech. However, it's as well to remember that there may be systematic differences in endpoint/peak behavior between adult-adult and parent-child discourse that we don't know about. An analysis of such behavior in spontaneous adult interaction is obviously the next step.[3]

Finally, we would like to try to clarify some of the differences between our approach to 'intonational meaning' and that of the majority of linguists who have worked on it. The traditional linguist's approach is basically holistic, attempting to account for all the various uses of intonation in one, rather mystical, gestalt. A typical example is Pike, who saw intonation as "merely a shade of meaning added to or superimposed upon [the] intrinsic lexical meaning [of the sentence] " (1945, p.21); another is Liberman, who attempts to identify a 'lexicon' of intonational tunes whose abstract meaning is "intuitive" but whose specific meaning is defined only from the pragmatic circumstances of its use --- rather as one would describe the 'meaning' of a given word order (Liberman 1975, Ladd 1978a). Segmentation, in these cases, is used horizontally to separate out those sequences of tones, or contours, which seem to convey this vague, 'intuitive' meaning. We feel, however, that our results imply a different type of segmentation --- one that is more akin to the generative concept of 'levels of structure'. Of the two parameters that we have been working with, we have suggested that peak height would be principally determined at the level of discourse structure (Menn & Boyce 1978), while endpoint value would be determined primarily at the level where the contour is chosen (whether declarative, wh-question, yes/no question, etc.). In other words, we suggest some division into segment-level intonational rules, sentence-level rules, and discourse-level rules, something like stress-assignment rules in the SPE tradition.

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[1] There were four children in all, aged 2.1, 2.5, 2.6, and 4.0.

[2] One child's endpoints show unexplained scatter and will require further study (See Table 1).

[3] Bolinger's statement is somewhat ambiguous, in that he may be speaking of variation in 'depth of terminal fall' as due to vari-

ation in the slope of fall. Our results are relevant to either case.

[4] For instance, one difficulty is to account for the differences in standard deviation between Maeda's endpoint data and ours. Maeda had 3 male speakers read, in turn, a corpus of 30 sentences. Of these, the lowest standard deviation was 1.7 Hz. and the highest 2.8 Hz. Our lowest standard deviation for a male speaker was 8.2 and our highest 10.4. At this point, we have no way of knowing how much this difference is due to the difference between read and spontaneous speech, to normal intra-speaker variation over time (Atkinson 1973), to differences between parent-child and adult-adult interaction norms, or our own measurement error.

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FIG.1. SCHEMATIZED DRAWING OF TYPICAL INTONATION CONTOURS SHOWING DEFINITION OF "F_0 PEAK" AND "ENDPOINT OF FALLING-CONTOUR SENTENCE"

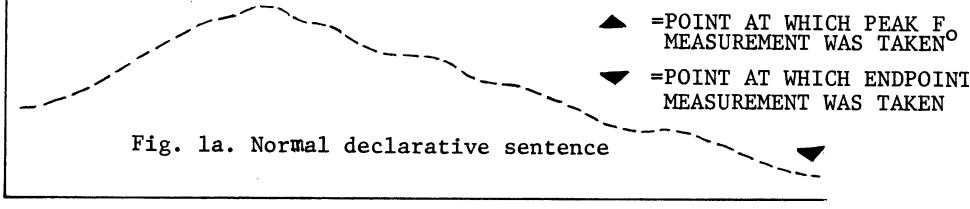


Fig. 1a. Normal declarative sentence

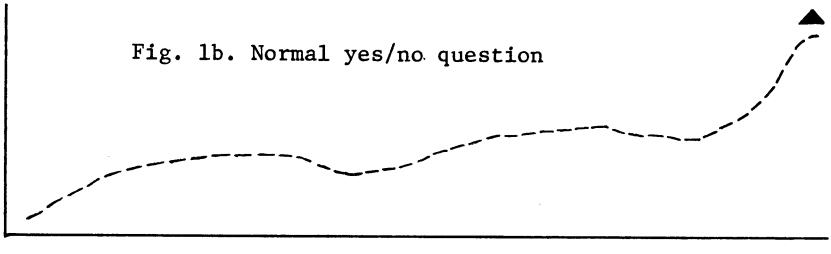
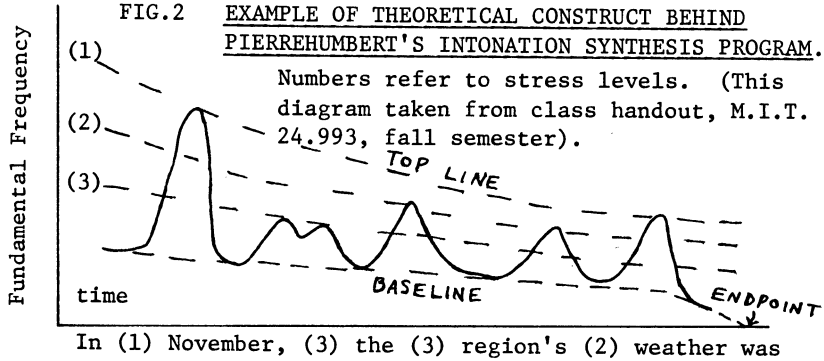


Fig. 1b. Normal yes/no question

FIG.2 EXAMPLE OF THEORETICAL CONSTRUCT BEHIND PIERREHUMBERT'S INTONATION SYNTHESIS PROGRAM. Numbers refer to stress levels. (This diagram taken from class handout, M.I.T. 24.993, fall semester).



In (1) November, (3) the (3) region's (2) weather was (2) unusually (1) dry.

DISCOURSE		PEAKS					ENDPOINTS				
		#	MEAN	σ	GEO.MEAN	GEO. σ	#	MEAN	σ	GEO.MEAN	GEO. σ
Child #14 (2 years 1 month)	MOTHER	70	320.8	73.8	313.1	1.242	33	188.8	12.9	188.3	1.071
+ Mother	CHILD	21	460.2	169.1	441.9	1.290	13	251.2	22.5	250.2	1.094
Child #14	FATHER	88	195.2	64.5	186.1	1.352	30	102.8	10.4	102.4	1.102
+ Father	CHILD	36	392.4	77.3	384.4	1.230	21	242.8	11.8	242.5	1.050
Child #16 (2 years 6 months)	MOTHER	50	344.8	109.4	328.6	1.359	22	203.3	15.3	202.8	1.078
+ Mother	CHILD	24	358.8	95.9	346.8	1.296	11	229.5	14.7	229.0	1.070
Child #16	FATHER	62	148.6	37.6	144.0	1.329	37	91.5	10.4	90.9	1.125
+ Father	CHILD	44	425.1	78.7	417.3	1.224	28	259.8	7.8	259.7	1.030
Child # 22 (4 years)	MOTHER	65	300.3	83.4	286.7	1.392	31	200.2	27.1	198.6	1.126
+ Mother	CHILD	20	369.3	83.1	361.6	1.218	17	257.6	35.8	255.4	1.139
Child # 13 (2 years 5 months)	FATHER	58	203.9	46.4	198.7	1.255	14	102.2	8.2	101.9	1.084
	CHILD	27	327.6	52.1	323.1	1.185	22	206.5	49.8	181.1	2.200

TABLE 1. Collected data on 6 speaker pairs, including number of tokens, arithmetic and geometric (logarithmic) means, and arithmetic and geometric (logarithmic) standard deviations for both peak and endpoint F_0 measurements.

EVIDENCE AGAINST THE USE OF WORD BOUNDARIES IN TONOLOGICAL RULES: An Autosegmental Approach to the Fast Speech of the Tokyo Dialect of Japanese*

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University of Washington

I. Introduction

The accentuation systems of tone patterns of Japanese have been studied repeatedly; however most past works have been restricted to the description of such systems with a large set of ad hoc rules (cf. Kindaichi (1958)). Within the framework of generative grammar, McCawley (1968) and Shibatani (1972) attempt to account for the phenomena in terms of segmental phonology. Following Goldsmith (1974, 1976), Haraguchi (1977) demonstrates that Japanese tone patterns are best described in the framework of the autosegmental theory in regard to such phenomena as the preservation of tones on devoiced or deleted vowels (discussed later) and the existence of a contour tone on a short vowel, which segmental phonology cannot explain.[1]

The tone pattern of Japanese, unlike that of a true tone language like Chinese, is predictable given an accent marker (*)[2] on a word and a set of tonological rules. In the Tokyo dialect, the tone patterns of a minor phrase[3] illustrated in (1) are the only possibilities.[4]

(1) a. ## $\overset{*}{0}$ ⌊ (0. . .) ##

b. ## 0 ⌊ (0. . .) $\overset{*}{0}$ ⌊ (0 . . .) ##

c. ## 0 ⌊ (0. . .) ##

0 : a mora
( ) : optional
. . . : a potentially infinite number of unaccented moras

In other words, within a minor phrase the moras following the first or left most accented mora (where * falls) are all low pitched and the accented mora and all moras preceding it are high pitched except the first which, if not itself the accented mora, will be low pitched. Though the generalization for basic tone patterns is expressed in any of the past analyses, in the following, I will take Haraguchi's analysis as a representative, in view of the explicitness of its rules and descriptive and explanatory adequacy, to illustrate how the tone pattern of the Tokyo dialect is described. Then, I will present two problems which his analysis, or any previous analysis, cannot explain. I will show that the problems are inherent in the analysis crucially using word boundaries (WB). They will be easily solved once the notion of WB's is abandoned. Lastly, the consequence of giveing up WB's will be discussed, suggesting the direction of future researches.

II. The Tonological Rules of the Tokyo Dialect: Haraguchi's Analysis

To capture the generalization of the basic tone patterns in (1), Haraguchi sets up HL as the basic tone melody for the Tokyo dialect

and presents the following tone association rule.[5]

(2) Tone Association Rule (TAR) (Haraguchi 1977, p. 10)



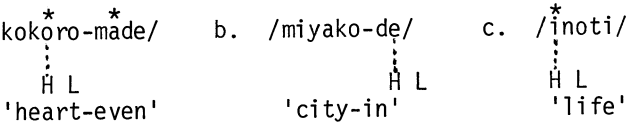
(i) where Q is the maximal sequence of phonological segments which contains no V.
(ii) where the dotted line indicates the structural change (SC) of the rule.

The operation of (2) is expressed informally:

(3) (Haraguchi p. 9)
a. If a string has at least one V́, associate the H tone of the basic tone melody with the leftmost V́;
b. If it has no V́ (i.e., if it is unaccented), associate the H tone of the basic tone melody with the rightmost V.

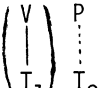
The following examples show how the above association rule works.

(4) a. /kokóro-máde/ b. /miyako-de/ c. /ínoti/



Then, the universal Tone Association Conventions are triggered, which serve as wellformedness conditions for tone association, connecting every tone with at least one of the tone-bearing units and vice versa. The following is presented by Haraguchi (pp. 11-12).[6]

(5) Universal Tone Association Conventions (UTAC)
(i) a. All tones should be associated with at least one tone-bearing unit, and conversely, all tone-bearing units should be associated with at least one tone in the tone melody.
b. No association lines should cross.
(ii) To guarantee (i), perform the following processes:
a. If a domain contains only one free tone, or if it contains only one free tone to the right (or left) of a bound tone, the free tone should be associated with every free tone-bearing unit or every free tone-bearing unit on the same side of the bound tone. I.e.,



(where P is the maximal sequence of free tone-bearing units, and T_2 is a free tone. // indicates that this is a mirror image process.)

b. If a domain contains no V to the right (or left) of a bound V, and if it contains at least one free tone, the free tone should be associated with the bound tone-bearing unit. I.e.,



(where Q is the maximal sequence of free tones.)

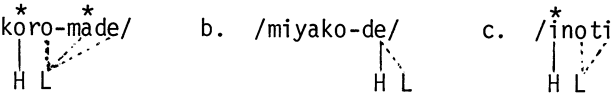
c. If a domain contains at least one V to the right (or left) of a bound tone and if there is no free tone, associate the bound tone with the remaining free tone-bearing units. I.e.,



(where R is the maximal sequence of free tone-bearing units.)

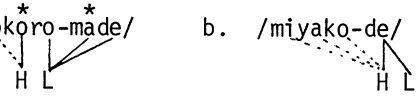
(5iia) applies to (4a) and (4c), associating the free tone, L, with the tone-bearing units on the right side of the bound tone, H. (5iib) operates on (4b). This is illustrated in (6):

(6) a. /kokoro-made/ b. /miyako-de/ c. /inoti/



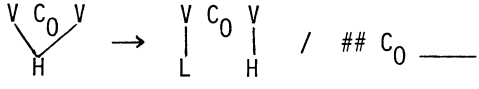
(4a) and (4b) are further subject to (5iic) whose operation is explained in (7):

(7) a. /kokoro-made/ b. /miyako-de/



To derive the correct surface forms described in (1), where the initial mora is low toned (unless it is starred) and no contour tone is exhibited on the last mora, Haraguchi gives the following two rules.

(8) Initial Lowering Rule (ILR) (Haraguchi p. 17)

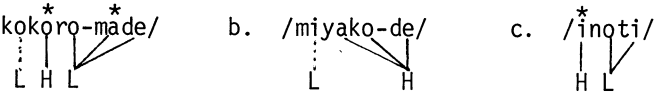


(9) Tone Simplification Rule (TSR) (Haraguchi p. 18)



These rules change (7a) and (7b) in the following way, deriving the correct surface forms. ((6c) is repeated as (10c))

(10) a. /kokoro-made/ b. /miyako-de/ c. /inoti/



As shown above, the tone pattern of a minor phrase is described correctly, given the leftmost accent marker (*) and the rules and conventions, applying them in the order of (2), (5), (8), and (9).

The definition of a minor phrase has never been explicitly articulated in any of the past analyses, and Haraguchi's is not an exception. He crucially uses two WB's for tonological rules; however, he never specifies syntactic configurations of strings where two WB's

occur, which is fundamental in the framework of SPE and Selkirk (1975). In view of the fact that Haraguchi is silent about how WB's are placed, I assume that he applies the notion of WB's developed in SPE and Selkirk to Japanese. Thus, a WB is not inserted before or after specifiers and enclitics, such as copulas, auxiliary elements, particles, etc., which do not constitute independent minor phrases. As shown in (2) and (8), Haraguchi makes his tonological rules apply to the phrases which are bounded by two WB's. This is the fundamental assumption of his framework and, as one will see, it inevitably leads him to the difficulties, which I will take up in the third section.

II.1. The Interaction between Tonological Rules and Segmental Rules

As is well-known, Japanese has a phonological process which devoices high vowels. Though the formalization of this process is not so simple in rather slow speech, it is generalized and simplified in a fast speech context, which is something like the following.

(11) High Vowel Devoicing (HVD)

$$\begin{bmatrix}+\text{syll}\\+\text{high}\end{bmatrix} \longrightarrow [\text{-voice}] \;/\; \begin{bmatrix}-\text{syll}\\-\text{voice}\end{bmatrix} __ \begin{bmatrix}-\text{syll}\\-\text{voice}\end{bmatrix}$$

In addition, a devoiced high vowel often gets deleted, if the surrounding segments are identical consonants. This process is roughly formalized as (12).

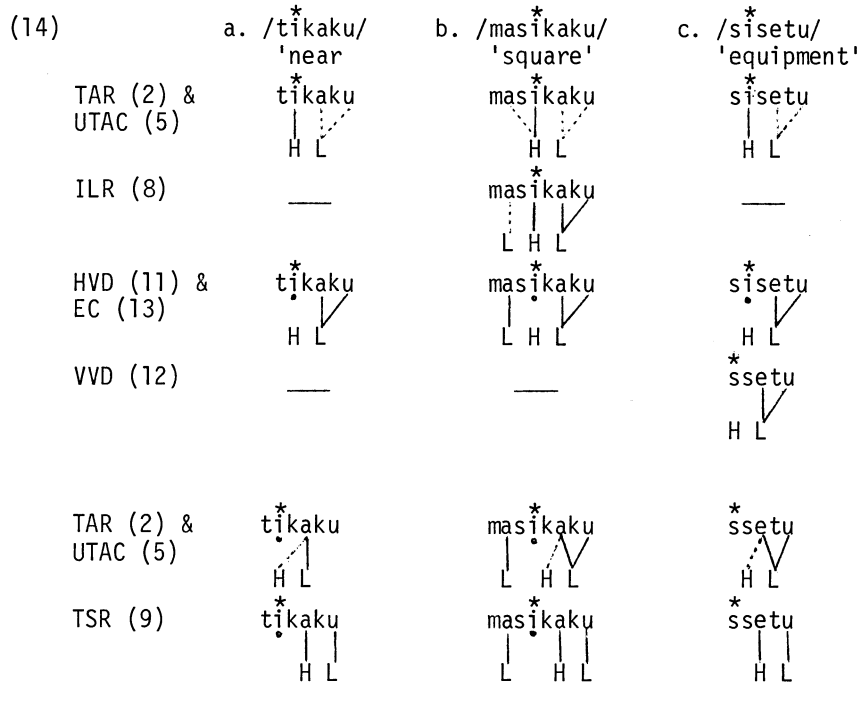
(12) Voiceless Vowel Deletion (VVD)

$$\begin{bmatrix}+\text{syll}\\-\text{voice}\end{bmatrix} \longrightarrow \emptyset \;/\; \overset{C_i}{[\text{-voice}]} \text{——} \overset{C_i}{[\text{-voice}]}$$

These two rules are interesting to the extent that they affect tone patterns. By the definition of a tone-bearing unit, a mora segment which becomes voiceless is no longer capable of bearing a tone. By proposing the following convention, Haraguchi makes this process formal.

(13) Erasure Convention for Association Lines (EC) (Haraguchi p. 36)
If a tone-bearing unit V is turned into an element which cannot carry a tone by some phonological process (such as Devoicing Rules, Deletions, Glide Formation, etc.), then the association line drawn between a tone and the element in question will automatically be erased.

Thus, a tone associated with the vowel which eventually becomes voiceless by (11) or subsequently deleted by (12) will be left unassociated. Whenever a free tone appears, TAC (2) and UTAC (5) are automatically triggered. This process is described in the following ($\underset{\bullet}{C}$ = [-voice]).



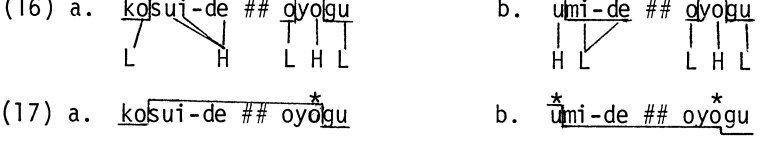
The output of these examples are thus predicted as tikaku, masikaku and ssetu, which are the correct surface tone patterns.

II.2. Tone Patterns across Two Word Boundaries

The derivation of the tone pattern on the minor phrase has been discussed so far. In this section, I will discuss some tonological processes which are sensitive to the information beyond two WB's. When (more than) two minor phrases are uttered without a pause in between in a normal or rather fast speech context, certain changes of tone patterns take place. For example, the strings in (15) consist of two minor phrases separated by two WB's. The rules and UTAC introduced above assign the tone patterns as in (16), while the actual surface patterns are those in (17).

(15) a. kosui-de ## oyogu
lake-in swim
'swim in the lake'

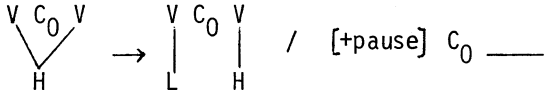
b. umi-de ## oyogu
sea-in swim
'swim in the sea'



To realize (17a), Haraguchi slightly modifies his ILR (8), making it

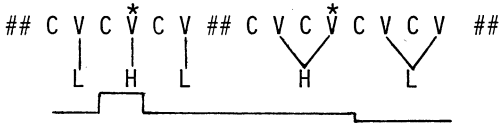
sensitive to the existence of a pause.

(18) Initial Lowering Rule (Revised) (ILRR)



To obtain (17b), Haraguchi sets up the Downdrift Rule (19) that lowers an H tone to an L tone when its preceding phrase ends with an L, provided that there are no pauses between the phrases. DDR applies after ILRR. He does not formalize DDR but illustrates its effect as follows, using a line to indicate the surface tone pattern.[8]

(19) The Downdrift Rule (DDR) (Haraguchi p. 30)



Thus, the change of tone patterns with respect to the rate of speech is described, with the help of DDR and the feature [+pause].

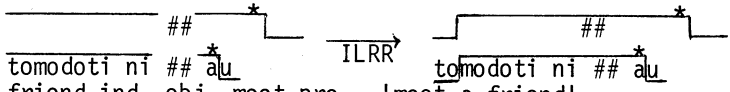
III. Problems with Haraguchi's Analysis

In the above section, Haraguchi's analysis is presented in considerable detail. In this section I will show that his analysis cannot escape from at least two serious difficulties, as long as the application of his tonological rules are bounded by two WB's. Firstly, the mechanisms that Haraguchi presents to describe the tone pattern across two WB's, discussed in II.2., are totally ad hoc. To derive the correct tone patterns given in (17), he posits DDR (19) and the feature [+pause]. They are merely needed to describe the tone pattern observed. In terms of the possible combination of minor phrases, with respect to the tone pattern of the phrase, where (18) and/or (19) may operate, there are only four possibilities, which are illustrated in (20). Here, the first line of each group gives a schematic tone pattern and an example with the pattern is presented in the second line.

(20) a. ## → ILRR & DDR ##
inu o ## naguru → inu o ## naguru
dog obj. beat-pre. 'beat a dog'

b. ## → ILRR & DDR ##
otoko ga ## hataraku → otoko ga ## hataraku
man sub. work-pre. 'a man works.'

c. ## → ILRR ##
sakura ga ## saku → sakura ga ## saku
cherry blossoms sub. bloom-pre. 'cherry blossoms bloom.'

d. 

friend ind.-obj. meet-pre. 'meet a friend'

When we observe the surface tone patterns exhibited in (20), it is easily noticed that the proposed operations to describe the phenomena seen across two WB's work in such a way that the basic tone patterns (1) are preserved. This means that, in Haraguchi's analysis, the preservation of the basic tone patterns by the ad hoc mechanisms on a string larger than a minor phrase is totally accidental, although it seems to be an important generalization about the tone pattern of the Tokyo dialect, which should be explained somewhere in the grammar. One might propose a conspiracy which controls the well-formedness of surface strings. But I would rather propose to eliminate DDR and the ad hoc feature [+pause] altogether and to expand the domain of tonological rules across two WB's in a fast speech context. Then, it naturally follows that the basic tone patterns are always created in a string irrespective of WB's.

This approach presents further interesting consequences, with respect to the following phrases, each of which consists of two minor phrases.

(21) a. *tikaku no ## *ie
near house
'the house near by'

b. tokei no ## *tikaku
clock near
'near the clock'

c. *ssetu ga ## rippada
equipment sub. excellent
'the equipment is excellent'

d. rippa na ## *ssetu
excellent equipment
'excellent equipment'

Within Haraguchi's framework, the two phrases separated by two WB's are independent tonological domains where TAR (2) operates separately. Tone patterns would not change once they are assigned unless the preceding phrase ends with a low tone and no pause falls between the two phrases. Therefore, his analysis predicts the following tone patterns, (22), on the phrases in (21). The detailed derivations, taking (21a) and (21b) as representatives, are given in (23): ((23) is on the following page.)

(22) a. *tikaku no ## *ie

b. tokei no ## *tikaku

c. *ssetu ga ## rippada

d. rippana ## *ssetu

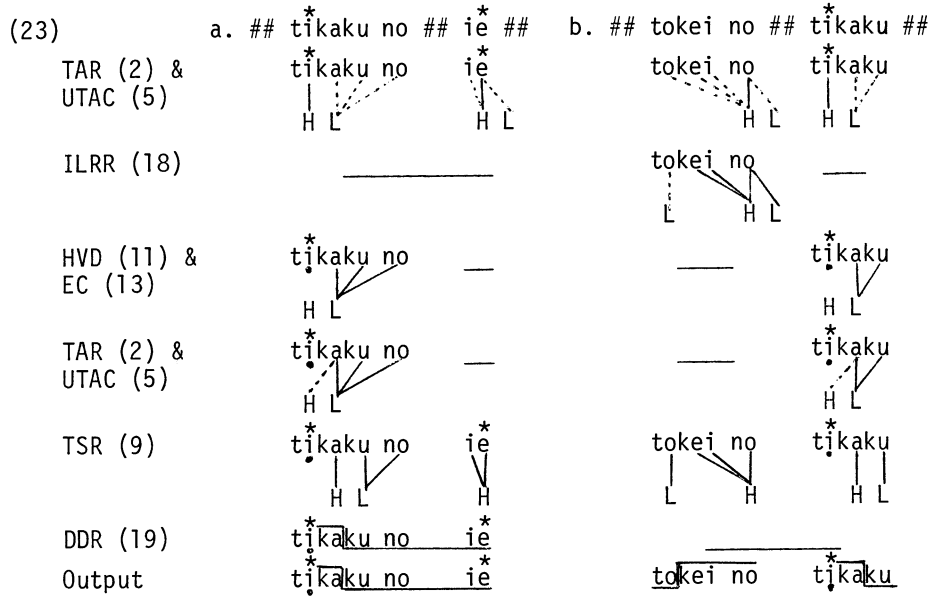
Without a pause intervening the minor phrases above, (21a) and (21c) are subject to DDR (19) and they are correctly realized. On the other hand, Haraguchi's prediction is wrong, regarding (21b) and (21d), where a phrase starting with a devoiced or deleted vowel is following another phrase, The correct surface forms are:

(24) a. *tikaku no ## *ie

b. tokei no ## *tikaku

c. *ssetu ga ## rippada

d. rippana ## *ssetu

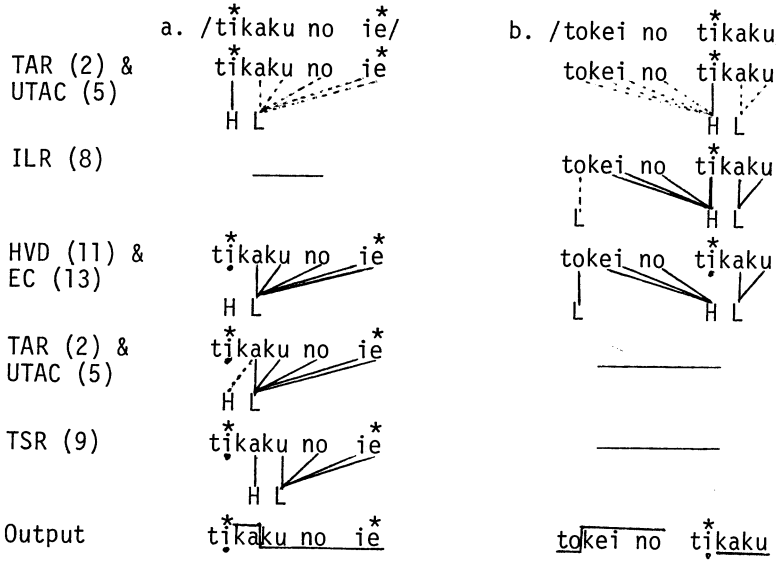


To make the point clear, in Haraguchi's framework, the freed high tone at the beginning of a minor phrase has to be reassociated with the following tone-bearing unit, regardless of the position of the phrase in a string relative to other phrases, given the assumption that TAR operates in the area bounded by two WB's. Differing from Haraguchi's prediction, it seems to be the case that an initial high tone freed from the originally associated mora is shifted to the right next mora only when the phrase containing the free tone is the first phrase of the entire string within which no pauses fall and that it is shifted to the left when other phrases are preceding without pauses. Only the former phenomenon is captured in Haraguchi's analysis, while the latter phenomenon is totally mysterious. This is a consequence of his approach where the domain of the tonological rules are sensitive to two WB's.

Let us see how these phenomena are treated in my analysis where the entire strings in (21) are regarded as independent tonological domains. Therefore, TAR applies only once to each string. This is illustrated in the following page, taking (21a) and (21b) as examples, whose derivations are (25a) and (25b), respectively.

What is interesting here is that in (25b) HVD (11) and EC (13) do not trigger TAR (2) and UTAC (5) due to the fact that the high tone, H, associated with the devoiced /i/ is not totally freed after HVD and EC but still attached to other tone bearing units preceding the /i/. In (25a), on the other hand, TAR (2) and UTAC (5) are triggered, connecting the freed H with the right next vowel, because the H is left unassociated after HVD and EC. This explains why the high tone associated with the devoiced /i/ appears on the right next vowel when the phrase containing the /i/ is the first phrase of the entire string, and it is preserved on the left when another phrase is preceding. Thus,

(25)



my analysis can not only derive the correct surface tone patterns but predict different tone patterns according to the position of the phrase with an initial free tone with respect to other phrases.

IV. Conclusion

To sum up the above discussions, any theory which attempts to describe tone configurations in Japanese in a fast speech context has to be able to explain at least (i) why an utterance preserves the basic tone pattern for a single word or phrase, and (ii) why a preserved tone after a devoicing or deletion process of vowels appears in different places depending on the structure of an uttered string. None of the theories, to my knowledge, can succeed in doing this, while my analysis can do so without any difficulties. The consequence of adopting my analysis of Japanese fast speech phenomena is that WB's are of no use for the tonological rules of the Tokyo dialect. It is clear that limiting the application of TAR makes Haraguchi's theory unable to explain (i) and (ii) and forces him to postulate ad hoc mechanisms; DDR and the feature [+pause]. Just giving up WB's solves the difficulties.

The residual problem after giving up WB's is how to set up the domain of the tonological rules. The most promising alternative to WB's seems to be sought in the framework that Selkirk (1977, 1978) has been developing. She proposes different levels in prosodic domain rules. Among others, the levels of the phonological phrase (PP) and the intonational phrase (IP) are of most interest to us. Her definition of the constituency of PP is:

(26) (Selkirk 1978, p. 20)
(i) An item which is the specifier of a syntactic phrase joins with the head of the phrase.

(ii) An item belonging to a "non-lexical" category (cf. Chomsky 1965), such as Det, Prep, Comp, $Verb_{aux}$, Conjunction, joins with its sister constituent.

This gives an almost equivalent phrase to what is bounded by two WB's. IP is composed of PP('s), though the choice of combinations is free, except that parentheticals, preposed adverbials, non-restrictive relative clause (in the case of English; for Japanese, parentheticals and right dislocated phrases), etc., must be independent IP's.

Given these two levels, the tonological rules discussed above seem to be most sensitive to IP and the choice as to which phonological phrase(s) may compose an IP seems to be dependent on types of speech; either fast or slow. Therefore, I assume that the domain of the tonological rules are on the level of IP, rewriting (2) as (27) and (8) as (28).

(27) $(_I$ Q V (i) the same as (2i).
H (ii) the same as (2ii).

(28) $\overset{V\ C_0\ V}{\underset{H}{\diagdown\diagup}} \rightarrow \overset{V\ C_0\ V}{L\quad H}$ / $(_I\ C_0$ ——

There may be restrictions on the maximum number of PP's in a single IP or on the choice of PP's; i.e., which PP's are more likely chosen, as opposed to others, as constituents of an IP.[9] Since these questions are outside of the scope of this paper, the answers to them have to await future researches.[10]

Notes

* I would like to thank Ellen Kaisse who read an earlier version of this paper and gave me much helpful advice. Any errors that may remain are, of course, mine. Work on this study was supported by research grant AH-111 from the graduate school of the University of Washington, for which I am greatly indebted.

1. In general, a contour tone is not observed on a short vowel in the Tokyo dialect, though Haraguchi claims that it occurs on certain structures, giving a few examples. In my speech, among other Tokyo dialect speakers, however, a contour tone does not occur in his examples. Note that there are many dialects of Japanese which clearly exhibit a contour tone on a short vowel.

2. Not all of the accent markers are given by the lexicon. Some are supplied by star assigning rules. How an accent marker is assigned is, however, not relevant to the discussion in this paper.

3. What constitutes a tonological minor phrase is discussed later.

4. The actual tone patterns are not so simple as described in (1). For example, when a tone falls or rises, it does not change so abruptly; two adjacent tones do not exhibit clear differences between a high tone and a low tone, but rather a gradual tone change is observed. See also note 10.

5. Note that V or $\overset{*}{V}$ stands for a tone-bearing unit, which is assumed to be a voiced vowel or a syllabic nasal /n/.

6. Haraguchi presents (5) as a first approximation. A more complex version is offered in the later chapter of his book. Since the differences in the two versions do not affect the entire discussion of this paper, I take up the simpler version.

7. Note that these changes in tone patterns give considerable difficulties to segmental analyses of tones. They cannot elegantly explain why an underlying high tone on a devoiced or deleted vowel is preserved, which is the natural consequence within the framework of the autosegmental tonology.

8. Haraguchi's illustration (19) is not accurate enough to describe the phenomena. The number of tone-bearing units and the existence of a star in the second phrase are irrelevant to the phenomena to be taken care of by DDR (19). What is relevant is that the initial phrase ends with a low tone and the second phrase starts with a high tone.

9. This is also a problem for Haraguchi, since he has to specify whether DDR can apply to more than two places in a single utterance or which phrases are subject to DDR if it applies only once in a string where more than two places meet the conditions of DDR.

10. The careful reader may have noticed that there seems to be a lower tone than an ordinary low tone when an IP contains more than one accent marker (see (17a) and (20a)). In general, it is true that a tone which follows a star is lower than the tone on the starred mora. For instance, if a high tone is associated with a starred mora, the following tones are marked as L and if a low tone is associated with a starred mora, the following tones are further lowered. Note that this is not a defect of my analysis, but has to be explained in any other analys s as well, which regards (10a), for example, as a single phrase, where two accent markers occur. Phonetically, the low tone on the moras after the second star are lower than the low tone(s) on and preceding the second starred mora.

(i) (=10a)

kokoro-made

The explanation for this phenomenon should be responsible for the tone pattern on (17a) or (20a). The following rule seems to be operating.

(ii) $C_0 \overset{*}{V} (C_0 V)_1 \; I) \rightarrow C_0 \overset{*}{V} (C_0 V)_1 \; I)$

L → L L

L > LL

> : higher than

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Double-Cross in Phonology: Why Word-Boundary (Often) Acts Like a Consonant

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U.C.L.A.

0. Introduction. This paper centers around the proposal that the reason why word-boundary (#, or "double-cross") functions like a consonant in the environments of so many phonological rules of so many diverse languages is that: (1) # is not phonetically present in the speech-signal, and (2) # is typically (= most frequently) followed by a consonant. That is, the "consonantality" of # is not due to any special properties of word-boundaries in themselves, nor--directly--to the alleged automatic cooccurrence of syllable-boundary ($) with #, but, rather, to the association of word-boundaries with the consonants that usually follow them. Support for this proposal is provided in two ways: firstly, evidence is presented that the (to the best of our knowledge) only two alternative proposals for explaining the quasi-consonantality of # are inadequate in ways that the new one is not; secondly, results are given from a study of twenty languages in which it was found that the percentage of #C (i.e., consonant-initial words) in running text had a mean frequency of 75%, ranging as high as 90% (in Swahili), but never dropping below 63% (in Hungarian). Toward the goal of verifying the new proposal, the paper specifies, finally, a type of potentially disconfirming evidence that can and, of course, should be investigated.

1. Natural Classes in Phonology and the General Problem of Unnatural Classes. The sounds of the languages of the world--of any language and, hence, of human language in general--can be grouped into classes according to their properties, properties of an articulatory, acoustic, or auditory nature. That these natural classes are not merely some artifact of linguistic-phonetic analysis without any reality in the minds--or mouths or ears--of speakers/hearers of language is shown by the fact that such classes act as units in the phonological rules of languages, this unity consisting in the situation that the sounds which make up natural classes act together: undergoing some rule together as input or output, conditioning some rule together (in its environment), or, in a more extended sense, changing into one another or being derived in the environment of one another (cf. Hyman 1975:140).

The success--that is, the consistency and coherency--with which phonological systems (both inventories and rules) in general can be described in terms of natural classes has led phonologists to the actually rather extreme assumption or expectation that practically all of phonology--especially rules--should be describable in terms of such classes, in the sense that the appearance of unnatural classes (in "crazy rules", for example; cf. Bach and Harms 1972) is designated as highly marked, and, consequently, expected to be of extremely rare occurrence. For example, Chomsky and Halle (1968: 335) state: "[a]ny linguist would react with justified skepticism to a grammar that made repeated reference to a class composed of just the four segments [p, r, y, a]. These judgments of 'naturalness' are supported empirically by the observation that it is the

'natural' classes that are relevant to the formulation of phonological processes in the most varied languages, though there is no logical necessity for this to be the case."

In generative phonology, with its adherence to the formal theoretical principle that properties of the object of description should be reflected as directly as possible in the properties of the descriptive notation, so as to maximize predictive/explanatory power, natural classes are described by a set of distinctive features which are established in such a way that they permit a rather mechanical definition of the notion "natural class": a "natural class" is a group of segments (or phonological elements) whose specification as a whole requires fewer features than are required to specify any one member of the group. Thus, whereas a phonetic-alphabetic notation itself shows no difference in naturalness between [p, r, y, a] and, say, [m, n, ñ, ŋ], the feature-notation shows a very clear difference. In setting up a distinctive-feature system, one starts with one's intuitions about natural classes and then defines features--and assigns feature-values for segments--so as (in accordance with the above definition of "natural class") to isolate such classes notationally. The theory having been set up for the clear(er) cases here, one must then let the theory decide for one in those cases where one's intuitions run out--let it tell one which classes are natural (or more so) and which are not (or less so). Then, one can judge any class of segments (or phonological elements in general) in terms of naturalness, and the theory, once having been set up in this way, then also makes strong predictions about which classes will be found in the phonological rules of the languages of the world. When any one such prediction is shown to be consistently not borne out, then one must either revise the feature-system or else make the offending unnatural class go away by some other means (e.g., by questioning the existence, or details of the formulation, of rules referring to it, especially their unity)--this all in line with the general assumption that language/s operate/s in terms of natural classes.

2. The Widespread Unnatural Class {C, #}. Given the traditional generative-phonological framework for defining natural classes, however, a problem immediately arises with the class {C, #}. Since C (consonant) is [-syllabic] (and, for true consonants, [+consonantal]), as well as redundantly [+segment], while # is [+word-boundary] and redundantly [-formative-boundary] and [-segment], as well as unspecified for [syllabic] (and [consonantal]), it is clear that the two share no feature(-value)s and cannot be referred to unitarily, as a natural class. However, {C, #} is extremely common as part of the environment of phonological rules in the most genetically and geographically diverse languages. Here, we present a small but fairly representative sample of such rules drawn from eight languages:

(1) a. Akan (cf. Schachter and Fromkin 1968:80-81, 262; Hooper 1972:533)

$$\begin{bmatrix} V \\ +high \end{bmatrix} \rightarrow [+nasal] / __ \begin{bmatrix} C \\ +nasal \end{bmatrix} \begin{Bmatrix} C \\ \# \end{Bmatrix}$$

b. Catalan (cf. Vogt 1970; Anderson 1974:69-70)

$$\begin{bmatrix}+\text{continuant}\\+\text{voice}\\+\text{labial}\end{bmatrix} \rightarrow u / __ \begin{Bmatrix}C\\\#\end{Bmatrix}$$

c. Finnish

(i) (Part of) Consonant-Gradation (cf. Anderson 1974:85)

$$\begin{bmatrix}-\text{continuant}\\-\text{voice}\end{bmatrix} \rightarrow \left\{ \begin{bmatrix}+\text{voice}\\ \langle +\text{continuant}\rangle \\ \emptyset\end{bmatrix} / [+\text{son}] \begin{bmatrix}\overline{}\\ \langle -\text{cor}\rangle\end{bmatrix} \right\} / \begin{bmatrix}-\text{cont}\\ \alpha\text{cor}\end{bmatrix} \begin{bmatrix}\overline{}\\ \alpha\text{cor}\end{bmatrix} \text{VC} \begin{Bmatrix}C\\\#\end{Bmatrix}$$

(ii) Three-Consonant-Cluster Simplification (cf. Karttunen 1970:98-99)

$$k \rightarrow \begin{Bmatrix}h/\\ \emptyset/\end{Bmatrix} \underline{\begin{bmatrix}+\text{primary stress}\end{bmatrix}} C \begin{Bmatrix}C\\\#\end{Bmatrix}, \text{ a subpart of } C\ C \begin{Bmatrix}C\\\#\end{Bmatrix}$$

$\Rightarrow$ 2 3 (where the sequence 1 2 3 violates basic sequential constraints)

d. Hausa (Russ Schuh, personal communication)

$$V \rightarrow [-\text{long}] / __ C \begin{Bmatrix}C\\\#\end{Bmatrix}$$

e. Korean (cf. Kim 1972:161)

(i) {s, ss, c, ch} $\rightarrow$ t/__ $\begin{Bmatrix}C\\\#\end{Bmatrix}$

(ii) [-continuant] $\rightarrow$ [-release]/__ $\begin{Bmatrix}C\\\#\end{Bmatrix}$

f. Luiseño (cf. Kroeber and Grace 1960:21-23; Langacker 1972:45)

$$\check{c} \rightarrow \check{s} / __ \begin{Bmatrix}C\\\#\end{Bmatrix}$$

g. Turkish (cf. Lees 1961:36-37)

$$C_1 C_1 \rightarrow C_1 / __ + \begin{Bmatrix}C\\\#\end{Bmatrix}$$

h. Yawelmani (cf. Kisseberth 1970:294, 296, 297)

(i) $V \rightarrow [-\text{long}] / __ C \begin{Bmatrix}C\\\#\end{Bmatrix}$

(ii) $\emptyset \rightarrow i / C __ C \begin{Bmatrix}C\\\#\end{Bmatrix}$ (an identical rule exists in Palestinian Arabic; cf. Brame 1973:21)

In addition to these cases, one might also mention that Javkin (1975) found "15 rules ... which treated [word-]boundaries in a way similar to consonants ..., in that similar processes are triggered by both" in his study of 524 phonological rules in 13 languages then included in the Stanford Phonology Archive (cf. also Vihman 1977). The typological and areal widespreadness of the class {C, #} would thus seem to be in direct contradiction to the putatively unnatural status of that class.

In such a case as this, where the sheer number and the validity of the rules referring to a certain class of phonological elements can scarcely be questioned, we are, in fact, provided with the basis for an intuition that that class <u>is</u> a natural one, and we must then try to revise our linguistic descriptions in some way so that the notation will correctly designate it as such. As pointed out by Kahn (1976:10-11), there are two main approaches to a solution that one may take when faced with the general problem of a phonological rule A $\rightarrow$ B/X__Y (where either or both of X and Y may be null) in which one or more of A, B, X, Y consists of an unnatural class {m, q, ...}.

On the one hand, one may try to discover (and independently motivate) some feature $[F_x]$ such that {m, q, ...} are all $[\alpha F_x]$, while all other phonological elements are $[-\alpha F_x]$. Or, on the other hand, one may try to discover (and motivate) some boundary(-marker) ¢ such that it occurs (only) at {m, q, ...}. In the case of {C, #}, both approaches have been taken by phonologists and can be found represented in the literature.

3. A First Attempt to Make {C, #} a Natural Class: # as a Consonant. The first proposal that # is a consonant--at least the first one in the generative literature--seems to have been that of Lass (1971), who was soon followed in this by Lightner (1972). The considerations motivating this suggestion are fairly well capsulized by Lightner's statement (p. 333): "We notice that over and over again the disjunction {C, #} appears in many different rules in many different languages. The natural thing to do, therefore, is to assign # the features of a consonant, for, in this way, we can make explicit the fact that # behaves like a consonant." At least in Lightner's formulation, the logic of this argument seems, unfortunately, to be merely that, since rules mentioning {C, #} can be simplified by making # a consonant, then they should be so simplified, tout court. Obviously, however, this is more than a purely notational question, for anything can be simplified; what is really at stake is precisely whether or not the disjunction {C, #} should be simplified. And, indeed, an argument somewhat more along these more motivated lines had already been given by Lass (1971).

Lass observed that, in the Old English medial-voicing rule for fricatives that gave rise to such alternations as life ~ lives and bath ~ bathe--see (2) below--word-boundary acted like a voiceless sound-segment in blocking the process:

(2) $\begin{bmatrix}\text{-sonorant}\\ \text{+continuant}\end{bmatrix} \rightarrow [\text{+voice}]/[\text{+voice}]__[\text{+voice}]$

He similarly pointed out that the generalization (he said "rule", but this is to conflate a phonological with a redundancy-rule) of German phonology that, if an obstruent cluster has one voiceless member, then it has all voiceless members can completely subsume the infamous rule of final devoicing (for which one really need give no examples, here) if # is a voiceless obstruent; cf. (3) and (4) below:

(3) $[\text{-sonorant}] \rightarrow [\text{-voice}]\%\begin{bmatrix}\text{-sonorant}\\ \text{-voice}\end{bmatrix}$

(4) $[\text{-sonorant}] \rightarrow [\text{-voice}]/__\#$

But Lass also attempted to provide a phonetic basis for his claim that "at least in terms of power to inhibit voicing, # is really a voiceless obstruent (albeit one with no articulatory features besides voicelessness)" (p. 16): he equated # with silence, which is undeniably voiceless.

This identification turns out to be untenable, but, prior to our stating why, it is instructive to consider some purely formal inadequacies of the Lass/Lightner proposal. It has been pointed out several times before (e.g., by Kahn 1976:12) that, if # is in-

deed a consonant, a voiceless obstruent just like any other such sound, then it must remain entirely unexplained and accidental why there are no phonological rules which mention # in focus-position. For example, no language palatalizes # before high front vowels, as in (5) below:

$$(5) \quad * \# \rightarrow \begin{bmatrix} +\text{high} \\ -\text{back} \end{bmatrix} / __ \begin{bmatrix} +\text{high} \\ -\text{back} \end{bmatrix}$$

In order to prevent rules that otherwise apply quite regularly to (segmental) consonants from overgeneralizing to #, the inputs to such rules would have to be complicated by the addition of [+segment]. Such mention of [±segment] would, in fact, be necessary in almost every phonological or redundancy-rule referring to consonants; for example, in order to prevent a Lass/Lightner-type phonological description from analyzing German as having clusters of up ten consonants; cf. (6):

(6) du schrumpfst Strümpfe ein 'you (familiar sing.) shrink socks'
/...mpfst##štr.../ .

Moreover, even if such complications did not far outweigh the rule-simplifications effected by analyzing # as a consonant, Lass's analysis still would not work for German. It has apparently not heretofore been noticed that, since there does really seem to a generalization in the language that the presence of one voiceless obstruent in a cluster of obstruents requires the entire cluster to be voiceless (regressively, in the form of a phonological rule similar to (3) above; progressively, in the form of a redundancy rule similar to it, also), then the status of initial word-boundary in German as a voiceless obstruent would lead us to expect that German should have no initial voiced obstruents, which is manifestly and egregiously wrong.

But the main failing of the word-boundary-as-voiceless-obstruent approach is that, as opposed to pause (‖), # is "just not there", phonetically; it is absurd to assign segmental features to a non-segment which, though given by morphosyntax in the phonological string, thus can have no direct phonetic effects (assimilatory or dissimilatory) on adjacent segments. This point is well made by Kahn (1976:11): "There is no hope of independently justifying the segmental features imposed on word-boundary in terms of articulatory or acoustic considerations. This is so because word-boundary is simply not articulated and is not present in the acoustic signal. [Trying] to associate word-boundary with silence ... of course ... fails in general: there is no cessation of vocal-cord vibration and sound-output at the points of sentence-internal word-boundary in the phrase [e.g.] John#is#a#bum as normally spoken." In short, while the observation that # acts like a consonant in many ways does contribute to our understanding of linguistic phenomena, the claim that it therefore is a consonant does not, for, then, all of those ways in which # acts differently from consonants become equally inexplicable, once this kind of attempt at reductionism is made. Not sur-

prisingly, the reductionist approach to explaining the quasi-consonantality of # does not seem to have been seriously pursued beyond the early programmatic suggestions. Most phonologists who have addressed the problem since then have espoused Kahn's second possible approach, the common-boundary solution.

4. A Second Attempt to Make {C, #} a Natural Class: # and C as the Locus of Syllable-Boundary ($) or Margin. The first significant generative phonological proposals for incorporating the syllable into phonological theory were those of Natural Generative Phonology, at a time more or less contemporaneous with Lass's and Lightner's proposals; cf. especially Vennemann (1971, 1972) and Hooper (1972). Recognizing the syllable as a prime phonological unit, of course, allows one to propose that what unites the two disparate members of the disjunction {C, #} in phonological rule-environments is the fact that both C and # in it occur at a syllable-boundary (= $). This suggestion is, naturally, implicit in much pre-generative and earlier generative work, and has been extensively followed-up by both natural generative phonologists themselves (cf. Vennemann 1974, Hooper 1976, 1977, and references in the last of these) and others of somewhat different theoretical persuasions. For example, Kahn (1976) countenances "ambisyllabicity", the simultaneous membership of a single segment in two syllables, and so speaks in terms of syllable-membership (and syllable-marginality or non-marginality) instead of syllable-boundaries. In either case, however, the relevant claim is that, rather than the usual agglomeration of subcripted C's and V's otherwise customarily needed to characterize open or closed syllables, one need merely refer to syllable-boundary or to relative position of a segment to the end of a syllable; cf. (7):

(7) a. $\underline{C_0V\begin{Bmatrix}\# \\ (C)V\end{Bmatrix}}$ = (one type of) open syllable = $C_0V\$$ or $\overset{S_1}{CV}(\overset{S_2}{CV})$

b. $\underline{C_0VC\begin{Bmatrix}\# \\ C_1\end{Bmatrix}}$ = (one type of) closed syllable = $C_0VC\$$ or $\overset{S_1}{CVC}(\overset{S_2}{CV})$

The use of syllables--syllable-boundaries or membership--to eliminate the unnatural class {C, #} from phonological rules presupposes, of course, that the syllable is independently motivated. While the absence of an unambiguous phonetic grounding of the syllable makes its use in linguistic descriptions still, to be honest, somewhat of a matter of faith--because a syllabic treatment can always be translated into a purely segmental one, with fewer ontological entities--nevertheless, lacking necessity-arguments, one's plausibility-arguments for the phonological syllable are quite solid and numerous, and syllabic analyses in phonology in general seem justified on the basis of conclusions like those of Ladefoged (1971:81): "[T]here is no single muscular gesture marking each syllable [, but we should not be] overly simplistic in our view of phonological properties .... [W]e may still be able to define a physiological unit ... (the syllable) which will account for the timing and coordination of the articulatory movements. There is evidence ... that speakers organize the sequences of complex muscular movements that make up utterances in terms of a hierarchy of units, one of which is the size of the sylla-

ble .... We will therefore assume that a neurophysiological definition is possible, even if one cannot at the moment state it in any way." The collection of papers in Bell and Hooper (1978) provides further phonological support for the syllable.

Given the syllable, then, many phonologists have, to repeat, used it to try to explain the similar environmental behavior of # and certain consonants: both are the locus of syllable-boundaries or margins. In our opinion, however, they have devoted insufficient attention to a relevant class of cases where # and $ arguably do not coincide--namely, cases of liaison. The claim that, since words are composed of syllables, then the end of a word must be the end of the last syllable in it presupposes that all syllables at all associated with a word are properly contained in it. However, as is explicitly recognized by Hooper (1972:527) and Kahn (1976:30-33), along with numerous others, a word-final consonant preceding a phonetically vowel-initial word is regularly syllabified with that following word (i.e., its first syllable). Significantly, though, even in such cases where # is not syllable-final and thus does not coincide with $ on the phonetic surface, word-boundary continues to behave like a consonant, in conditioning certain rules like those in (1) above.

Now, it is possible to analyze such liaison-phenomena (by which we mean occurrences in all languages, and not just in French, of the linking-process by which, say, English hock it! becomes, in connected speech, homophonous with Hockett, with the syllabification more or less as [ha$kət]) in such a way as to make this surface-phonetic fact unproblematic for the syllabic approach. If liaison is viewed as a reassignment of citation-form or slow-speech syllable-boundaries or membership, and if such resyllabification is seen as due to the operation of a rule or rules ordered after the operation of syllable-sensitive rules (perhaps) including those in (1), then it is irrelevant to such rules' operation that word-boundary will later become non-syllable-final: the damage done, as it were, by the syllable-sensitive rules will then already be a fait accompli, and there are no provisions for reversing it. A global rule could, of course, also be formulated to achieve similar correct results, in such cases.

The decision to adopt or reject proposals of this sort can, it is clear, be made only within the framework of a particular theory of phonology: one that allows rule-ordering or global rules, respectively, for example. While not inclined to dismiss rule-ordering in general as a grammatical mechanism, we feel, however, that the ordering-solution to the liaison-problem effectively abandons any phonetic explanation for at least part of the cases where # behaves consonantally, since that solution incorporates the claim that one phonetically motivated generalization about syllabification is irrelevant and inapplicable underlyingly at the same time that syllabification acts to condition certain phonological rules. Now, this claim is made unhesitatingly in much recent work on the syllable as an abstract phonological unit (cf., e.g., McCarthy forthcoming and references therein), but this does seem to undercut the syllabic explanation for the naturalness of {C, #} in the phonetic-explanatory sense of "natural" (since C is phonetically located at a syllable-boundary, while # is not always coincident with $).

Lest the importance and evidentiary status of liaison be impugned, let us consider some historical data that underscore the ambiguous word-membership of word-marginal consonants surrounded by vowels (or, more generally, syllabic segments). In the phonological diachrony of English, final -n of the indefinite article and some possessive pronouns was resyllabified before vowel-initial words (i.e., with them); and we know this--that resyllabification made certain phonologically vowel-initial sequences phonetically indistinguishable from originally n-initial words--because, in some words, the resyllabification in question was lexicalized, as in (8a) below. Furthermore, knowledge of this resyllabification must have led speakers to a kind of hypercorrection in other cases, where original initial n- was reinterpreted as belonging to the end of the preceding determiner, as in (8b).

(8) a. an#ef(e)t(a) 'a newt'
min(e)#uncle 'my nuncle' (cf. King Lear)
min(e)#Ed(ward) 'my Ned(ward)'
b. a#nap(e)ron 'an apron'
a#næd(e)r(e) 'an adder'
a#na(f)ogar 'an auger'

Similar exchanges have also been observed--to remain with Germanic languages--between verbs and following pronouns in one direction in Old Norse (cf. (9a), from Gordon 1957:294) and in the other direction in Old High German (cf. (9b), from Braune/Mitzka 1967:259), as well as in English (cf. (9c)).

(9) a. skulud#ér 'you (plural) shall'
b. gilaubis#thu 'thou believest'
c. (the equivalent of) believes#thou

Given that such liaison-phenomena cannot be handled without a certain unnaturalness (non-phoneticity) in the syllable-structure approach to eliminating the unnatural class {C, #}, one may well ask whether any alternative solution is available. That is, because ...C#V... is quite regularly syllabified as ...$C(#)V..., not ...C(#)$V..., while # continues to act like a consonant in such cases, it is clear that, barring the ordering of syllable-sensitive rules before liaison-resyllabification, syllabic considerations cannot be the primary (much less the sole) reason for the quasi-consonantality of #. And, actually, of course, even when existing solutions exhibit no obvious deficiencies, one should still, in principle, ask whether other, alternative solutions exist. In the remainder of this paper, we will propose such an alternative solution and attempt to motivate it.

5. The Frequency of #C--the Typical Association of # with Following C--as the Reason for the Consonantal Behavior of #. Let us now work our way toward accounting for the commonness of the environment(-part) {C, #} from another angle. The environment /__# abbreviates, by convention, the set of environments #C..., #V..., and #‖.... Now, first off, it is clear that word-boundaries before pause/s will be relative-

ly infrequent as compared to those before vowels or consonants. However, pre-pausal position may have a status proportionally far greater than its frequency, and we will return to the role of pause toward the end of this paper. This then leaves #V and #C--initial vowels and consonants--to consider. Here, we can recall the well-known fact that CV is, in general, the canonical syllable-shape, and derive from it inferences about word-initials. According to Bell (1977), all languages have <u>some</u> C_1V syllables, and 20% to 40% of all languages <u>require</u> C_1V--but these facts/figures are drawn from sources treating the syllabification of words in isolation, where the first consonant of the first syllable is clearly the first consonant in the word. One might then surmise that the initial syllable of a word is prototypically likely to begin with a consonant, and that words in general are thus likely to begin with consonants (i.e., at least one) in universal phonology/grammar.

But if # is regularly associated with an immediately following C, then this goes a long way toward explaining the consonantal behavior of #, as well as toward guaranteeing that # and C in the disjunction {C, #} should occur with the same syllabification, regularly. Then, if #V (= word-initial vowels) are of sufficiently low frequency in a language, we might assume that speakers/hearers consequently simply disregard the liaison-phenomena that counterexemplify the generalization that # coincides with a following C and, therefore, with $. Hence, syllable structure would be at work here, too, but only indirectly, derivatively. We would suggest, then, that the primary reason why # in general acts like a consonant is that: (1) # is not phonetically present in the physical speech-signal, and (2) it is typically (= most frequently) followed by a consonant. Hence, the extension of (presumably) phonetically motivated processes occurring in the environment /X__Y(#)C to the environment /X__Y#V represents an (over)generalizing reanalysis and, in a sense, a phonologization; as a result, we have the equivalence given in (10):

$$(10)\quad /X__Y\left\{\begin{matrix}(\#)C\\ \#V\end{matrix}\right\} \quad = \quad /X__Y\left\{\begin{matrix}C\\ \#\end{matrix}\right\}$$

Thus, {C, #} itself is <u>not</u> an entirely <u>natural class</u>, but it <u>is</u> the result of an extremely <u>natural reanalysis</u> whereby the # in #C comes to interpreted as more criterial than the C, due to the extreme infrequency of #V. This is, in a sense, a (more complete) morphologization (morphosyntacticization) of #C; for, after all, #, though not phonetically present, is nevertheless known from the morphology and syntax, and it <u>does</u> have the potential to affect other segments as a conditioner of phonological rules.

We have begun to speak of #V as actually being very infrequent, and it is now time to present some evidence that this is indeed the case.

6. <u>Evidence for the Infrequency of #V (vis-à-vis #C)</u>. First of all, it can be mentioned that, in the Basic German corpus of 600,000 running words of colloquial spoken-German texts (cf. Pfeffer 1964), the 250 most common words--which account for over 400,000 words of the total--are 73% consonant-initial. (Of course, if one takes into account

the phonetic fact that all (otherwise) vowel-initial words in German are articulatorily preceded by a glottal stop, then German actually is 100% consonant-initial in its words.)

Secondly, however, we can report, here, the results of a study of twenty languages in which the frequency of #C (again: effectively, of consonant-initial words) was the object of investigation. This study, whose findings are summarized in (11) (= Table 1) on the next page, was performed by the present author expressly to test the hypothesis just proposed in this paper, and involved randomly-chosen written texts from each of the languages in question. In each text, the first 250 junctures between orthographic words--excluding those across punctuation, which was taken to be most probably equivalent to some kind of pause--were translated into their phonological values (systematic phonemic ones, but actually only rarely differing from autonomous phonemic ones) and then listed and analyzed according to type. The total number of words of text involved in each case was thus always slightly over 500, and it should also be mentioned that the fit between divisions into orthographic and phonological words was always extremely close. The focus of the study was on word-initial segment-type (#C vs. #V), but also initial segment-voicing and place of articulation (for consonants only), as well as on abutting segment-types (juxtaposed C and V in either order, as opposed to successive C's or V's); covered were six language-families (albeit three within the larger, Indo-European group, and two within Niger-Congo/Kordofanian), and up to three diachronic stages per language. The Germanic and Romance bias of the results must, of course, be freely admitted.

What is important here is that #C ranges from 63% to 90% in frequency, with an overall mean of 75%. And this high percentage obtains even in languages (like Spanish and Hungarian) where, say, both the definite and indefinite articles--obviously extremely frequent words--are vowel-initial. It will be noticed that Catalan and Finnish, on the list, are also given in (1) as having rules which treat # like a consonantal environment; furthermore, two languages that figure in (1) but were not included in the text-count study summarized in (11)--namely, Luiseño and Yawelmani--are reported by Kroeber and Grace (1960:9-10 vs. 249-251) and Newman (1944:26-27), respectively, to be entirely consonant-initial. In fact, the former state (p. 251) of the situation "never ... a vowel initially[;] if there is no other consonant, a glottal stop ... precedes the vowel": "This is a description made in almost all new [accounts] of western American [Indian] languages, until we wonder whether there are any exceptions." (Akan, Hausa, Korean, and Turkish--the remaining languages in (1)--will have to be studied and added to (11) at a later time.)

In regard to abutting segment-types, quite pronounced language-(family-)particular "preferences" can be discerned: Germanic easily allows or even favors C#C, while avoiding hiatus (V#V); Italian and the two African languages allow some hiatus, but shun C#C to an extreme degree, etc. The consistency of these favored juxtapositions within language-families (and their consistent differences across such families) seems anything but accidental, appearing to be, rath-

(11) Table 1

TYPES OF ENVIRONMENT FOR # IN 20 LANGUAGE(-STATE)S
(in per cent)

(LANGUAGE)	X#C	{V#C C#V}	C#C	V#V	X#[C -voice]	X#[C +cor]	X#[C +ant -cor]	X#[C +bk]
Hungarian	63	53	36	11	30	28	24	10
Finnish	76	47	39	14	44	40	22	14
(URALIC Mean)	(70)	(50)	(38)	(12)	(37)	(34)	(23)	(12)
Latin	72	43	46	11	41	32	23	16
Catalan	74	64	29	7	37	41	22	11
French	75	64	23	13	28	45	21	10
Italian	72	64	8	28	30	43	20	9
Rumanian	82	70	14	16	41	53	22	6
Spanish	69	56	25	19	38	48	12	9
(ROMANCE Mean)	(74)	(60)	(24)	(16)	(36)	(44)	(20)	(10)
Dutch	74	47	52	1	30	34	23	18
Old English	83	45	46	8	48	44	14	25
Middle English	72	52	44	4	40	36	23	13
Modern English	73	40	56	4	30	36	22	15
Middle High German	76	38	60	2	32	50	14	11
New High German	74	38	55	7	25	44	17	12
Gothic	79	41	52	7	38	41	19	18
Old Norse	71	44	47	9	45	30	18	23
(GERMANIC Mean)	(76)	(43)	(52)	(5)	(36)	(39)	(19)	(17)
Czech	84	62	30	8	50	54	27	2
Polish	82	62	28	10	34	48	29	4
(SLAVIC Mean)	(83)	(62)	(29)	(9)	(42)	(51)	(28)	(3)
Swahili (BANTU)	90	90	0	10	31	43	21	26
Yoruba (KWA)	67	67	0	33	27	40	17	11
(NIGER-CONGO/ -KORDOFANIAN Mean)	(78)	(78)	(0)	(22)	(29)	(42)	(19)	(18)
((OVERALL Mean))	((75))	((54))	((33))	((11))	((36))	((42))	((20))	((13))

er, a systematic part of the grammar of the language/s in question. Studies done according to the present method thus promise to contribute toward a way of characterizing exactly what it is that makes up the auditory impression of a (foreign) language, in addition to its phonetic and phonological inventory and its rules.

The (relatively) extremely small percentage of initial voiceless consonants (and, hence, of initial voiceless segments in general)--not over 50% in any language, and averaging only 36%--makes Lass's claim that final devoicing is (in general) induced phonetically by (voiceless) silence even more dubious. Thus, for example, in Germanic, even though Old English has the highest percentage of initial voiceless consonants, it had no final-devoicing rule (only an allophonic regularity which kept fricatives voiceless word-marginally), while German, with only 32% (MHG) or as low as 25% (NHG) of such consonants, does have a general final-devoicing rule, for all obstruents. (Although the picture changes somewhat for German if all #V-words are analyzed as phonologically #ʔV- (i.e., #C-) words, the relative disparity of it vis-à-vis OE does not, since there is evidence that OE vowel-initial words may have been preceded by a glottal stop, too--in alliterative OE verse, all vowels alliterate with one another, a fact which is explained if #V = #ʔV.)

Finally, it is salient that, of initial consonants, coronal ones always greatly outnumber non-coronal anterior ones, while the latter--with two exceptions (OE and Old Norse)--in turn outnumber back consonants. Thus, if # is (wrongly) to be given the features of a consonant, one could make a good case for its being [+coronal] (basically, dental or alveolar). Several people have mentioned to us a vague recollection that this has, in fact, been suggested in the literature, but we have as yet found no evidence to corroborate this. But the most salient result remains, of course, the one that #C is of a frequency of always over near two-thirds, averaging three-quarters and reaching even nine-tenths, since it then follows inexorably that #V is, relatively speaking, very infrequent, just as hypothesized.

7. Conclusion/s. Such, then, are the results of our study, which the present author intends to keep expanding to more languages and language-families. The size of the sample of text in each language has, admittedly, thus far been rather small (500+ words, 250 junctures), but the agreement across twenty languages is striking, and the almost exact match of our figures for #C in NHG with those determinable from Pfeffer (1964) (viz., 74% vs. 73%, respectively) provides further heartening confirmation. The data collected here give initial plausibility, at least, to the hypothesis that # (often) acts like a consonant in phonological rule-environments essentially because word-boundaries are usually followed by consonants.

Let no one mistake or misconstrue the claims made here: we are most emphatically not claiming that the language-learning child, for example, has access to the overall mean that we have arrived at cross-linguistically, or, in fact, even necessarily to the high percentage of #C in any language but his or her own. Our claim is simply that, on the basis of the fact that consonant-initial words predominate so overwhelmingly in every language studied here, without exception, it seems reasonable to expect a similar situation in other languages, es-

pecially ones in which there are phonological rules that treat # like a consonant, and, thus, that it seems likely that #C will be the prototypical initial in the speech that a child is likely to hear. As a sort of statistical hypothesis, the proposal made here is obviously not exactly subject to immediate refutation on the basis of one, or even a handful, of counterexample-languages. However, serious doubt would indeed be cast on it if a large number of languages should turn out to have huge percentages of vowel-initial words--and, more to the point, our claim that the high frequency of consonant-initial words is responsible for the quasi-consonantality of # would appear to be definitively falsifiable by any well-documented cases of a language that has mainly vowel-initial words (with no recent history of initial-consonant loss) but still contains a rule or rules referring to the disjunction {C, #}. It is thus quite clear how the present hypothesis can be tested synchronically.

But, lastly, we should also mention that diachronic evidence can additionally be brought to bear on this issue. Since # at pause obviously does not occur before a consonant, the hypothesis forwarded here predicts that prepausal # should not begin to behave consonantally until after the phonologization of rules referring to it (later); thus, historically, there should be a stage during which certain (phonetically motivated) processes occur at #C, but not before #‖ (or before #V). The syllable-structure hypothesis, on the other hand, predicts that prepausal #--which undeniably coincides with $, the end of a syllable--will act consonantally at precisely the same time as #C does (or begins to do so). In this regard, we explicitly want to separate word-final devoicing from other word-final processes. Ohala (personal communication) suggests that the only real phonetic motivation for such devoicing is that which is found prepausally, and that anticipatory (to some later phonological element) devoicing in other positions is the result of an extension of this beyond its phonetic basis; i.e., a phonologization. But, then, German final-devoicing, for example (which actually can be convincingly shown to be syllable-final; cf., among various relevant articles, Vennemann 1972:12-13, Hooper 1972:531-532, 539; and Janda in preparation), does not at all conflict with the major hypothesis of this paper--that the consonantal behavior of # begins preconsonantally--since devoicing is not a consonantally-conditioned process. There is, it should be mentioned, still another competing hypothesis which suggests that all #-sensitive processes generalize from prepausal #, but, since that proposal is at least partly orthogonal to the question of why word-boundary seems to have some consonantality to it, we have nothing further to say about it here, beyond merely mentioning it. In the event, it is clear where to look for evidence that will bear on, and help one decide among, this and the other hypotheses. Detailed instrumental-phonetic studies are called-for, in this respect, since it may well be the case that the perceptual salience of phenomena at prepausal (i.e., utterance-final) position perhaps distracts the ear from similar phenomena in other positions (by attracting so much attention to itself).

In sum, then: there is a growing body of evidence to support the present paper's proposal that word-boundary often acts like a consonant for the reason that it is usually followed by one, and addi-

tional relevant data will be easy to find, presumably in great abundance. But, until (such) differentiating evidence is found, our suggestion remains every bit as valid as the syllabic approach (both C and # as the locus of syllable-boundaries or margins), while both of these are, of course, clearly superior to the #-as-consonant approach, as we have seen previously. And, thus, it is certainly true that the plausibility of the new hypothesis invalidates any attempt to use a "how else?" argument (in the technical sense in which Rudolf Botha uses this term) to justify the old, other one as solely correct.*

Footnotes

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Phonetic Explanations for the Devoicing of High Vowels[1]

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Introduction

Mathematical models of phonetic processes can be an important tool in phonetic research. They can serve as a test of the current state of knowledge. For example, the success of speech synthesis by rule serves as a stringent test of what we know about segmental spectra, durational effects, co-articulation, etc. Models can also be useful in filling in gaps in those areas in which empirical data is difficult to obtain. The intricate mechanical forces occurring in vocal cord vibration, for example, are usually not accessible during speech. Even when experimental data from real speakers is available, models can suggest the areas in which that data would be useful. For questions in which all the relevant variables can be taken into account, models can actually serve as explanations.

It has been observed by Greenberg (1966) and others and convincingly demonstrated by Jaeger (1978) that high vowels such as /i/ and /u/ are much more likely to occur voiceless than are low vowels such as /ae/ and /ɔ/. In this paper, I will suggest that some of the relevant variables cannot yet be fully determined, but that some of the data, and some of the work with models of speech production, suggest what the explanation probably is.

An explanation was proposed by Ohala (1975) on the basis of a model of speech aerodynamics. High vowels such as /i/ and /u/ have a somewhat closer constriction than low vowels. The output of the model suggested that high vowels will therefore be associated with higher oral pressures and higher air velocities through the constriction than low vowels. Both of these effects should lead to vowel devoicing.

Assuming that sub-glottal pressure is equal for different vowels, higher oral pressure will result in a smaller pressure difference across the glottis. Since pressure differences are what force air through the glottis and provide the power for vocal fold vibration, this reduction in the pressure difference could reduce the chances of a vowel being voiced.

The greater air velocity through the constriction should result in greater turbulence on those occasions when vowels are devoiced. The turbulence will therefore be more noticeable. This greater perceptibility should make it more likely that listeners will "pick up" the devoicing and start to make it part of the linguistic code.

A further possibility which I investigated is that the different vocal tract shapes for high and low vowels cause a greater amplitude of fricative noise, not as a result of greater air velocity, but as a result of the effects of vocal tract resonances and losses. In other words, high vowels, such as /i/ and /u/ which have a place of maximum constriction further front in the mouth than low vowels, would transmit more of whatever fricative noise was produced. This is suggested by a model constructed by Stevens (1971) in which he found that fricatives closer to the front of the mouth would have greater transmission of fricative noise. A further consideration is the fact that the damping of noise that occurs as sound travels through the vocal tract is more or less proportional to the distance the sound wave travels in the tract itself. To the extent that high vowels develop fricative noise at their constriction maxima, the transmission of the frication produced in front vowels might be greater than the transmission of the frication of vowels further back in the vocal tract.

Discussion

There are reasons to believe that the oral air pressure for high vowels cannot be the reason these vowels devoice. First, the difference in pressure that Ohala's model provides for close versus open vowels is only 1 cm. of water. It is not clear that such a difference would impede voicing. Second, some exploratory measurements by Ohala (1973) yield a pressure difference of approximately one-half a centimeter of water. Third, it might be expected that an oral pressure that could impede voicing would lead to a lowering of pitch. Once again, high oral pressure, by reducing the difference in pressure across the glottis, will tend to reduce airflow through the glottis. Other things being equal, a reduction in airflow leads to a reduction in pitch. We would therefore expect that high vowels would have an intrinsically lower pitch than low vowels. They do not. In fact, high vowels have an intrinsic pitch which may be as much as 10 Hz higher than low vowels. It was therefore clear that the predictions regarding pressure should be tested, by taking direct measurements from speakers, using an oral pressure tube.

Air pressure measurements

Although measurements were attempted for three speakers, only one of these, a female speaker of American English, provided reliable data. The measurements were made at the Phonology Laboratory of the University of California, Berkeley, using a Statham PM15-ECT pressure transducer, whose output was recorded on an FM channel of a Vetter tape recorder. Calibration signals at 0 and 4 cm. of water, measured with a water manometer, were recorded on the same channel just prior to the measurement tokens. The audio signal was recorded on the direct channel of the Vetter tape recorder. The output of the FM

tape recorder was continuously monitored on an oscilloscope during the reading of the tokens. The measurements were stopped and the word list re-started five tokens back on three occasions when the oscilloscope signal suggested that the tube was clogged. The recordings were measured, using the calibration signal as a reference, on a Linc-8 computer, which sampled the pressure data at 500 Hz and integrated the signal to approximately 125 Hz. The words used were: lead (v.), lewd, laud, lad; seat, suit, sought, sat; beat, boot, bought, and bat, read within the frame sentence: 'I will say ____ again' following the token number. Ten tokens of each word were used, with all words in a pseudo-random order which was modified so that each token occurred five times in the first 60 utterances. This was done so that some of the data could be salvaged in case the experiment had to be terminated early.

Results

Table 1
Average oral pressures for vowels /i/, /u/, /ɔ/, /a͡e/ (N=10)

	i	u	ɔ	a͡e	
l_d	-.01	.61	.57	.19	
s_t	.69	.88	.91	.64	(in cm. H_2O)
b_t	.51	.68	.55	.47	

The results are shown in Table 1. The negative values for the word lead are somewhat difficult to understand. The holes in the pressure tube were transverse to the airstream, and it is possible that a small Bernoulli effect caused the negative pressure. The measurements as a whole are within the range of other studies (e.g. Ohala 1973), but they are not consistent with the results of the aerodynamic model. High and low vowels show very similar pressure values, as can be seen in the averages for all environments, shown in Table 2.

Table 2
Oral pressures for vowels /i/, /u/, /ɔ/, /a͡e/
averaged over all environments (N=30)

i	.40	
u	.72	(in cm. H_2O)
ɔ	.67	
ae	.43	

The measurements, taken together with some observations made earlier, suggest that differences in oral air pressure cannot be the cause of the preferential devoicing of high vowels.

Vocal tract transmission

In order to test the hypothesis that the vocal tract configuration for high vowels makes these vowels noisier and more noticeable when they are voiceless, a computer model for synthesizing speech from vocal tract shapes was used. The program (VOCALTS) was developed by Jim Wright on the basis of specifications by Klatt (1971). The description here is a highly abbreviated summary of the description in Wright (1976). The program models the vocal tract by simulating a series of cylindrical sections of uniform length. Values representing a traveling wave can be entered. The program traces the progress of the wave through each cylindrical section. In the program, as in the real world, partial reflections occur at boundaries between sections of different cross-sectional area. Damping of the wave due to friction and cavity wall movement, which were estimated in Fant (1960), are roughly simulated by assuming that the damping is proportional to the distance that the wave travels. The boundary conditions at the lips are modelled by adding a very large section and those at the glottis by adding a very small section. In addition, the model assumes that the wave from the glottis section is completely damped by the pulmonic system, so that there is no reverse wave reflected from the glottis section. The program differs from the description given in Wright 1976 in that the source function representing voicing at the glottis is removed. A random-number generating algorithm is added in order to simulate broad-band fricative noise. The fricative noise was added at the place of maximum constriction for each of the vowels examined. For vowels in which the maximum constriction was several sections long, noise was added at the forwardmost section. The vocal tract shapes used were those for the Russian vowels /i/, /a/ and /u/, taken from Fant (1960). Restrictions in the program required that the sections be .85 cm. long. The values given by Fant were quantized into these sections. This resulted in the vowels /i/ and /a/ each having 20 sections totalling 17 cm., which represents a lengthening of half a centimeter for the /i/. The frication source for /u/ was placed at the place of maximum constriction at the lips. The output of the program was analyzed with a Fast Fourier Transform.

Of the three vowels, /i/ had the highest peak amplitude, which occurred at 5100 Hz. /u/ had a peak amplitude about 2 dB lower, which occurred at 7250 Hz, and /a/ had a slightly lower peak energy, occurring at 3700 Hz. The summed amplitude values for the entire spectrum showed even smaller differences, with all of the vowels falling within 1 dB of each other.[2]

Conclusion

It seems, from the similarity in output amplitudes for the three vowels, that differences in vocal tract transmission do not result in differences in devoicing between high and low vowels.

The only viable explanation seems to be the second suggestion of Ohala (1975), that the higher air velocities and narrower constrictions for high vowels yield more frication noise at the source. Furthermore, the sharp bends in the airstream near the place of maximum constriction for high vowels, particularly /i/, should yield higher turbulence. This is the part of the explanation which had not yet been adequately tested. Frication noise can be calculated by determining the amount of turbulence generated by the complex shapes of the constrictions for vowels, but this has not yet been done. At the moment, the answer that the devoicing of high vowels is due to the noisiness of frication source has been arrived at by eliminating the other possibilities.

The fact that it is not the increased pressure of high vowels, but their noisiness, contains some phonological predictions. We might expect to find a number of languages in which high vowels are associated with the development of frication in surrounding consonants. Jaeger (1978) on the basis of the sample in the Stanford Phonology Archive, found a large number of languages in which such frication develops in the environment of high vowels versus a much smaller number of languages in which frication develops in the environment of low vowels. Jaeger also claimed, however, that a number of languages showed the devoicing of consonants in the environment of high vowels. If the devoicing associated with high vowels is a by-product of frication, it would be expected that there would be many more cases of consonants fricating in the environment of high vowels than there would be consonants devoicing in the same environment. In fact, none of the cases of devoicing cited by Jaeger actually represent devoicing. There are two languages which appear to have devoicing, Kunimaipa and Totonac. The rules given by Jaeger for these languages are the following.

Kunimaipa: l → dɬ/high vowels

Totonac: l → ɬ/i___

Although /ɬ/ is voiceless in some transcriptions, the Archive sources for these two languages do not specify these sounds as voiceless. Aschmann (1946) describes the /ɬ/ in Totonaco as fricative. In Kunimaipa, the Archive notes that the /dɬ/ cluster sometimes becomes voiceless phrase finally, which is very different from saying it becomes devoiced in the environment of front vowels. Furthermore, the source given by the Archive for this (Pence 1966:61) does not mention this devoicing. This is not to say that high vowels could not be associated with the devoicing of consonants, only that such devoicing must be expected to occur much less frequently than frication.

This is yet another case in which the phonetic and phonological facts fit extremely well. The devoicing of high vowels is a result of the fact that these easily become fricatives, not because of a direct effect on vocal fold vibration. In conclusion, perhaps the point needs to be made once again that the kind of models discussed here, intricate though they sometimes are, will provide the kinds of answers to many of the questions that phonologists ask.

Footnotes

1. I would like to thank Johanna Nichols, John Ohala, Sandra Pinkerton, Carol Riordan, and James Wright for very useful advice on this study. Jim Wright deserves additional thanks for making his programs available. I would also like to thank the members of the Phonetics Laboratory at U.C.L.A. (Work supported by NIH and NSF.)

2. Lehiste and Peterson (1959) found that, among voiced vowels, low vowels show the greatest amplitude. This suggests that a frication noise at the glottis would fail to provide greater amplitudes for high vowels. Nevertheless, I tested the model with frication at the glottis. The results once again failed to support the hypothesis that vocal tract transmission is responsible for the preferential devoicing of high vowels.

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POLARITY IN PHONOLOGY

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This paper discusses cases of underlying representations which fail to undergo certain rules in order to keep the semantic information unaffected. If in a language L, there are for instance, two input structures A and B which meet the structural description of rule X, either A or B would fail to undergo this rule if its effect would give both structures the same phonetic output that would result in their semantic neutralization. This is referred to, to use Leopold's (1930) terminology, as polarity, a device that languages have at their disposal to keep the underlying contrasts transparent on the surface. This proposal looks in a way like Kiparsky's 'minimization of opacity principle'. There is a big difference, however, between 'minimization of opacity' and 'polarity'. The former involves a rule ordering solution such as from feeding to counterfeeding or from counterbleeding to bleeding. Polarity, on the other hand, either creates exceptions to the rule or causes the input structure to undergo another rule that would affect it in another environment. To illustrate this, I will present two cases of Kinyarwanda phonology, namely the consonant mutation with regards to g and r when they occur in minimal pairs and the deletion of the causative morpheme -y-. It is noted that when g and r occur in minimal pairs, r doesn' undergo the mutation rule to avoid neutralization. -Y- doesn't delete either when it occurs in the verb stem final position because the final output would look like a verb form that has the applicative morpheme -ir-.

Before I discuss these two cases, I will first introduce rules that are involved: These are the consonant mutation, r deletion, -y- deletion, -ir- deletion, -iz- insertic and palatal harmony.

In Kinyarwanda, the final consonant of the verb stem always changes before the perfective aspect -ye, the causative morpheme -y- or the nominalizer -yi. Thus r and g which are relevant in the present discussion become z and z becomes ž. Informal rules and examples are given in (1):

(1) a. $\begin{Bmatrix} r \\ g \end{Bmatrix} \rightarrow z / __ \begin{Bmatrix} ye \\ -yi \\ -y- \end{Bmatrix}$ b. $z \rightarrow \check{z} / __ \begin{Bmatrix} ye \\ -yi \\ -y- \end{Bmatrix}$

/ba-oog-a/ [booga]	/ba-oog-ye/ [booze]
'they swim'	'they have just swum'
/ba-kor-a/ [bakora]	/ba-kor-ye/ [bakoze]
'they work'	'they have just worked'
/ba-vug-a/ [bavuga]	/ba-vug-ye/ [bavuze]
'they say'	'they have just said'
/ba-bar-a/ [babara]	/ba-bar-ye/ [babaze]
'they count'	'they have just counted'
/ba-saaz-a/ [basaaza]	/ba-saaz-ye/ [baš̌aaž̌e]
'they get old'	'they have just gotten old'
/ba-za/ [baaza]	/ba-z-ye/ [baaž̌e]
'they come'	'they have just come'

The liquid r is deleted before the perfective aspect morpheme -ye if the verb stem is polysyllabic (more than two syllables) or if it is preceded by a long vowel:

(2) $r \rightarrow \emptyset / \begin{Bmatrix} ...VV \\ ...VCV \end{Bmatrix}$ -ye

/bavuur-a/ [bavuura]	/ba-vuur-ye/ [bavuuye]
'they cure'	'they have just cured'
/ba-toor-a/ [batoora]	/ba-toor-ye/ [batooye]
'they vote'	'they have just voted'
/ba-garur-a/ [bagarura]	/ba-garur-ye/ [bagaruye]
'they return'	'they have just returned'
/ba-kin-ir-a/ [bakinira]	/ba-kin-ir-ye/ [bakiniye]
'they play'	'they have just played for'

-iz- is inserted before the perfective aspect marker -ye if the verb stem ends with the causative morpheme -y- or before both aspects (perfective and imperfective) if the verb stem has both the causative morpheme -y- and the applicative -ir-:

(3) $\emptyset \rightarrow$ iz/ ... y__ye
... y+ir__aspect

/ba-oog-y-a/ [booza]	/ba-oog-y-ye/ [boogež̌e]
'they wash'	'they have just washed'
/ba-aak-y-a/ [baatsa]	/ba-aak-y-ye/ [baakiž̌e]
'they light'	'they have just lit'
/ba-vug-y-a/ [bavuza]	/ba-vug-y-ye/ [bavugiž̌e]
'they make talk'	'they have just made talk'

/ba-toor-y-a/ [batooza]
'they make vote'
/ba-rir-y-a/ [bariza]
'they make cry'
/ba-ook-y-a/ [bootsa]
'they oast'

/ba-toor-y-ye/ [batoožeže]
'they have just made vote'
/ba-rir-y-ir-a/ [bariiriza]
'they make cry for'
/ba-ook-y-ir-a/ [bookereza]
'they oast for'

As the examples in (3) illustrate, the causative morpheme -y- is always deleted before the perfective aspect marker -ye and before the applicative suffix -ir-. The rule is informally stated in (4).

(4) -y- → Ø / ..._+(ir)+ye

It is clear from these examples that rule ordering is of course involved. The -iz insertion rule (rule 3) has to take place first before -y- can be deleted. It is the presence of -y- that triggers the insertion.

The applicative morpheme -ir- is deleted after the causative morpheme -y- of verb stems which end with the liquid r:

/ku-rir-y-ir-a/ → kuriryiriza → [kuriiriza]
'make cry for'
/ku-vuur-y-ir-a/ → kuvuuryiriza → [kuvuuriza]
'to cause to cure for'
/ku-ráar-y-ir-a/ → kuraaryiriza → [kúráariza]
'to cause to spend the night for'

Note that -y- is deleted as per rule (3) and -iz- is inserted as per rule (4). Rules have thus to apply in the following order: -iz- insertion first, -y- deletion second, and -ir- deletion last.

The last rule that will be discussed in this paper is th palatal harmony rule. In this language if an alveopalatal fricative š or ž is preceded by a syllable that contains an alveolar fricative s or z, the latter gets palatalized also. This phenomenon is discussed in great detail in Kimenyi (1978). The rule and the examples follow:

(6) $\begin{bmatrix}\text{Cons}\\+\text{fric.}\\+\text{alveolar}\end{bmatrix} \longrightarrow +\text{palatal} \;/\; ___\; \text{V} \begin{bmatrix}\text{Cons}\\+\text{fric.}\\+\text{palatal}\end{bmatrix}$

/ku-sas-a/ [gusasa]
'to make bed'
/ba-uuzuz-a/ [buuzuza]
'they fill up'

/ku-sas-iiš-a/ [gušašiiša]
'to cause to make bed'
/ba-uuzur-ye/ [buužuže]
'they have just filled up'

Rule (1), the consonant mutation rule, fails to apply to r which happens to be in a minimal pair with g. Consider the following examples:

(7) /ba-ror-ye/ *baroze [baroye]
'they have just looked'
/ba-rag-ye/ *baraze [baraye]
'they have just wandered'

What we note is that instead of changing to z, the liquid deletes as if it satisfied the structural description of rule (2). The reason why it doesn't change to z in these cases is because there would be a neutralization with pairs that end with g, as the examples in (8) show:

(8) /ba-rog-ye/ [baroze] 'they have just poisoned'
/ba-rag-ye/ [baraze] 'they have just given heritage'

To keep the underlying contrasts transparent on the surface, the polarity principle intervenes and makes r undergo a more general rule that affects it in other environments. The 'minimization of opacity' principle introduced by Kiparsky cannot work here, because there would be no rule ordering which would produce the phonetic forms in (7). Of course if minimization of opacity is still maintained in phonological theory it is accomplishing the same function as polarity: to preserve both the grammatical and the semantic information of morphemes.

In a similar fashion, the causative morpheme -y- fails to undergo the deletion rule described in (4) if the verb stem ends with a liquid. Consider the following examples:

(9) /ba-vuur-y-ye/ → /ba-vuur-y-iz-ye/ [bavuužiže]
'they have just caused to cure'
/ba-kor-y-ye/ → /ba-kor-y-iz-ye/ [bakoreže]
'they have just caused to touch'
/ba-rir-y-ye/ → /ba-rir-y-iz-ye/ [barižiže]
'they have just caused to cry'

To get the correct phonetic output, the following rules are involved: the -iz- insertion rule,(rule 3), the consonant mutation rule given in (1) which changes r to z and z to ž, and the palatal harmony rule which changes z to ž before ž. Again we see that rules have to be ordered in a feeding order. The -iz- insertion rule has always to apply first fo the deletion rules to take place.

Again, the reason why -y- doesn't delete in the examples provided in (9) is because of the polarity principle. If it deleted, the following forms would be obtained.

(10) /ba-vuur-ye/→ /ba-vuur-iz-ye/ [bavuuriže]
'they have just caused to cure'
/ba-kor-y-ye/→/ba-kor-iz-ye/ [bakoreže]
'they have just caused to touch'
/ba-rir-y-ye/→/ba-rir-iz-ye/ [baririže]
'they have just caused to cry'

These surface forms are usually the phonetic realizations of verb forms that have the applicative morpheme -ir-, as shown in (11).

(11) /ba-vuur-y-ir-ye/→/ba-vuur-y-ir-iz-ye/ [bavuuriže
'they have just caused to cure for'
/ba-kor-y-ir-ye/→/ba-kor-y-ir-iz-ye/ [bakoreže]
'they have just caused to touch'
/ba-rir-y-ir-ye/→/ba-rir-y-ir-iz-ye/ [baririže]
'they have just caused to cry for'

The derivations are obtained from the following rules: (i) the -iz- insertion rules, (rule 3), the verb stem has both the applicative morpheme and the causative marker, (ii) -y- deletion rule (rule 4): it occurs before the morpheme -ir-, (iii) -ir- deletion rule (rule 5): the stem ends with r and it is followed by the morpheme -y- and (iv) consonant mutation: z changing to ž before -ye. The rules cannot apply simultaneously here either. They have to be ordered. The insertion rule, Ø to -iz- applies first and then come the deletion rules, -y- and -ir- to Ø. The mutation rule applies last. It is to avoid neutralization of verb stems that have the applicative morpheme and those that don't have it, that forms in (9) fail to undergo the -y- deletion rule.

A rule ordering solution can give the same type of results in (9), however. To get the correct phonetic forms in both (9) and (11), the consonant mutation will have to apply before the -y- deletion rule in (9) but after in (11), as shown in (12) and (13), respectively:

(12)

/ba-vuur-y-ye/	/ba-kor-y-ye/	/ba-rir-y-ye/
ba-vuur-y-iz-ye	ba-kor-y-iz-ye	ba-rir-y-iz-ye
	(-iz- insertion)	
ba-vuuz-iže	ba-koz-iže	bariziže
	(consonant mutation)	
	bakozeže	
	(vowel harmony)	
ba-vuuž-iže	bakožeže	barižiže
	(palatal harmony)	
N/A	N/A	N/A
	(y deletion)	
[bavuužiže]	[bakožeže]	[barižiže]

(13)

/ba-vuur-y-ir-ye/	/ba-kor-y-ir-ye/	/ba-rir-y-ir-ye/
bavuuryirizye	bakoryirizye	bariryirizye
	(-iz insertion)	
bavuuririzye	bakoririzye	baririirizye
	(-y deletion)	
bavuurizye	bakorizye	baririzye
	(-ir- deletion)	
	bakorezye	
	(vowel harmony)	
bavuuriže	bakoreže	baririže
	(consonant mutation)	
[bavuuriže]	[bakoreže]	[baririže]

As we see in (12), one can accept 'the minimization of opacity principle' suggestion that -y- failed to delete because of the counterfeeding relationship between the deletion rule and the consonant mutation rule. When the consonant mutation rule applies before the y deletion, the latter applies vacuously. Although it has been shown that rule ordering indeed exists (especially for those that feed each other), it is rejected here in favor of the polarity analysis. First, all things being equal, an exception to the rule approach is preferrable to a rule ordering analysis, which so doing destroys the structural description of the rule and gives the same type of result. The former analysis is also more explanatory because it precisely reveals how exceptions come into the language. Second it has been argued in Kenstowicz and Kisseberth (1977) and in Kimenyi (1978) that in other cases where the minimization of opacity has been proposed, global rules are the right analyses. That is, in order to apply, certain rules have to keep

in mind the derivational history of the phonological string. To briefly illustrate this, two more examples from Kinyarwanda are given below, namely palatalization and nasal assimilation.

Velar stops (k and g) are palatalized before front vowels (i and e) and similarly nasals are assimilated to the place of articulation of the following consonants, which in turn become h if they are voiceless stops. We note, however, that k of morphemes that end in ka- doesn't palatalize after the deletion of a and that nasals don't become m before derived h's. The palatalization case is shown in (14) and (15) and the nasal assimilation in (16) and (17).

(14) $C \rightarrow [+\text{palatal}] / ____ V$
$[+\text{stop}, +\text{velar}]$ $[+\text{front}]$

/a-re-a/ [areka]	/a-rek-e/ [areǩe]
'he quits'	'he should quit'
/ba-iig-a/ [biiga]	/ba-iig-e/ [biiǧe]
'they study'	'they should study'
/ku-vug-a/ [kuvuga]	/ku-vug-ir-a/ [kuvuǧira]
'to talk'	'to talk for'
/ku-biik-a/ [kubiika]	/ku-biik-iiš-a/ [kubiiǩiišа]
'to put aside'	'to cause to put aside'

Look at the following examples, however.

(15) /ba-ka-iig-a/ *baǩiiga [bakiiga] 'and then they study
/ba-ka-eend-a/ *baǩeenda[bakeenda]'and then they take
/ba-raka-iib-a/*barakiiba[barakiiba] 'may they steal'
/aka-iiño/ *aǩeeno [akeeño] 'a small tooth'

Kiparsky would account for the non-palatalization in (15) by the rule ordering solution. That is, palatalization rule applies before vowel deletion which means that the velar consonant cannot be affected since it doesn't meet the description of palatalization. The rules apply in the counterfeeding fashion.

Similarly, the reason why N doesn't become m before h can be accounted for by the minimization of opacity principl also. In this language, there are two independent rules, namely the consonant aspiration rule and the changing of N to m before h rule. Examples and the rules are given in (16) and (17).

(16) C → h/N

$$\begin{bmatrix} \text{stop} \\ \text{-voiced} \\ \alpha\,\text{place} \end{bmatrix}$$

/in-taama/ [inhaama] 'sheep'	[urutaama] 'the big sheep'
/in-tare/ [inhare] 'lion'	[urutare] 'big lion'
/in-papuro/ [imhapuro] 'paper'	[urupapuro] 'paper'
/in-ká/ [iŋha] 'cow'	[urúka] 'big cow'
/in-kóno/ [íŋhono] 'pipe'	[urúkono] 'big pipe'

(17) a. /ku-n-há/ [kuûmha] 'to give'
/in-haamvu/ [imhaâmvu] 'reason'
/in-heta/ [imheta] 'ring'

b. n → m/___h

In order to prevent the nasals in (16) from becoming m before h, the n to m rule has to apply before the consonant aspiration rule. It is clear, however, that n to m rule only affects h that occur in the underlying representation, hence global rules. The main purpose of this paper was to show tha the minimization of opacity when examined very carefully can be replaced by other types of rules such as global rules. But since there are certain cases which cannot be handled by either global rules or rule ordering, the polarity principle has been introduced to account for them. As mentioned earlier, its sole motivation is to avoid neutralization of morphemes that have different underlying representations. Despite this principle, there are many instances in which neutralization occurs. When d and g occur after a nasal (incidentally r and d neutralize after a nasal), they both undergo the mutation rule given in (1) even if they occur in minimal pairs as seen in (18).

(18)

/ku-eendaa/ [kweenda] 'to take'	/ba-eend-ye/ [beenze] 'they have just taken'
/ku-eeng-a/ [kweeŋga] 'to make beer'	/ba-eeng-ye/ [beenze] 'they have just made beer'
/ku-ruung-a/ [kuruuŋga] 'to season'	/tu-ruung-ye/ [turuunze] 'we have just seasoned'
/ku-ruund-a/ [kuruunda] 'to pile'	/tu-ruund-ye/ [turuunze] 'we have just piled'

What these examples show is that there are still many unsolved questions in phonology that one principle cannot explain or describe. The polarity principle can thus only be accepted in its weaker form which claims that certain structures may fail to undergo some general rules if their output might produce ambiguity.

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THE INFLUENCE OF THE SOCIAL CLASS IN THE VERBAL MORPHOLOGY OF CERTAIN DIALECTS OF SPANISH

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1. Data

Second-person verb forms are different in Castilian (standard) Spanish and in Latin-American Spanish. Furthermore, there are other variations in certain dialects of Spanish spoken in some regions of Latin America. In this paper the dialect spoken in Argentina and Uruguay is analysed. This dialect is called Platense because it has originated at the banks of the Río de la Plata.

In all dialects of Spanish there are two ways of addressing the second person: a) the familiar form, used for members of the family, friends, children, animals, God; and b) the formal form, used when conditions in (a) are not met. In Castilian, the familiar form uses the regular 2nd-person endings of the verb, while the formal form uses the 3rd-person endings. In Latin-American and Platense, however, the situation in the singular is the same as in Castilian, but in the plural the familiar form has merged into the formal form. The following chart exemplifies this distribution.

		Castilian		LA and Platense	
		pronoun	agreement	pronoun	agreement
sing.	familiar	tú	2nd p. sing.	tú/vos[1]	2nd p. sing.
	formal	usted	3rd p. sing.	usted	3rd p. sing.
plur.	familiar	vosotros	2nd p. plur.	ustedes	3rd p. plur.
	formal	ustedes	3rd p. plur.		

Only 2nd-person verb forms are relevant to this study, so that Castilian singular and plural, and Latin-American and Platense singular forms are considered here.

An analysis of the complete paradigm for the 2nd-person singular forms in Platense reveals that there are two stress patterns according to dialectal variation. We will call these two subdialects Platense A and Platense B. The complete paradigm of verbal endings for the 2nd-person verb forms in all the dialects presented here is shown in the following table.

			indicative			subjunctive			fut	cond	imper
			pr	impf	pret	pr	impf'	impf"			
1st c.	Cast+LA	sg	as	ábas	áste[2]	es	áras	áses	arás	arías	a
	Plat. A	sg	ás	ábas	áste	es	áras	áses	arás	arías	á
	Plat. B	sg	ás	ábas	áste	és	áras	áses	arás	arías	á
	Cast.	pl	áys	ábays	ásteys	éys	árays	áseys	aréys	aríays	ád
2nd c.	Cast+LA	sg	es	ías	íste	as	yéras	yéses	erás	erías	e
	Plat. A	sg	és	ías	íste	as	yéras	yéses	erás	erías	é
	Plat. B	sg	és	ías	íste	ás	yéras	yéses	erás	erías	é
	Cast.	pl	éys	íays	ísteys	áys	yérays	yéseys	eréys	eríays	éd

		indicative			subjunctive					
		pr	impf	pret	pr	impf'	impf"	fut	cond	imper
3rd	Cast+LA sg	es	ías	íste	as	yéras	yéses	irás	irías	e
	Plat. A sg	ís	ías	íste	as	yéras	yéses	irás	irías	í
	Plat. B sg	ís	ías	íste	ás	yéras	yéses	irás	irías	í
	Cast. pl	ís	íays	ísteys	áys	yérays	yéseys	iréys	iríays	íd

This paper is concerned mainly with the analysis of the Platense forms, even though the other dialects mentioned above will be considered, especially the Castilian plural forms. We will start by analysing the 2nd-person singular forms of Platense B, which are more regular than the corresponding forms of Platense A.

2. Historical Development

The Platense B 2nd-person singular forms developed from the Castilian 2nd-person plural forms by dropping the person-number marker d in the imperative, and the y from the person-number marker ys elsewhere. Example:

cantád → cantá 'sing!' cantáys → cantás 'you sing'

There are two exceptions to this rule: a) the final s of the preterit is deleted in general, but kept by some speakers (See FN 2); b) the ending vowel in the future is changed from e to a. Examples:

cantásteys → cantáste(s) cantaréys (→) cantarás

In both cases, the exceptional form coincides with the Latin-American 2nd-person singular form.

3. Stress Rule

The Stress-Assignment Rule proposed by Harris (1973 and 1974.a) for the Spanish verb forms is

$$(1) \quad V \rightarrow [+\text{stress}] \; / \; \begin{cases} \overline{TV}\,]_{Stem}\; C_oV\; C_oV\; C_o\; \#\# & \text{(a)} \\ \text{—}\qquad\qquad\quad (C_oV)C_o\; \#\# & \text{(b)} \end{cases}$$

Part (a) is needed for antepenultimate-stress forms, like cantábamos, cantáramos, etc. The TV (Thematic Vowel) is needed to exclude forms like *cántemos. The stem specification is used in comparison with Chicano forms (Harris 1974.a). Part (b) - expansion - assigns stress to the majority of verb forms, which have stress on the penultimate syllable. Part (b) - no expansion - assigns stress to the few monosyllabic verb forms that exist in Spanish like dóy, dás, etc.

For the last-syllable stress forms like cantáys, cantád, Harris (1974.b) proposes the underlying forms cantadis, cantadi, respectively, and a set of rules to derive the surface forms.

4. Solutions

A straight-forward solution for the Platense B forms is to postulate underlying forms with a final E that is later deleted. Even though this can be justified for some forms like the infinitive, it cannot be justified in general, and this solution must be rejected.

Another possibility for the Platense B forms is to incorporate into the synchronic description of the language the historical development of these forms. That is, we can postulate the underlying forms amatis, amati, and add, to the series of rules proposed by Harris which give amáys, amád, the rules

$$y \rightarrow \phi \;/\; + \text{ — } s \qquad \text{and} \qquad d \rightarrow \phi \;/\; + \text{ — } \#\#\ .$$

These two rules, however, are not independently justified, and this solution must also be rejected. For a more detailed discussion of these possibilities see Rivas (1974 and forthcoming).

5. Second-Person Marking

A third possibility is to take the surface endings s and ϕ as the underlying forms, and modify the stress rule accordingly. In order to do this, rule (1.b) should be rewritten as

$$(2) \qquad V \rightarrow [+\text{stress}] \;/\; \begin{cases} \overline{[-2.p]} \; (C_o V) C_o \#\# & (a) \\ \overline{[+2.p]} \; C_o \#\# & (b) \end{cases}$$

or

$$(3) \qquad V \rightarrow [+\text{stress}] \;/\; \langle \overline{[-2.p]} \rangle \langle (C_o V) \rangle C_o \#\#$$

Note that the dropping of the [+ 2.p] specification needed in order to collapse parts (a) and (b) has no implications for the effect of the rule.

This rule, however, has to be modified to give the correct stress to the 2nd-person forms with stress on the penultimate syllable, like cantábas, cantáras, etc. This can be done using part (a) of rule (1), which gives the correct stress to forms with stress on the antepenultimate syllable, like cantábamos, cantáramos, etc., as follows:

$$(4) \qquad V \rightarrow [+\text{stress}] \;/\; \begin{cases} \overline{TV} \;]_{St} \; C_o V \; C_o V \; C_o \#\# & (a) \\ [-2.p] \\ \overline{TV} \;]_{St} \; C_o V \; C_o \#\# & (b) \\ [+2.p] \end{cases}$$

As in rule (1), the TV is needed to exclude forms like *cántes.

Rules (4) (a) and (b) can be collapsed as follows:

$$(5) \qquad V \rightarrow [+\text{stress}] \;/\; \underset{\langle [-2.p] \rangle}{\overline{TV}} \;]_{St} \; \langle C_o V \rangle \; C_o V \; C_o \#\#$$

The complete set of rules (3) and (5) would be

$$(6) \qquad V \rightarrow [+\text{stress}] \;/\; \begin{cases} \underset{\langle [-2.p] \rangle}{\overline{TV}} \;]_{St} \; \langle C_o V \rangle \; C_o V \; C_o \#\# & (a) \\ \langle \overline{[-2.p]} \rangle \; \langle C_o V \rangle \; C_o \#\# & (b) \end{cases}$$

which can be further collapsed using two kinds of square brackets," namely, ⟨ ⟩ and « » , as follows:

$$(7) \qquad V \rightarrow [+\text{stress}] \;/\; \underset{\langle [-2.p] \rangle}{\overline{« TV »}} \; «]_{St} \; » \; \langle C_o V \rangle « C_o V » C_o \#\#$$

6. Strong and Weak Suffixes

A fourth possibility is to follow the treatment that has been given to languages like Sanskrit, Greek, Russian, etc., in which the stress also shifts from the stem to the suffix in many different ways. In the noun declensions of these languages, the cases for which the stress falls on the stem are called strong cases; while the cases for which the stress falls on the suffix are called weak cases. See Kiparsky (1973) for a detailed analysis of stress patterns in Indo-European languages, and Halle (1973).

Let us call, then, strong suffixes (SS) the suffixes for which the stress falls on the stem, and weak suffixes (WS) the suffixes for which the stress falls on the ending. According to this definition, the suffixes o, ∅ (1st and 3rd p.), ∅ (imper. Cast.), n, mos, s (Cast. and LA) are SS; and the suffixes ∅ (imper. Plat.), ys, d, s (Plat.) are WS.

Rules (2) and (4) can be rewritten, then, as

$$(8)\quad V \rightarrow [+\text{stress}] \;/\; \begin{cases} \overline{\text{TV}}\,]_{St}\ C_o V\ C_o V\ C_o\,]_{SS}^{\#\#} & (a)\ (=4.a) \\ \overline{\text{TV}}\,]_{St}\ C_o V\ C_o\,]_{WS}^{\#\#} & (b)\ (=4.b) \\ \text{——}\ C_o V\ C_o\,]_{SS}^{\#\#} & (c)\ (=2.a) \\ \text{——}\ C_o\,]_{WS}^{\#\#} & (d)\ (=2.b) \end{cases}$$

or

$$(9)\quad V \rightarrow [+\text{stress}] \;/\; \begin{cases} \overline{\text{TV}}\,]_{St}\langle C_o V\rangle C_o V\ C_o\langle]_{SS}\rangle^{\#\#} & (a)\ (=5) \\ \text{——}\ \langle C_o V\rangle C_o\langle]_{SS}\rangle^{\#\#} & (b)\ (=3) \end{cases}$$

Note that the dropping of the WS specification needed in order to collapse parts (a) and (b), and parts (c) and (d) has no implications for the effect of the rule. The final rule is

$$(10)\quad V \rightarrow [+\text{stress}] \;/\; \overline{\langle\langle \text{TV}\rangle\rangle}\langle\langle]_{St}\rangle\rangle\langle C_o V\rangle\langle\langle C_o V\rangle\rangle C_o\langle]_{SS}\rangle^{\#\#} \quad (=7)$$

7. Lax Vowels

A fifth possibility is to follow the treatment of noun stress rules in Spanish, in which antepenultimate stress results from marking a vowel with an abstract feature, and making the stress rule sensitive to this feature. Harris (1969) proposes the rule

$$(11)\quad V \rightarrow [+\text{stress}] \;/\; \text{—}\ (C_o(\breve{V}\ C_o^1(L))\ V)\ C_o^{\#\#}$$

where the symbol ˘ represents a feature-marking on the vowel that does not receive stress. Historically, these were lax vowels, and we will keep using this terminology, even if it has no synchronic meaning. The substructure $C_o^1(L)$ is due to the fact that only one consonant (or no consonants) plus an optional liquid can be in this position. We can assume that this restriction, as many other restrictions on the possible combinations of segments, can be established at the level of canonical patterns for syllable structure, and write rule (11) as follows:

(12) $V \rightarrow [+stress] / __ ((C_o \breve{V}) C_o V) C_o \#\#$

If we say that verb forms like cantábamos, cantáramos, etc., are stressed by the same rule as the nouns are, we can say that the tense/mood markers ba, ra, etc., are actually bă, ră, etc.

Both systems of rules: 2nd-Person Marking (6), and Strong and Weak Suffixes (9), can now be rewritten as follows:

(13) $V \rightarrow [+stress] / \begin{cases} \overline{\langle [-2.p] \rangle} \; C_o \breve{V} \langle C_o V \rangle C_o \#\# & (a) \\ \overline{\langle [-2.p] \rangle} \; \langle C_o V \rangle C_o \#\# & (b) \end{cases}$

and

(14) $V \rightarrow [+stress] / \begin{cases} __ \; C_o \breve{V} \langle C_o V \rangle C_o \langle] \rangle_{SS} \#\# & (a) \\ __ \; \langle C_o V \rangle C_o \langle] \rangle_{SS} \#\# & (b) \end{cases}$

Note that the partial specifications TV and Stem have been eliminated from the stress rules.

Since nouns are [-2.p], or, at the present moment, are SS, then the Noun and Verb stress rules can be collapsed in both systems as follows:

(15) $V \rightarrow [+stress] / \overline{\langle [-2.p] \rangle} (C_o \breve{V}) \langle C_o V \rangle C_o \#\#$

and

(16) $V \rightarrow [+stress] / __ (C_o \breve{V}) \langle C_o V \rangle C_o \langle] \rangle_{SS} \#\#$

There is, however, a problem. Consider pairs of nouns/verbs like the following: cómputo/compúto, cálculo/calcúlo, etc. In order to get the right stress in these nouns, we have to postulate underlying forms with a lax vowel in the penultimate syllable, that is, compŭto, calcŭlo, etc. Since there is no reason to suppose that this vowel is non-lax in the corresponding verb form, we have to assume that the verb form has the same lax vowel in the underlying form as the noun has. Therefore, stress rules (15) or (16) assign the wrong stress to these types of verbs, namely, *cómputo, *cálculo, etc.

This problem can be solved by observing that in Spanish verb forms, as opposed to nouns, the stress can never fall to the left of the rightmost root vowel. Since this is a basic difference between the stress rules for nouns and the stress rules for verbs, we can make the corresponding part of the general stress rule sensitive to this difference, as follows:

(17) $V \rightarrow [+stress] / \overline{\langle [-2.p] \rangle} \; C_o \; (\langle\langle + \rangle\rangle C_o \breve{V}) \langle C_o V \rangle C_o \langle\langle]_V \rangle\rangle \#\#$

and

(18) $V \rightarrow [+stress] / __ \; C_o \; (\langle\langle + \rangle\rangle C_o \breve{V}) \langle C_o V \rangle C_o \langle] \rangle_{SS} \langle\langle]_V \rangle\rangle \#\#$

8. Summary of Solutions

The following chart gives a summary of the solutions presented in this paper.

	Cast (sg + pl)	LA (sg)	Plat (sg)
2nd-Person Marking:	[- 2 pers plur] in rule	no modification	[- 2 pers] in rule
SS and WS:	ys]$_{WS}$ and d]$_{WS}$	no modification	s]$_{WS}$ and ∅]$_{WS}$ (imper)

in both solutions: for all dialects T.V. specification **is required.** in the rule.

Lax Vowel: for all dialects, instead of the T.V. specification, introduction of lax vowel in the tense/mood markers bă, ră, sĕ, (rĕ), stĕ, rŏ; and Verb rule collapsed with Noun rule.

9. Chicano

In Chicano Spanish, the 1st person plural subjunctive has retracted the stress, from the penultimate syllable to the antepenultimate syllable; that is, instead of cantémos, we have cántemos. Harris (1974.a) proposes that, in order to account for this shift of stress, the T.V. is deleted from the stress rule, as follows:

$$(19) \quad V \rightarrow [+\text{stress}] \; / \begin{cases} - \; C_o]_{St} \; C_oV \; C_oV \; C_o\#\# & (a) \\ - \qquad\qquad C_oV \; C_o\#\# & (b) \end{cases}$$

Then, the form cantémos will be stressed cántemos by (a), while the form cántamos will be stressed cantámos by (b). It is here where it is necessary to have the $]_{Stem}$ specification in the rule.

Under the Lax-Vowel solution, we can obtain the same results by saying that the underlying form of the subjunctive markers e/a have a lax vowel, i.e. ĕ/ă. Therefore, we obtain the subjunctive form cántemos in the same way as we obtain forms like cantábamos. This would be a generalization carried over to this tense/mood marker ĕ/ă from all the other tense/mood markers of this sort, which are already lax, namely, bă, ră, sĕ, stĕ, rŏ.

10. Platense A

The only difference between the Platense A forms and the Platense B forms is the stress of the 2nd person singular of the present subjunctive, namely, cántes for Platense A, and cantés for Platense B. At first sight, this looks like an insignificant distinction. One could say that Platense A is like Platense B in all forms except this present subjunctive form, in which case Platense A behaves like Latin-American. Nevertheless, this retraction of stress from the Platense B form occurs in exactly the same tense/mood form as in the

Chicano case. The stress rule for Platense A, then, equivalent to Chicano rule (19) is

$$(20) \quad V \rightarrow [+\text{stress}] \; / \begin{cases} \overline{\langle TV \rangle}\; C_o]_{St} \langle C_o V \rangle C_o V\; C_o \langle]_{SS} \rangle_{\#\#} & (a) \\ \underline{\quad} \qquad\qquad\qquad\qquad \langle C_o V \rangle C_o \langle]_{SS} \rangle_{\#\#} & (b) \end{cases}$$

Therefore, the form cantes$]_{WS}$ will be stressed cántes by (a), while the form cantas$]_{WS}$ will be stressed cantás by (b). This allows us the keep the same suffix s$]_{WS}$ for the 2nd-person through the entire paradigm.

Under the Lax-Vowel solution, the laxing of the subjunctive tense/mood marker will give the correct form cántes, but the incorrect form *cántemos. It is interesting to note that there is a tendency in stressing the 1st person plural subjunctive with the retracted stress, as in Chicano; but this occurs in free variation with the standard form, and is preferred for certain verbs, but not for others. Much more research is still necessary in the study of this apparent transition between two stress patterns, and the Lax-Vowel solution cannot give a completely satisfactory answer to the current situation in this dialect.

11. State of the Art

The only serious criticism made to the amazingly detailed, precise and ingenious solutions worked out by J. Harris for the Spanish verb morphology is the abstractness of the underlying forms and the number of rules necessary to derive the surface forms; many of which are independently motivated, but some of which have some ad-hoc status.

The methods proposed in this paper, on the other hand, permit underlying forms almost identical with surface forms, and a general stress rule that assigns the right stress across dialects with almost no intermediate derivations.

The cost at which this is done is a) for the Second-Person Marking case, the introduction of person-number features in the stress rule; b) for the Strong and Weak Suffixes case, the introduction of two types of suffixes; and c) for the Lax Vowel case, the introduction of two types of vowels.

A detailed study of these alternatives applied to the entire verb paradigm, with a study of the possibility of independent motivation for the features proposed in this paper is being made by Rivas (forthcoming).

12. Possible Advantages

A summary of some of the advantages that have not been mentioned above of the analyses being proposed in this paper is sketched in what follows.

Besides the 2nd-person plural forms in Castilian and the 2nd-person singular forms in Platense studied above, all dialects of Spanish have other oxitone verb forms. They are: a) the infini-

tive, ex.: cantár; b) the 1st and 3rd person singular of the preterit, ex.: canté, cantó; the future, ex.: cantaré, cantarás, cantará, cantaréys, cantarán.[3]

Harris (1969) proposes a) for the infinitive, the underlying form cantarE, and an E-deletion rule that is used also for the oxitone nouns that fall into that category; b) for the preterit forms, the underlying forms cantaI and cantaU, and a series of rules that derive the surface forms; c) for the future, the underlying internal structure of the form [[cantarE]e], [[cantarE]as], etc., and cyclic application of the stress rule, with deletion of all but the rightmost stress.

The application of the methods proposed in this paper can account for all oxitone verb forms in the same fashion, that is, by introducing weak suffixes for the 1st and 3rd person singular of the preterit, and for the r of the infinitive. Furthermore, this $r]_{WS}$ can be considered as the same suffix that generates the future and conditional forms. This would explain why future forms are, as the infinitive, forms with last-syllable stress.[4] Moreover, if the marker of the conditional ia is represented with +iă+, we can explain why the stress falls always on the i.

The apparent irregular oxitone nouns like mamá, café, etc., and the oxitone nouns for which Harris (1969) has proposed an underlying structure with an E, like cantór, canción, etc., can be treated as cases of weak noun suffixes. The regularities in consonantal patterns at the end of most oxitone nouns can be removed from the interaction between rules and underlying forms, and be assigned to the level of canonical patterns for syllable structure. See Rivas (forthcoming) for a detailed treatment of the matters discussed in this summary.

13. The Social Situation

Platense B is the dialect that has historically originated from Castilian. It is the most widespread subdialect of Platense. Castilian is the literary language in the Río de la Plata area, so that it can be considered as the literary subdialect of Platense. Platense A is a variant of Platense B for which the stress has retracted in the 2nd person singular of the present subjunctive. It is spoken in general by "more educated" people. It could be categorized as spoken more prominently by the middle and upper classes, while Platense B would be spoken more prominently by the lower class.

The question that arises is why this retraction of the stress happened. The form with the retracted stress - cántes instead of cantés - coincides with the Latin-American or Castilian form. In Platense B there are only three forms that are different from the literary language. These are the 2nd person singular of the present indicative - cantás -, the present subjunctive - cantés - and the imperative - cantá -. It seems that the pressure from the literary language has influenced Platense B to the point of developing the subdialect Platense A.

If the change from Castilian to Platense B had been only a shift in the stress of certain verb forms, as it is suggested by the Second-Person Marking theory, then pressure on Platense B to recreate the literary language would have deleted the 2nd-person specification in the rule, and all the Castilian forms would have been obtained immediately. This has not happened, however.

If the change from Castilian to Platense B has been a reclassification of the suffixes s and ∅ for 2nd person singular from a strong suffix to a weak suffix, a possible process under the Strong and Weak Suffixes theory, then pressure on Platense B to recreate the literary language would tend to modify the stress rule in such a way as to produce a stress pattern as close as possible to that of Castilian.

This can be done, as was pointed out in section (10), by dropping the Thematic Vowel in the pertinent part of the stress rule, giving as result the Platense A forms.

Furthermore, the change from Castilian to Platense B of a suffix from strong to weak can occur without any modification of the stress rule if Castilian has already weak suffixes, as the 2nd person plural forms ys and d, and maybe all the forms with stress on the last syllable mentioned in section (12).

These considerations support the plausibility of the existence of strong and weak suffixes, and give an explanation for the development of Platense A.

FOOTNOTES

1 tú is used in Latin-American, and vos is used in Platense.
2 Some speakers add an s to the 2nd person singular form of the preterit, i.e. ástes, ístes, in all dialects.
3 The 1st person plural form of the future is cantarémos, which is not an oxitone word.
4 The 1st person plural form of the future would be an exception to this case. This is a common situation in other languages with mobile stress patterns, in which a particular suffix can never bear stress. This seems to be the case of the suffix mos.

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HISTORICAL RIDDLES IN CHEYENNE

A Re-examination of Goddard's So?taa?e Evidence

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0. The Problem

The Cheyenne language of SE Montana and Oklahoma has been a riddle for American Indian scholars for over 120 years, since at least 1856 when Latham published word lists including Cheyenne and Arapaho. It was not apparent for many years that Cheyenne and Arapaho were actually Algonkian languages, being so different from the familiar Central-Eastern Algonkian languages. Truman Michelson (1933) said of Cheyenne:

> Cheyenne is a strongly divergent member of the Algonquian stock. It seems as if the transformation has been self-evolved and not due to extraneous influence....The speechform has remained Algonquian....[I]t may be said that none of the above-mentioned languages [Cheyenne, Arapaho, and Blackfoot] contributes very much towards the reconstruction of the parent Algonquian language. An exception must be made in one or two cases where Cheyenne is archaic.

Michelson felt Cheyenne was archaic, strongly divergent--yet since its speechform was clearly Algonkian, he was forced to say that the unusual changes were not due to outside influence, such as language-contact. It perhaps did not occur to Michelson that language-contact with an archaic and divergent but still Algonkian tribe could have caused some of the unusual sound-shifts (such as PA *p becoming in sometimes identical environments preaspirated, preglottalized, a strong or weak glottal, or n, or h, or zero; the reflexes of PA *k are likewise unusual, and even more problematical.)

1. An Attempted Solution: Thesis

After over three years of continuous fieldwork on the Northern Cheyenne Reservation,[1] I began publishing in 1975 my conclusions that the Cheyenne language of today is a **dynamic language-synthesis** between the Intermediate-Cheyenne (hereafter **I-Ch**) of the Central-Eastern Algonkian stock and a little-known early Algonkian language called So?taa?e (previously spelled Sutaio, hereafter **So?**)--whose name wasn't mentioned by either Boas or Powell and never makes it onto the American Indian language-grouping maps. I catalogued some of the systematic variations in a paper on the prehistory of the Cheyennes (Alford 1975), and in 1977 at BLS I showed for the first time that the divergent plurals were explainable by assuming two separate historical groups and lineages. I also showed that the ways Cheyenne and Arapaho plurals diverged from normal PA plurals were intriguingly similar.[2]

2. Antithesis

That called forth a reply from Ives Goddard (1977) of the Smithsonian Institution, "The Sutaio Dialect of Cheyenne: A Discussion of the Evidence." In it, he published "the only data obtained from Cheyennes who claimed to have learned some Sutaio from Sutaio speakers at a time when older Sutaio still spoke the language" from the notes of George Bird Grinnell (1905) and Truman Michelson (1913), saying:

> This seems to be the best Sutaio on record and the most likely, of what is available, to represent genuine examples of what the Sutaio spoke. The forms and phrases given are clearly volunteered, rather than elicited. Since it is most likely that they were remembered because of their divergence from the corresponding Cheyenne expressions, they probably present an exaggerated picture of the degree of difference between the two forms of speech.[3]

Goddard firmly rejected this *So?taa?e Hypothesis*, and in order to hasten its demise, he

published over 100 forms previously unknown to me. He explained away my language examples by saying:

> An obvious explanation of multiple reflexes, when found in any language is the postulation of dialect mixture: one reflex was proper to one dialect, the other to the other dialect, and when the dialects became mixed both forms were retained, resulting in the existence of doublets showing no differentiation in meaning. The hypothesis is an easy one, but in the absence of historical information it can be hard to prove. For one thing, the testimony of native speakers is not always reliable on the identification of the origins of the forms in their language, and there is an observed tendency, perhaps as the result of the way anthropologists and linguists ask questions,[4] to explain variants as coming from other submerged dialects formerly spoken by members of the community. In the present case it should be noted that Alford's alleged Sutaio words are actually in use as Cheyenne words, while those provided by Grinnell's and Michelson's informants were recalled, however imperfectly, as words used by known Sutaio speakers.[5]

Goddard characterizes my So?taa?e work as having a certain amount of inherent implausibility, categorically stating that the archival forms do not confirm any systematic tendency for the Sutaio forms to differ by the absence of **-k-**. Goddard feels strongly that the claim that **glottal** can be a reflex of PA ***-k** (or ***nk** or ***hk**) is not correct; that I have confounded So?taa?e with *simple*[6] male/female distinctions. He concludes that

> it would certainly not be expected for an obvious characteristic of Sutaio to be recalled in the 1970's that was unknown two or three generations ago to Cheyennes who had personally known Sutaio speakers in their youth. The search for Sutaio words still recalled among the Cheyenne may yet bear fruit, but for the present it must be concluded that Grinnell's few forms together with whatever can be salvaged from Michelson's lists *are the only data on Sutaio that exist.* (emphasis mine)

3. A Re-examination of Goddard's Evidence: Analysis

Leaving aside the question of whether the living knowledge of a group can be said to exist as surely as do printed speechforms collected and interpreted through the conceptual framework of an outsider, what does Goddard's data reveal?

Not only did Goddard's authenticated So?taa?e word-forms provide substantiating evidence for my claims, the subsequent research has led me into deeper implications for all Algonkian studies.

Goddard is indeed correct that the Grinnell data do not provide many useful systematic differences between Cheyenne and So?taa?e, but a fuller re-examination is in order for Michelson's data (which Goddard terms "rather less straightforward than Grinnell's"). I would like to draw the reader's attention to **TABLE 1** at the conclusion of this paper, which lists many of Michelson's So?taa?e and Cheyenne forms (quoted by Goddard), with appropriate phonemic approximations (mine).

Analysis of the restored phonemic forms shows quite a number of interesting differences between So?taa?e and Cheyenne.

1. **dog:** Along with #40, this pair shows the So? form coming directly from the PA *aθemwa* (felt by Cheyennes to be the older form), with the I-Ch form unrelated to the standard PA form; it has been my contention for years that the I-Ch form comes from the PA "seal (barking-one) + dimin", **aaskikwa+hsa.* #40 shows the ancient ?ah/x- initial.

2. **bear:** The So? form here is, given Michelson's transcriptions, more properly *voope [woopi]*, with a corresponding I-Ch form *vo'hpe [wo'hpi].* The *woopi* form is not in use in ModCh, but (as Goddard himself points out) the corresponding I-Ch form *vo'hpe-na'hkohe* is in current use even today with the meaning "polar (white) bear". However, Michelson did not record "wohpi-", but "woopi-", a So?taa?e form. There is another So? form but rarely heard today, *naa?ohe.* This form, as well as a multitude of others, shows that what Leman refers to as Goddard's Law (Goddard 1977: final V1-V2# --> V1-V-?-V2#, explaining the unexpected appearance of supposedly all Cheyenne glottals) is actually, although incorrectly stated, an interesting statement of a

historical phonology rule of **So?taa?e,** not Cheyenne.

5. **tree:** The So? form (today meaning "timber") is cognate with "bow(-wood)": PA **me?tekwi,* So? (bow-wood) *ma?taa?e,* Ch (bow) *ma?tahkelma?tehke.* I have been unable to discover the PA antecedent to the Ch form *hoohtete.*

22. **foot:** Notice also in TABLE 4 that the Nawanthinahena forms and the So? forms are nearly identical; I-Ch forms sometimes share the same rules, sometimes not (especially those concerning PA *k reflexes).

23. **arm:** In this and other forms, So? uses the indefinite possessor *ma-* while Ch tends often to use the definite 3rd person possessor *he-.*[7]

32. **elk:** Michelson's forms reflect the archaic form *mo?e* as being So?, while the Ch form is, according to regular correspondences, from the old word for "moose", *mooswa -> me'he, synthesized with mo?e to give *mo?e'he.*

37. **arrow:** The Cheyenne form has never made any sense to me until now, since the standard PA form *aΘwi gives only -(h)otse. The So?, with archaic ?ax- initial, circumscribes the normal first syllable maa-.

39. **stone axe:** Although apparently Goddard did not realize it, the So? form differs from the I-Ch form by exactly what is not supposed to be shown in this data--a non-functional ? vs hk distinction. (See TABLES 2 and 3 below).

41. **my daughter:** Notice the vowel differences e/o.

52. **knife:** Notice here another ?/hk distinction, with the So? not existing today.

57. **badger:** Here is a *long-vowel plus glottal* versus *short-stressed vowel plus hk,* exactly what is expected from differing derivations from a PA form.[8]

58. **bat:** Although both forms are substantially the same, both contain a glottal where ModCh contains an hk or n. Also note vowel differences between the So? and ModCh forms.

76. **fingernail:** Note the e/a vowel difference.

79. **red stone (pipe):** Notice the -noo?o versus -?ohko forms. These are classical So? vs I-Ch distinctions: n/?, oo/o', ?/hk.

92. **guts:** Here is the male speechform (?c or ?ty) showing up in So?, while the normal Cheyenne form is ?k, intriguingly close to Shawnee ?k's.

94. **navel:** Note again the interesting So? n vs. I-Ch ? correspondence. Although Leman has written on a PA *k to Ch n correspondence, the intermediate step containing glottal has been consistently overlooked.[9]

So although Goddard has stated that "...Michelson's forms do not confirm any systematic tendency for the Sutaio forms to differ by the absence of -k-", I believe that items 39, 52, 57, 58, and 79 display exactly this distinction when one reconstructs phonemes rather than letters. Comparison with PA forms will show that the So? glottals in the above words are *indeed* reflexes of PA *k, *hk, or *nk, as I have claimed.

4.1 Normal View of Plains Indian History

Without going deeply into the traditional conceptions of Western, Central, and Eastern Algonkian subgroups, let's begin with a rough sketch of the normal view of Proto-Algonkian history. It's something like a game of dominoes, starting with Crees and Chippewas in the north and many Algonkian tribes around the Great Lakes, the Eastern tribes ranging themselves along coastal positions. Then the whiteman enters the picture. As he's moving in on the east coast, the fleeing Chippewas come down from the north and bump the Sioux, who bump the Cheyenne living in Minnesota at the mouth of the Mississippi--and the Cheyenne move on over to North Dakota. Sometime after 1700 the Sioux, bowing to the pressure from the Chippewas again, move into Cheyenne territory as the Cheyennes move further west. The Arapahoes follow the Cheyenne movements almost exactly, winding up generally south of the Cheyennes, while at some point the Blackfoot wind up north of the Cheyennes. During an historic incident the Cheyennes run into this unimportant So?taa?e tribe, adopt the tribe and assimilate the people so that they're never heard from again.

This normal conception has one problem: it is too simplistic to fit the data regarding the highly divergent Cheyenne, Arapaho, and Blackfoot languages. Further, as we shall see, our very English names for tribes and the uncomprehending ways in which we have labelled one group of Native Americans a *tribe,* and another group merely a *dialect,* have until now rendered this problem opaque.

4.2 The So?taa?e Conception of Plains Indian History

Now let's back up conceptually and begin again, starting with an observation by James Mooney in the 1912 Bureau of American Ethnology *Bulletin #30: Handbook of American Indians*:

> Driven out by the Sioux, the Cheyenne moved w. toward Missouri r., where their further progress was opposed by the **Sutaio**--the **Staitan**[10] of Lewis and Clark--a people speaking a closely cognate dialect, who had preceded them to the w. and were then apparently living between the river and the Black-hills. After a period of hostility the two tribes made an alliance...(they wound up in SDakota, where Lewis and Clark found them in 1804).

Mooney gives much information about the relationship between the So?taa?e and Cheyenne, Lewis and Clark having regarded them (as well as Arapaho) as distinct tribes. Mooney also published important information about the order of placement around the camping circles of these tribes (in time-honored observance of the Sun Dance and other ceremonies) which has been either overlooked or uninterpretable until now. Careful reading will reveal that the So?taa?e (or extremely close dialect groupings of them) occur within the Cheyenne, Arapaho, and Blackfoot language groups.

In other words, what everyone until now has been calling merely a "dialect" of Cheyenne must be seen as the *So?taa?e language*, an important member of a new subgrouping, *Southern-Plains-Algonkian*, which split off from some Proto-Algonkian at a very early time.[11] The So?taa?e were on the Plains already when the Cheyennes, Arapahoes, Blackfoot, Sioux, etc., got there. The So?taa?e adopted in the Cheyenne and Arapaho and sent another group up to live with the Blackfoot. That means that Cheyenne and Arapaho, two Central-Eastern languages, obey, as I earlier claimed, understandable sound-shift changes until a certain point; they diverge in many of the same ways, and those ways can be accounted for as the language-fusion brought about by close contact and intermarriage with an older Algonkian tribe, the So?taa?e. (Some So?taa?e can probably also be found among the Sioux.) All of these tribes participate in the Sun Dance, which many acknowledge they got from the So?taa?e (along with Plains Indian sign language, which came from the same source in the south.)[12] Let us examine more closely now the strength of this So?taa?e influence, keeping in mind Meillet's advice that:

> We must determine which social structure corresponds to a given linguistic structure, and how, in a general manner, changes in social structure are translated into changes in linguistic structure.

4.3 Synthesis: Realignment of Cheyenne And Arapaho

Kroeber and Michelson recorded information about the Nawathinahena "dialect" of Arapaho, noting that it diverged away from Arapaho proper and towards distinctly Cheyenne sounds. But, said Michelson (1935), "Summing up, we may say that there is little, if any, reason to consider Nawathinahena a transition from Arapaho to Cheyenne." True enough, it may not be a *transition* per se--but what if Nawanathinahena, like So?taa?e, got to the Plains before the Arapaho, and adopted the Arapaho in? What if, in fact, Nawathinahena and So?taa?e are actually close dialects of the same language? I will shortly present my evidence that this is so.

David Shaul[13] believes that the so-called Nawathinahena dialect-group of

Arapaho is traditionally allied with the Kiowa-Comanche people, who were the natural traders of the Plains, the culture-bearers of religious observances, sign language, musical rhythms, and later horses and guns. Mooney says the So?taa?e preceded the other Plains Indians, so let's suppose that they were influenced by the Kiowa in the area where they settled. Then the Cheyenne and Arapaho arrived nearly simultaneously at a later date (and perhaps also the Blackfoot further north) and were adopted by this obscure So?taa?e tribe, which explains the seeming simultaneous unusual sound shifts.

Haas (1966) states: "...at the present time little evidence has been presented for any new subgroupings of Algonkian, though some may emerge as work progresses." I propose just such a new subgrouping of Algonkian, called **Southern-Plains-Algonkian (SPA)** and it consists of various dialects, such as So?taa?e and Nawathinahena, of an Early-Algonkian language. (This SPA is to be strictly distinguished from former conceptions of Proto-Plains-Algonquian which include Blackfeet, Arapaho, Cheyenne, etc., who in this schema must be seen as **Late-Plains-Algonkian**.)

5. The Evidence for So?taa?e

TABLE 2 shows more doublets and some non-doublets sorted as to their So?taa?e language or Cheyenne language affiliation. Note that were it the case that "all putative cases" consisted, as Goddard claims, exclusively of doublets which have diminutive/non-diminutive functional contrast,[14] my bold conclusions might logically be called into question: but here are cases of So?taa?e verb-forms which persisted into ModCh intact and without contrasting I-Ch forms, obeying So?taa?e sound changes. In TABLE 3 I break that data down into sound correspondences between Proto-Algonkian, So?taa?e, and I-Cheyenne.

TABLE 4 is an interesting variation of the So?taa?e rules as recorded by Truman Michelson (1935). A fascinating footnote to history, revealed here for the first time, is that the so-called Nawathinahena ("dialect of Arapaho") rules recorded almost a half-century ago by Michelson are intriguingly similar to the shared So?taa?e and I-Cheyenne rules of TABLE 3, and closer to So? than I-Chey by important rules. In fact, if you apply Michelson's Nawathinahena rules to PA forms you will often find nearly exact So?taa?e forms as listed in a Cheyenne dictionary. We may now amend Michelson and Kroeber by saying that Nawathinahena diverges distinctly toward **So?taa?e** sounds, as well as I-Cheyenne. Nawathinahena and So?taa?e are dialects of the same language (SPA), accounting for the unusual sound shifts in Cheyenne and Arapaho; elements of So?taa?e phonology have been in the literature unrecognized for 63 years under the English name "Arapaho", while So?taa?e was categorized as a dialect under "Cheyenne".[15]

TABLE 4 also compares some Nawathinahena words collected by Kroeber while working on Arapaho, and as discussed by Michelson, with the nearly identical forms in the So?taa?e language, some of which are recorded in the Alford and Leman *English-Cheyenne Student Dictionary.* Furthermore, careful perusal of the *Ethnology Bulletin 30* of the Smithsonian Institution will reveal that the ModChey tribal-name for "the southerners" of their group, the **So'woni?a,** is much like the ModArap tribal-name for their southern group, the **Na'wunena** (obviously cognate forms, with vowel-variations and ?/n alternation), also known as the **Nawathinahena.** Therefore, whenever Algonkianists claim that the differences in northern and southern dialects of Arapaho or Cheyenne are slight (as even I have done in the past), that merely obscures the further understanding that not only does "Southern" mean "So?taa?e", but since the masculine/feminine speech distinctions (as reported by Flannery for Atsina, and Alford

for Cheyenne) were unknown to the Cheyenne before they arrived on the Plains, then ultimately **NORTHERN**(LATE-PLAINS-ALGONKIAN) used concerning Cheyenne or Arapaho means those direct descendants of Central-Eastern languages who were adopted into the So?taa?e tribes, alternatively meaning the female dialect of today; and **SOUTHERN** refers to the So?taa?e and Nawathinahena language group, as well as masculine speech characteristics.

Since Goddard (1974) has already suggested that Nawathinahena needs to be subgrouped separately from the three other Arapaho dialects, we find it perfectly reasonable to suggest that, So?taa?e being set off from Cheyenne in distinct ways that resemble Nawathinahena, **So?taa?e** and **Nawathinahena** now be understood as a single subgrouping that cuts across the I-Cheyenne and I-Arapaho languages (with possible smaller incursions into I-Blackfoot and I-Siouan); that they deserve the title **Southern-Plains-Algonkian**, as well as recognition for their Pre-Proto-Algonkian archaisms. All this will have interesting consequences in a total reexamination of today's shaky Proto-Algonkian framework (Alford, forthcoming). [16]

NOTES

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[1] It has been suggested that maybe the Cheyennes were pulling my leg about speechforms being So?taa?e. Anyone who knows my work is aware that this is certainly not the case since, as project linguist and administrator for a federally funded bilingual education program, I was given all possible help by the Cheyennes for the express purpose of my organizing and passing on to their descendants true knowledge about the language. Since only one of known So?taa?e heritage can become Keeper of the Sacred Buffalo Hat (the So?taa?e covenant with the Great Mystery), or Keeper of the Sacred Arrows only if of true Cheyenne heritage, it is of ultimate importance for every Modern Cheyenne to know his heritage, and it is therefore common street knowledge as to who is So?taa?e and who is Cheyenne in modern times. Knowing that, the field-linguist merely follows around the various So?taa?e individuals and records their varying speechforms. The fact that certain forms are recorded in the Alford and Leman (1976) *English-Cheyenne Student Dictionary* as being So?taa?e is the direct result of an elaborate and thorough authentication procedure by Cheyenne tribal elders who are anxious that true language information be passed on to their grandchildren, and their living cultural authentication must take precedence over any contrary archival information which has been filtered through the white culture's often insufficient categorization procedures (illustrated by facets of this paper).

[2] I have also suggested that the divergent plurals are not of true Cheyenne lineage, but of So? lineage.

[3] If Goddard means to imply here that the So?taa?e spoken today, corresponding to Church Latin, only within the context of the Sun Dance or Sacred Hat Ceremony, represents less-genuine examples of what the So?taa?e speak/spoke, he is misinformed. The present paper will demonstrate that there are situations in which ONLY the So?taa?e form has survived, in verbs for instance, and they are precisely the forms which would not be reasonably forthcoming from a Cheyenne who was being asked by a "writing-down whiteman"

to give words with two forms.

[4] This is an apt statement of the "Summer Fieldworker Syndrome". It is perhaps to be expected that the stranger-whiteman who breezes in from a city sometime after the snow and ice melt and the ground and air warm up again, asking impertinent questions about tribal language, history, and knowledge, without showing a genuine interest in giving technical help in return, may discover his information somewhat limited as when compared with that of a full-time on-site linguist who is living on a reservation and fulfilling a technical function for the tribe.

[5] Goddard implies here and elsewhere that my "alleged" *(elder-authenticated)* So?taa?e words are spurious or misanalyzed just because they are today actually in use as Cheyenne words, whereas the *archivally-authenticated* So?taa?e words were supposedly no longer in use earlier in the century. I suggest that it is merely one's underlying assumptions (known in other disciplines as the "experimenter effect") which determine how data will be analyzed and evaluated; that it is a point of fact, not conjecture, that So?taa?e speech-forms are currently in use in Modern Cheyenne, and those So?taa?e forms follow the same patterns of historical sound change as do those Michelson forms noted by Goddard.

[6] As we shall see, the male-female distinction is far from a simple and well-understood one. The Algonkian languages are not known for their male-female dialect distinctions, the Atsina dialect of Arapaho and So?taa?e being two recognizable counterexamples. If it can be shown that both Arapaho and Cheyenne picked up these male-female distinctions from specific outside contact, or even perhaps that they are archaisms from an earlier Proto-Algonkian time which did not survive in most of the Central-Eastern languages, an important new understanding will be gained.

[7] The significance of this is that I-Ch forms tend to begin with #h- wherever possible, a characteristic not classically shared by So? forms. The conscientious reader will note that very few of Petter's (1915) forms ever begin with #h- (cf. Petter's explanation at the beginning of the **H** section of his dictionary); this is explained quite concisely by the conclusions of this paper, that "male" and "Southern" Cheyenne are more closely So?taa?e than is "Northern", and both kinds of forms are found abundantly (almost exclusively) in the Petter Dictionary, which was mostly researched and prepared while Petter was in Oklahoma.

[8] As with most examples I work with, "Goddard's Law" does not work very well here: this VV?/V'hk alternation does not occur word finally, and the differences can be accounted for quite economically by straightforward sound changes without the postulation of a complicated intervening rule. Long So?taa?e vowels are clearly ARCHAIC features of Pre-Proto-Algonkian which have survived as short-stressed (in Cheyenne) or merely short vowels before aspirated (or nasalized) consonants in other Algonkian languages.

[9] The *k -> ? -> n situation can be seen most clearly in the possessive prefixes from Algonkian to ModCh. It has been repeatedly claimed by myself and others that the second-person prefix ne- was borrowed from a Siouan language, but that claim is vacuous once the intermediate pattern with glottal is ascertained from archaic words, such as "friend":

PA		PPA		CH
*ni-	--->	ne-(sene)	--->	na-
*ki-	--->	?e-(sene)	--->	ne-
*wi-	--->	ve-(sene)	--->	he-(ve)-

[10] Note that Lewis and Clark's **Staitan** is exactly equivalent to the blending of the morphs **So?taae + hetane** (hetane = man).

[11] It is clear from the Cheyenne legends that we have not yet fully unravelled the wanderings of the Intermediate-Cheyennes in this paper; the Cheyennes may have split off from PA with So?taa?e, at some point being separated from the So?taa?e while on the east bank of a flooding (Missouri or Mississippi)river, then wandering northward and eastward to find Algonkian relatives, some later traveling west and south to rejoin their So?taa?e relatives. This is at least one possible scenario, according to certain legends and facts.

See fuller treatment in forthcoming dissertation.

[12] It is here postulated that the Cheyenne, Arapaho, Sioux, and other later Plains tribes acquired Sign Language from the So?taa?e, who in turn received it from the Kiowa-Comanches, who had acquired it from ancient sources in central Mexico. Jack Du Bois in this volume explains the ancient origin of Sign Language, coexistent with ancient Mayan hieroglyphs. This is the same Kiowa trade-route that brought horses, drum-beats, and guns to the Plains.

[13] UCB, personal communication

[14] Goddard has implied that since many of the doublet forms I have previously published have a functional normal/diminutive contrast (the So? form consistently the unmarked case, and the I-Ch form consistently the marked or diminutive), I have been recording morphophonemic rather than dialectal differences. Nothing could be further from the facts. That the I-Ch forms have a diminutive meaning is very simply explained: when the Cheyennes were adopted in by the So?taa?e, that did NOT have the effect of totally Cheyenne-izing the So?taa?e language; rather, So? forms unknown to I-Ch speakers were learned and vice-versa, and when there were competing So?/I-Ch forms for the same word, the k-forms were assigned diminutive readings, reflecting their late-entering status on the Plains.

[15] I must draw attention here to a very Whorfian perspective about words and worldview: the information needed to solve the present So?taa?e/Cheyenne puzzle has been present in oft-read literature for over half-a-century, but unrecognized because it seemed to pertain instead to Arapaho and Nawathinahena. Which was first, the words, the worldview, or the Native Americans? I believe a moment's reflection will suffice to reveal that historically American Indian tribes were named out of sheer ignorance of the existential conditions, or because of miscommunication (*Nootka* is what those Indians kept telling the whitemen: *Go around!*) [thanks to Larry Morgan for that]; and it is clear in this case that the words created a verbal-net of worldview to be cast over pre-existing native classifications, which worldview has been reinforced over the generations in various kinds of historical books. But the English language worldview simply does not fit the existential Native American facts, as shown in this paper.

[16] As this manuscript entered final stages, J. Youngblood Henderson (formerly an Assistant Professor of Native American Studies, UCBerkeley, Youngblood is Southern Cheyenne and Chickasaw by birth and upbringing, and is a most valued source for tribal knowledge of Native Americans) gave me permission to use him as a source for the following ideas, which substantially modify the tone and significance of the above presentation.

> **The importance of the So?taa?e in Plains History as outlined in the present paper is correct on one level, but its deeper importance has been missed because of hidden assumptions which Western linguistics holds about the nature of language itself. You have missed the important point about many native cultures around the world: there is often one type of language used for daily conversation (profane), and another kind of language used for prayer and singing (sacred), just as Europeans had their spoken languages and then Latin. We people sometimes distinguish between the medicine language of our shamans, our priestly class, and the warrior language of daily conversation. Conversational languages can vary from place to place, and those variations are geographical boundaries expressed verbally, but the ancient prayer languages like So?taa?e remained mostly unchanging. Prayer languages have a deeper medicine power than the outer conversational styles, and are more closely linked to emotions and values. Recent study has shown that South American shamans tend to know double the vocabulary of other people in various villages, although the shamans travel outside the village little; they know more because they know the sacred language and its accompanying concepts as well as the profane. You can think of the people being called So?taa?e here as more a priestly class than a social tribe. The same cultural conduit that brought the warrior horses and guns had the more important function of unifying the people on a deeper level with prayer language, smoke, peyote, music, rituals, and sign language.**

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TABLE 1

In this table are archivally-authenticated So?taa?e-Cheyenne differences from Goddard, with my added phonemicization.

meaning	*So?taa?e*	*(I-)Cheyenne*
1. dog	hōtąm /hó̱tame/	oeskasiu /oehkaseho/
(40. dog	ahó̱tąm /?ah-ó̱tame/)	
2. bear	wōpinaxkų /woopi-/	náxku /nȧ́hkohe/
5. tree	matáa /ma?taa?e/	hóotsitu /hóohteto/
22. foot	má·is /ma?ese/	matcíku /mahte?ko/
23.arm	ma ats /ma?ahte/	heats /he?ahte/
30. beaver	ąhōmái /?ah-oma?e/	homá· /homa?e/
32. elk	axmó· /?ax-mo?e/	mó·e /mo?ehe/
37. arrow	axmą́huts /?ax-maahote/	máhuts /maahote/
39. stone axe	hóoux /ho?oxe/	hůkoi /hohkoxe/
41. my daughter	nats /nahte/	naxtún /nahtona/
52. knife	mo-isó· /mo?esoo?o/	mútski /motehke/
57. badger	axmahą́-u /?ax-ma?haa?o?e/	maąxku' /ma?hahko?e/
58. bat	amusianutsionona /?a-mose?anotse?onoonahe/	
	cf., ModCh /mosehkanetsenoonahe/	
76. fingernail	amístohivo /?a-méhtoohevo/	ma'tohiv /mahtoohevo/
79. red stone	axmaininóo /?ax-ma?e-nenóo?o/	máieuxk /ma?e-he?óhko/
92. guts	avitionists /?a-ve?ceonete/	hevíkkionists /heve?keonete/
94. navel	ahístamni /?ah-ehtane/	histą́· /hehta?e/

TABLE 2

In this table, I have given specific language reflexes, where known, of PA words; where the words give little specific clues as to their origin, or where there are competing forms, those are found in the ModChey column. Note that I have at times substituted capital letters for nasalization, fricatives of debated quality, devoicing, etc.

Meaning	**PA*	*I-Ch*	*ModChey*	*So?*
				[PA *p's]
S	#p	#p	#?	#p
ashes	peNkwi	paAke		paa?e
grease	pemye		?ame	
gum	pekiwa	?ahke	?ahče	
nighthawk	pihkwa			pe?e
S (?)	#p	#t		
flute	pepikwani	tahpeno (prob. dissimilation)		
S	-p	-0	-0, -p	-p
break wind	-pekit-		-panest-	
grind	-pooxkoneeni			-pe'ena
cessation	-pooni-		- e'ne-	
err	-pat-	- oht-		
hit	-pakamee-		- oomo'-	
S	#pw,-pw		#n	
alien,enemy	#pwaaΘa		#noto	
thigh	-pwaami		-nome	

S	p	hp	hp,?	?,0
bull,buffalo	?ayaapeewa	hotoOpe		hoto'a?a,hoto'a-
die	-nepo-			-naa?e-
embrace	-apen-			-o?an-
water	nepyi	mahpe		
white	waapi	wo'Ope		woopi
	(aakem		wo'?kome	woo?ome)

S	Np	hp
up, beyond	-ompi-	-heEpe-
brain	-empi	-aApe

S	hp,sp,ʂp	?p,?,0
lung	-ohpan-	-e?pon-
above	?eʂpeme-	he?ama
arm	-ʂpetoni	-?ahte(n-)
flies up	-wespi?lee	-e e?ha
sleep with	-wiixpeem-	-ve' am-

S	p	hk	0
rabbit	waaposwa	vo'Okoohe	-vo' ohe

(poss. *p -> So? ?/0, reanalyzed in Ch as ? -> hk)

---[PA *t's]

S	#t,-t	#t,-t	#t,-t	#t,-t
autumn	takwaaki			tono'e-
night	tepeFki			ta a?e
act towards	-tootaawoo-	-te'Etovo		

S	t,Nt,Ht	ht	ht	ht
black	maHkateewi	mo?koOta'wi		mo?oOta'wi
buy	-ataawe-	-oOto'wa		
evergreen	siiNta-	se'Eto-		
ear	-htawakayali		-htovo ototе	

S	?t	?t	?t	?t
bow(-wood)	me?teekwi	ma?taAke	ma?teEke	ma?taa?e

---[PA *k's]

S	#k,-k	#h,-h	#?/0,-h	#?/0,-h
close	-kepenee-	-hahpana		
crow	kaak-kaakiwa		?o'koOke	?o'koo?e
day	kiisokwe			?e'ʂe(ne-)
dry	-kahkya			-o?o

S	k	hk	?/n/0
fox	waakwehsa	wo'Okeso	-ho' ohe
dwelling	wiiki(waami)	ve'Eke	vee?e,ve' e(ome)
axe		ho'Okoxe	(h)o'?oxe
pipe	oxpwaakan-		?e?oo?o,-nenoo?o
badger	me?Θa-akwaFkwa		ma?ha'Ako?e (?ax-)ma?haa?o?e

S	kw	hk	hk,?k,n	?/n
knee	me-ketekwa			ma-nehtane

nephew	-ΘeNkwaΘe-			-tenota
ant	eelikwa	hátehke		
fox	waakwehsa	wo'Okeso		-ho' ohe
skunk	sekaakwa	xa'Ake		xao'?o,xao'ne
S	nk	hk		?/0
ashes	peNkwi	paAke		paa?e
star	aΘaaNkwa	hoto'hke		
lie down	šinkihšine			-še eše
fall against	-paNki			-poo e-
S	hk	hk	?k	?/0
black	mahkateewi		mo?kohtawe	mo?ohtawe
cloud	wahkwi-			vo?e
grandmother	noohko-	ne'Eke-		
spoon	?eemehkwaan-	ha'meEko(n-)		
louse	-ehkomi			-a eme
press down	-tahkoskawaa-			too e ovo
S	Fk	?k	?k	?,0
path,trail	myeexkanawi			me' o?o,-ono-
blood,red	meskwi		ma?ke-	ma?e
fire	waškweteewi			ho?ehta(-ve)
beaver	ameΘkwa		homa?e	
acorn	anaaΘki-			hono'?e
women	oΘkoowaki			he?eo?o
grind	-pooxkoneeni			-pe' ena

----------[PA *?'s]

S ? ?

(many examples above; *? always remains unless forced out by another ? or n)

S #?V #hV #hV #?V,#hV

(many examples above; Ch prefers #hV and So? prefers #?V)

----------[PA *m,*n's]

S	#n..(p)	#m		#m
summer	niipen			me'aneva
water	nepyi	mahpe		
S	ny		n	
five	nyaanlan-		no'ho(n-)	
rock	?a?senyeeki		ho?honaa?e	
S	n			n/?
elbow	metoskwani			mahte?oo?o, -oono
feather	miikwan(ak)i			mee?e, me'eno
path	myeexkanawi			me'o?o, me'ono

----------[PA *l's]

S	l	t	t	
man	?ilenyiwa		hetane	
fat	wiilenwi	veta-hke	vete-hke	
S	?l	?h		?n

beard	mii?letonaa-	me'hahte(no-)	
kill	ne?le-	na?ha	
turkey	me?šii?leewa		ma?xe'?ne

S	Nl	h
name	wiiNleewa	-ve'he
nurse	nooNlaawa	-ne'ho

S	lw	s
pleasant	melwi	-mase-

---[PA *y's]

S	y	t
matter,pus	myeeyi	matse
ghosts	ciipaya	se' oto (sg=o?ote)
ear	-htawakayali	-htovootote (sg=oo?ote)

---[PA *fric's]

S	Θ	t	t	t
dog	?aΘemwa		hotame	
tobacco	Θe?Θeemaawa			te?nemoo?o

S	Θi (cy)	se	se
flies (noun)	oocyeewa(ki)	he'se(o?o)	
food	miicim-	me'se-	
from (there)	-oNcya	heso	
root (medicine)	ocyeepixkali		(h)ese'eo?otse

S	?Θ	?h		?n
daught-n-law	ne?Θema	na?hame		
brother,elder	ne?Θehsali			na?neha
enlarge	neme?Θe-kenee-		nama?haa?ana	
three,eight	ne?Fwi	na?he (3)		na?no'- (8)

S	hΘ	h		h
father	nooHΘa			ne'ho?e
ten	metaatahΘwe	mahtoOtoha		

S	s,hs	h	h	h
animal	awes-		hovahe	
arise	-pasekwiiwa			-ohaa?e
aunt	sekwihsa			-haa?e, -haahe-
elk	maskooswa		mo?e'he	
island	menehsi		manahe'-	
nest	wasye?Θanwi		vohe?so	

S	?s	?h	?h,?n	?n
Culture Hero	wii?sahkee-	ve'?ho?e (also spider, whiteman)		
fish	namee?sa	noma'?he		noma'?ne
gall	owii?sopi	heve'?hehpe		

S	ns	s

claw	-ɤ̌kanɤ̌a		-oso-
coal,ember	kaxkanɤ̌yeewi	ho?ko'se	(h)o?o'se
S	(h)ɤ̌		ɤ̌/x
duck	šiipɤ̌iipa		ɤ̌e?ɤ̌e
grandchild	nooɤ̌isema		[ne'ɤ̌e] > ne'xahe
sun	kiiɤ̌o?Θwa		e'ɤ̌e?he
two,twice	niiɤ̌wi		neɤ̌e, nexa
hole	waaɤ̌i		voxe
tail	weɤ̌ekwani		hevaxe
firewood	mehɤ̌i		maxe
S	?ɤ̌		?x
big	me?ɤ̌i		ma?xe
cross	-aa?ɤ̌e-		-o?xa'-

----------[PA *vowels]

S	e		o	o
first	ne?tame		no?tome	
rock	?a?senya	ho?hona'hke		ho?honaa?e
S	(y)a		e	
able to	mate		mesta	
pity	-ɤ̌aweelemaa-		-ɤ̌evatamo	
tailfeathers	waΘanyali		votonete	
S	i			o
jaw	-taapixkan(al)i			-to'o?o,-to'onote
root	ocyeepixkali			hese'eo?ote, -ototе

==========

TABLE 3

In this table, we find some of the sound-shift rules describing the data above in Table 2, from Proto-Algonkian to Cheyenne and So?taa?e. We are not sure exactly how long ago I-Ch and So? merged (after the famous skirmish), and are not sure yet how many sound changes were shared before they originally broke up (perhaps many of the vowel-shifts and t-creations were shared early on), but we can see that in many respects I-Ch and So? words have in recent times become closer to each other. This is especially evident in reading Rev. Petter's Dictionary forms which, gathered mostly in Oklahoma among So?taa?e, tend to show #? rather than #h (although some #h is shared with Arapaho and Nawanathinahena), as well as odd vowel-differences, fewer -k-s, more male dialect -c-s, and especially more (usu. unrecorded) glottals.

	PA -> I-Ch	*shared*	*PA -> So?*
1.	*-hk- -> hk		*-hk- -> ?/0
2.		*a -> o,a	
3.		*e -> a	
4.		*o,*i -> e	
5.	*xk,*śk -> hk		*xk,*šk -> ?
6.			*xkw -> ?
7.		*tc -> ts	
8.		*Θ -> t	
9.		*l -> t	
10.		*m -> m	
11.		*w -> w,v	

12.	*p -> hp		*p -> ?/0
13.	*VV -> V́		*VV -> VV
14.	*mp -> hp		(??)
15.	*#k -> #h		*#k -> #?/#_
16.	*k(w) -> hk		*k(w) -> ?
17.			*#-n -> ?/n alt
18.	*?l -> ?h		*?l -> ?n, ?h
19.		*nl -> h	
20.		*lw -> s	
21.		*y -> t/? alt	
22.	*Θi -> tse		*Θi -> se
23.	*?Θ -> ?h		*?Θ -> ?n
24.		*hΘ -> h	
25.		*(h)s -> h	
26.	*?s -> ?h		*?s -> ?n

Note that this table is set up to show the similarities with items 1-11 in Table 4, and after that follows the data arrangement in Table 2.

TABLE 4

In this table we find the sound-shift rules for Proto-Algonkian to Nawathinahena as described by Michelson earlier in this century, along with Nawanathinahena words and their corresponding So?taa?e equivalents. This evidence, added to Michelson's discussion, shows that while So?taa?e and Nawanathinahena are not *exactly* the same, in comparison with Cheyenne, Arapaho, and other Central-Eastern languages, So? and Naw are closer to each other than would reasonably be expected of two dialects of separate languages.

Sound Shift	*Meaning*	*Nawanathinahena*	*So?taa?e*
1. *hk -> ?	black	moxtsia /mo?ohtea-/	/mo?ohta-/
2. *a -> a,o			
3. *e -> a	nose	mais /ma-ese/	/-ese-/
	mouth	matin /matiine/	/-matene-/
	blood	mao- /ma(?)o-/	/ma?o-/
	my gr-fthr	(h)amacim /-amaseme/	/nameseme/
		(both Ch and Arapaho have -seme)	
	beaver	hamaha? /hamaha?e/	/homa?e/
	eye	masixsan /ma-sixsan/	/ma-?exan-/
	bow	ma?axta /ma?axta/	/ma?taxce/
	daughter	naxtaana- /na-htaana-/	/na-hto'na/
	ten	maxtoxtahaha /mahtohta-/	/mahtohtoha/
4. *e -> o	leg (>arm)	mo?oxts /mo?ohte/	(/ma?ahte/)
5. *-xk- -> ?	nose, beak	mais /ma-?ise/	/-?ese/
	turtle	ma'ana- /ma?ana/	/ma?eno/ ——
6. *-xkw- -> ?	woman	hihi'i /hi-hi?i/	/he?e/ ——
7. *tc -> ts	leg (>arm)	mo'oxts /mo?ohte/	/ma?ahte/ ——
8. *Θ -> t	dog	hatam /hatame/	/hotame/
9. *l -> t	man	hiten /hitene/	/hetane/
10. *m -> m	beaver	hamaha' /hamaha?e/	/homa?e,*homaha?e/
	fuel-wood	ma' /mahe/	/maxe/
	trail,road	mihiana /mihyana/	/me(y)ono-/
11. *w -> w,b	four	nyaba- /nyawa/	/newe,neve/

THE RELATIONSHIP BETWEEN MEANING AND MORPHOLOGICAL PRODUCTIVITY

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Aronoff (1976: 39) has suggested a simple relationship between meaning and productivity; he hypothesizes that a morpheme whose meaning is more easily analyzable, or "semantically coherent" in his terms, will be more productive. Citing an example from Zimmer (1964: 32), he says that the prefix non-, meaning 'not X,' is more productive than the prefixes in- or un-, which mean 'opposite to X.' That is, there are more words like non-scientific than like unscientific. Thus, in Aronoff's view, the more semantically analyzable affix is more productive.

However, historical evidence shows that the relationship between meaning and productivity is more complicated. Diachronic evidence for productivity lies in the spread of a morpheme to form new lexical items. Some derivational suffixes have become inflections, and this change implies an increase in productivity accompanied by a decrease in meaning. Good examples of derivational suffixes that later became part of the inflection occur in the history of Romance languages. The Rumanian suffixes -ez and -esc originated in the Latin -IZ-ĀRE and the inchoative -ĒSC-ERE, where -IZ- and -ĒSC- are derivational suffixes followed by the infinitive ending. These suffixes are more frequent in Rumanian than in Latin, even though they do not retain any lexical meaning. Blaylock (1975: 436) counts 680 verbs in -ĒSC- or its variants in Latin, while Lombard (1955: II.776) says that Rumanian has 2800 verbs with -esc or its variant; the modern Romance language thus has over four times as many suffixed forms as the ancient language.

Of the 2568 Rumanian verbs whose infinitives end in -a, 1737 take the suffix -ez (Lombard 1954: I.558). On the other hand, Classical Latin has only a few examples of verbs ending in -IZ-ĀRE or its variant -ISS-ĀRE, the ancestors of Rumanian -ez. In a count of all the first conjugation verbs in a Latin dictionary (Simpson 1960) containing words current from 200 BC to 100 AD, I found only three ending in -IZ-ĀRE and nine in the variant -ISS-ĀRE; one of these verbs has forms in both -IZ-ĀRE and -ISS-ĀRE. All but one are loans from Greek, and the only exception, GRAEC-ISS-Ō 'I imitate the Greeks,' is a clear calque of Greek hellēn-iz-ō, which has the same meaning. This suffix became more productive in later Latin and still more productive in Rumanian even though it lacks a clear meaning and thus is not "semantically coherent." Today, new Rumanian verbs of the first conju-

gation normally take -ez, and those of the fourth take -esc, whether their roots are Latin, Rumanian, or loans from other languages.

What is the function of these suffixes in Rumanian? A comparison of the paradigms of suffixed and non-suffixed paradigms clearly shows their function:

inf.	adresa	chema	lucra	juca	dori	dormi
	'to address'	'to call'	'to work'	'to play'	'to wish'	'to sleep'
1s	adres-ez	chem	lucr-ez	joc	dor-esc	dorm
2s	adres-ezi	chemi	lucr-ezi	joci	dor-eşti	dormi
3s	adres-ează	cheamă	lucr-ează	joacă	dor-eşte	doarme
1p	adresăm	chemăm	lucrăm	jucăm	dorim	dormim
2p	adresaţi	chemaţi	lucraţi	jucaţi	doriţi	dormiţi
3p	adres-ează	cheamă	lucr-ează	joacă	dor-esc	dorm

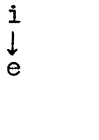
In the above paradigms, the root vowels lacking -ez or -esc undergo changes not occurring in the roots of suffixed verbs, as exemplified by adres-ează and cheam-ă, lucr-ează and joac-ă, and dor-eşt-e and doarm-e. Due to ă in the final syllable, umlaut occurs in the stressed vowel either in the root syllable, as in cheam-ă or joac-ă, or in the -ez suffix, as in adres-ez-ă or lucr-ez-ă; similarly, final e conditions umlaut in doarm-e but not in the root-vowel of dor-eşt-e. Changes in the root-vowel due to umlaut are thus absorbed by the suffix.

In addition to umlaut, another phonological alternation occurs between stressed and unstressed vowels, as in the paradigm of juca, where root-stressed forms like joc have o and ending-stressed forms like juc-ăm have u in the root. This alternation of stressed and unstressed root vowels does not occur in verbs having a stressed suffix after a root lacking a stressed ending, as in the verb lucra, which keeps u both in lucr-éz and lucr-ăm, corresponding to joc and juc-ăm respectively. Thus, a second kind of vowel alternation is avoided in the root syllable by the addition of a suffix.

Finally, there is a consonantal alternation, palatalization, that occurs in roots lacking -ez or -esc. Thus, joc [ʒok] ends in a velar, but joci [ʒotʃI] has a root ending in a palatal because the velar has assimilated to the following ending.

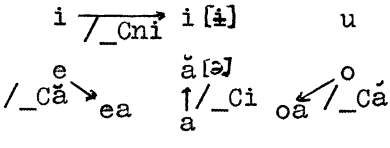
As shown above, three kinds of alternation of the root--stressed vs. unstressed vowels, umlaut, and palatalization--are avoided with the -ez or -esc suffix, and this is the paradigmatic function of these suffixes. Let us observe these alternations in greater detail. The most widespread variants are between stressed and unstressed vowels in the paradigm. Stressed i varies with unstressed e, as in vin 'I come' and venim 'we come.' Stressed î

before n and stressed a elsewhere vary with unstressed ă, as in rămîn 'I remain,' rămás 'remained,' and rămăseí 'I remained. Stressed a varies with unstressed ă, as in tac 'I am silent' and tăcém 'we are silent.' Finally, stressed o may correspond to unstressed u, as in joc 'I play' and jucăm 'we play.' The following diagram summarizes changes from stressed to unstressed vowels with arrows pointing toward the unstressed vowel:



When unstressed, the front high vowel is lowered to mid, the central high and low vowels become mid, and the back mid vowel is raised.

Umlaut is easier to describe because it changes a vowel in the direction of a word-final vowel in the following syllable (Graur 1966: I.48-9). Thus, a is raised to ă before a consonant plus i, as in arăţi 'you (sg.) show,' which contrasts with arată 'he, she, it/they show.' The monophthong e becomes the diphthong ea and o becomes oa before -Că as in cheamă 'he, she, it/they call' and doarme 'he, she, it sleeps.' Finally, î becomes i before -nCi as in vînd 'I sell' compared with vinzi 'you (sg.) sell.' The diagram below presents the pattern of umlaut of the stressed vowel of the verb:



Another easily described change is consonantal palatalization, especially before i (Graur 1966: I.48-9). Thus, t becomes ţ [ts], d becomes z, s becomes ş [ʃ], c [k] becomes c [tʃ], and g [g] becomes g [dʒ] before i and often before e. We can observe consonantal palatalization in the following pairs of forms:

ajut 'I help'	ajuţi 'you (sg.) help'
aud 'I hear'	auzi 'you (sg.) hear'
ies 'I go out'	ieşi 'you (sg.) go out'
joc 'I play'	joci 'you (sg.) play'
rog 'I ask'	rogi 'you (sg.) ask'

Some consonant clusters undergo palatalization; [sk] becomes [ʃt] before i and e, as exemplified by cunosc 'I know,' cunoşti 'you know,' and cunoaşte 'to know.'

Similarly, [st] becomes [ʃt] before i as in exist 'I exist' and existi 'you (sg.) exist.'

The interplay of stress, umlaut, and consonantal palatalization results in a complicated paradigm. Simplification is considerable when a single suffix absorbs these changes, as shown by the following list of simple endings, post-root suffixes plus endings, and alternations undergone by non-suffixed roots (Graur 1966: I.253):

I (-a conjugation)			IV (-i conjugation)		
--	-ez		--	-esc	
-i	-ezi	palatalization	-i	-eşti	palatalization
-ă	-ează	umlaut	-e	-eşte	palatalization
-ăm	-ăm	stress change	-im	-im	stress change
-aţi	-aţi	stress change	-iţi	-iţi	stress change
-ă	-ează	umlaut	--	-esc	

The alternations listed above do not occur in the root of the suffixed verb but are absorbed or neutralized by the suffix itself.

It is not hard to find other suffixes in Rumanian that protect the root but have no meaning of their own and are still quite productive. For example, many onomatopoeic verbs have the suffix -ăn- or -ot- after the root and before the inflectional ending. These suffixes signal the onomatopoeic meaning of the root and in some cases prevent palatalization of the root-final consonant. The following verbs are from Lombard (1955: II.789-90) and are followed by the onomatopoeia from which they are derived:

boc-ăn-i 'to knock' boc	groh-ot-i 'to grunt' groh
ţăc-ăn-i 'to click' ţac	hropot-i 'to snore' hropot
trănc-ăn-i 'to prattle' tranc	
crănţ-ăn-i 'to crunch' cranţ	
foş-n-i 'to rustle' foş	

Although -ăn- and -ot- have no lexical meaning, they play an indirect roll in the semantics of the verbs by signaling onomatopoeia and by protecting the form of the sound-symbolic root.

As well as preserving the form and meaning of a root, a suffix may also regularize a paradigm. Such a suffix may be in a suffix-chain ending in a regular paradigmatic conjugation or declension. For example, the intensive or frequentative suffix is -IT-ĂRE, -T-ĂRE, or simply -ĂRE attached to a non-first-conjugation past participle. The resulting verb is in the first conjugation, the most regular in Latin and Romance; this conjugation is termed "regular" because it is of high frequency and the different forms are predictable. The suffix may have the intensive meaning 'vigorously, with intensity,' the

frequentative sense 'often, repeatedly,' or no meaning at all, as in the following examples (Simpson 1960):

intensive: AUCT-IT-ĀRE (<AUG-ĒRE 'increase') 'increase very much'
frequentative: ACCŪS-IT-ĀRE (<ACCŪS-ĀRE 'accuse') 'accuse often'
Ø-meaning: ADNŪ-T-ĀRE (<ADNU-ERE 'nod to') 'nod to'

Sometimes, a verb with a meaningless suffix will give rise to a double derivative, as in CAN-Ō 'I sing,' CAN-T-Ō 'I sing,' and CAN-T-IT-Ō 'I sing repeatedly.' In the verb CAN-T-ĀRE, the intensive-frequentative simply provides a more regular conjugation, as shown by the following comparison:

CAN-Ō 'I sing,' CAN-ERE 'to sing,' CECIN-Ī 'I sang,' CAN-TUS 'sang'
CANT-Ō 'I sing,' CANT-ĀRE 'to sing,' CANT-ĀVĪ 'I sang,' CANT-ĀTUS 'sang'
AM-Ō 'I love,' AM-ĀRE 'to love,' AM-ĀVĪ 'I loved,' AM-ĀTUS 'loved'

The perfect CECIN-Ī with its reduplication and vowel change is not predictable from the present, because only a few verbs have such perfects. It is also impossible to form the past participle of -ERE verbs by a single consistent rule. On the other hand, CANT-ĀRE is perfectly regular with its perfect formed by adding -ĀVĪ and the past participle formed by adding -ĀTUS. Since CANT-ĀRE does not differ in meaning from CAN-ERE, this regularization in form mush be an important motivation for the intensive-frequentative. Furthermore, it is such derivatives that survive in modern Romance, so that Spanish has cantar derived from CANTĀRE but no verb derived from the third conjugation CANERE. Other Romance languages show the same preference, as exemplified by French chanter, Italian cantare, and Rumanian cînta, which all mean 'to sing.'

The fact that Latin itself used the intensive-frequentative to simplify the conjugation is supported by Latin morphology as well as by the historical and semantic evidence mentioned above. Although -ĀRE verbs are by far the most numerous in Latin, they are not the majority of verbs supplying input for the formation of intensive-frequentatives, which are derived from 41 -ĀRE verbs, 16 -ĒRE verbs, 117 -ERE verbs, and 12 -ĪRE verbs. The great majority of verbs are from the third conjugation, which is the most irregular in the formation of its principal parts. Verbs derived from the more regular first, second, and fourth conjugations are less frequent. In addition, seven of the 41 verbs with -ĀRE infinitives are

really examples of an unusual mixed conjugation, where the perfect and the perfect passive participle are not formed with -ĀVI and -ĀTUS; for instance, the principal parts of CREPĀRE 'to make noise' contrast with those of AMĀRE 'to make love:'

CREP-Ō, CREP-ĀRE, CREP-UĪ, CREP-ITUS
AM-Ō, AM-ĀRE, AM-ĀVĪ, AM-ĀTUS

Is the intensive-frequentative suffix the only one to play the role of a meaningless verb regularizer in Latin? By no means! Latin suffix-chains ending in -ĀRE include -IC-ĀRE, -NT-ĀRE, and -IDI-ĀRE/-IZ-ĀRE(-ISS-ĀRE) as well as others (Menéndez Pidal 1958: 328-9). These were used to form new denominative verbs in addition to deriving first conjugation verbs from those of less regular conjugations. In modern Romance, -IC-ĀRE is no longer productive, but it clearly once was so in Latin, as shown by traces in modern languages like the following (Menéndez Pidal 1958: 328):

cabal-g-ar 'to mount; parade on horseback' < CABALL-US 'pack-horse'
mas-c-ar 'to chew' < MAST-IC-ĀRE 'to chew' (post-classical)
< MAND-Ō, -ERE, MAND-Ī, MANS-US 'chew'

The suffix-chain -NT-ĀRE was derived from the present participle to form factitives; the only Classical Latin example is PRAESENT-ĀRE 'to present,' but Vulgar Latin used the suffix much more, as illustrated by (Menéndez Pidal 1958: 328):

a-crec-e-nt-ar 'to increase' < CRĒSC-Ō 'I grow'
a-pac-e-nt-ar 'to feed cattle' < PĀSC-Ō 'I feed, I lead to pasture'

A third example is the Vulgar Latin -IDI-ĀRE and its learned variant -IZ-ĀRE. As mentioned in our earlier discussion of Rumanian, this suffix originally entered Latin with a few Greek loans (Menéndez Pidal 1958: 328). Other examples of suffix chains that form or regularize verbs are Vulgar Latin -IDI-ĀRE and its learned variant -IZ-ĀRE. The suffix chain -IDI-ĀRE developed into -ear, the most common derivational suffix for Spanish verbs today. Sometimes -ear has no meaning at all, not even differential meaning, so that color-ar and color-ear both mean 'to dye, to color.' There may also be non-systematic differences in meaning, as in pas-ar 'to pass' and pas-ear 'to walk' or plant-ar 'to plant' and plant-ear 'to plan.' New verbs with this suffix have arisen throughout the history of Spanish, as illustrated by the following examples (Menéndez Pidal 1958: 328): blanqu-ear 'to bleach,'

guerr-ear 'to wage war,' cañon-ear 'to cannonade,' and telefon-ear 'to telephone.' Literary and ecclesiastical Latin have a more learned form of this suffix--that is, -IZ-ĀRE, which becomes -izar in Spanish. Examples of verbs with this suffix-chain are (Menéndez Pidal 1958: 328-9): baut-izar 'to baptize,' latin-izar 'to give words a Latin ending,' español-izar 'to make Spanish,' colon-izar 'to colonize,' and autor-izar 'to authorize.' Thus, the spread of the intensive-frequentative suffix to form more first conjugation verbs is not an isolated phenomenon but is part of a general trend--a morphological conspiracy to produce more first conjugation verbs.

There are still other segments or syllables that have lost, or never had, meaning but retain their productivity. Such is the usual status of anti-hiatic consonants and syllables. For instance, there is no meaning that can be attributed to French -t- in the noun cafe-t-ière 'coffee pot' or the infinitive numéro-t-er 'to number' (Nyrop 1908: III.54-61). On the other hand, the same segment may be traced back to the third person singular inflectional ending in Latin when it appears in French parle-t-il 'does he speak' and parle-t-elle 'does she speak.'

Is it possible to reconcile Aronoff's claim about the simple relationship of productivity to meaning with our knowledge about the historical development of inchoative, intensive-frequentative, and other suffixes in Latin and Romance? Reconciliation is possible if we extend his claim. In the examples discussed in this paper, productivity is related not to the meaning of the affix itself but to that of the preceding root. Keeping the root in a simple and unvarying form preserves the association of the root with its meaning and with other derived forms. Thus, productivity can be related to the meaning of a morpheme or to the form and meaning of a root protected from change by the morpheme, which may lose its meaning.

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Tongass Tlingit and Na-Dene

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Michael Krauss in a 1973 circular letter, cited by Pinnow (1976:19), is perhaps the first scholar in possession of our modern understanding of Tlingit to make known the extraordinary importance of the Tongass dialect to all of Tlingit studies. However, given Krauss's known demurrer on the genetic affiliation of Tlingit to Athabaskan-Eyak, and in the absence of a satisfactory set of cognate stems, one could scarcely expect him, being a prudent man, to exploit this knowledge immediately for purposes of Na-Dene comparisons. In mentioning Na-Dene I exclude Haida, which has as yet not been shown to share more than a few random traits typical of areal diffusion.

We turn first to the consonants. Boas (1917:9-10) trichotomized the non-continuants as "surd", "sonant", and "fortis"; the surds are stated to be strongly aspirated, while the fortes are described as what we would call glottalized. Leer (1978:7) and the modern Tlingit grammarians more adequately label these, respectively, "aspirated", "plain", and "glottalized". The consonants then are

Obstruents:									
Non-continuant:									
Plain	d	dz	j	dl	g	gw	g̲	g̲w	ʔ
Asp.	t	ts	ch	tl	k	kw	k̲	k̲w	
Glott.	t'	ts'	ch'	tl'	k'	k'w	k̲'	k̲'w	
Continuant:									
Plain		s	sh	l	x	xw	x̲	x̲w	h
Glott.		s'		l'	x'	x'w	x̲'	x̲'w	
Non-obstruents	n		y		r	w			

I have departed in the above in some minor particulars from the standardized orthography as tabulated by Leer, chiefly by writing ʔ for the standard period (full-stop) sign and r for y̲ or ɣ. It should be noted that [+continuant] implies [-voice], while [-continuant, plain] may entail [+voice].

We may immediately observe that ʔ and h can be associated not only with the "plain" category, on the basis of their [±continuant] characterization, but also with the glott. and asp. series on the basis of the characterizing features of these latter.

The absence of labials and of continuants with front articulation will be immediately noticed; other dialects of Tlingit merge the asymmetric r [ɻ] with y and w. Beyond this we need not here dwell further on the consonantal phonetics.

Tlingit, generally, distinguishes long and short vowels and has high and low toned syllables; but Tongass shows instead of tone distinctively different modified varieties of length. What is most striking and important (Krauss apud Pinnow 1976:19 and Leer 1978:5) is that while Tongass has a separate but simple phonetic match for general Tlingit low tone, it has two non-predictable kinds of length for general Tlingit high tone. That is, àa matches Tongass [a·h] finally, [a·ʰ] before obstruents, and [á·] before non-obstruents; but áa matches both sustained [a:] and clipped [á·ʔ]. Krauss has since reported (in press) that Leer now finds in the Heinyaa dialect two distinctive high tones corresponding to Tongass sustained and clipped, but this will alter neither the argument that follows nor the essentiality of the Tongass phonetics for our conclusion.

Leer has described (1978:10) the Tongass vowels as short (V), long sustained (VV·), long clipped (VV'), and long fading (VV`). From his verbal descriptions VV' may clearly be represented as [V·ʔ], and the fade of VV` by [ʰ]; we then have for these four [V], [V:], [V·ʔ], and [V·ʰ]. If now we interpret these distinctions in terms of features, the four Tlingit qualities in their four length-types can be accomodated as follows:

	i	e	a	u	V·h	V·ʔ	V:
[front]	+	+	-	?			
[low]	-	+	+?	?			
[round]	-	-	-	+			
[tense]	-	-	-	-	+	+	+
[asp]					+	-	-
[glott]					-	+	-

It is immediately apparent that we have gained two sorts of clarity in such a feature analysis. We now have not simply three sorts of long vowel; there are instead those marked [asp], those [glott] and then the neutral variety. Secondly, we see that our syllabic analysis will suffice also to account for important consonantal phonetic distinctions. That is, t' etc. may be related to V·ʔ as [-asp, +glott], t etc. to V·ʰ as [+asp, -glott], and d etc. to V: as [-asp, -glott]. In other words, we have reached a much more general set of phonetic primes for the system. We shall see too that they are ultimately much more explanatory.

Leer has already perceptively put these vowel nuclei into relation with the Eyak, which Krauss has shown to be in exact correspondence with Athabaskan syllables. Leer makes the following

equations: Tong. V = Eyak V, Tong. V` = Ey. Vh, Tong. V' = Ey. V$^{?}$, Tong. V· = Ey. V·; only Ey. V·$^{?}$ fails to find a match. Is the last secondary or an archaic retention? Leer also offers (loc.cit.) equations for the Tongass lengths with the Heinyaa-Saanyaa tones. The structural equivalence of Tongass and Eyak discovered by Leer is unmistakable, and if we re-express these nuclei in terms of the feature analysis I have suggested above we see that we simply arrive at the following tautological (identical) set: [-length], [+asp, -glott], [-asp, +glott], [+length, -asp, -glott], respectively. One suspects then that Ey. V·$^{?}$ may be a secondary development. We may now abbreviate the last set which we have derived as *V, Vh, V$^{?}$, V: --We write these with an asterisk in case we wish to view these captions not just as an isomorphous set of typological equivalences but as a series of structurally related contrastive phones of a parent language, i.e. of Na-Dene.

I speak here of "viewing" these as reconstructions because as yet these correspondences are not observed in and extracted from matching descendants of common morphs. Krauss has remarked on (see Pinnow 1976:70,89) the vast divergence of Athabaskan-Eyak and Tlingit stems while demonstrating the closeness of their prefixes, i.e. the grammars are comparable but the lexica seem not. However, more recently Krauss (in press) seems at last more hopeful for a genetic lexical relation. I would suggest here that we may have the sort of lexical loss within a genetic relation that I have tried to show (1970) for the affixal grammar of the Altaic numerals. Additionally, from the geographic separation of Tongass and Eyak Leer has urged a very persuasive argument (1978:9) for their joint preservation of a conservative Na-Dene system of nuclei.

Following this line of thought and on the basis of the above feature analysis and tentative reconstruction, we may go one step further. If the nuclei written above as *V, Vh, V$^{?}$, V: are regarded (with the optional exception of *V:) as sequences of proto-phonemes then we may say that any *V had the privilege of being followed by *h or *$^{?}$. Similarly, t' etc. may be regarded as *t$^{?}$, and t etc. as *th, and s' etc. as *s$^{?}$; it would not be surprising for an original spirant + *h simply to have absorbed any *h. Na-Dene would then have had the simple phonotactic structure *vowel ≈ obstruent ± h/$^{?}$. The Na-Dene obstruent segments may then have been distinguished simply for [±continuant].

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Early Bantu Population Movements and Iron Metallurgy: The Linguistic Evidence

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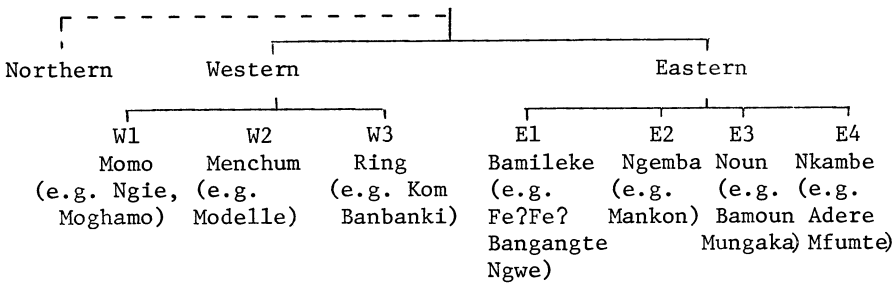
1. Introduction

Although Bantu languages are spoken over a vast geographical area covering most of subequatorial Africa, they are closely related to each other thus indicating a relatively recent spread. Archaeologists estimated that the spread of Bantu populations started some 2500 years ago.

Where was the homeland of Proto-Bantu speakers located? Why was their expansion so successful? Which migratory routes did they follow? The purpose of this paper is to present new data from a group of languages located in the area which has been suggested as the homeland area of Proto-Bantu speakers. These data will be used to evaluate answers which have been proposed for the last two questions.

2. The Proto-homeland

One of Greenberg's main achievements in his monumental work on classification of the languages of Africa was to realize that the group of Bantu languages was not a linguistic family by itself as was previously believed but rather that all these closely related languages were a sub-branch of the Benue-Congo branch of Niger-Congo. He suggested that the original homeland of Proto-Bantu speakers was located in the northwest of the Bantu area, approximately around the present-day Cameroon-Nigerian border, since it is there that the linguistic diversity is the greatest.[1] Languages located in this area used to be called Semi-Bantu because it was believed that the Bantu features found in these languages were due to borrowing; Greenberg[2] however, classified them as Bantu. Subsequent work in the area clearly established that he was correct and that all these languages which are now called the Grassfields Bantu languages are in fact genetically related to Bantu.[3,4] A preliminary classification of these languages is presented below and their geographical distribution is shown in Map 1.



3. Iron metallurgy

The success and the efficiency of the Bantu expansion has been attributed to or associated with the knowledge of iron metallurgy. It is assumed that such knowledge would have made the Bantu better farmers, better hunters and better warriors thus allowing a fast and successful spread. An impressive amount of archaeological research has been carried out in the eastern and southern parts of the Bantu area (especially in Kenya, Tanzania, Zimbabwe and Zambia). Radiocarbon dates obtained from these sites suggest a spread of the Bantu populations closely in agreement with the population movements derived from lexicostatistic studies.[5] Unfortunately archaeological data are not as common for the western zone in general and are quasi non-existent for the Proto-homeland area. It is then impossible to tell, on archaeological grounds, whether Proto-Bantu speakers knew about iron technology when they first left their homeland. However we have reasons to believe that the iron industry[6] which is still practiced today in the Grassfields area is in fact a very old one. First, the dimension of the slag heaps found at certain sites especially in Babungo give an approximate idea of how long the smelting furnaces have been used. Second, oral tradition indicates that the ancestors of some of the people who currently live in the Grassfields area learned iron working techniques from other tribes established in the area some twenty generations ago - that is approximately 300 to 500 years ago (Jeffreys (1961)). More interestingly, Jeffreys found some pieces of iron slag too big to have been produced by the smelting furnaces currently found. This suggests that larger furnaces were used in the Grassfields in a more remote past. It should be pointed out that furnaces of this size were still used until very recently by various tribes located in the Eastern Bantu area such as the Haya (Schmidt (1978), Schmidt and Avery (1978)) and the Fipa (Greig (1937)). Obviously the arguments we just presented are not very conclusive and do not allow us to draw any conclusions for the period corresponding to the first Bantu population movements some 2500 years ago. Let us now turn to the linguistic evidence. Maps 2, 3 and 4 show the distribution of the various roots which have been reconstructed for axe, hoe and spear respectively in Proto-Grassfields. Let us now compare these reconstructions with corresponding Proto-Bantu forms (from Guthrie (1967 1971):

	Proto-Grassfields Bantu (PGB)	Proto-Bantu (PG)
'axe'	tím	témò
'axe'	jàm	jèmbè
'hoe'	sók	cúkà
'spear'	kòŋ	gòŋgá

Since Guthrie's reconstructions were arrived at without taking into account the Grassfields languages, these data suggest that Bantu speakers knew about axes, hoes and spears when they left the Grassfields area. If we now consider words more closely associated with iron technology[7] such as 'smith/smithy' PGB *làm, iron-slag[8] PGB *yite and iron-ore PGB *sa, we are faced with a different problem:

corresponding forms cannot be found in other Bantu languages. In summary it seems that correspondances between Proto-Grassfields Bantu reconstructions and Proto-Bantu as reconstructed by Guthrie can only be established for items which are not specifically related to iron technology. 'Axe', 'Hoe' and 'Spear' could have been made out of wood and stone at the time Proto-Bantu speakers left their original homeland. When items more specifically related to iron technology are considered, correspondances with Guthrie's Proto-Bantu forms cannot be established. This suggests that when Proto-Bantu speakers left the Grassfields area some 2500 years ago, they did not know about iron technology.

4. Migratory routes

Phillipson (1977a,b) suggests that Proto-Bantu speakers left their homeland in two directions: a southward route through the equatorial forest and an eastward route through the savannah, north of the equatorial forest (see Map 5). Maps 6, 7 and 8 show the distribution of the PB roots for 'axe', 'hoe' and 'spear' discussed in the previous paragraph. The fact that *jèmbè and *cʊ́kà have cognates in PGB but are otherwise restricted to the eastern part of the Bantu zone strongly supports the existence of the eastward route north of the forest as proposed by Phillipson. The distribution of the gòŋgá root can be interpreted as supporting the southward route although borrowing due to geographical proximity cannot be discarded here as easily as in the two previous cases.

5. Conclusion

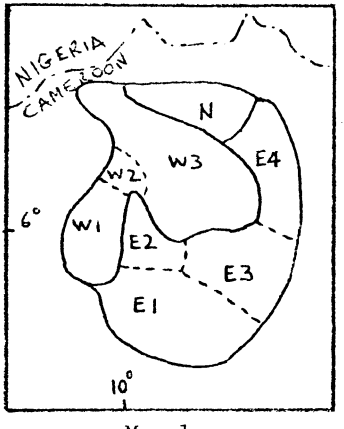
Linguistic reconstructions of lexical items related to iron techonology in the languages of the Cameroonian Grassfields suggest that speakers of Proto-Bantu probably did not know about iron technology when they left their homeland. However the distribution of certain items associated with tools which were probably made out of stone and wood during these early migrations is consistent with the claim that two migratory routes were used: an eastward route north of the equatorial forest and a southward route through the forest.

Acknowledgements

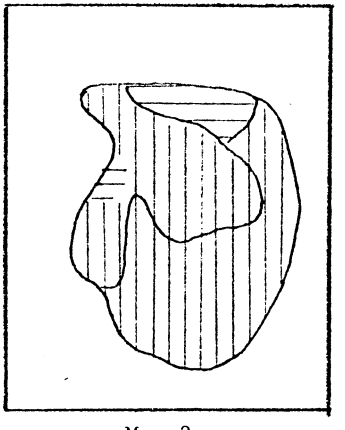
I would like to thank the members of the Grassfields Bantu Working Group for their help and suggestions on this project. This research was partially funded by a NSF grant.

Footnotes

1. Guthrie (1962b) proposed that the Proto-Bantu homeland was located south of the equatorial forest, about halfway between the two coasts. Recent lexicostatistic studies however (Coupez, Evrard and Vansina (1975) Heine (1973), Henrizi (1973)) support Greenberg's position.
2. See for instance, Dunstan (1966), Hyman (1972) and Voorhoeve (1963).
3. A complete classification and Proto-Grassfields Bantu lexical reconstructions are currently being prepared by members of the Grassfields Bantu Working Group.
4. Since the exact relationship of the Northern languages with the Eastern and Western languages is not completely clear, this group



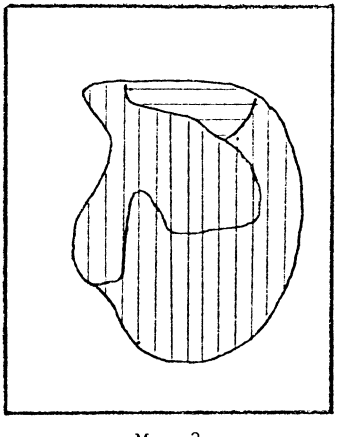
Map 1
Distribution of the
Crassfields Bantu Languages



Map 2
Distribution of 'axe'

tím

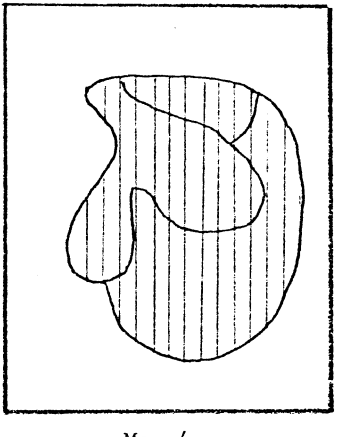
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Map 3
Distribution of 'hoe'

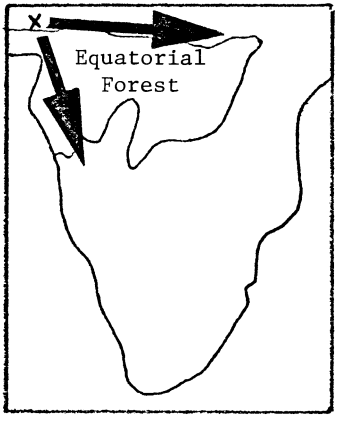
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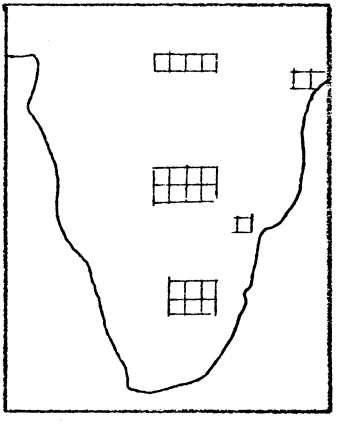


Map 4
Distribution of 'spear'

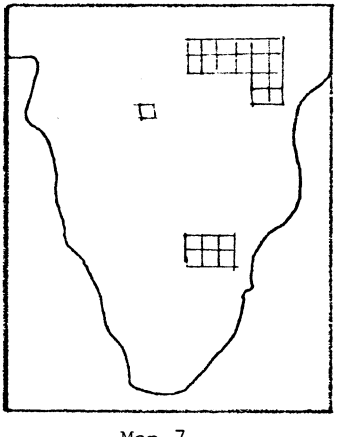
kòŋ



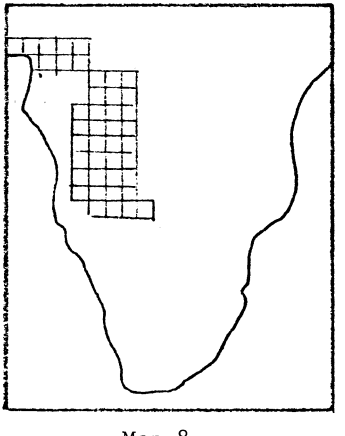
Map 5
Early Bantu Migratory Routes



Map 6
Distribution of 'axe'
*jèmbè



Map 7
Distribution of 'hoe'
*cu̍kà



Map 8
Distribution of 'spear'
*goŋ̀gá

has been connected with a dotted line to the other two groups.
5. See for instance, Phillipson's work.
6. Although smelting has been progressively abandoned in the last fifty years, smithing is still very common especially in the Ndop plain area.
7. The word 'iron' itself has two roots: *kás found in Ring languages and *tén found elsewhere in Grassfields Bantu. These two roots are probably cognates with PB *gèdà (although the tone correspondence is irregular) and PB *tádè. But as it was shown by de Maret and Nsuka (1977) it is not clear that the original meaning of these stems was 'iron'.
8. Because of insufficient data we were not able to reconstruct the tone of 'iron-slag' or 'iron-ore'.

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Language Death in the Valley of Puebla:

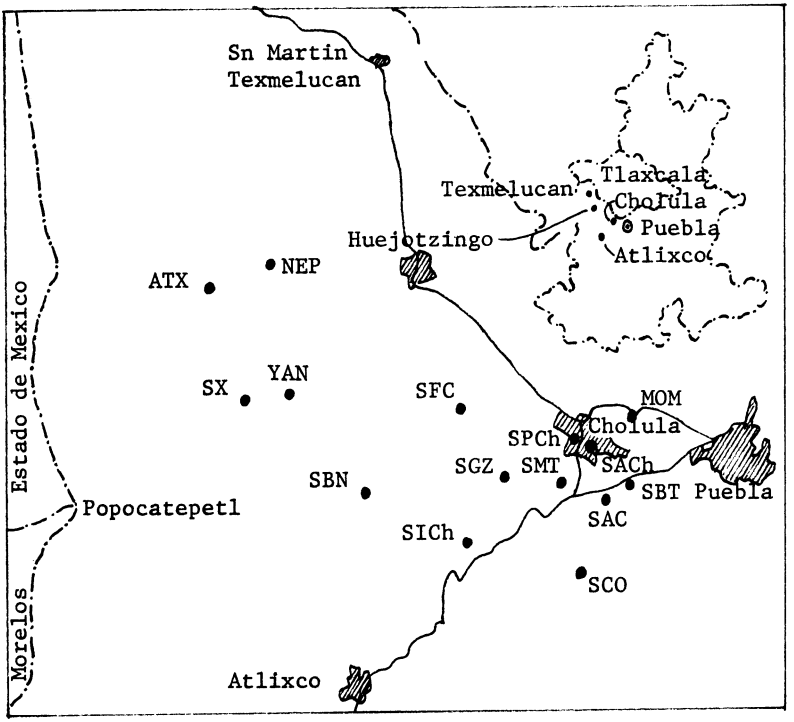
A Socio-Geographic Approach

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The Valley of Puebla in the Mexican central highlands is an area where Aztec has been spoken since before the conquest. Within the last seventy five years the language has been undergoing rapid replacement by Spanish due to changing social and economic relationships in the region. The area under study extends from the city of Puebla in the East to the snow-capped volcanoes, Popocatepetl and Iztaccihuatl, in the West. The city of Atlixco is on the southern boundary of the area and the town of San Martin Texmelucan is the northern most town in the area. (See map) These relationships between Spanish speaking centers of Puebla and Cholula and the indigenous communities define communication networks in the region. We will argue that the process of language replacement and its ultimate end, language death, are the result of changing relationships between the capitalist national economy of Mexico and indigenous communities. We propose to show this relationship by means of concrete social, economic and linguistic patterns throughout the area rather than through such ephemeral things as language attitudes, prestige, identification and solidarity that other investigators consider essential (Hill and Hill, 1978:153). Language prestige, solidarity and the like are the result of changing social and economic patterns rather than vice versa, and in no way constitute an adequate explanation for the phenomena involved in the process of language death.

1 Language Death, which we will take to be the complete and total replacement of one language by another as a vehicle of everyday face to face communication within a particular speech community, is the final stage in the process of language replacement. We recognise four other stages in this process that are defined by changing language functions within the community and are characterized by differing mixes of three types of linguistic competence. In communities undergoing the process of language replacement, it is possible to distinguish fluent speakers of the language undergoing replacement from the semi-speakers of the language (Dorian, 1977) who follow the receptive norms of fluent speakers but not the productive ones (Dorian, 1978:606). Rememberers, who have perhaps some limited productive capacity in the language with a relatively greater



Map 1. The towns included in this are: Atexcac (ATX), Santiago Xalitzintla (SX), Nepopoalco (NEP), Yancuitlalpan (YAN), Santa Buenaventura Nealtican (SBN), San Francisco Coapan (SFC), Santa Isabel Cholula (SICh), San Gregorio Zacapechpan (SGZ), San Pedro Cholula (SPCh), Santa Maria Tonantzintla (SMAT), Momoxpan (MOM), San Andreas Cholula (SACh), San Bernadino Tlaxcalantzingo (SBT), San Antonio Cacaloltepec (SAC), and Santa Clara Ocoyucan (SCO).

passive understanding of the language, constitute the third type of competence encountered. Language form is undeniably altered in the process of language replacement. (Dorian, 1973, 1977a, 1977b, 1978; Hill, 1973, Hill and Hill, 1977, 1978; Dressler, 1972, etc.) Simplification of language form is characterized in terms of lexical, phonological, morphological and syntactic indices which together form the index of language attrition.

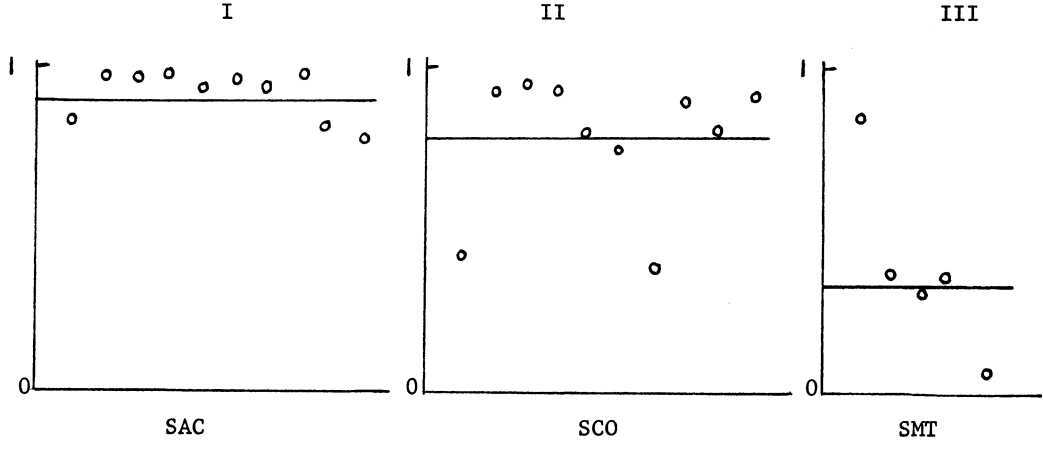
Language replacement in the Valley of Puebla appears to be a fairly regular process. Both the rate of change and the features characteristic of each stage of language replacement are constant in the area. Alterations of language form are the result

of two distinct types of phenomena. First of all, there is the decreasing language function due to fewer competent speakers and restricted contexts of use. Second, there is human memory capacity which in the final stages becomes crucial. Initially, memory is only reflected in minor variations but in the final stages of replacement it can account for major reorganizations of the linguistic system itself.

Changing language functions within the community are the basis for defining the four stages in this process of language replacement. The first stage in this process is that of a viable language but with a reduced function. This is the situation where the majority of children still learn the language as a first language or at least learn it along with Spanish due to the presence of fluent Aztec speakers in the household. Aztec is a household language at this time with little use outside the home. Models for formal speech genre at this stage have for the most part fallen into disuse and thus children no longer learn the most complex forms of speech. The second stage in the process of language replacement is where the majority of speakers are thirty years of age or over. The few younger speakers are generally what Dorian has termed semi-speakers. At this stage, Aztec functions alongside Spanish as a limited household language in those homes where it is still spoken. The third stage in this process in where less than ten per cent of the population still speaks the language with any degree of fluency and the majority of these individuals are fifty years of age or over. At this stage Aztec no longer functions as a household language and must be considered moribund. The few younger speakers are generally semi-speakers and children fail to learn the language. Though there may remain one or two households where Aztec is still spoken in a community, this is below the critical mass necessary to maintain the language. The fourth stage in the process is where there are no longer any fluent speakers left, yet there are some individuals who could be considered rememberers. At this stage the language must be considered effectively dead despite the fact that there are some individuals with a minimal command of the language.

Each of the four stages can be characterized in terms of a distinct mix of the three types of linguistic competence. Graph 1 represents the lexical index for ten speakers from the town of San Antonio Cacaloltepec. The lexical index is determined on the basis of the proportion of 268 verbs retained by each speaker. Each speaker is requested to give both the Aztec and Spanish equivalent of each verb and only when the speaker was unable to supply a gloss from Aztec to Spanish and from Spanish to Aztec could the form be discounted. Borrowings were accepted as adequate equivalents, as once a borrowing is incorporated into Aztec it takes all the normal Aztec inflectional morphology. Graph 2 is of ten speakers from the town of Santa Clara Ocoyucan, which is at the

second stage of the process of language replacement (2). Over half of the speakers show a decrease in the lexical index with the two semi-speakers showing over a fifty per cent decrease in the lexical index (3). Graph 3 is of the lexical index of five individuals from the town of Santa Maria Tonantzintla. Here only one individual could be considered a semi-speaker with over a third of the inventory. The individual who was able to recall only 16 verbs must be considered a rememberer. At the fourth stage in the process it is only possible to find rememberers. The mean index of each aspect of the language form measured which is the result of the mix of competencies at each stage in the process, constitutes an adequate representation of the process of language replacement at each stage.

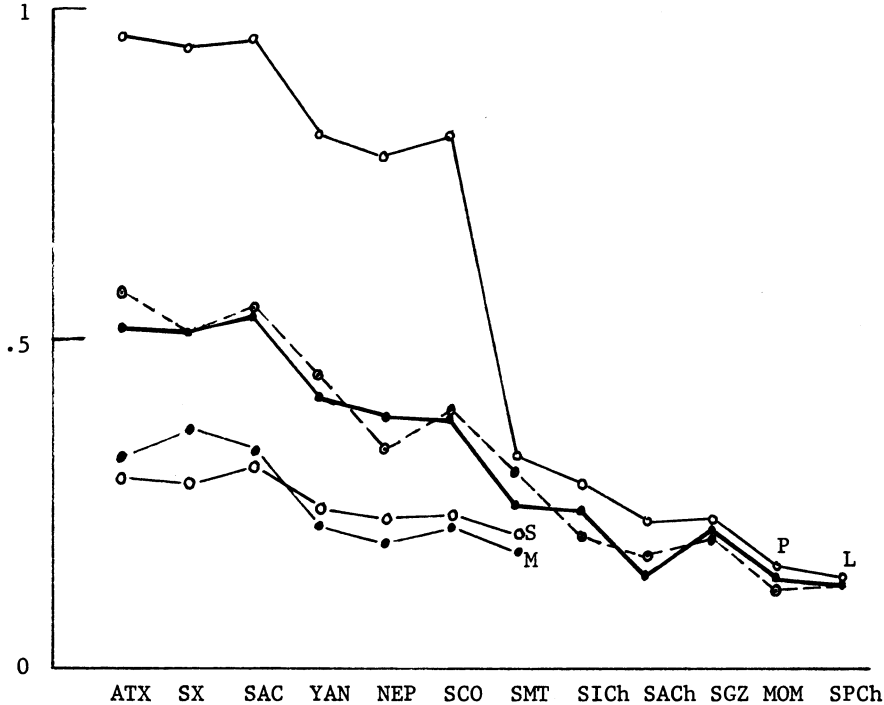


Graphs 1, 2 and 3 depict the lexical index for speakers, semi-speakers and rememberers from the towns of San Antonio Cacaloltepec (SAC), Santa Clara Ocoyucan (SCO) and Santa Maria Tonantzintla (SMT) respectively.

The four indices reflect lexical, morphological, syntactic and phonological aspects of simplification. These indices are based on the decline in the use of discrete features as well as the rate of success or failure of the application of specific rules (4). The nature of the lexical index has already been treated. The phonological index is based on the rate of success in the application of three vowel elision rules involving the formation of possessives and reflexives. The morphological index is based

on the decline in the rate of use in a discourse sample of derivational morphology; specifically the causative, applicative and verbal noun derivations. The syntactic index reflects the decline in the use of subordinate clauses with Aztec heads in the same discourse samples. In cases where the state of language decay did not permit the collection of a discourse sample, the morphological and syntactic indices were not counted in figuring the mean index of attrition.

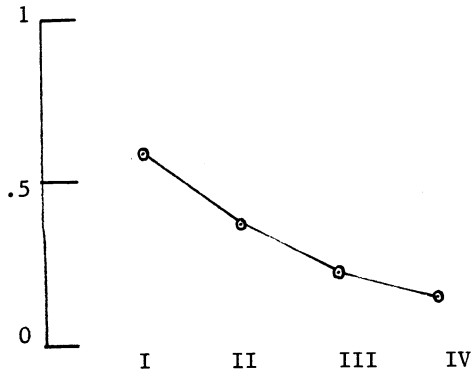
The mean lexical, phonological, syntactic and morphological indices for three communities at each of the four stages in the process of language replacement are represented on Graph 4 along with the mean index of attrition. The mean index of attrition shows less variation within the stages than between the stages. From this we have calculated the rate of replacement on Graph 5 for the purposes of this paper we estimate twenty to thirty years as the duration of each stage, or approximately one generation.



GRAPH IV

Graph 4 is a representation of the mean Lexical (L), Phonological (P), Morphological (M) and Syntactic (S) indices as well as the index of attrition which is the heavy line.

Although the rate of replacement is but a crude approximation of the process, it does provide us with a curve from which we can extrapolate in order to determine the degree of language attrition in a community indergoing the process of language replacement. Despite the inherent inter- and intra-speaker variability (Swadesh, 1948) in this process there is a certain degree of regularity at the level of community in the Valley of Puebla. With this in mind we have calculated the degree of replacement from the onset of the process for the fifteen communities on Map 2 in twnety year intervals. Extrapolating from the City of Puebla we have mapped the onset of the process in the area in the same twenty year intervals from 1900 onward. Puebla was originally chosen as the Spanish speaking center but even by 1900 Cholula was already for the most part Spanish speaking.



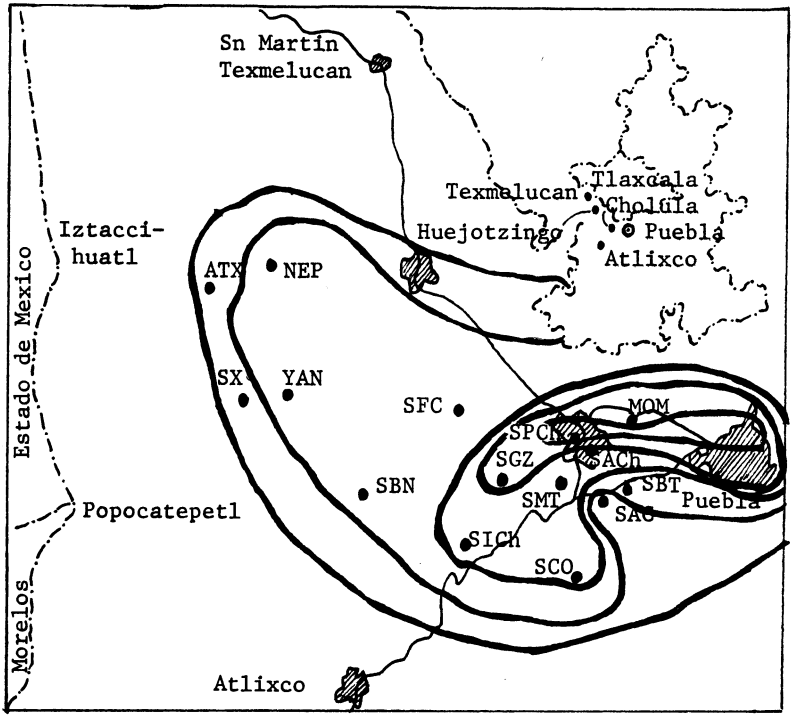
GRAPH V

Graph 5 represents the composite Mean Index of Attrition at each of the four stages in the process of language replacement. It should be noted that this is but a first crude approximation of the process.

2 We must understand the areas of concentration of speakers not as isolated regions. They are regions which due to their particular socio-economic history have developed specific types of relationships with Spanish speaking regional centers. The central system which is defined in terms of modern capital accumulation maintains peripheral regions in a subordinate relationship. It is not by coincidence that indigenous languages are maintained or lost in regions peripheral to Spanish spekaing centers, but for solid socio-economic reasons. In fact some sociologists use the presence of speakers of indigenous languages in a community as an indicator of marginality (Gonzalez Casanova, 1965).

The existence of communicative networks which function only within a particular group sets such a group off; and in the case of our study implies either a type marginalization or integration with respect to socio-economic centers. When social and ethnic boundaries become blurred, as they are by integration into Mexican National Society, a reorganization of these networks becomes necessary. This is the case where everyday social and economic life becomes so thoroughly and inextricably linked with that of the Spanish speaking socio-economic centers, that language function within the group or community is reduced to below the survival level and the spiral of reduction, restriction and simplification begins the headlong plunge to extinction.

There are basically two manners in which peripheral communities can become a part of the socio-economic system of regional centers and thus the national life. Both systems of integration involve the reorganization of socio-economic relationships and thus communicative networks. The first of these two processes involves seasonal wage labor as the primary mode of participation in the socio-economic system of the regional center by peripheral communities. But a proportion of the community participates directly as laborers in economic activities of the center, and thus obtains some degree of purchasing power with respect to the center. This income serves directly the economic needs of the community and reinforces traditional institutions. At the same time seasonal wage labor serves the economic interests of the center in that it produces vast amounts of cheap labor when necessary (5). Seasonal wage labor permits the establishment of certain types of fixed and well delimited relationships with the central system. These types of fixed relationships can postpone the process of language replacement. The second process involves the production of goods and services for the socio-economic center according to the market demands of the center. This implies that everyday social relationships depend to a far greater extent upon the socio-economic center. Thus, communicative networks are defined to a greater extent in terms of relationships with the center. The relationships that peripheral communities have with the regional center determine what is produced, how it is produced, how much is produced and for whom it is produced. Marketing networks appear in the case of the region under study to be far more important with respect to the process of language replacement, than other factors, in that market systems and market forces for the most part dictate the rates and manners of production and consumption of both goods and services in the area. In both of the above processes consumption of the products of the regional and national economy is essential to the integration into the central socio-economic system.



Map 2 represents the progressive onset of the process of language replacement in the region from 1900 onward in twenty year intervals.

Traditionally there have been two major policies which since before the conquest have dominated marketing networks in the region. These two networks bisect each other extending from Cholula to the volcanoes and from Huejotzingo to Atlixco. In the early part of the sixteenth century the city of Puebla was established as the Spanish speaking socio-economic center of the region thus subordinating the traditional Aztec systems. With the rise of industrialization from the mid nineteenth century, Cholula rapidly became part of the central system yet maintained its traditional marketing system. Social and economic patterns have changed greatly in the area but at no time have they changed as greatly as they have from the time of the Mexican Revolution (1910-1917) to the present. The most rapid change to be found in this period is circa 1940. This is due to the rapid acceleration of the redistribution of land in the area, due to the agrarian reform laws under President Cardenas. It is also at this time that Mexico began a process of rapid industrialization and urbanization which had profound effects on this region as well.

At this point it becomes necessary to examine some of the socio-economic factors that play a decisive role in the reorganization of communicative networks that provokes the process of language replacement.

A. Communities at the first or earliest stage in the process of language death have already developed certain types of socio-economic relationships with regional centers--both at the levels of production and consumption--yet these relationships permit the maintenance of traditional intra-group relations; the language remains functionally adequate within the community. This type of relationship is based upon the production of agricultural goods for internal consumption with a relatively minor dependency on regional market systems and wage labor.

Santiago Xalitxintla (SX) will serve as an example of the type of community at the first stage in the process of language replacement. According to the census of 1970, there were 2374 inhabitants in the town at that time, of whom 25.6% were economically active (6). Almost all economic activity focused in the agricultural sector of the economy. The proportion of the population speaking indigenous languages according to the census was mistakenly low due for the most part to the strongly negative language attitudes. On the basis of interviews, we estimate that over 50% of the population speak the language and the children still learn the language. In Xalitzintla, agricultural production depends essentially on the needs of the community's internal consumption. The small excess of production is traditionally disposed of through the indigenous market system. Xalitzintla also produces stone grinders and other traditional stone objects which are sold through the indigenous market system.

B. Communities at the second stage in the process of language replacement are more closely linked to national life and participate more directly in the national economy through the regional centers. This can be seen through both regular and seasonal labor in industries associated with the regional center and the production of at least some goods for regional market centers.

Santa Clara Ocoyucan (SCO) will serve as an example of this type of town at the second stage of language replacement. Santa Clara is a town of 2596 inhabitants according to the census of 1970 of whom 22.1% are economically active. Of this portion of the population 88.5% are involved in agricultural activities. Santa Clara is also a municipal political center (cabecera municipal) or county seat which implies direct political, judicial and economic relation with the regional center. Another factor in the local economy that promotes language loss is the arid lands, with a relatively low productivity that force much temporary wage

labor. This temporary wage labor does not appear in the census data for 1970 (7). The relatively low agricultural productivity limits participation in traditional market systems which are now less accessible than the regional center of Puebla and at the same time facilitates the necessary communication with the regional center to augment meager income. This provides the wherewithal to purchase goods not produced in the community.

C. The communities in the third stage of the process of language replacement have developed a set of complex and necessary relationships with regional centers; relationships which rely upon the production and sale of goods within the regional market systems. Participation in the regional market necessarily implies a change in the system of production concomitant to the change in the marketing system. This also implies a thorough acquaintence with the market forces by residents of these communities, which necessitates a thorough integration into communicative networks based on regional centers. This ia a major factor in reducing the functional load of the indigenous language.

Santa Maria Tonantzintla (SMT) constitutes our example of the third stage in the process of language replacement. There were 2303 inhabitants of this community at the time of the 1970 census of whom 24.6% were economically active. Of this proportion, 76.5% were involved in agriculture, 7.1% in industry and 15.4% in commerce. This distribution of the economically active population corresponds to the relatively greater integration of an essentially agricultural community into the socio-economic system through commerce. Here it should be noted that the change from the production of agricultural products for internal consumption and sale in the traditional market system to the production of flowers for the regional and national markets has allowed the community to attain a relatively greater degree of integration while maintaining an essentially agricultural base. Tonantzintla began producing flowers shortly after the Mexican Revolution in the early Thirties, and at present the majority of the community's economic activity revolves around commercial floriculture.

D. At the fourth stage in the process of language replacement, the language is to all intents and purposes effectively dead. Despite a small population of rememberers, the indigenous language no longer plays any part in the everyday life of the community. In such cases, communities have generally become an integral part of the regional or national socio-economic systems long ago.

Our example of this fourth stage in the process of language replacement is taken from the town of San Pedro Cholula (SPCh), which we take to include the major barrios of Cholula de Rivadavia (Bonfil, 1973:115). San Pedro Cholula is a city of 15,399 inhabitants of whom 24.7% are economically active. Only 15.7% of

the population is involved in agricultural activities; 43.2% is involved in industrial activities and 35.1% in commerce. Cholula became an integral part of the regional and national socio-economic system before the turn of the century and thus represents a communicative network thoroughly integrated into that of the Spanish speaking center of Puebla. The rise of the textile industry in the latter half of the last century was a major force in integrating Cholula into the socio-economic system of Puebla, and thus making it a parallel center at the beginning of this century.

From this short analysis of but four cases at various stages in the process of language replacement, certain general patterns become evident. Despite the fact that all communites participate, to a greater or lesser extent, in the regional or national economy and there is no such thing as the completely closed, self-sufficient community, it is the extent to which a community participates in regional and national market and labor systems that determines the type of communicative networks that can be supported within the community. Diminishing language function within the community precipitates the process of replacement. Changing relationships between peripheral communities and regional centers by altering communicative networks accelerate the process. Both alterations in the marketing patterns, by changing from production of goods or services for regional centers or switching from traditional market systems to those based on regional centers, and alterations in the labor patterns by seasonal wage labor or more direct participation in the labor market of the regional center, affect communicative networks within a community. It is thus the degree and type of participation by members of a peripheral community in the socio-economic system of the regional center that determine the type and form of everyday face to face communication and thus communicative networks that function to maintain or eliminate a language.

3. Linguistic aspects of the process of language replacement reflect far more profound changes in communities undergoing the process. Quantitative changes in the linguistic system are, however, both concrete and quantifiable in terms of the mean index of language attrition. This index not only provides a means of detailing the process of language change involved in language replacement, but it reflects the changing competencies of speakers, semi-speakers and rememberers as the mean. The actual mechanism of change is the changing mix of competencies in communities undergoing language replacement. Language form and function go hand in hand in communities undergoing replacement. Thus, quantitatively at the community level, language form follows function. Language replacement is the result of the language's loss of the functional utility within the community. This loss of ultility and function depends directly on the way in which the

community participates in the socio-economic life of the nation. The type and degree of participation of a community is in turn determined by the needs of regional and national centers for products and labor of the community (8). From the point that the economic and social life of a community depends essentially on that of regional and national centers, the language of the community no longer remains functional with respect to social and economic needs of the community. Language function in this type of situation, in the Valley of Puebla, is progressively restricted and reduced to the point that language form is affected and the process of replacement is irrevocably begun.

In the Valley of Puebla once the process of replacement is begun, it is apparently irreversible. The rapidly changing socio-economic patterns in the region provoke the process and see to its irreversability. The relation between changing socio-economic patterns and language replacement is unmistakable. The process of language replacement is a complex phenomena but it can be measured by means of various indices. These indices reflect in a real manner the process since they take into account the actual mechanisms of language replacement. Reorganization of social and economic patterns of everyday communication restructures communicative networks in such a way that the mechanism of language replacement is set in motion toward its ultimate end: language death.

Notes

1. This work was originally begun by T. Knab under a small grant from the American Philosophical Society's Phillips Fund, and later continued under a grant from the N.E.H. Youth Grants Program. The present work is the result of the project on language replacement of the Instituto de Investigaciones Antropológicas of the Universidad Nacional Autonoma de México and the project on the location of speakers of indigenous languages of the Instituto de Geografía of the same University.
2. For a more complete explanation of the indices see "The process of language replacement in modern Aztec dialects of the Valley of Puebla," Tim Knab, forthcoming.
3. Only five individuals could be located in Santa Maria Tonantzintla with any knowledge of Aztec.
4. These rules are a highly opaque set of rules involving both the long/short contrast and numerous lexically marked exceptions.
5. Mercedes Olivera points out that "This combination of consumer economy, in such communities, and wage labor on fincas and haciendas, in addition to stimulating the indigenous communities also produces cheap labor and subsidizes businesses, in that businesses do not pay salaries while workers from indigenous communities reside in their own communities" (Olivera, In press).

6. Population data is based on the 1970 National Census (S.I.C. 1971).
7. This data may vary from census to census depending on the time of year that the census is taken.
8. For an important discussion of the structure and use of cheap labor in a capitalist society see Claude Meillassoux (1975).

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The Evolution of Certain Cochimí Aspectuals and the Cochimí-Yuman Hypothesis

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The Cochimí and Yuman languages are neighbors on the linguistic map of Lower California. The former has been extinct since the beginning of the nineteenth century, the latter are still spoken in four major divisions: California-Delta, Pai, Kiliwa and River. Only the last of these is not found in the Lower California peninsula.

For some time scholars have been suggesting a genetic link between Yuman and Cochimí (see Troike, 1976). The existence of this relationship has been conclusively demonstrated in Mixco (1978). It is shown that Cochimí and Proto-Yuman are collateral descendants from a single Cochimí-Yuman proto-language.

Cochimí was not a homogenous entity but rather a family of dialects which can be grouped into two major divisions; Northern and Southern. The line of greatest dialect differentiation falls across the Central Desert of the peninsula near the now defunct Jesuit mission of San Ignacio at approximately the 28th parallel.

Until quite recently virtually all information on Cochimí came from the southern division of Cochimí dialects. Recent research in the manuscript collections of the Vatican and Jesuit Historical Institute Libraries has remedied this situation. An extremely valuable catechetical dialogue in a Northern Cochimí dialect has provided much of the data upon which this study will focus.[1] The object here is to compare the Northern and Southern dialects with Proto-Yuman with regard to one syntactic structure--the Cochimí Aspectuals. These reveal strong motivation for the proposed Cochimí-Yuman hypothesis.

Pamela Munro's Mojave Syntax (1976) made available to Yumanists the analysis of the predicate nominal construction which explained the presence of a -č 'subject' suffix not on the expected sentence-initial noun phrase but rather on the second or predicate nominal which immediately precedes the copular verb -idu: 'to be'. Munro explained this apparent aberrancy by proposing that the -č 'subject' marked not a nominal subject but rather a complement subject of which 'to be' was a higher predicate, as in figure 1.

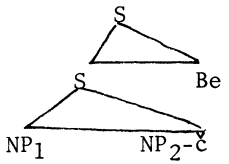


Figure 1. Yuman Predicate Nominal Structure

This same structure can be found with only minor variation in all the Yuman languages making it a reconstructible syntactic structure of Proto-Yuman. It should be added that Munro also accounts for the pronominal agreement of the higher verb with NP_1 (the apparent "subject") as a transformational reanalysis based on the SOV structure of the Yuman languages. The pronominal prefixes are ?- 'first person', m- 'second person' and zero for 'third person' "subject" (i.e. NP_1).

The Be higher verb of the predicate nominal in Yuman is one of three "copular" or "auxiliary" predicates that reflect the semantic character of the lower complement for Proto-Yuman. These would have been: *wi 'Do, Active'; ?i 'Say, Experiential' and finally *yu 'Be, Stative'.

Turning to Cochimí, we find many syntactic parallels with the Yuman structures just described. We again encounter the "copular" or "auxiliary" higher verbs, in this case: ?i 'Say, Be'; wi 'Do, Be', yi 'Be'. Likewise the pronominal prefixes of Cochimí are identical to those of Proto-Yuman: ?- 'first person', m- 'second person' and zero for 'third person'; these are exemplified below:

(1) Kistiano pa-t m-yi-e 'Are you a Christian?'
(Christian this-subj 2-Be-interr)

(2) Kistiano pa-x^{w}a wi 'This is a Christian'
(Christian this-pat. Be)

(3) Dios pa wi 'This is God'
(God this Be)

(4) Dios=ak ?i-m, wisay ?i-m Santo Espilitu
(God=Father Be-diff, son Be-diff Holy Spirit)
'There is god the Father, the Son and the Holy Spirit.'

(5) Pesonasi Komyek wi-m wi 'There are three persons'
(Persons Three Be-diff Be)

It is instructive to note the -t 'subject' suffix (cognate with Proto-Yuman *č 'subject') occurring on what can be interpreted as a complement subject in example (1) as in the Yuman predicate nominals.

The cognation of Proto-Yuman *č 'subject' is with Cochimí t ~ l. The Southern dialects show -la as the nominal subject suffix while the northern dialects show -l (or the -t just exemplified). Before investigating the comparative repercussions for this etymology we must preface our remarks with a description of the phonological reduction of wi 'Be' to u 'Be' a process not alien to the Yuman languages. The following Cochimí sentences exemplify the alternation wi ~ u:

(6) penayu nekena-pa ?imayuxup m-ya m-u
(we Father-our heaven 2-lie 2-Be)
'Our Father you are in Heaven'
(Southern Cochimí; Lord's Prayer, line 1).

(7) kasetas/x-waŋ m-we-ñi-t ña-/pa-k-u-m
(temptation-loc 2-go-not-subj us-imper-Be-sub)
'Lead us not into temptation'
(Northern Cochimí; Lord's Prayer, line 8).

With the t/l and wi/u variations in mind we can now turn to the following aspectual structures in Northern Cochimí which show the function of (h)u 'perfective':

(8) ibaŋ komyek-aŋ met awadip hu
(day three-loc self arise perf.)
'He arose on the third day'
(9) awadip hu-l-u-l ?ñ-ya-aŋ we
(arise perf-subj-Be-subj where-lie-loc go)
'Having arisen, where did he go?'

While the synchronic status of hu 'perfective' may be that of a postclitic or particle it is quite plausible to internally reconstruct its source in an earlier subject complement with a subject suffix followed by *wi 'Be' which having reduced to a u has added an h-onset, a not infrequent rule in Yuman. The original *wi 'Be', a higher verb, would have been reanalyzed as a particle with subsequent loss of the -l 'subject' suffix after the verb awadip 'to arise'. The fact that hu is followed by -l-u-l supports the analysis depicted in figure 2.

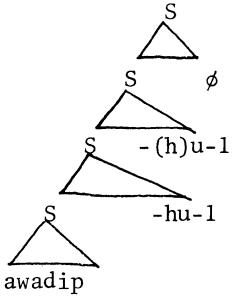


Figure 2. Northern Cochimí Perfective

This analysis for Northern Cochimí receives support from the Southern Cochimí perfective structure marked by -ta 'preterite' (Mixco, 1978). Recall that Southern Cochimí has -la 'subject', given the t/l variation in Cochimí it is not far-fetched to trace both -la 'subject' and -ta 'preterite' to an earlier *ta 'subject' which marked a subject complement of a higher verb *wi 'to be'.

Thus in each dialect we find a reanalysis of the original structure, as a consequence of phonological changes in Northern Cochimí an original *wi 'to Be' becomes (h)u 'perfective', with loss of the now irrelevant -l 'subject' immediately following the

verb. In Southern Cochimí we must suppose a massive syntactic simplification involving the loss of all traces of higher verbs and complement suffixes, leaving only the lowest -ta (<*ta 'subject') to be reanalyzed as the 'preterite' perfective suffix. Figure 3 recapitulates these stages:

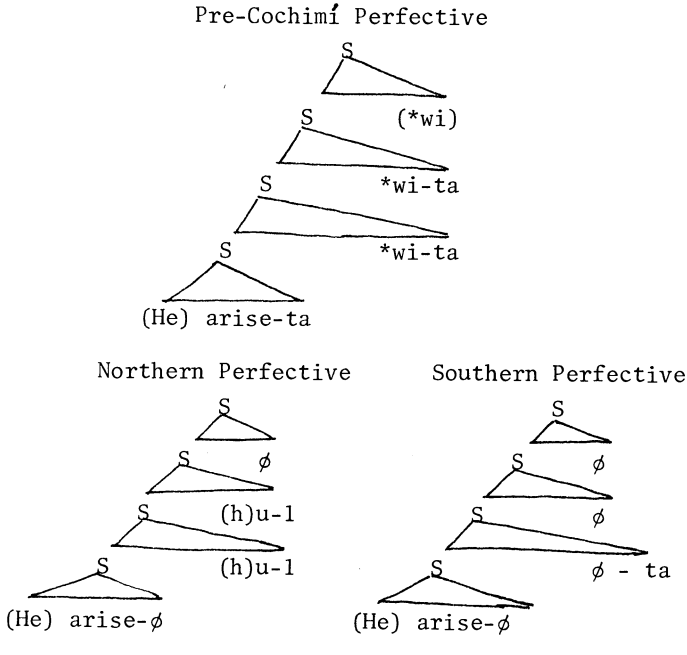


Figure 3. Development of Cochimí Perfectives

There is evidence for an original *ta-wi sequence in the taká 'future' aspectual. However before discussing this form we must first discuss some relevant Yuman developments.

In Mohave Munro (1978) finds an intimate historical relation between such complex aspectuals as -k-m and -p-č and the earlier -k-idu:-m and -p-idu:-č respectively. Munro explains the loss of the verb -idu:- 'Be' (<P-Yu *yu 'Be') through the action of lenition rules that reduced the distinctiveness of the auxiliary until it totally disappeared. Munro finds support for this contention in a Yavapai dialect in which the k-yu-m/k-wi-m complex aspectual sequences of other dialects have been reduced to a-kəm.

It should be clear how all this relates to taká 'future'. Even before the new Northern Cochimí data became available it was obvious that the future aspectual was morphemically complex. It was proposed (Mixco, 1978) that the first syllable -ta- was the -ta 'perfective', which would now have to be glossed 'non-present'; the remaining -ka was conveniently cognate with Proto-Yuman *xa

'irrealis' and could thus be analyzed as -ka 'irrealis'.

The Yuman aspectuals of Mohave and Yavapai are the clue to the historic source of taká 'future' in an earlier *ta-Aux-ka sequence. Loss of the Auxiliary lead to the formation of taká. The *ta morpheme was none other than *ta 'subject' (rather than 'non-present'). The missing Auxiliary is the supporting motivation for the earlier analysis of the Pre-Cochimí perfective in figure 3. Thus both aspects, 'perfective' and 'future' shared the sequence *ta-Aux... as they both involved subject complements of the higher Auxiliary (see figure 3).

This historic analysis, limited as it may be by the fragmentary data available, has strengthened the proposed link of Cochimí to Yuman. For even in these syntactic idiosyncracies the languages give off resonant echoes one to the other.

In closing it is important to emphasize the reciprocity of grammatical motivation to be gained through the comparison of Cochimí and Yuman. Not only do Yuman data clarify Cochimí history but it seems fair to say that the opposite is also true. The occurrence of a Proto-Yuman *č 'subject', Co *ta 'subject' on different types of subject complements leads us to conclude that there was a greater variety of syntactic contexts for this phenomenon than has been suspected by Yumanists up to now. It is clear that the proposed Cochimí-Yuman proto-language will become an important point of reference for the reconstruction of both Proto-Yuman and Pre-Cochimí.

NOTES

[1]I gratefully acknowledge the financial support of the Faculty Research Committee of the University of Utah which facilitated acquisition of the materials for this study in Europe. The analysis offered will be incorporated in a lengthier comparative treatment of the Northern Cochimí data.

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PREHISTORIC SOCIOLINGUISTICS: The Case for Hopi

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0.0 Introduction.

If social selection is a major determiner of language change, such motivation should be inferable for the prehistoric past in some cases. In this paper, I will present data that suggests that Hopi, usually held to be a distinct subgroup of Uto-Aztecan (UA), does not represent a single line from Proto-Uto-Aztecan. Both grammatical and lexical evidence will be considered.

1.0 Grammatical Diversity Within Northern-most Uto-Aztecan.

Internal classifications of UA began with Brinton (1891), who classified UA into three major divisions: Shoshonean, Sonoran, and Nahuatlan. Buschmann (1859) founded UA studies, but did not recognize genetic affinity between the three divisions. The idea of a Sonoran branch was criticized by Kroeber (1934), Whorf (1935)and Mason (1936), as being an areal effect. Whorf also considered Shoshonean not to be a genetic grouping, and this view was supported by Swadesh's lexicostatistic study of this branch (1954). Criticism of internal diversity of UA led Lamb to posit nine separate subgroups (1964), reflecting "a complex dialect area shortly after the time of Proto-Utaztecan, rather than a simple splitting into two or three branches" (1958:95-96).

To test grammatical internal diversity in northern-most UA, representative languages of the six northern-most subgroups of UA were sampled (Tübatalabal, Hopi, Shoshone, Luiseno, Piman, and Yaqui). The sampling unit was the transitive clause, and only obligatory features were noted.[1] Distinctive traits (one which is shared by two or more varieties but not by all) serve as a way of delineating possible intermediate groups. By totaling the number of such traits shared by a given language, a commonality index may be calculated. The results of the sample are given in Tables One and Two.

Only eight out of 26 traits (both drift -characteristic trends due to particulars of the design of a linguistic system- and less productive items) formed major contiguities (were shared by two or more languages in geographical succession), although "northern" and "southern" spheres of trait-sharing may be distinguished. The eight traits were: obligatory oblique case marking of S_2 in predicate chaining (1.4.1c), presence of a reflex of *-na as transitivizer (1.5.1a), imperf./perf. categories marked in verb stems (2.1a),

lack of a copula (2.3b), presence of absolutives (3.1a), presence of case distinctions (3.3a), possession of prefix only (4.2c) and independent auxilliary marking of actor (4.3a). The distributions of these may be found in Table One.

Similar findings concern UA lexical data (Hale, 1958:106-107; irregular rates of retention in compared vocabulary point to some sort of Sonoran unity) and UA phonology (Voegelin, Voegelin, and Hale, 1962:117-135). Northern and southern spheres are thus detectable through lexical, grammatical and phonological data, but as Heath (1977) noted, there is a need for careful reconstruction of each distinctive subgroup of UA.

The highest index was that of Hopi (18/26 = .692), with the average score being approximately .423 (11.3/26). One explanation for this high score is that Hopi stems from several UA traditions, or that it represents some other form of mutual borrowing. Evidence for a hybrid UA origin of Hopi are given below, in section two.

2.0 Lexical Seriation in Hopi.

Hopi noun material was abstracted from a manuscript dictionary file. Only morphemes of the shape CV(:)CV were included in the sample. [2] Further exclusion was made of proper nouns and compounds.[3] Comparison using Hale (1958), Davis (1966) and Miller (1967) revealed four groupings of nouns in Hopi: pan-UA, northern, southern, and residue. The percentage of nouns in each component are about: 16% (pan-UA), 14% (northern), 11% (southern) and 59% (residue). See Appendix B for the lexical data.

Domain analysis reveals nothing significant regarding the directionality of the UA material. Native tradition, however, indicates a founding group from the north and later immigration of clans from the south (Fewkes, 1900:633). Further additions to the ceremonial cycle and possibly to the linguistic repertoire of the community came from the East (Parsons, 1936:560), after immigration from the south. Phonological developments and dialectology may eventually give the relative order of the linguistic material; this may or may not turn out to support the tradition given by oral history.

More distant relations between Hopi and UA and Tanoan may be suggested by the data of Whorf and Trager (1937). Some terms are also shared with Keresan (these have been reconstructed for Proto-Keresan by Davis and Miller, 1963), Zuni and Havasupai, suggesting diffusion to or from Hopi. Due to space limitations, these data are not given here.

David Kelley (cited in Hymes, 1966:10) noted a disproportionate amount of nouns to predicatives in the pan-UA vocabulary. Hymes

suggests core vocabulary (the morpheme index) of a language, while only partially valid for dating purposes, may be diagnostic for a particular group of languages that are genetically related. Thus Goss (1965) was able to show a closer relation between Ute and Southern Paiute using the total morpheme index of both varieties, than was Hale (1958), who was restricted to a 100-word list.

The items that are expected to be selected as semantic primes for naming entities in UA are for the most part present in the Hopi data. However, the phonological sequence used to designate each may be either northern or southern, indicating an uneven descent from Proto-UA. In the case of Hopi, one must posit some mixture between northern and southern UA varieites.

3.0 Social Selection and Linguistic Prehistory.

In section one, it was infered that Hopi has a higher commonality index with regards to grammar of transitive clauses than other northern-most UA languages sampled because it is to some dgree a mixture of distinct UA varieties. In section two, lexical evidence was offered to support this inference.

In defining a language family, the notion of drift is assumed. Some features of grammar, vocabulary and phonology are expected to persist over time and space in daughter varieites as markers of the relatedness of the group. Without this fundamental assumption of drift, classification and subclassification along genetic lines (indeed, historical linguistics) would be impossible. In the Hopi case, it would appear that social factors have had a force in the formation of the present grammar and lexicon. The notion of drift and the idea of the morpheme as a tightly bonded unit are less useful in this sort of case, however. These ideas are more appropriate to instances where social usage has maintained a more or less single linguistic tradition. Yet there is no reason to suppose that there are not other cases like Hopi to be found in Americanist studies and elsewhere. It is therefore necessary to posit a model that accounts for both drift and residue on the one hand, and social selection and differentiation on the other.

NOTES

1 Nuclear categories, ordering and obligatory processes of simple clauses were contrasted in Yaqui, Piman, Luiseno, Tübatalabal, Hopi and Shoshone).

2 When cognacy was established for trisyllabic morphemes of the shape CVCVCV, inclusion was made.

3 Disyllabic compounding may result from several processes. It is possible that some seemingly prime noun morphemes are actually compounds.

TABLE ONE: Trait-Sharing as a Commonality Index in Northern UA.

Factor	Yaqui	Piman	Luis.	Tübа.	Hopi	Shos.
1.1b		X	X			
1.2b		X		X		
1.3b			X		X	
1.4.1b	X				X	
1.4.1c				X	X	X
1.4.2a	X		X			X
1.4.2b		X			X	
1.5.1a			X	X	X	X
1.5.1b			X			X
1.5.2a	X			X	X	
1.5.2b	X				X	
2.1a		X	X	X	X	
2.2a	X				X	
2.2c		X	X			
2.3a	X	X				
2.3b			X	X	X	X
3.1a			X	X	X	X
3.1b					X	X
3.2a					X	X
3.2b		X			X	X
3.3a			X	X	X	X
4.1a					X	X
4.2c	X	X	X		X	
4.3a		X	X	X		
4.4a	X	X				
4.4b			X		X	
	8	10	13	9	18	11

EXPLANATION of the factors: 1.0 Components of Clauses. 1.1 Variability in word order: a. Most SOV, with exceptions in 1.2 (SH, Tü, Hp, YA), b. Free word order in Piman (SVO,VSO,SOVO and Lu. SVO; 1.2 NP movement: a. $Actor_{iden}$ deletion, focal fronting (all), b. V-initial Tü adv. + V+ S; Pi); 1.3 Actor-predicate number agreement: a. Sporadic or absent (Sh, Tü, Pi, Ya), b. Obligatory (Lu, Hp); 1.4 Predicate Chaining. 1.4.1. S_2 in oblique case: a. Not applicable (Pi), b. occasional (Hp, Ya), c. Obligatory (Sh, Tü, Lu); 1.4.2 Aspect distinctions in actor marker: a. In both switch reference suffix and same actor suffix (Tü), b. In same actor suffix (Hp, Pi), c. In switch reference suffix (Sh, Lu, Ya); 1.5 Role-Shifting. 1.5.1 Transitivization: a. Reflex of *-na as a causative (Sh, Tü, Hp, Lu), b. reflex of *-kV as a causative (Sh, Lu), c. Other markers(Pi, Ya); 1.5.2 Intransitivization: a. Reflex of *-wa as

intransitivizer (TÜ, Hp, Ya), b. Reflex of *-tV, 'gets Vb'd' (Hp, Ya), c. Other marking (Sh, Lu, Pi).

2.0 Verbal predicates; obligatory categories. 2.1 Aspect: a. imperf./perf. categories marked in stems (Pi, Lu, TÜ, Hp), b. No stem aspect (Sh, Ya); 2.2 Tense: a. Future in -nV (Hp, Ya), b. other future marking (Sh, Lu, TÜ, Pi), c. A different future is associated with the imperf./perf. stems(Lu, Pi); 2.3 Equational predicates : a. Presence of a copula (Pi, Ya), b. No copula (Sh, TÜ, Lu, Hp).

3.0 Noun Morphology. 3.1 Absolutives: a. Presence of these (Sh, TÜ, Lu, Hp), b. absolutives have anim./inanim. meaning (Sh, Hp), c. no absolutives (Pi, Ya); 3.2 Number as a marked category: a. sg.-dl.pl. (Sh, Hp), b. Pl. by reduplication (Sh, Hp, PI), c. Pl. by various suffixes (Sh, Lu, Hp, Ya); 3.3 Case distinctions: a. Minimally, actor/oblique categories (Sh, TÜ, Lu, Hp), b. no case marking (Pi), c. Sporadic, with marking in the sg. only (Ya).

4.0 Personals. 4.1 Number: a. sg.-dl.-pl. (Sh, Hp), b. sg.-pl. (TÜ, Lu, Pi, Ya); 4.2 Case marking: a. Minimally, actor/oblique (Sh, TÜ, Lu, Hp, Ya), b. actor/obj./possessive categories (Sh, TÜ), c. Possession by prefixing only (Lu, Hp, Pi, Ya); 4.3 Actor marking: a. Independent marking and marking within an aux. (TÜ, Lu, Pi), b. indep. marking only (Sh, Hp), c. incipient aux. (Ya); 4.4 Object marking: a. pre-verbal prefix (Pi, Ya), b. indep. pronoun (Lu, Hp), c. Suffixes (TÜ), d. Both (a) and (b) (Sh).

TABLE ONE: Appendix: Number of Traits Shared Between Languages

	Ya	Pi	Lu	TÜ	Hp	Sh
Ya	--	3	2	1	5	1
	Pi	--	5	3	4	1
		Lu	--	6	8	6
			TÜ	--	7	5
				Hp	--	9

TABLE TWO: Geographical Distribution of Traits.

Those traits shared by two or more varieties in geographic proximity are given below.

TÜ-Hp-Sh	1.4.1c
Lu-TÜ-Hp-Sh	1.5.1a, 2.3b, 3.1a 3.3a
(Pi) Hp-Sh	3.2b
Hp-Sh	3.1b, 3.2a, 4.1a
Pi-Lu-TÜ-Hp	2.1a
Ya-Pi-Lu (Hp)	4.2c
Pi-Lu-TÜ	4.3a
Pi-Lu	1.1b, 2.2c
Ya-Pi	2.3c, 4.4c

In general, the following are northern trends: noun absolutes, a case system for nouns and pronouns, a possessive case, dual number, and Actor$_2$ of chained predicates being in oblique case. These are not, of course,present in every northern UA language.

Southerly traits include the following: lack of a case system, development of an aux., contexts of verb initialness, plurals by reduplication, and perfective/imperfective verb stems. Hopi and Takic languages (of which Luiseno is a member) are pivots to some degree; they tend to have both northern and southern characteristics.

APPENDIX A Data on Nuclear Clause Relations.

1.1 PREDICATE AND NUCLEAR NP ORDER (AFFIRMATIVE TR. CLAUSE): SH:rigid SOV; TÜ: SOV; HP: SOV; PI: SOV, VSO; YA: SOV.
1.2 MOVEMENT OF NP'S: SH: actor deletion, focus fronting; TÜ: obj. fronting, adverbial + V + S; LU: order variable, V never first; PI: free order, with some constraints; YA: actor deletion; HP: focus fronting.
1.3 AGREEMENT BETWEEN ACTOR AND PREDICATE: SH: sporadic and only in old suppletive pairs; TÜ: lacking; LU: obligatory; HP: obligatory; PI: sporadic; YA: sporadic, with old suppletive pairs.
1.4 PREDICATE CHAINING, I. SUBJECT $_2$: SH: must be in obj. case; TÜ: in obj. case; LU: in obj. case; HP: sometimes in obj. case; PI: no case marking; YA: not usually in obj. case.
1.4 II. ASPECTUAL CATEGORIES IN SWITCH REFERENCE SYSTEM: (a=identical actor; b=different actor/switch reference): SH: a. no asp., b. 'when' vs. 'while'; TÜ:a. 'while', 'after', 'when/then', b. same categories as in (a); LU: a. -nik, b. 'while', 'after', and simultaneous; HP: a. 'after','while'. 'if', 'because', b. -qw; PI: a. 'while' vs. disconnective, b. -ku; YA: a. -kai, b. various.
1.5 TRANSITIVIZATION: SH:-nke= benefactive and causative; TÜ: -(i)n with intr. stems, -(a)n + intr.=tr./+ tr.=benefactive; LU: -ni, -ki, -ka causatives; HP:-na both benefac. and caus. PI:stative

with -čud; YA: -tua = causative, -ria = benefactive.
1.5: 2. INTRANSITIVIZATION. SH na- intransitivize, meaning reflexive or reciprocal; TÜ:-(i)w + tr.='got V'd', -(i)w + intr. = impersonal; LU: not clear; HP: -iwa alone and in combination, -ti 'gets V'd'; PI: tr. to intr. operations; YA: -iwa as a passive; na- preverbal objects, but not reciprocal or reflexive, -tu 'become verb'd', -tia transitivize, -te intransitivize.

2.0 VERBAL PREDICATES: OBLIGATORY CATEGORIES. Number has been treated in 1.3. Some object number marking is present in some suppletive verbs in some of the languages. This was not made use of in this study.
2.1 ASPECT: STEM MARKED FOR IMPERF./PERF. DISTINCTIONS. SH: various; TÜ: telic(completive) vs. atelic (durative); LU: perf. and imperf. (each with an associated future); HP: perf. and imperf. in stems; PI: perf. and imperf. in stems (each with an associated future); YA: various.
2.2 TENSE: FUTURE CATEGORIES. SH: -tu'ih fut.; past tenses as well; TÜ: a fut.; LU: fut. (c.f. 2.1), past tenses; HP: -ni fut., habitual tense; PI: fut. (c.f. 2.1); YA: -ne fut.
2.3 EQUATIONAL PREDICATES. SH: A=B; TÜ: A=B; LU: A=B; Hp: A=B; PI: A=B, with copula; YA: A=B with copula su.

3.0 NOUNS.
3.1 NOUN CLASSIFIERS. SH: -pɨ, -tsi, -pi, with clear semantic marking; TÜ: -t(a), -l(a) and -Ø with no clear semantics; LU: -ch(a), -l(a) and -t(a) with no clear semantics; HP: some animate:inanimate traces survive in pl. formation; PI: alienable:inalienable possession, and mass:count:aggregate (for Obj. marking), but no classifiers; YA: no clear classifiers.
3.2 NUMBER AS A MARKED CATEGORY. SH: sg./dl./pl.,; TÜ: no obligatory number; LU: sg./pl. in -mu; HP: sg./pl. (a dl. is done periphrastically), pl. is by redup. and -tu or -mu; PI: sg./pl. (redup.): YA: sg./pl. with -m.
3.3 CASE DISTINCTIONS. SH: subj./obj./poss.; TÜ: subj./obj./poss.; LU: subj./oblique; HP subj./oblique; PI: no cases; YA: sg. subj./oblique distinction.

4.0 PERSONALS.
4.1 NUMBER. SH: sg./dl./pl.; TÜ: sg.pl.; LU: sg./pl.; HP:sg./pl.; PI: sg./pl.; YA: sg./pl.
4.2 CASE. SH: subj./obj./poss.; TÜ: subj./obj./poss.; LU: subj./oblique; HP: subj./ oblique;PI: no cases; YA: subj./obj./poss./clitic.
4.3 ACTOR MARKING. SH: indep. (sg. attached); TÜ: suffix to verb or pre-verbal word,some specialized aux.'s; LU: indep. and ɔ attached, aux. system; PI: indep. pronouns, obligatory marking

with aux.; YA: indep. pronoun or clitic attached to pre-verbal word.
4.4 OBJECT MARKING WITH PERSONALS. SH: sg. forms attached as a prefix, dl./pl. indep.; TÜ: suffixed; LU:indep.; HP: indep.; PI: verbal prefix; YA: verbal prefix or clitic suffixed to pre-verbal word.

APPENDIX B Hopi Noun Morphemes Showing Directionality.

Only those noun morphemes of Hopi that were found to have directionality are given below. Tanoan, Zuni, Keresan and Havasupai cognates have not been given, due to space limitations. **FORMAT:** English gloss is given in caps. Then Numic (either a reconstruction or in the order Shoshone, Southern Paiute, Mono/Paviotso) is given. After a semicolon, reconstructed or single citations from Sonoran languages will be given. The Hopi citation is underscored, and placed following the Northern or Southern form. ORTHOGRAPHY: Hopi spelling has the following values: a= [a], e = [ɛ] , i = [i] o = [o] , ö = [ɛ] with rounding, and u = [ɨ] . Long vowels are spelled as VV (double vowel). In Voegelin, Voegelin and Hale and Miller, c = [ts]. ABBREVIATIONS: VVH = Voegelin, Voegelin and Hale; M = Miller. Language abbreviations **are** transparent.

ARM pɨda, pita, pita; M *seka; no matching Hp. form; ASHES kusi, kitsa, esi-, Hp. qöötsa 'white'; M *mat; BADGER/BEAR M *huna, Hp. honan- and honaw 'badger' and 'bear'; M *pos, po_; BEE M *pis, pic for Numic and Takic; M *mumu, Hp. momo; BRAINS --, (sa)piki,(co)piki, Hp. piiki 'wafer bread', but tsökya from pan-UA *co(ni) 'head-hair'; various Sonoran forms. BLOOD pɨɨhpi, paɨpi, paapi; M *et (Sonoran), *ew (Takic), Hp. ungwa; BELLY/STOMACH sapɨ, sapɨ, --; Yaqui tomo, Pap. wook, Hp. pono connected to Ya. (?): BLUE --,sagwa, --, Hp. sakwa-; (various); BUZZARD --, wiqu, --, possibly Hp. wisoko 'turkey buzzard'; (various); CHEST nɨnapɨ, nɨabɨ,nɨngabɨ; M *tawi, Hp. tawits-qa; CACTUS FRUIT (lacking); M *yun, Hp. yöngö; DRESS/SHIRT kwasu, kwasu, kwasɨ, Hp. kwasa 'dress'; DRYpasa, basu, pasa-, Hp. paasa 'field', Southern Paiute paasI 'field'; CORN REFERENTS Shoshone haanɨbi; Yaqui san-, M *sunu, Hp. sami 'fresh corn'; CORNMEAL (lacking); Yaqui -tusi, Hp. toosa; COYOTE M *is, Hp. iisawu; M * kwa, *wa; CATERPILLAR Shoshone pi'akɨ, Hp. pi'aku; (no cognate in literature); CHOLLA CACTUS Hp öösö , cognates in TÜb. and Southern Paiute; ELBOW kiipɨ, kipɨ, kiibɨ; M *cu, Hp. tsövi; EYEBROW (lacking); M *sup (Takic, TÜb., S.P., Sonoran), Hp. suuvu; FRIEND hainci,--, haiži; Pap. nawoj; but Hp. kwatsi; FEATHER/WING kasa, kɨɨsi, kasa; M *masa, but Pap. a'an, Hp. masa 'wing'; FAT/GREASE yuhu,

yuu-, yuhu; pan-UA *wi, Hp. wi-hu; FOOT nampa/ nape, naⁿpa, --; M *ta (Takic) and *kuku (Sonoran), Hp. kuku; FOOD REFERENCE (label is lacking); Pap. bi'i, Hp. kwiivi 'boiled food'; FISH penkwi, pagɨ, pakwi, Hp. paakwi; M *kuyu, *kucu (this word developes in Numic as 'buffalo': kwicu, kuču, kucu); FOAM M *ko (in Hp. and Serrano), Hp. qʊʊtʊ; FOREHEAD Shoshone ka'i, Hp. qala '1.forehead,2.edge,3.sharp; Pap. ko'a (?); GRANDCHILD *M (in Pap., Yaqui, Hp.), Hp. -mʊyi; GRASS M *so (Hp., Serrano, Panamint), cf. *soni, soho-pin ('cottonwood'), Hp. sʊhʊ- (grass and cottonwood reference); GUM/STICKY sana, sana-, sana-, Hp. sana; Pap. ki'iwi; GRAY/DARK --, asIˢ-, --, Hp. masi-; GOPHER M *meye, Hp. muuyi; Pap. jɨwho; GUTS --, siu-, sihi, Hp. siihu; Yaq. suu-, Pap. hiihi; HOUSE/DWELLING/BUILDING kahni, qani, --; Pap. kii , Hp. kii-hu; HEAD pampa, pampɨ, --; M *mo'o; but Hp. qʊtʊ; HIP Shoshone ciɨmpi; Yaqui huba-ria, Hp. hoovi; HAWK SP. Shoshone ki-ni 'chicken hawk', Hp. kii-sa; HEART pihi, piyɨ, piwɨ; Pap. iibdag; but Hp. unangwa; JAY --, aangA,--, Hp. a'a; KNIFE wihi, wii(ci), wihi; M *napa; but Hp. poyo; KANGAROO RAT Shoshone p -hyaⁿ, Hp. pehu; LIZZARD --, cɨgiɨ, --, Hp. kuukutsi (?); LOUSE pasia, pu'a, puzi'i; pan-UA M *ate, Hp. aatʊ; LOCUST Shoshone m -soN ('cricket'), Hp. maa-hu (?); LUNGS Numic songo, Hp. tsungu; MOTHER pia, pia, pia, but Shoshone y - 'mother-in-law', Hp. yu-; M *ye, Hp yu- ; METATE (lacking); M *mata (Southern Paiute, Hp. Cahuilla, Sonoran), Hp. mata; MOCKING BIRD --, yampa, -- , Hp. yaapa; (various); NOSE muubi, mubi, mubi , Hp. motsivu 'proboscus': M *yaka, Hp yaqa; OAK/ACORN Southern Paiute kwiya-ˢ, Hp. kwingvi (Tʊb., Luiseno, Cahuilla, and Soutern Paiute list this as 'acorn'); ONION kɨⁿka, --, kɨga; Tʊb. šiiwi-l, Hp. siiwi; OPUNTIA M *muhu; M *nap (Takic, Sonoran), Hp. naavu; OLD MAN Shoshone tsɨkɨ, Hp. tsuku 'clown'; PINE NUT tiba,tɨba, tɨpa, Hp. tuva; PINE CONE --, qa'o, --, Hp. qa'ʊ "dry corn'; PORCUPINE yɨhnɨ, yɨngɨ, Mono mɨhɨ, Hp. mɨngyawu; PLANTS (lacking); Pap. ɨ-s, Hp. uu-yi 'plant, cultivated'; RIDGE Shoshone muttu 'end of hill', Hp. muru; RED eka/engka, aka, aqa; M *set; but Hp. pala- : RAIN ɨma, ungwa, (pa)ma; M *yuk, Hp. yooki : RAT M *ka, *kawa, Hp. qaala; Cora-Huichol naika, Pap. nahagio; ROUND poni, -pu/-pɨ,pono, cf. Shoshone pohto- 'round/spherical', Hp. pʊla; ROCK pan-UA *tem in Hp. tumke 'edge of cliff' and Hp. tuuma 'stone griddle', the Hp form for 'rock is owa; RATTLE/GOURD (lacking); Serrano ay-t, Yaqui aya-m 'calabash', Hp. aaya; RABBIT tabu, tabu-, t bu'u, Hp. taavo; M *pa (Luiseno, Yaqui-Mayo); RIBS wa-, angwa, awa, but Hp tsungu; Pap. hoho'onma (the Hp. form is from *songo, which developed as 'lungs' in Numic; see lungs, above); ROOT (tɨ)dɨna, tɨna-, ɨna; M *na, Hp. nga-hu '1.medicine 2. root' (2. in compounds); RIVER (lacking); Papago mɨl (this is related to mɨd 'run' ?), Hp. muu-na 'watercourse'; STAR (ta)ci, (puu)ci, (ta)si; M *su, *cu (Takic, Sonoran), Hp soo-hu ;

SHIRT (lacking); Tarahumara napaca, Hp. napna; SNOW --, nɨba'^{i}, nɨba, Hp. nuva; Pap. gew; BE COLD (Lacking); M *yu (Takic), Hp. -yoho'o; SHOULDER (lacking); M *seka (Mono, Serrano) , Hp. sɨkyak-tsi 'shoulder blade' ; SUPERNATURAL POWER poha, pua-, puha, Hp. powa; SPIDER --, uq-wa, --, Hp. kookyangw (?); SORE M *eya, Hp. uya; SUNFLOWER REFERENCE Southern Paiute aqi-, Hp. a'qawi, Shoshone akkɨ-N; TAIL Numic kwasi, Hp. kwasi 'penis'; M * suru, Hp. suru; TOBACCO Shoshone pam-; M *pipa, Hp. piiva ; TONGUE eku, egu, igo; M *neni, Hp. lengi; THIGH (lacking): M *kasi, Hp qaasi; TURKEY Shoshone koyongo, Hp. ko-yongo; Pap. toowa, Cora sɨɨpi; WINTER tomo, tumu, tomo, Hp. tʊ̈mʊ̈; WIND Shoshone ni- t; M *heka, Hp. huukyangw; WOMAN/GIRL --, mama'n, --. Hp. momoyam 'women'; WART Shoshone mɨtsa, 'Mam-millaria cactus sp.', Hp. mutsa 'wart; YUCCA --,ca'ma-vi, --, Hp. samowa.

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THE ACQUISITION OF WORD MEANING: A REEXAMINATION

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Exactly how to characterize a child's first words is a curious puzzle since the meanings of first words rarely coincide with meanings in the adult language. Early words tend to differ in their domain of applicability, covering either a larger or smaller range of particularities. In recent years, linguists and psychologists have focused attention on the acquisition of word meaning and have formulated differing hypotheses as to the nature of this acquisition.[1]

THE "SEMANTIC FEATURE HYPOTHESIS"

The phenomenon of the overextension of meaning, widely reported in diary studies, provided a rich source of data for Eve Clark who formulated the Semantic Feature Hypothesis, which is based on the notion of universal semantic primitives. Such a framework takes as given a set of features or components which are innate and "perceptually" based, with languages differing from each other "principally in the rules of combination used to go from the semantic primitives to the lexical items (1973:70)." Clark's scheme of lexical acquisition is based on the assumption that a child at the threshold of language does not know a word's full adult meaning and has a lexicon in which words have only partial entries. Overextensions are based, then, on these partial entries. As Clark puts it:

> As soon as [the child] has attached some feature(s) of meaning to [a word], it simply has that meaning for him (:72).

The child's use of one or two features criterially becomes the source of the overextension. According to Clark, then, the lexical entry for "doggie" may consist of the feature four-legged and will therefore be the source of the child's use of "doggie" for cows, sheep, zebras, etc. Although Clark refuses to speculate on the absolute nature of the semantic primitives that form the universal set, she does hold that "the first semantic features that the child uses are liable to be derived from the encoding of his percepts (:74)."

"FUNCTIONAL CORE CONCEPTS"

Nelson (1974) has pointed out a number of difficulties with the Semantic Feature Hypothesis, not the least of which is its reliance on analyticity. In place of analytic-type features or components as the basis of the initial concept formation process, Nelson would substitute "Functional Core Concepts" which

develop on the basis of single instances and emerge from the child's interaction with the world independent of "cuing through words (:277)."

In many ways, aspects of Nelson's Functional Core Concepts resemble Clark's Semantic Feature Hypothesis. For example, in Nelson's account, category formation proceeds on the basis of the identification of the important relationships into which objects enter. Not all relations, however, are crucial to the defining of a concept, so development must include the identification of some relations "as irrelevant to the defining functional core (:277)." This formulation sounds very much like the scheme of development which Clark posits:

> at a later stage, as the child learns more about the structure of his language as a whole, he will learn which percept-derived features play a particular linguistic role (e.g., animacy) and which are relatively redundant within a set or combination of features (1973:74).

The theories begin to look alike in an even more important way since, ultimately, Nelson must also rely on the child's analysis of "the whole (concept) into its relevant parts (attributes) (:278)" in order to account for overextension. Nelson claims to differ from Clark in that she posits the primacy of functional, dynamic relations. She sees an important divergence between the componential and functional hypotheses in that a functional analysis does not assume that the child constructs relationships among static objects. For Nelson, perceptual analysis takes place but is "derivative of the functional concept, not a priori essential to it (:284)." This derivation does not take place in real time--"all concept acquisition is assumed to involve both of these processes (:284)."

BOWERMAN'S FORMULATION

Bowerman (1978) puts forth another position largely based on prototype theory (e.g. Rosch, 1973, Rosch and Mervis, 1975). Prototype theory attempts to explain category structure on the basis of analog rather than digital features, with a kind of Wittgensteinian family resemblance holding among members of a category. In this formulation, a category is characterized by a certain internal structure such that each category has a focal member or "best exemplar" and other members which deviate from this prototype, each having more in common with the focal member than it has with other members. Thus, "apple" is a good example of "fruit", "chair", a good example of "furniture", etc.

Bowerman noticed that many of the overextensions

found in child speech could be more readily explained by recourse to prototype theory.[2] For example, her daughter, Eva, used the word "moon" at first in reference to the real moon and then extended various of its "features" to other referents. Bowerman's list of apparently perceptual features include shape(round), color(yellow), the moon's shiny surface, the child's viewing position (although we are hard-pressed to describe this "feature" as a feature of the object and are now conflating internal state with object-centered characteristics, which is actually correct, but not within the framework Bowerman espouses), flatness, and flat expanse as a background for the object in question (backgrounded).

In overextending "moon", Eva used it for the peel side of a half grapefruit viewed from below. The features shared with the prototype are circular, yellow, viewing position. In the use of "moon" to refer to the chrome dial on a dishwasher, the shared features are: circular, shiny, viewing position, flat, backgrounded. When extended to a magnetic letter D on the refrigerator, the features in common are: half-moon, viewing position, backgrounded.

According to Bowerman, the similarities that led to overextension were perceptual and not functional, with the child often overlooking "known" functional differences in favor of perceptual similarities. But let us see whether this is a correct interpretation of the state of affairs she describes.

"FEATURES" AND THE SUBJECT-OBJECT DISTINCTION

Bowerman's designation of the source of overextension as "perceptual"[3] is largely a misnomer in view of the "features" she identifies. Take, for example, "viewing position," identified as a feature of "moon" for her subject. We have pointed out that this "feature" is not an attribute of the referent. Moreover, the child is not a passive observer of her own viewing position. In fact, the term "viewing position" forces us to treat a dynamic orientation as though it were static. The state of affairs designated "viewing position" is rather a postural schema (cf. Werner and Kaplan, 1963), and, as such, represents the child's orientation toward the object.[4] Overextensions based on the state of the subject are direct evidence against the subject-object distinction of traditional philosophy which underlies much of the developmental literature and is the tacit assumption of the three studies we have examined. Briefly stated, the subject-object distinction posits a sharp division between the

thinking mind and the object thought about.[5]

Bowerman's other analyses also betray this prejudice. For example, the word "giddiup", which Eva first used while bouncing on a spring horse, was overextended to a number of activities in which the child was motor involved in the same way as she would be on the hobby horse. Bowerman identifies the "features": horse, bouncing motion, sitting on a toy, especially astraddle. In another instance of overextension, the word "bump" was first used when Eva hit her head with accompanying pain. In this usage, the bodily comportment seems to be absolutely primary. It was overextended to instances when her toy piano fell over and when she bumped any part of her body, whether pain was involved or not. Raindrops on her head and immersing her finger in hot water followed by immediate withdrawal also elicited the word "bump." The features Bowerman lists are 1) the abrupt contact between any two objects, one of which is usually a body part, preferably the head, and 2) pain.

What are we to make of these "features": are they functional or perceptual or something we have not yet considered? A key lies in Bowerman's identification of another important source of overextensions: internal experience, affective or otherwise. She points out that words like "there!", "too tight", "too heavy", and "aha!" were used in situations that could only be described in terms of the child's subjectivity. "There!", for example, was used at the completion of any project, "too tight", in situations of physical restriction, "aha", in situations involving the experience of discovery or surprise.

Can't we, in fact, identify an element of affectivity in all the overextensions thus far described, and yet, isn't there an element of perceptually-based overextensions and even--if we use Nelson's definition--of function-based overextensions? How can we possibly describe the child's category structure (if, indeed, "category" is an appropriate term) without resorting to having some categories based on percepts, some on affect, some on function, etc.? Such a multiplicity of category bases seems intuitively unsatisfactory, although each of the positions we have thus far examined has something important to say about early words.

AN ALTERNATIVE APPROACH

An interesting solution to the purported dilemma may be derived from Merleau-Ponty's (1962) Phenomenology of Perception which asserts the primacy of perception in

the development of rationality while discarding the traditional view of perception as a sum of sense impressions. In contrast, the phenomenological view regards perception as an intersensorial gestalt and one's entire presence at the moment, which includes all the senses traditionally seen as separable and also one's affectivity, a side of behavior generally overlooked in the cognitively-based developmental studies.

The importance of affectivity in infancy is not a new idea. Vygotsky (1962), writing in the 1930s pointed out that earliest speech is affective-conative. In The Structure of Behavior (1963), Merleau-Ponty describes nascent perception (which, we must remember, is not a sum of sense impressions) as "an emotional contact of the infant with the centers of interest of its milieu much more than [it is] a cognitive and disinterested operation (:176)."

It is important to understand that affectivity is not to be interpreted as an additional meaning component added on to words, since it is clear that emotions are rather an orientation toward the world and are an intrinsic part of the child's understanding of the meaning of that world. Viewing affectivity as a necessary element both of subjectivity and of understanding forces the breakdown of the subject-object distinction. Sartre makes this point most succinctly:

> emotional consciousness is, at first, unreflective [and] is, at first, consciousness of the world ... [T]he affected subject and the affective object are bound in an indissoluble synthesis. Emotion is a certain way of apprehending the world (1948:51-52).

We must remember, too, that it is a myth to believe that we are ever truly emotionless. In his discussion of "mood" or "state-of-mind", Heidegger underscores the error of believing that we are ever without mood:

> The fact that moods can deteriorate and change over means simply that in every case Dasein always has some mood. The pallid, evenly balanced lack of mood, which is often persistent and which is not to be mistaken for a bad mood, is far from nothing at all (1962:173).

How do these considerations help us understand the facts of word acquisition? Looking back over the examples Bowerman provides, we find that not only in the use of the words "aha!" and "there!" does the child express an attitude, but does so in every utterance. Can we believe the child moodless as she utters "giddiup" while riding a hobby horse?

Let us, however, not make the mistake of assuming

that affectivity accounts for acquisition in toto. It is only through asserting the primacy of perception properly understood that we can resolve the apparent diversity in word acquisition.

EXAMPLES ILLUSTRATING THE PHENOMENOLOGICAL APPROACH

Let us look at examples provided by another child who was observed between 17.5 and 19.5 months of age. Mel was barely at the one-word stage of development and used few words. Those words she did use, however, are highly illustrative and indicate the primacy of perception in the child's acquisition of language.

On one occasion, Mel was given a small, short, green toy snake. Her five-year-old sister teased her with it, poking her while saying, "sss." Mel immediately and gleefully took the snake and poked her sister with it, saying, "sss." It is important to note here that the snake was only about sixteen inches long and one and one-half inches in diameter, and therefore an object Mel could easily manipulate. The next day, Mel was playing with a Fisher-Price toy bumble bee which has a stiff, thin, white tubular plastic pull cord. In the middle of playing with it, Mel stopped and held the string, very much in the same manner that she had held the snake the night before, and said "sss."

What do the two objects have in common? If one were doing a semantic feature analysis, one might say that the child was overextending on the basis of shape. Such an analysis presupposes an abstract ability on the part of the child, since the objects in question are similar only with respect to the ratio of length to width, and then, only poorly so. The important similarity, however, lies in the manner in which the child held the two objects and in the context in which she interacted with them, viz., play. It was not her interaction alone that determined her use of the word, but the manner of that interaction, which included affective and postural elements. The shape cannot be excluded, of course: it seems doubtful that a square block would have elicited "sss;" on the other hand, a square block could not be held in the same manner as the cord. Shape, therefore, is only apprehended within a given postural schema and a particular orientation toward the object.[6] It is also important to note that other objects of similar shape that were also in horizontal position in the room did not elicit the word.

Another example further elucidates our point. Mel has begun to use the word "mine" in numerous situations. It seems probable that Mel first encountered the word when it was used by her sister in the process

of asserting property rights. Mel accompanies the word with a simultaneous pulling-away motion and a certain reluctance to part with any forbidden object she might have. Having an object in her possession is not necessary for the use of the word, however, since Mel also said "mine" when told to get away from a cabinet containing household cleansers which she was about to ransack. But even the assertion of territoriality is not a necessary part of the word's use, since Mel also says "mine" when she doesn't feel like heeding the order "come here." The bodily pulling-away always accompanies the utterance. Clearly, "mine" represents a postural, affective stance toward the world--possibly best captured by the word "defiance."

"Mama" is another word that Mel overextends[7] when striving toward an adult caretaker whom she has experienced as fulfilling various needs for food, attention, changing, etc. "Mama" has an intrinsic affective base. The question arises as to whether a child will overextend a word like "Mama" in comprehension as well. Evidence provided by Thomson and Chapman (1975) indicates not. These researchers presented children with pictures of items to which certain words had been previously overextended. Their subjects did not confuse the image of their mothers with the images of other women, an unsurprising finding in view of the perspective we are taking. In the absence of direct need, the child can choose a picture of his mother, since the visual image of his mother <u>also</u> constitutes his word usage and carries with it great emotional interest. By maintaining the importance of the affective-postural aspects and the primacy of perception in the phenomenological framework, the gap between comprehension and production becomes less of an enigma, at least at the word level.

The acquisition literature has recently contained references to two types of language learners, expressive and referential. The former operates via "gestalts", "speech acts", or emotional language, while the latter apparently goes around naming things (cf. Peters, 1977). Lest we be too anxious to give the wrong interpretation to this phenomenon, we must keep in mind that, for all children, language is an emotional relation. The notions presented here indicate that the expressive child is not an abnormality--he has his own style of doing what the referential child also does.

In conclusion, it is necessary to mention that children develop from subjective understandings of the world to more cultural and shared understandings. This development must proceed through a dialectic of the

personal, subjective realm and the cultural, intersubjective realm.

NOTES

[1] It is important to understand that even in adult language, a word used in discourse is not equal to an isolated word in citation form. That is, a sentence is not equal to the sum of "concepts" represented by each word in isolation. In the same way, at the outset of acquisition, children's one word utterances--often called holophrases--are not rigid unchanging entities like dictionary entries. Researchers are agreed on this point. Brown (1973) points out that single-word utterances are "expressive of semantic intentions of greater complexity than the naming of referents (:154)." Nevertheless, much research in the area of the acquisition of word meaning has proceeded as though words could be redacted from context and treated as evidence for category formation.

[2] Bowerman refers to these kind of categories as "complexive" after Vygotsky's (1962) associative complexes in which instances B,C,D are similar to instance A but not necessarily similar to each other.

[3] Bowerman's use of "perceptual" implies the traditional view, not the phenomenological view advocated in this paper.

[4] Dynamic orientation is more similar to Nelson's functional hypothesis, which views concepts as emerging from the child's interactions with people and objects, than it is to the relatively static "perceptually" based features which Bowerman proposes.

[5] Descartes is perhaps the most celebrated of those philosophers who attempted to understand man's relation to the universe in this way. Rabil puts it thusly: "Descartes carried Galileo's analysis one fateful step further. He recognized that, if nature were universally mathematized, the psychical must be separated from physical reality, since the construction of a mathematical nature was accomplished in the first place by abstraction of objects from consciousness. Descartes attempted to restore subjectivity to a naturalistically objectivized universe ... Descartes ..., following Galileo, regarded the "I" as a psychological reality which remains when mathematical nature is subtracted from it ... The result was that the soul was placed in the body as a reality distinct from it

...(1967:56)."

[6] At 22 months, later than the data reported in the main body of this paper, Mel made an interesting overextension apparently in the domain of shape. While looking at a coloring book containing relatively schematic drawings of animals, Mel pointed to a picture of a bird, identifying it as a "wae?wae?", her word for "bird". In this instance the bird's body was in horizontal position with wings spread as in flying, and its beak was open. On the next page of the book, the same picture appeared, this time with the open-beaked bird in vertical position. Mel identified this picture as "babbit", her word for "rabbit". Such occurrences would seem to indicate, if not a predilection for shape per se, then at least a preference for basing concepts on a closely related phenomenon, horizontal or vertical orientation (the vertically opened beak was similar to a pair of rabbit ears). But the context of the overextension is crucial in this case. We are dealing here with schematic two-dimensional objects. In a two-dimensional world, shape is all there is. It is the only basis for overextension. Needless to say, Mel never confuses birds and rabbits in the real world.

[7] I suspect this is a word many children overextend--perhaps all, if given the appropriate context.

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NEUROLINGUISTIC CONSIDERATIONS ON THE OPTIMUM AGE FOR SECOND LANGUAGE LEARNING

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It is almost a generation, now, since Wilder Penfield's widely publicized writings (Penfield 1953, 1964) gave a neurosurgeon's authority to the proposition that the best period to begin second language learning is some time before age 6 or 8. Eric Lenneberg, in his Biological Foundations of Language (1967) also asserted that language learning ability deteriorates with age, especially after puberty.

But in recent literature on second language learning, we find overwhelming behavioral evidence that this view is not correct. If one disregards foreign accent phenomena, it is clear that young adults are more efficient language learners than adolescents, and that adolescents are more efficient than young children. For example, a recent study in Chicago of the sons and daughters of Japanese businessmen, university faculty, and graduate students, concludes that it takes about three and a half years for a Japanese child to equal his American peers in English reading ability regardless of age. Thus a five year old Japanese child in Chicago will read at an eight and a half year old level after 42 months, whereas his ten year old sibling can reach the proficiency of thirteen and one half year old Americans during the same 42 months (Walberg, Keiko, and Rasher 1978). In Britain it was found that there was very little difference between sixteen year olds who had studied French since age eight and those who had studied it since age eleven (Burstall, 1977). Roland Durette (1972) documents the fact that college students learn foreign languages twice as fast as high school students and that nine year olds need five years to accomplish what college freshmen learn in one year. The apparent counterexamples of some immigrant families in which children learn languages better than their parents and grandparents, are balanced by opposite cases in the American community overseas where parents use the foreign language fluently in their professional work and their children go to English-speaking schools and fail to learn much of the foreign language. Opportunity and motivation must be used to explain these cases (cf. Diller, 1973). Pronunciation may be the exception to adult superiority, but even in phonology there is evidence from a study by Susan Ervin-Tripp (1974) that older American children in Geneva, Switzerland, catch on to phonological rules faster than younger children do. For further evidence of the increasing ability to learn second languages with age, see numerous other studies referred to in the articles mentioned above and in a review of the literature on second language learning by McLaughlin (1977).

What, then, of the biological evidence? The earlier evidence from Penfield and Lenneberg, it seems, was partially correct but misleading. There is actually relevant evidence in recent neurodevelopmental research which corroborates the behavioral evidence in suggesting that adults may be better equipped for certain kinds of learning than children are. To explain biologically why children sometimes appear to be the better language learners when adults in fact are superior in most respects, we will need some preliminary remarks on the anatomy of the cerebral cortex, and discussion of neurolinguistic feature detectors, brain maturation, developmental and critical stages, and local neuronal circuitry. We can then distinguish lower order from higher order language processes, and explain some of the differences between adult and child second language learning.

1. Preliminary remarks on the anatomy of the cerebral cortex. At around the turn of the century, Brodmann (1909) found that he could distinguish various areas of the human cerebral cortex on the basis of microscopic structure. His mapping, as seen on the left side of figure 1, is based on the type of structure seen on the right side of the figure. The cortex, known as gray matter, is a thin surface mantle (about 1/6 of an inch thick) which contains nerve cells. The white matter below the cortex has no cell bodies, but is made up of heavily myelinated axons which form the intercellular connections. The basis of Brodmann's map is that the internal organization of the constituents of the cortex varies from area to area.

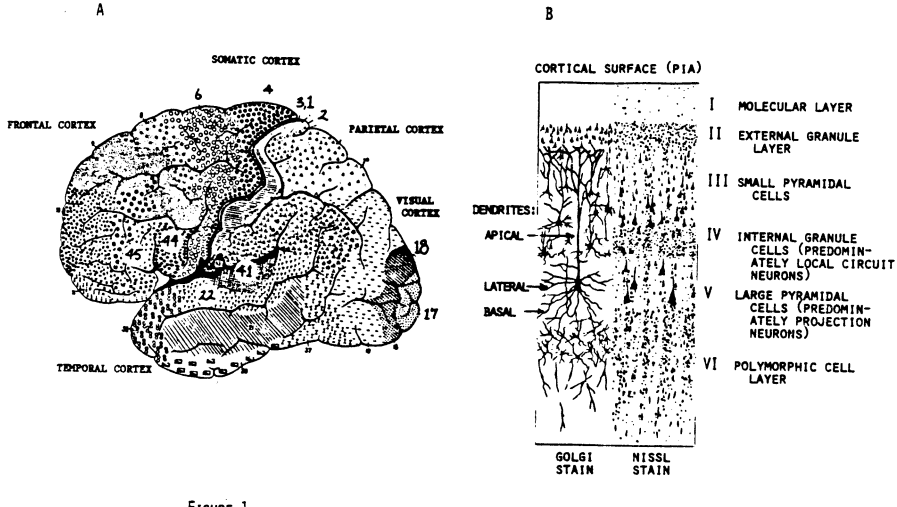


FIGURE 1.
A. CYTOARCHITECTURAL MAPS OF HUMAN CEREBRAL CORTEX BY BRODMANN (1914). TOPOGRAPHICAL REPRESENTATION OF DIFFERENT KNOWN REGIONS OF CORTICAL FUNCTION. B. LAMINAR STRUCTURE OF CEREBRAL CORTEX, SIX LAYERS. GOLGI - STAINS ALL OF NEURON (AXONS NOT SHOWN). NISSL - STAINS ONLY CELL BODY. EXCELLENT FOR SHOWING CELL DENSITY, LAYER THICKNESS.

On the right side of figure 1 we see the typical six-layer organization of the cortex. Each section on the right hand figure shows the same tissue, using different staining techniques. The Nissl stain impregnates only the cell body while the Golgi method impregnates almost the entire neuron. Brodman found that the relative thickness of these six layers will vary from area to area with regard to the number and density of certain types of cells and other criteria.

There are essentially two principal types of cells in the human cortex: the pyramidal cells, and the star-shaped cells which for the most part are local circuit neurons. These two types, according to Sholl (1956), account for more than 97% of the 14 billion neocortical neurons. It is important for the argument of this paper to understand the distinction between these two types of cells. The pyramidal cell, the cortical "workhorse", is the most visibly distinctive type of cell in the cortex. It has the form of a pyramid, or triangle, whose upper end is continued toward the surface of the brain as the apical dendrite. Dendrites are also seen emanating from the side and base. Star shaped cells (principally the local circuit neurons) as seen for example in layer IV, figure 1B, are smaller, more polygonal, and perhaps rounder in shape. These cells have a number of dendrites passing in all directions and a short axon, which carries a propagated neural signal away from the main cell and typically arborizes close or locally to the region of the cell body. These star-shaped cells are the more important cells with regard to basic and long range learning, as we will see later.

2. Broca's and Wernicke's Areas. Using Brodmann's map, in figure 2, one can locate the various areas that have been found

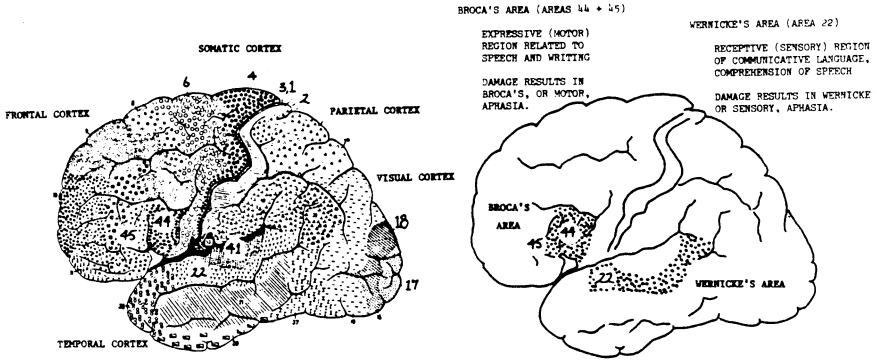


FIGURE 2.

CYTOARCHITECTURAL MAPS OF HUMAN CEREBRAL CORTEX BY BRODMANN (1914). TOPOGRAPHICAL REPRESENTATION OF AREAS OF CORTICAL FUNCTION IN BROCA'S (AREAS 44 + 45) AND WERNICKE'S (AREA 22) AREAS.

to have special perceptual and behavioral functions. For example, the primary area for vision is area 17. The primary somatic cortex representing the so-called homunculus is located in areas 4, 6, 3, 1, and 2, and the primary auditory cortex in area 41. These functional areas are found in similar positions in all species of placental mammals.

In the human brain, several areas have evolved that have special importance for the learning and processing of language. The two classical areas known for more than a century, Broca's Area and Wernicke's Area, are shown on the right of figure 2. Paul Broca, in 1861, was the first to point out the special importance of the left hemisphere for language, and he placed special importance on the frontal region that can be seen in the figure as areas 44 and 45. Carl Wernicke, in 1874, pointed out the special importance of the posterior regions, especially Brodmann's area 22, for the auditory comprehension of speech.

The symptoms for Broca's and Wernicke's aphasias are strikingly different. If large frontal regions including Broca's area are destroyed (cf. Mohr, 1976) leaving the posterior language areas intact, the patient will typically have halting and effortful speech with special trouble using the grammatical function words. Comprehension in Broca's aphasics will be relatively good, but if you say that "The lion was killed by the tiger", they will usually think that the tiger was dead. Posterior lesions, including Wernicke's area but sparing the frontal language areas, will lead to severe comprehension problems accompanied by fluent grammatical speech which is rather empty in content. On the basis of this knowledge, Wernicke predicted that there should be a third type of aphasia: if the connection between posterior and frontal language areas is broken, then there should be patients who have fluent grammatical speech, and excellent comprehension, but who have extreme difficulty with repetition. It wasn't long before such patients with conduction aphasia were found. Other specialized types of aphasia are reviewed in Goodglass and Geschwind, 1976.

The important point for our purposes is that the different language areas have different functions in the use and in the acquisition of language. Just as damage to different areas will result in specifiable types of aphasia, differing rates and types of maturation among these areas will result in specifiable and different acquisition patterns.

3. Neurolinguistic Feature Detectors. A great deal of recent work by Eimas and others has shown that newborn infants only a few weeks old are able to perceive phonetic features of speech in a categorical manner, just as adults do, suggesting that we are dealing with innate neural detectors for phonological distinctive features. In one example, the infants responded to new stimuli by increasing their sucking rate on a pacifier nipple. Two synthesized /b/ sounds with slightly different voice onset times

were regarded as being the same. But if this slight difference in voice onset time spanned the /b/ - /p/ boundary, the two sounds were perceived as being separate stimuli. The numerous studies which have refined and elaborated on this finding give persuasive behavioral evidence that infants are innately equipped for the analysis of speech (Eilers, 1977; Eilers and Minifie, 1975; Eilers, Wilson and Moore, 1978; Eimas, 1974, 1975a, 1975b; Eimas and Miller, 1977; Eimas, Siqueland, Lusczyk and Vigorito, 1971; Fodor, Garrett and Brill, 1975; Hillenbrand, Minifie and Edwards, 1977; Jusczyk, 1977; Jusczyk et al. 1977; Lasky, Syrdal-Lasky and Klein, 1975).

The actual neurophysiological operations leading to linguistic feature detection have not yet been distinguished within the brain, but research in the basic neurosciences in the last twenty years would tend to support the possibility of such a deducted claim. For example, Hubel and Wiesel (1959, 1969) demonstrated in the cat, and later in the primate, that the visual cortex contains neurons which are specialized in their detection of specific features in the visual world, such as contours, angles, illuminated lines, lines in certain orientations. Some visual cells excite only if a certain line appears in a precise part of the visual field; other cells are indifferent to location. These detectors are part of the innate neural arrangement and physiological function of the visual cortex.

In inframammalian animals such as the frog and the bullfrog, there is evidence that feature detectors are also found in peripheral neural systems. In their celebrated paper entitled "What

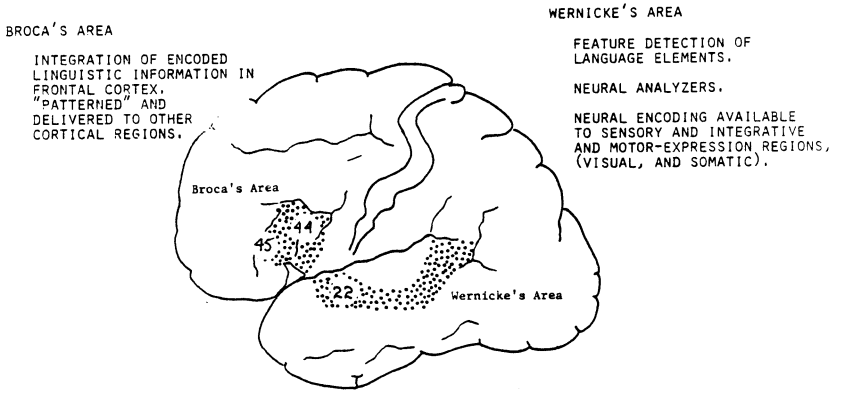


FIGURE 3.
NEUROLINGUISTIC ASSUMPTIONS RELATED TO WERNICKE'S AND BROCA'S AREAS. WERNICKE'S AREA, INNATELY RESPONSIVE TO SPEECH VERSES NON SPEECH SIGNALS. BROCA'S AREAS, INNATE PATTERNING OF ENCODED LINGUISTIC INFORMATION, EVENTUALLY PASSED ON TO SOMATIC SENSORY-MOTOR AREAS.

the Frog's Eye Tells the Frog's Brain" (1959), Lettvin and his collaborators reported that recording from single optic nerve fibers, the frog's retina performed four distinctive operations on the image. Groups of fibers were found which responded to edges, to the curvature of an object, to the movement of edges, and to a sudden reduction of illumination. These operations suggested to the authors "much more the flavor of perception than of sensation."

As investigators were quick to see, it makes sense to assume that in the course of evolution, neural systems have evolved for detecting elements and encoding information about visual input. It has become clear that the primary visual cortex possesses "wired in" detectors for the complex aspects of visual response to the environment.

Similar findings have been reported from the somatic sensory cortex of the cat and primate (Mountcastle, 1957, 1973), the auditory cortex of the cat (Abeles & Goldstein, 1970), and aspects of coding properties of the auditory system used to detect vocalization in the bullfrog (Capranica, 1965, 1966; Frishkopf et al., 1968).

With regard to language, then, it seems quite likely that feature detectors and neural analyzers exist in the language areas of the cortex analogous to Hubel and Wiesel's feature detectors in the visual cortex, and that Wernicke's Area would have a certain priority of importance in the detection and analysis of language (cf. Walsh and Diller, 1978). It is not likely that such a long-term encoding mechanism would turn off at age 6 or 8, or at puberty; it would operate well beyond childhood in much the same way, say, as an ear for music persists through several decades.

4. Brain Maturation: Neurodevelopmental progression. The neocortex, as we see in figure 4, is to a large extent underdeveloped at birth. Human infants can distinguish speech sounds with phonetic features, as we have just seen, and, of course, they begin quite early to babble with speech-like sounds. They are not able at this early stage to do much mimicking or repetition. It is several months before infants understand their first words and even longer before they use their first word. The reason for the inability of infants to deal effectively with language in the first months is that the neural connections are not well established. Infants are like conduction aphasics to the extent that their repetition is poor. If the arcuate fasciculus, the pathway between Wernicke's and Broca's areas, were more highly developed at birth, one would hear mimickry much sooner in infants.

There is a double reason why Wernicke's area is most important in the early stages of language acquisition. The first reason is that by being adjacent to the primary auditory cortex, it is the first language area to receive linguistic input from the environment. Secondly, because the arcuate fasciculus and other pathways out of Wernicke's area are slow to develop, the

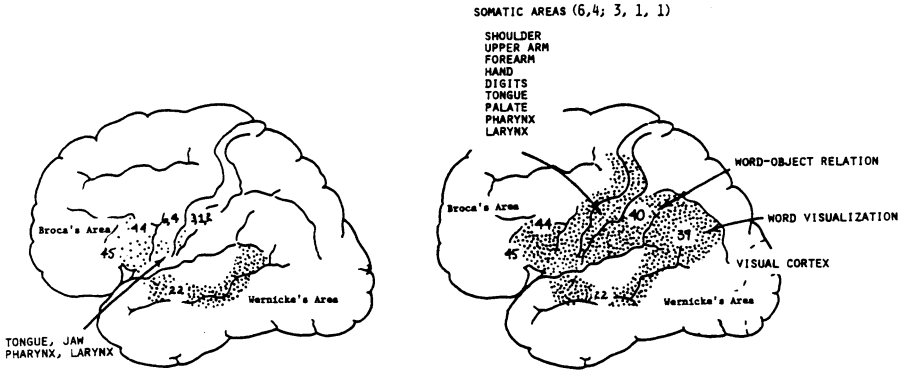


FIGURE 4.
NEURODEVELOPMENTAL PROGRESSION RELATED TO THE INNATE RESPONSIVENESS OF WERNICKE'S AND BROCA'S AREAS AND EARLY REGIONS OF EXPRESSION. LATER DEVELOPMENT OF SENSORY AND MOTOR AREAS TO LANGUAGE ACQUISITION. HIGHER CORTICAL PROCESSES OF COGNITIVE AND INTELLECTUAL FUNCTIONS BECOME ELABORATED DURING FIRST LANGUAGE ACQUISITION; TOWARD LANGUAGE ACQUISITION SYSTEMS AVAILABLE FOR LATER LANGUAGES.

infant cannot direct the production of the words that he hears, but must be content with processing the words in a receptive manner.

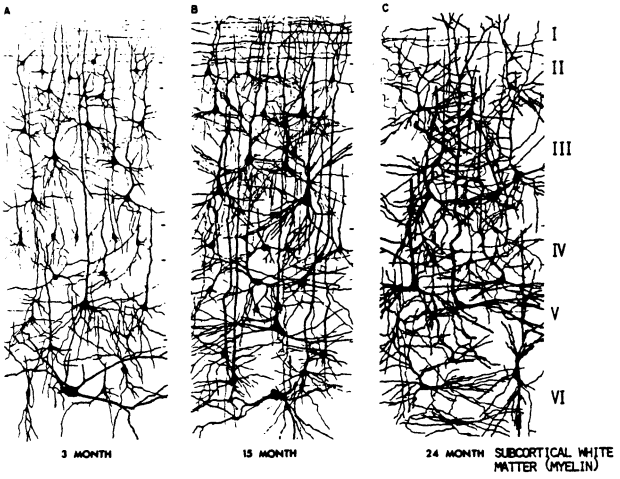


FIGURE 5.
CAMERA LUCIDA DRAWINGS OF GOLGI IMPREGNATED SECTIONS FROM THE SUPERIOR TEMPORAL CORTEX IN HUMAN CHILDREN AGED 3, 15, 24 MONTHS. NOTE INCREASED ARBORIZATION OF NEURONS, AND DENSITY OF DENDRITIC SPINES, WITH INCREASING AGE (CONEL, 1947, 1955,1959). AXONS FROM PYRAMIDAL CELLS PASS TO HOMOLATERAL AREAS, CONTRALATERAL AREAS, AND SUBCORTICALLY.

Human brain weight increases almost fourfold from birth to adulthood (from about 335 grams to 1300 grams). In figure 5 we see the radical increase that occurs in the human brain in the first two years from birth. These drawings are from sections taken from the superior temporal cortex in human children aged 3 months, 15 months, and 24 months (Conel, 1939-63).

Notice that in the brain of the newborn, the ascending (apical) dendrites of pyramidal cells are bare shafts with very few branches. There is gradual growth in the next two years in the arborization of the ascending and basal dendrites and in the number of spines (postsynaptic receptor sites) on the ascending dendrites. By the age of about two years, the brain has matured enough so that serious language learning can begin.

5. Developmental stages, not critical stages. By all neuroanatomical accounts, pyramidal axon connections are reasonably well established early in the period of language development, certainly by age 6 to 8, especially for axons which pass the longer distances. This consolidation of anatomical connections presumably explains the difficulty that older children and adults have in establishing new language centers in the right hemisphere when they develop left hemisphere damage. It also explains the difficulty in conquering foreign accents after childhood. When a child learns a second language right along with the first, pronunciation for both languages procedes authentically at the same pace. But once the pronunciation pattern of the first language is established in normal monolinguals, it becomes easy to use these patterns as first approximations to new sounds when learning a second language. With regard to foreign accents, then, Penfield does have some neural evidence for his insistence that early childhood is the best time for second language learning. On the other hand, foreign accents are overcome to a reasonably large extent with proper instruction or with an optimal natural environment. From the standpoint of learning a second language, then, early childhood should not be seen as a critical stage in which it is necessary to start learning a second language. It is, rather, a developmental stage, in which the learning of a second language is somewhat different from learning a second language in later developmental stages. As we shall see, there is good reason to support the view that except for pronunciation, the later developmental stages are better.

6. Local Circuit Neurons. In 1967, Lenneberg stated that the maturation of the central nervous system was virtually complete by puberty (Lenneberg 1967, 181). Work published since that time has shown that this is not necessarily true of the final development of local circuit neurons, called variously microneurons, stellate or star-shaped cells, Golgi type II cells, and interneurons (see figure 6). Classical concepts of neuron function and development are being completely revised as a result of a

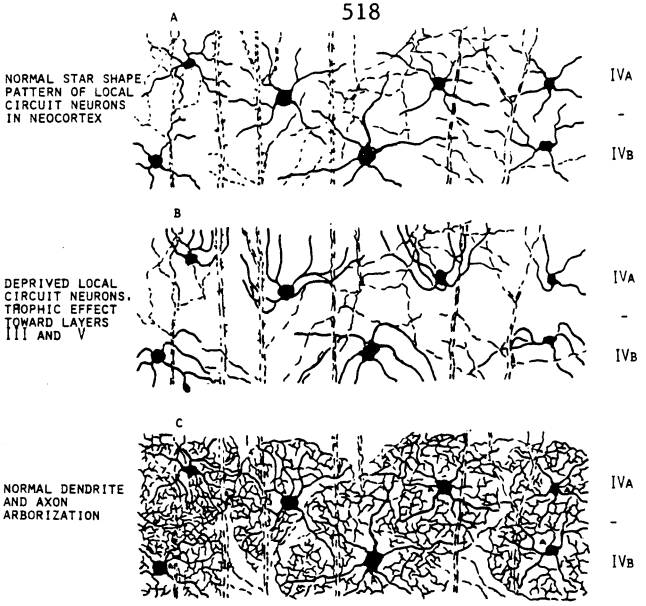


FIGURE 6.
REPRESENTATION OF LOCAL CIRCUIT NEURONS IN LAYER IV OF PARIETAL CORTEX. A. SHOWS NORMAL STAR SHAPE FORMATION OF DENDRITES. IN THIS LAYER DENDRITES RECEIVE INPUT MAINLY FROM THALAMUS, ALONG WITH CONTRALATERAL AND HOMOLATERAL AFFERENTS. B. DEPRIVATION OF THALAMIC INPUT LEADS TO ELONGATION OF DENDRITES AND THEIR DIRECTION TOWARD APPARANT SYNAPTIC ACTIVITY. C. NORMAL DENDRITIC AND AXONAL PLEXES. PRESUMABLY INCREASE AND DECREASE OF AXONAL ARBORIZATION RELATES TO NEURAL USE.

wide range of studies including recent intracellular recordings of postsynaptic patterns traced to local circuit neurons (Rakic, 1975). Other studies indicate that neuronal synaptic arrangements may be as modifiable at different postnatal stages as during formative stages (Valverde, 1967; Globus and Schiebel, 1967; Chan-Palay, 1973; Wiesel and Hubel, 1974; Rakic, 1974). Local circuit neurons seem to have a continuous role in the establishment of new connections, and appear to be the fundamental cells underlying neuroplasticity. As suggested by Jacobson (1970, 1974, 1975), they bear the brunt of environmental impact pertinent to learning. It would appear that they are the "fine tuning" neurons which modulate on a local level the input and output circuits formed by the pyramidal cells and other macroneurons.

Unlike pyramidal cells, which are well in place in the brain at birth, local circuit neurons appear to develop to a great extent after birth. Altman (1967, 1972), using a radioactive tracer technique for tagging proliferating cells suggests that these neurons are, in large bulk, undifferentiated at birth, still migrating as neuroblasts within the cerebral cortical tissue. It seems evident that these neurons should be characterized by their distinctive postnatal growth and slower differentiation in the brain, and that cortical maturation (contrary to traditional views) is a long term process in humans, ranging over two to possibly three decades or more.

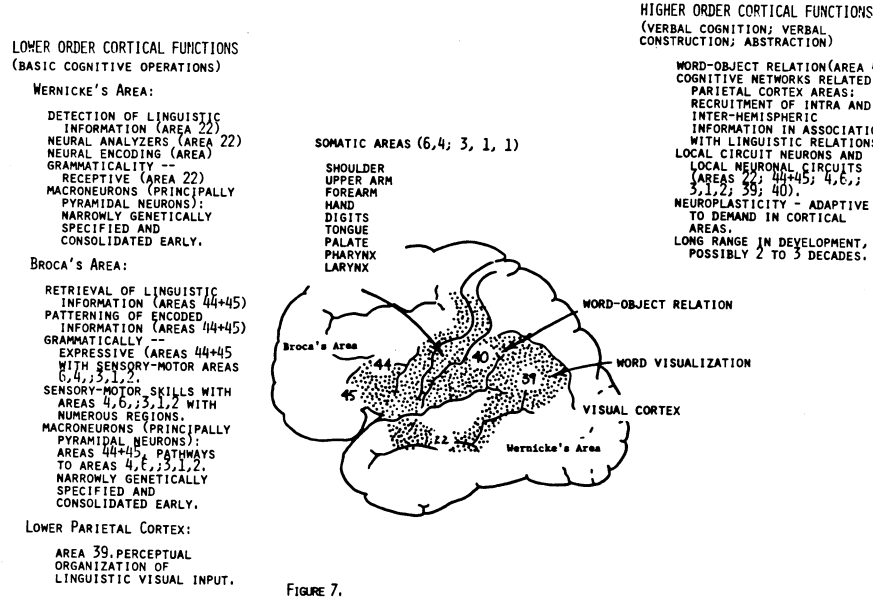


FIGURE 7.

SUMMARY OF LOWER AND HIGHER ORDER CORTICAL AREAS ASSOCIATED WITH LINGUISTIC FUNCTIONING. LOWER ORDER AREAS DEVELOP EARLIER AND ARE MINIMALLY NEUROPLASTIC (APTITUDES). HIGHER ORDER AREAS FUNCTION DEVELOPMENTALLY OVER SEVERAL YEARS AND ARE REGARDED AS NEUROPLASTIC TO LINGUISTIC DEMAND. LOWER AND HIGHER SYSTEMS ARE SEPERABLE IN FUNCTION.

There is an aphasic syndrome called "Isolation of the Speech Area" in which the lower-order speech processes of Broca's and Wernicke's areas are isolated from meaningful higher order processes of language, and in which the language areas serving these higher order semantic functions are damaged or cease to function. These patients exhibit echolalia--that is, they repeat anything that is said directly to them ("What's the weather like today?" --"What's the weather like today?"). They also sing along with the radio and learn the words to new songs. But they never show any sign of understanding any of this speech and, except for some swearing, they never utter any meaningful sentences (cf. Geschwind, Quadfasel, and Segarra, 1968; Whitaker, 1976). What is preserved is speech, the lower order language processing, but language in the broader sense is lost.

We have placed the basic grammatical processes of Wernicke's and Broca's areas as lower order processes. A current trend in syntax, however, is to place a large and sophisticated part of the grammar in the lexicon. This lexical grammar is presumably higher order. It is not surprising, then, that measured grammatical sensitivity continues to rise with age.

We are able, now, to explain the seemingly contradictory evidence on the optimum age for second language learning. Lower-order processes such as pronunciation are dependent on the early maturing and less adaptive macroneural circuits, which makes foreign accents difficult to overcome after childhood. Higher order language functions, such as semantic relations, are more

Various aspects of learning, memory, integration, and plasticity have been attributed to local circuits and local circuit neurons (Young, 1966; Gardner-Medwin, 1969; Jacobson, 1970; Cragg, 1972; Rakic, 1975). Indeed, even at the turn of the century, Cajal (1899) pointed out the apparent strong relationship of these "short axon cells" in the role they seem to play in complex animal behavior and human intelligence.

We have seen, in figure 4, how the neural systems subserving the vast range of human cerebral functions continue to develop over a period of years. We are coming to suspect that the functional capacity of these cortical regions may never be fully fixed. What we regard in psychology as cognitive development, as in the work of Piaget (1926), can be seen as the developing expression of an underlying maturation process. Cognitive development in adults is not yet fully adequately studied, but certain cognitive aptitudes continue to rise markedly after puberty (Bloom, 1964), especially scores on language aptitude tests which continue to rise at least into one's mid thirties (Carroll and Sapon, 1959; Pimsleur, 1966; Wells, 1974). Grammatical sensitivity or grammatical reasoning in particular, seems to develop into a new stage at puberty. This was known to such educators as Emile de Sauzê, who pioneered in the teaching of foreign languages in the elementary schools as an enrichment program for selected students in Cleveland. He never tried to extend this program to the general curriculum because he found that it was so much more effective to start second languages after students had reached about age twelve and had reached this developmental stage (de Sauzê, 1959).

The assumption to make is that plasticity of local neuronal circuitry is the factor which enables cognitive development to continue into adulthood.

7. Lower Order and Higher Order Language Processes. In figure 7, we represent the cortical areas associated with what we would call "lower order" and "higher order" linguistic functioning. The lower order functioning is narrowly genetically specified and consolidated early in development. It includes the basic analyses of speech in Wernicke's area and the patterning of encoded information and the expressive speech of Broca's area. It also includes visual perception of area 39 leading to reading and writing.

The higher order functioning develops later and appears more adaptive to complex linguistic demand. It includes semantic processing and word-object relationships (area 40). This less specialized higher order linguistic functioning seems to utilize intra- and inter-hemishpere information. The essential nature of this cortical integration process is linguistic.

The distinction between lower order and higher order processes is illustrated by the similar distinction between "speech" and "language," in which we may include speech as a part of language.

dependent on the late maturing neural circuits, which may explain why college students can learn many times the amount of grammar and vocabulary than elementary school students can learn in a given period of time. As people grow older and cognitively more mature, their increasing higher order cortical functions allow them to do more than they could before with their lower order aptitudes and functions. From an understanding of the neural substrates involved in the development and differing strategies for learning language, we can understand how different aspects of language are learned optimally at different ages. Methods of teaching and strategies of learning vary predictably according to the developmental stage of the learner.

We conclude that though there may be certain neurolinguistic advantages of early bilingualism, the evidence does not support the strong claim that the best age for second language learning is necessarily the first decade; indeed, in important respects adults have superior language learning capabilities.

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A LINGUISTIC PHENOMENOLOGY OF THERAPY TALK

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The social sciences have always been faced with a dilemma that seems periodically to produce a state of crisis: the more "scientific" they become, the less they seem to tell us about human experience; the more concerned they become with human experience, the less "scientific" they seem. Fifty years ago Sapir (1949) revealed his concern with this split when he argued that the social sciences must return to the "living context from which [our theories have] been abstracted in the first place." This gap between the realm of concrete human experience and our ideas about that experience is perhaps the most fundamental phenomenon of social science, for what we think about the relationship between theory and experience not only has relevance for indicating possible directions of research for constructing theories of human social life, but also may have the most profound repercussions on the individual lives of large numbers of people living in the world today through the applications of that research especially in the provision of human services. It becomes important then to confront this dilemma and to attempt to understand its nature.

We feel it critical to realize that our models of human being do not in fact capture human experience in all its potentiality. There seem to be two general styles of thought regarding the study of that experience. Differences between these two approaches go very deep and seem to revolve around matters which were, before the Renaissance, considered matters of "faith," and have to do with the most basic assumptions regarding human nature. On the one hand is that tradition of thinking which is pervaded by the highest skepticism about the ability of the individual person to make "valid" judgments. One thinks immediately of Descartes and Hume in this context, and particularly of certain aspects of the modern scientific tradition as exemplified in the school of logical positivism and the "anti-metaphysical" thinking of Rudolf Carnap (1956). Truth here is conceived as a collection of verifiable descriptions of relations between facts in the world. Both facts and their descriptions are independent of the individual person's life experience, particularly that of the scientific researcher. Some critics have charged that this tradition has reduced the world to a set of meaningless relations (Polanyi, 1975).

The other mode of thought, on the contrary, views the individual person, the life process, and the nature of truth in a radically different light. Among such thinkers as Nietzsche, Jaspers, Heidegger, and to some extent the Wittgenstein of PHILOSOPHICAL INVESTIGATIONS, there is at least an implied faith in the ability of the human organism to realize its own truth through the unfolding life process itself. Truth here is not an accumulated body of data and generalizations over that data. As

Giambattista Vico, one of the earliest proponents of this view argued, truth is historical, and that "the validity of all true knowledge . . . can be shown to be such only by understanding how it comes about." For Vico, truth is created by human beings in their "pursuit of an intelligible purpose, [in] man's effort to understand himself and his world, and to realize his capacities in it." (Berlin, 1976). Therefore, our basic orientation toward the aspect of the world we wish to study is not something we can take up in a mood of pure abstraction, but must derive ultimately from our prior historical experience and from our nature as human beings needing to create meaning in our own lives.

As with other social sciences, linguistics established itself over the last two centuries as a science largely by working within the rationalist-empiricist tradition. Ricoeur (1976) points out that linguistics has made immense progress by considering language as a set of discrete entities in "systematic relationships involving only the interplay of oppositions constitutive of the system" in a self-contained whole. Language became an object of study entirely removed from persons who speak to each other. Ricoeur argues that as soon as linguistics wishes to understand language as, in Wittgenstein's phrase, a "form of life" i.e., as discourse, it can no longer afford to bracket out considerations having to do with people involved in creating various kinds of meaningfulness in their interactions with each other. Traditional methods of collecting data and forming generalizations to describe the data as a self-contained system will clearly continue to have important bearing on the study of language. However, we suggest that these methods by themselves can never lead to an understanding of how meaning comes into being through historically-lived time in human discourse, although we cannot demonstrate this claim here (v. Polanyi, 1975; Kuhn, 1970; Dreyfus, 1972; Berlin, 1976). We will therefore shy away from a simple direct transposition of established linguistic concepts such as "deep structure," "well-formedness," "linguistic competence," "grammaticality," etc., from their original use in the study of phonological and morpho-syntactic relations to the study of meaning in discourse. We suspect that in fact, no algorithm can be formed which will automatically "extract"--let alone predict-- the kinds of meanings people consider worthy of concern in interaction with each other, because meaning on this level is unique to the specific persons acting together within the discourse world. Meaning is to some extent "occasional" in Gadamer's (1976) sense of the term. We in fact concur with Sapir (1949), who suggested that if linguistics wishes to play a role in returning human sciences to concrete lived experience that its "definitions, meanings, and classifications must be capable of significant restatement . . . which transcends the best we have yet been able to offer." If such a thorough rethinking of the most fundamental concepts in linguistics is in fact needed in a linguistic approach to discourse, we cannot attempt it here, nor can we predict what the result will be for linguistics. Before this kind of reflection becomes possible, we

need a much better understanding of what human discourse is all about. As linguists, we can as yet say very little about the fundamental nature of the acts persons perform in creating meaning in their daily interactions. It is in the study of meaning, then, as it is created and experienced by acting persons that linguistics is most called into question.

This questioning becomes particularly acute in the study of therapy talk which typically involves persons living in what they perceive as problematic life situations. Therapy interaction can have great impact on each person who enters into it, whether therapist or client. The study of therapy interactions thereby encourages us to raise the most basic questions as to the nature of the coming-into-being of meaning in discourse. These questions deal primarily with the interpretive process: (1) What specific meanings are created by persons in interaction? (2) How are these meanings brought into being by the interactants? (3) What in fact would constitute "valid" answers to such questions? (4) Are certain kinds of answers that we might give more valuable to us than others?

Rather than attempt to provide conclusive answers to the questions we have asked, we will confine ourselves to indicating a direction for thinking about discourse that we believe will prove fruitful in the light of this questioning. Our first step is to bring our rather general questioning closer to the concrete realm of lived-experience by focusing on the interpretation of specific instances of discourse and to allow our attention to be directed to specific issues which are crucial to that particular kind of discourse for those who participate in it. We have already identified therapy talk as crucial for the self-realization of persons engaged in it. The segment of therapy talk we have selected appears to us as having particular bearing on this issue because both the participants and the researchers felt it was in fact not an especially helpful interaction for either person. The therapist, one of the authors of this paper, felt she was not able to achieve a deep enough understanding of the client's experience to enable her to be helpful to him in such a way that he would feel better about himself and begin to realize in his own way his potential as a human being. The client, when asked by the therapist "What are you getting out of our talks?" explained that he hadn't been "getting much mileage" out of them.

The other author of this paper had independently arrived at a similar conclusion after repeated listenings to the tape recording of the session and before eliciting any comment at all of the therapist's interpretation. He felt that the level of mutual understanding achieved here was little more than merely adequate to maintain the more superficial aspects of interaction. That is, cooperativeness between both persons was maintained in such regards as sharing turn-taking, providing responses which take up reference and predication in a consistent and appropriate way, sharing topic selection and allowing at least some shifts in focus within topics to take place, providing continual listening responses to

the speaker, etc. Yet on repeated listenings it became apparent that little depth of understanding was achieved in terms of mutual recognition and acknowledgment of each other's experience in the interaction, and that in fact there was an undercurrent of conflict between client and therapist which may well have interfered with the development of a deeper understanding of this kind. In short, standards of politeness were apparently being maintained as a veneer over a conflict as to what this interaction was going to achieve for either participant.

Given these general characterizations of the interaction, our first question arose: "What is it about this discourse that allows us to interpret it in this way?" Our interpretations are for us the particular meaning of this interaction. They were what came into the foreground of our attention as an explicit awareness set forth as assertions of the kind given above.

For the purposes of this sort of interpretive study we draw on the hermeneutic phenomenology of Heidegger (1952), and on Polanyi's (1975) formulation of meaning. Polanyi defines meaning as whatever is in focal awareness, arguing that focal awareness is made possible by its relationship to subsidiary awareness. This creative process is, for Polanyi, always ongoing, as long as the person has consciousness, and thereby involves at all times his ongoing experience of the world as a continual process of the unfolding of focal awareness of something (objects, feelings, sensations, verbalizations, etc.) out of a background of subsidiary awareness.

To ask the question, "What allows us to arrive at our particular interpretations of the world?" necessarily means attempting to uncover the act of meaning-creation itself, or at least certain aspects of it that we consider important for our purpose.

Without arguing the case here, we will propose that the achievement of a deep mutual understanding in therapy interaction is hindered when the participants are in conflict as to what the interaction itself is to achieve--i.e., what it is to come to mean --for each of them, particularly when this conflict is not brought to the level of explicit attention in the situation. This is in fact the case with the interaction we will discuss below. Our question, "What in the discourse allows us to interpret it as unsatisfactory as therapy (beyond the reported views of participants and researchers)?" may be made cogently answerable by first providing answers to the following questions: (1) What is the nature of the conflict between the participants? (2) How do we know there is a conflict of a particular kind? Answering these questions means, again, bringing to our own focal awareness at least certain aspects of subsidiary awareness relevant to our specific interpretations regarding the nature of the conflict. The most viable interpretation would not only be one which accounts for the most data (Taylor, 1971) but also would, as Vico suggested, best further our understanding of the world and the realization of our human capacities.

Our contention is that very little is in fact known about the

acts of meaning as described above, and that attention to these acts in specific instances of human discourse is needed if we are to get beyond the more general theories of the thinkers referred to above, and particularly if we wish to further the realization of the human potential of specific persons, such as those involved in therapy interactions.

In bringing aspects of subsidiary awareness to our attention, we need to look at two kinds of data: the observable speaking or communicative behaviors of the participants in the interaction; and, those aspects of cultural knowledge and experience, such as certain assumptions and expectations that participants and/or researchers make use of in interpreting those behaviors in a meaningful way. That is, we need to understand better how people bring the knowledge they have already gained through their history of interactions with other persons to bear on presently occurring events in such a way that they can arrive at particular meanings or interpretations.

Our research has so far focused on the analysis of several therapy sessions between the same therapist and several clients, using selected audiotaped sessions for detailed study. In particular we have concentrated on three tapes involving one client. One tape is a ten-minute monologue by the client recorded a year prior to the other two tapes, which are actual sessions with the therapist spaced about a month apart. We defined in preliminary analysis four basic "interactional moods" aside from greetings. By "interactional mood" we mean both the perceivable verbal/nonverbal behaviors of the participants, and the "meaning" the interaction has in their experience, including their outlook, feelings, perspective, etc. Merleau-Ponty (1968) refers to these dimensions as, respectively, "the visible" and "the invisible," and speaks of their "intertwining" (the chiasm). We choose a single word to refer to both aspects of face-to-face interaction because that foregoes dividing what goes on in talk into signifier and signified, form and content, linguistic expression and what is expressed, language and idea, etc., all of which presuppose a full understanding of the relationships between the visible and invisible aspects of human experience which is what we want to investigate in the first place. We wish to think of them as two perspectives on the same phenomenon: human beings speaking to each other.

We see interactional moods as "forms of life" (lebensformen) in Wittgenstein's (1953) sense of the term. Defining them is less a matter of forming a limited set of necessary and sufficient attributes, than an investigation of family resemblances between different segments of the interactions under study. We provide below brief descriptions of three of the interactional moods found in the tapes mentioned above involving the therapist, one of the authors, and a single client. We will then provide a more detailed description of the fourth mood, with accompanying transcribed text, and will then proceed to a brief discussion of certain implications of the kind of descriptions and analyses we are attempting. We have informally designated the four moods as (1) Challenge and Duel,

(2) Instructional, (3) Joking, (4) Bombast. We offer this material merely as an exemplification of our approach as it now stands, being well aware of the complexity involved in elucidating for the reader the intertwining of even limited aspects of our interpretations of the taped discourse we are interacting with as researchers, and in the case of one of the authors, also as therapist. Our impression so far is that despite mood shifts the relationship between the therapist (T) and the client (A) remains a distant one, characterized by a kind of estrangement it is very difficult to describe. The therapist feels that after nearly two years of weekly sessions, she knows a great deal about the client, but has not come to know him as a person. Her uncertainty as to the nature of his invisible experience makes it difficult to provide help. Given this, an examination of the movements of the interaction from mood to mood would be especially valuable, though we cannot attempt it here, for it is in the transitions that one might expect to find the greatest possibilities for realizing interactional moods which would be new for these participants and which might enable both of them to realize their unstated--and for the client, perhaps unstatable--interactional goals, which might allow the client to reveal himself more clearly both to the therapist and to himself. An understanding of how such possibilities do not in fact materialize in the case at hand, might open up a path toward them.

CHALLENGE AND DUEL. This mood typically grows out of Mood 4, Bombast. T shifts topic focus away from what A has been talking about. Generally A has been talking about other people, things he did or thought about, what his plans are, and T's shift is usually posed in the form of a question about his feelings. For example, in one passage A had been talking about a newfound friend who had "rescued" him from a recent heavy bout of drinking. T shifted focus rather abruptly by asking, "So did you get some relief [from the drinking episode]?" A appears to take such shifts as a challenge rather than as an offer to open up discussion to cogently personal matters. Typically he puts off answers to T's questions, treating them as requiring further elucidation, and often providing relatively brief responses which are either relatively literal or formulaic. T frequently can be observed interrupting A, but the reverse case is rare. A, in his responses,appears to attempt to return to his prior topic, but never overtly suggests such a return. There are often long pauses (2-10 seconds) following T's questions. Prosodic features in A's speech differ considerably from the longer turns he takes in Mood 4, in being more rapid, less emphatic, and more "muted" in that modulations of stress and pitch are less extreme. This mood is usually found embedded in Mood 4 talk, or sometimes is followed by Mood 2, Instructional.

INSTRUCTIONAL. In this mood T does most of the talking, providing long stretches of material on such matters as her experience of A, her interpretations of what he has told her about himself, her own feelings about the nature of personal growth, etc. A provides frequent and appropriately spaced listener responses, but, as we shall

see below, this differs from T's responses to his longer stretches of talk in Mood 4. T's responses there show no more than comprehension, while A's responses in Mood 2 further indicate agreement: "Right," "yeah," "I know," etc. A rarely interrupts T (contrast T interrupting A in Mood 4 below). Long pauses occur between turns, during some of which A does not take the opportunity to speak and T again takes up where she has left off. T typically feels she is failing to get through to A in these moods. Instructional moods occur generally after a session is well underway and instances of Moods 1 and 4 have already taken place.

JOKING. These involve brief excursions out of any of the other three moods. They involve A and T in mutual banter of a somewhat "personal" nature and a shared laughter. They have a foundation in their own personal interactional history, drawing on standing jokes and references to that interaction that could only be known to them. They are therefore good candidates for furthering rapport and solidarity, yet T feels this does not in fact happen.

BOMBAST.

A: ..I've got a period now of adjustment/ I have to go through/ at work/ because I'll be going out/ into the field more/ ... and uh...uh...and buying houses/..and selling them/. I won't be.. taking any more complaint calls/ and and all that sort of thing// I'll still be renting properties/.. ( )..which I don't like the idea of/.. but it it'll be for the time being/ a little bit/ on the (income) side//

T: Mhm

A: 'cuz I can go out and buy it/ and then turn around and rent it/ I'll get..y'know

T: Mhm

A: For there..uh..[4 seconds] but I was saying/..uh.. today/.. to Bill/ that uh...uhh...I resented/ resent/ being shut up in the office// I resent... [4 seconds] being stuck there/.. in many respects// stuck either in the office/ or with somebody's complaints/ or out on the job/..when/ other people/ in the office/ were coming and going/.. and I wasn't being paid by the hour// No/ I.. put in as ...al-almost as many hours as Dave/ and (I'm fighting it)// so I was.. I was I was feeling sorry for myself there/..saying Oh woe is me/ uh.. I can't get out and they can/ I don't like this/ because I can't do that// And all I had to do was say/.. realize/ that I'm ( ) who am I to say (well) I don't wanna do this/ I wanna do that/ but.. I'm also caught with/ .. in property management/ .. there is al-uh.. more or less a guarantee there's more security/ than when you're on straight..

T: Uhmhm//

A: commission/ making it on yourself//

T: Uhmhm//

A: so I want my cake and eat it too//

T: \Mmm// 34
A: I wanna be able to'work when I wanna^work// ..<u>(but I</u> 35
<u>(don't wanna hafta do\that)</u> 36
T: \Mhm// 37

In Mood 4 A does most of the talking, while T supplies listener responses which typically do not show agreement, but at most indicate T is following A's talk: "Mhm," is most frequently used with low-rising tones, interspersed with "Mm" with low-falling tones. The client's discourse is characterized by the following collections of features:

1. Frequent use of parenthetical asides (underlined in the transcript), as compared to his talk in the other moods. These are prosodically marked, relative to his talk before and after the asides, by: (a) downward register shift over whole groups of phrases; (b) increased speed; (c) decreased loudness; (d) relatively less phrasal modulation in terms of the degree of shift on the scales of loudness and pitch within tone groups (indicated with slashes); longer stretches of talk between pauses.
2. Parenthetical asides appear to be prosodically marked in a fashion conventional for that familiar form of American English exemplified in the speech of national TV news anchormen. Yet on the level of propositional content parenthetical asides seem to be disjointly connected with propositional content in the main bodies preceding or following the aside. For example, in lines 14-31, the proposition "I was feeling sorry for myself there" (i.e. in the office) L 21-22, may imply a contradiction with the proposition at L 14-15, "I resented/ resent/ being shut up in the office." The contradiction here is not a strictly logical one, nor a factual one: clearly one might feel resentment and at the same time imply one shouldn't feel resentment by saying to oneself "I'm just feeling sorry for myself," overlaying a verbal interpretation on a felt experience. However, the degree of emphasis A has given his statement of resentment does not lead one to expect that in an aside he will reinterpret that resentment as unjustified. (This emphasis is carried prosodically by sharp increases of stress on the words "resented" and "resent," as well as by the repetition of the word and the use of parallel constructions.)
3. The main body sections of A's talk are prosodically characterized by: (a) frequent, regularly spaced, relatively long pauses for expository and narrative discourse (2 or 4 seconds); (b) prosodic peaks, such as high stress points (indicated by accent marks placed before the stressed word: 'word; ,word) and nuclear tones (indicated by traditional tonal symbols over words: \, /, \/, ^,), etc. are spaced in very regular rhythms, such that the moment of their occurrence is easily anticipated by the listener. The tempo of A's speech is relatively slow, about 60 beats/minute, and prosodic peaks occur with high frequency on every fifth beat. This rhythmic pattern could be most simply analyzed as a series of measures each composed of four beats (4/4 time) with initial beats typically receiving stress in the form of a prosodic peak (v. Bennett, 1977,

for discussion of rhythmic organization of verbal and nonverbal features in talk). (c) Parallel constructions abound, such as those involving a repetition for "effect" of a particular work, like the use of "resent" in L 14. (d) Frequent use of introductory phrases which put off statement of the main theme: "but I was saying..uh..today" L 13. ("on the other hand," "Can I go back to...?" not in text given here.)

4. T's reactions to A's speech in this mood vary considerably over a range of feelings, including anger, sadness, boredom, amusement, but her general impression is that A is saying very little that is directly relevant to his experience. She experiences herself as making a "maximal effort to follow A" which requires a "more than usual involvement of energy."

5. A's talk in this mood appears confused, incoherent. It is particularly difficult to distinguish main themes from subsidiary material. One feels lost in the frequent and often highly elaborated asides and we sometimes have difficulty connecting long introductory sections with main body talk they are supposed to have introduced. At any given moment it can be very difficult to grasp what A is saying now in terms of how it relates to what has gone before and to what might be expected to follow.

6. A's talk seems to be in contradiction with his feelings, either those of the present moment in the interaction, or those he reports on, and it furthermore carries an aura of saying something serious and important while actually saying very little --hence our designation of it as "bombast."

INTERPRETATION AND THE NATURE OF DISCOURSE

We have said that points 1-6 above are "features" of the interactional moods found in the three tapes we have worked on. Yet points 1-3 above focus largely in visible behaviors, while those in 4-6 attend to the invisible meaning responses of the researchers, i.e., their interpretations. The astute reader will already have recognized the interpretive character of all six points. The intertwining of visible "behaviors" and invisible "experience," which is what we wish to elucidate is in fact problematic, particularly since we do not believe the relationship between linguistic "forms" and "meanings" is direct and fixed prior to the events and acts of meaning of specific discourses (v. Bennett, 1978). One of the chief reasons that the elucidation of the chiasm of discourse is problematic is that, upon turning our attention to either visible or invisible aspects, the phenomena undergo radical transformations. For example, T's interpretation that she invests a "more than usual amount of energy" in following A's bombast did not arise as an explicitly formulated proposition--as given here--"signalled" by certain behavioral features of A's talk. Such an assertion becomes possible only after considerable experience in interacting with A. In listening to A's bombast--occurrences of which in every session are frequent --T came to experience an increase in tension, sensing a distance open up in which she "moved back and became an observer." She "found herself" repeatedly following threads taken as main points

which turned out not to be developed as expected, but leading down innumerable passages which lead nowhere, like a labyrinth. The assertion of having to make a maximal effort could not in fact be made until aspects of these experiences which were first in subsidiary awareness were brought into focal attention, the making of the interpretation into an explicit assertion being merely a late stage of the focusing process. Furthermore, this interpretation is necessarily based on some kind of comparison T had to make with her interactions with other clients. How such comparisons are performed, and how they are made available, is itself mysterious, yet their "results" can enter focal attention without the person having ever made the act of comparison explicit to herself, as was in fact the case with T. The "comparative data" from other interactions remained in subsidiary awareness in a manner that is impossible to capture in explicit assertions, since subsidiary awareness is by definition not explicable in this way.

In the same way, our characterization of A's talk as "rhythmically regular" and "relatively slow" (in main body sections of Bombast) is a description, but a description already entwined with interpretation. Even the most precise measures of spacing between prosodic peaks, through the use of machines, could not guarantee the experience of regularity, since rhythm is an experiential phenomena. Prosodic peaks are in any case not discrete phenomena but themselves evolve through time, albeit relatively brief durations. They are not fixed objects in uncurved space, but phenomena whose "meaning" (e.g. rhythmic regularity) is not "derived" from the phenomena of the discourse, not only prosodic phenomena, but linguistic, nonverbal behaviors and our own ongoing experience. For example, if each of A's utterances were heard separately, their rhythms might not appear regular and flowing, as they do in his long stretches of talk, but rather regular and abrupt.

Furthermore, prosodic patterning is normally in the background of our attention as either speakers or listeners, as is rhythm in speech (contrast this situation with certain forms of modern music, such as various hard rock styles). Yet these phenomena contribute to our experience of time, to the raising of particular expectations which must be either satisfied or not satisfied in specific ways. How these expectations are met is crucial to our evolving interactional experience. If we anticipate the occurrence of a prosodic peak, and the peak does not occur, this event will be as meaningful as if the anticipation were met exactly, but the meaningfulness will be of a quite different texture. For example, we noted that the prosodic patterns associated with A's frequent asides are typical of a familiar English style. A listener "keeping time" in subsidiary awareness with A's speech, given certain very general assumptions regarding its "appropriateness" which writers like Austin (1961), Searle (1969) and Grice (1975) have tried to explicate, might well have certain expectations when A begins an aside, particularly if the prosodic patterning is what keys the interpretation that an

aside is now evolving. The listener might expect this material to be subsidiary with regard to themes set forth in the main body (e.g. the statement of resentment theme in lines 14-20). Subsidiary material might be either totally irrelevant to the point, or might provide supporting matter for the elaboration of the main theme. An "irrelevant" bit might be something like, "By the way, I saw Joe the other day" embedded in a discussion of the weather. A's asides are usually not irrelevant in this sense, but rather contain material that clearly has reference to similar material mentioned in the main body, as in L 13-29, references to A's job. Yet they seem to obfuscate rather than clarify. They typically carry no overt verbal introductory expressions like, "by the way," "although," "of course," etc. They are also rather diffuse and their content relates only weakly to the main theme. In L 13-31 A framed his talk at the beginning of his turn by indicating he was going to tell what he had told Bill. Yet the underlined subsidiary material, which we isolated largely on the basis of prosodic features, apparently has nothing to do with what A said to Bill, but gives instead, directly to T, the thoughts running through his mind while in the office. The main point becomes obscure--although clearly A is not happy about his work. Even under close scrutiny of the transcribed text and repeated listenings to the tape, we found it difficult to isolate a main point. Yet one does eventually emerge: "I want my cake and eat it too." (L33) This statement "sums up" A's dilemma as "described" in lines 13-31: he wants to work in the office on straight salary, which is secure but unpleasant, but he also wants to work in the field on commission, which is insecure but more interesting, and he can't do both. Note that this main point is not made explicit until A has run through a complex elaboration of details in his job experience (what he said to Bill, what he feels and thinks while in the office, the kind of pay system he's on, what he has to do--answering complaints--what he should have said or done, etc.) and this elaboration itself involves two excursions into parenthetical asides. Thus the experience of time that is set up by prosodic patternings conflicts with the experience of trying to make sense of the content of A's talk. The prosodic patternings are conventional, consistent with themselves, and are easily followed, and "tell us" that some material is parenthetically related to some other material. Insofar as we base our experience of A's speech on this temporal organization, we will probably anticipate the coherent working out of his themes. But there is a disseverance of temporal organization from thematic organization, one leading down a well-paved highway, the other into a thicket.

This very preliminary elucidation of the intertwining of phenomena in this piece of discourse implies a particular definition of discourse itself. Following Heidegger (1962) we view discourse as "the articulation of intelligibility," or more precisely as the articulation of our world as a shared intelligibility which is worked out through our communication with ourselves and others. Discourse is a continual unfolding of our possibilities

and simultaneously a disclosing of what we are now and have been. Discourse can therefore take many forms, face-to-face human interaction being an obviously important one. We therefore do not see discourse as sequences of "abstract acts" (Labov and Fanshel, 1977) or "social acts" (Keenan, 1977) or of object-like "adjacency pairs" (Sacks, et al, 1974). These concepts we feel beg the question of interpretation, since they not only presume the reality of "acts" which can mysteriously be "abstract," but imply that meaning is a set of ideas in a mind residing in a body which signals across an infinite distance to other minds, as described by Locke in the Essay Concerning Human Understanding. This is to presume meaning, i.e., our actual interpretations, are somehow already "there" without our having to create them out of what we do, which raises problems for our well-recognized ability to create anew each time we speak, and which takes for granted what needs to be elucidated.

The implications for linguistics of the kind of discourse study we propose, involving as it does a theory of human persons, perception, language, as well as a particular kind of approach which happens to be difficult to embody in the form of a methodological system, are many. Under our view the nature of linguistic phenomena becomes transformed. Traditional linguistics has had considerable success in viewing language as composed of interrelationships of discrete categories, fixed definitions, and autonomous classifications. The achievements of linguistics with regard to the accumulation of a large body of knowledge regarding language structure and language change are obvious to anyone at all familiar with the field. However, in entering the realm of discourse--a realm we in fact always inhabit as persons--where meaning somehow "takes place" between persons, traditional methods of viewing the visible phenomena of human communication, as well as assumptions about the relationship of these phenomena to meaning need serious re-examination, a glancing back over what linguistics has so far done with a view to seeing what it yet might do, which cannot be confined within the traditional boundaries of the discipline itself, but which must draw on our membership in the world of persons, whether we borrow from other disciplines such as philosophy, psychology and anthropology--as as have done here--or whether we learn new ways (beyond the use of "linguistic intuitions") of involving our own experience--as we have also done here. In discourse, interactional "units"--which we have called moods--clearly occur, yet they are never exactly identical, and they are never fully isolable as discrete objects. People talk to each other in a variety of ways that have multifold implications for their relationships with each other; and for us the study of discourse is an attempt to elucidate these implications. But discourse does not seem to be like a building with an underlying framwork layered over with a facade of verbal "forms" which "indicate" the hidden substructure "supporting" the facade, or which "click off" a "unit" of meaning in the way a surge of current opens a relay switch.

Discourse is an always evolving--yet already evolved--constellation of visible and invisible phenomena which support each other in mutual relationship. It is a continual interplay of focal awareness, subsidiary awareness, and acts of attention that allows us to experience the world as soaked with meaning for us at every moment. Relationships between the phenomena of discourse are contrapuntal and always involve an intertwining of occurring behaviors and personal history in acts of meaning. Understanding how discourse comes to mean what it does involves the researcher in a participatory act of interpretation in which particular forms of this contrapuntal movement (lebensformen) are taken up and scrutinized. Meaning is not on the phrase like the butter on the bread, like a second layer of "psychic reality" spread over the sound: it is the totality of what is said, the integral of all the differentiations of the verbal chain; it is given with the words for those who have ears to hear (Merleau-Ponty, 1968). To make discourse a matter for study, is to make our normally taken-for-granted human experience into an enigma in which we engage in order to elucidate ourselves through the elucidation of what we do together as human beings. To do this is to demand of ourselves a commitment which, as social scientists, as students of language, and as persons, we already are possessed by whose depths we are yet unsure of.

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The function and content of relative clauses in spontaneous oral narratives

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1. Introduction

This article discusses the various discourse functions of relative clauses in spontaneous oral narratives. The analysis is restricted to bona fide relative clauses, those which are constituents of a noun phrase, as in

(a) And there's this sort of [1.75] Latin .. looking .. middle-aged man .. who'S [.95] UM [.75] climbs up the ladder, [1.4] UH ¦ that's leaning against a tree,
(b) Whoever stole the pears is down there.

but not relative clauses referring to states or events, as in

(c) [.55] and made off with the whole basket of pears. [1.3] TSK .. which the man, [2.5] the pearpicker .. man, did not notice.

(The transcription conventions used in the cited data are explained in Table 1 below.)

This paper will demonstrate that there are two functional types of relative clauses in spontaneous oral narratives, which I call informative relative clauses, (those which assert information in much the same way as declarative independent clauses, about a noun phrase referent), and non-informative relative clauses (those which are more integral to the description offered by a noun phrase). This distinction is similar to but not the same as the traditional restrictive/non-restrictive distinction.

Since informative relative clauses assert information much as independent clauses do, we might expect that they can assert any sort of information that independent clauses can assert. This is not the case. It seems that informative relative clauses are more restricted in what sorts of information they can assert. On the basis of this finding, a more general hypothesis about the function of relative clauses is presented.

The data presented in this article come from narratives that were descriptions of a six minute color and sound movie. This movie was shown to twenty students at the University of California at Berkeley in groups of about five. They were interviewed one at a time, five to twenty-five minutes after the showing of the movie. The interviewer, claiming not having seen the movie, asked them to tell her "what happened in the movie".

Below is a transcription of one of the narratives which contains good examples of all the functional types of relative clauses occurring in the corpus.

Table 1
Transcription conventions

[n]	A silent pause of n seconds duration.
..	A break in the flow of sound too short to be a measurable silence.
,	A final intonation contour typical of intrasentential clause ends.
.	A final intonation contour typical of sentence ends.
¦	Glottal stop.
--	Indicates the preceding segment was pronounced with unusual length.
`	Occurs in syllables that are peaks of pitch.
^	Occurs in syllables that are peaks of volume.
/text/	Indicates uncertainty in the transcription.
TEXT	Indicates a false start or non-lexical pause fillers (e.g. UM).
aY	Indicates an indefinite article pronounced /ey/.
thE	Indicates a definite article with the vowel pronounced /iy/.
{ }	Used to separate comments and descriptions of sounds from the transcription itself.

A sample narrative

(1) I'll try.
(2) [.5] U--M [.6] TSK [.2] Well,
(3) [.25] there was-- [.25] a ma`^n,
(4) [.2] who was picking pears,
(5) [.55] A--nd [.9] it was in aY UH [2.2 ... TSK ...] large open field,
(6) it wasn't a pear orchard,
(7) [.2] or anything like that.
(8) [.9] A--nd [2.5] I don't know.
(9) [.4] Something that I noticed about the /movie/ particularly unique was that the colors .. were [.35] just [.5] ve^ry stra^nge.
(10) [.2] Like [.3] the green was a [2.2] inordinately bright green,
(11) [.55] for the pears,

(12) .. and [.25]] these colors just seemed a little [.5] kind of bold,
(13) almost to the point of [1.15] being artificial.
(14) [.6] TSK [.1] A--`^nd [.75] he--^ [.35] was going up and down the ladder,
(15) [.9] TSK .. picking the pears,
(16) [.25] and [.25] depositing them in [.35] three baskets,
(17) [.7] that were down below.
(18) [1.2 ... TSK ...] A--`nd [1.95] there's .. one .. sequence right there THAT [1.15] that I've forgotten.
(19) [2.5 ... TSK ...] O^h.
(20) [.3] A .. ma^n with a goat [.9] TSK comes by,
(21) [.75] a--nd [.15] you can kind of hear the goat mewing in the background,
(22) [.15] and they get up,
(23) [.2] and approach,
(24) [.2] and just kind of walk off.
(25) They don't really seem to have too much to do,
(26) [.6] with .. what's going .. on.
(27) [.3] A--nd [.7] the man goes back up into the tree,
(28) [.3] to pick some mo^re pears.
(29) [1.9 ... TSK ...] Along comes-- .. a young boy,
(30) .. about seven years old,
(31) [.2] eight years old,
(32) [.6] on a bicycle
(33) that's way too big for him,
(34) and he's riding it through this great open field.
(35) [.85] A--nd [.15] he [.35] sees THIS THREE PEAR [.2] these three baskets of pears,
(36) and then sees this man up in the [.5] tree,
(37) and decides [.45] that he'd like some pea`^rs.
(38) And at first looks like he's going to take one or two.
(39) [.6] then decides that he'd [.15] much rather take a whole basket,
(40) [.55] puts the basket on the bike,
(41) [.9] TSK a--nd .. kind of struggle /??/
(42) cause it's much too big for him.
(43) and the bike is mu^ch too big for him.
(44) [.8] a--nd .. gets on the bike,
(45) and [.2] rides off.
(46) [1.85 ... TSK ...] The^n-- [.2] he's riding .. across this .. great [.25] expanse,
(47) and [1.15] gi`^rl comes,
(48) [.4] riding a bike in the opposite direction,
(49) [.55] and [.4] you can see them riding [.65] to^wards each other,
(50) and you wonder if there's going to be a colli^sion.
(51) [.7] But .. instead they just ... kind of .. brush .. by each other
(52) and she knocks the hat that he's wearing off on the grou`nd,
(53) [1.4 ... TSK ...] a--nd [1.7] he's .. UM [.35] kind of looking back [.2] at her .. and the hat,

looking back [.2] at her .. and the hat,
(54) [.2] and doesn't see that he's going to run into a rock,
(55) .. which he does,
(56) [.25] and the pears all [.45] spill on the ground,
(57) and he falls down
(58) and he skins his knee or something.
(59) [.4 ... TSK ...] A--ND [1.1] and the^n you^ hea^r this-- [.7] kind of rhythmic .. thud/ding/ [.35] sound,
(60) [.55] a--nd [.4] and you look u`p,
(61) [.3] or the boy looks up.
(62) [1.1] TSK .. A--nd [.45] there are three [.15] o`^ther boys standing there
(63) one of them has a paddleball,
(64) [.4] type thing
(65) which was /?making the?/ sou`nd,
(66) [1.8] a--nd they look [.25] kind of ominous at first,
(67) .. like they might [.5] steal his pears
(68) and run off or something
(69) but i`^nstead they [.15] help him [.45] pick up all the pears,
(70) [.6] one boy goes over
(71) and helps him brush-- [.75] his pants off,
(72) /and THEN [.5] then/ another one [.35] /I don't know/ picks up the bicycle I think,
(73) [.15] or they just all put the pears back in the basket,
(74) [.2] they set the basket back on the bike,
(75) AND [.3] and /THEY G/ [1.25] the^y go on their way
(76) walking down the road
(77) /and/ he rides .. off.
(78) [.7] A--nd they come across his ha`^t,
(79) .. that he neglected [.55] to pick up
(80) he forgot the hat.
(81) [1.2] So one of them whistles .. to him,
(82) [.5] he was saying,
(83) [.15] "Hey you forgot your hat",
(84) and [.5] he stops,
(85) and [.3] one of the .. three boys brings the hat back,
(86) [.9 ... TSK ...] A--nd [.85] he gives TH [.4] that boy three pears.
(87) [.65] TSK FO--R [.2] you know kind of as a gesture of thanks.
(88) [.35] TSK [.15] He rides off.
(89) [.6] A--^nd the boys keep walking back [.3] the way the first boy ca`me.
(90) [1.35] Meanwhile .. the man who's picking pea`^rs,
(91) [.35] comes down from the tree,
(92) [.35] and starts emptying [.5] his .. UM [.95] load of pears into [.8] one of the two /remaining/ baskets/,
(93) [.75] he no^tices that the third basket is gone.
(94) [1.1] A--nd [.3] THE [.6] /at/ .. just about this time,
(95) he's just kind of looking A LITTLE [.55] /UM/ [.55] kind of visibly a little upset.

(96) [1.3 ... TSK ...] A--nd [.35] these three boys [.9] go walking by`,
(97) and they each have a pear in their hands,
(98) so he's .. kind of looking at them,
(99) trying to make a connection
(100) wondering [.35] how they got the pears,
(101) .. and .. if they were his pears,
(102) .. /you see/ how this is just all WHAT [.6] what you're projecting on the man.
(103) [1.1] And [.75] I think that was i`t.
(104) [.75] /It was nea`t/.

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2. The functional types of relative clauses in narratives

2.1. Informative relative clauses

An informative relative clause is one which asserts information, much in the way a declarative independent clause does, about a noun phrase referent. The relative clauses in lines 4, 17, 33, 65, and 79 are informative relative clauses.

The relative clause in line 79 is attached to a noun phrase whose referent, the bike boy's hat, was already known to the listener. (It was introduced in line 52.) This relative clause adds to the listener's knowledge about the hat, that the bike boy had forgotten to pick it up. This same information could have been expressed as an independent clause. That is, lines 78 and 79 could just as well have been

(105) And they come across his hat.
(106) He had neglected to pick it up.

Let us call this replacement of a relative clause with an independent clause following the clause in which the original relative clause was syntactically embedded the "separability test".

The fact that an informative relative clause is used in much the same way as an independent clause is evidenced in "false starts". For example, another subject narrated part of the movie as

(107) [.75] U--M [.75] No--w [.65] TSK he's dri`ving along this road
(108) THAT'S UH it's not paved,
(109) it's just sort of a dirt road,

It seems that the speaker was going to express the information in line 108 at first as a relative clause, as evidenced by the false start "that's". Then she changed her mind and decided to express it as an independent clause.

The relative clauses in lines 4, 17, 33, and 65 are different from the one in line 79 in that these relative clauses are

attached to noun phrases which refer to a person/thing not previously known to the listener. Nevertheless, they assert information about the noun phrase referents much in the way a declarative independent clause would; they pass the separability test. Lines 4, 17, 33, and 65 could have been expressed as 110, 111, 112, and 113, respectively.

(110) he was picking pears,
(111) they were down below,
(112) it's way too big for him,
(113) it was making the sound,

2.2. Non-informative relative clauses

I have found it useful to distinguish between two types of non-informative relative clauses, identificatory relative clauses (those which give information that is necessary to identify a referent previously known to the listener), and specificatory relative clauses (those which specify the nature of a new referent by mentioning a defining property of the referent).

2.2.1. Identificatory relative clauses

The relative clause in line 90 is an example of an identificatory relative clause. At this point in the narrative, the speaker wants to make reference to someone the listener already knows about, the pear picker. The speaker knows the listener already knows about the pear picker because the speaker has explicitly mentioned the pear picker to the listener, beginning with line 4. Furthermore, the speaker wants the listener to realize it is the pear picker whom she is going to make reference to. To do this the speaker must refer to the pear picker with a description that (in context) is unique to the pear picker.

Now, if the speaker were to refer to the pear picker as simply "the man", the listener might not know if the speaker were referring to the pear picker or to the man who came by with goat. To make the reference unambiguous, the speaker has added the relative clause "who's picking pears". This relative clause suffices because (1) the information the clause expresses is information the listener knows about the pear picker (the speaker explicitly mentioned this information in line 4), and because (2) of all the men that the speaker is likely to be referring to, only the pear picker could be described as "picking pears".

This relative clause gives information that serves to identify which particular person the speaker is referring to. It is an identificatory relative clause.

Notice that this relative clause fails the separability test; lines 89 and 90 could not be adequately replaced with

(114) Meanwhile the man comes down from the tree,
(115) he is picking pears,

The reader can see that an identificatory relative clause is an integral part of the noun phrase in which it occurs. Because of this, the whole noun phrase (with the identificatory relative clause) could be replaced with some other noun phrase which has no relative clause and still have roughly the same sense. In the present example, the speaker could have referred to the pear picker as simply "the pear picker", as did many of the other narrators of this movie.

The relative clause in line 89 is identificatory; it identifies in which direction the three boys walked. Notice that neither the referent of the noun phrase (the direction) nor the information mentioned in the relative clause (that it was the direction from which the bike boy came) were previously mentioned in the narrative. How can I say that some previously unmentioned information is used to identify a previously unmentioned referent?

Although neither are explicit in the preceding portion of the narrative, they are both implicit. The listener can infer from the fact that the boy arrived on the scene that there must be some particular direction from which he arrived. Therefore this inferred information can be used to identify this inferred referent. The relative clause in line 89 is identificatory.

2.2.2. Specificatory relative clauses

The relative clause in line 9 is an example of a specificatory relative clause. This clause is attached to a noun phrase whose referent was previously unknown to the listener; it was not previously mentioned explicitly, nor could it have been inferred by the listener. The fact that the speaker expressed this referent with an indefinite noun phrase is evidence of her belief that the listener did not previously know about it. Therefore this clause could not be an identificatory relative clause.

This relative clause at first seems to assert information about the noun phrase referent, but it does not seem to be an informative relative clause because it fails the separability test: line 9 could not be adequately replaced with

(116) Something about the movie particularly unique was that the colors were just very strange.
(117) I noticed that.

Although it expresses information about a referent previously unknown to the listener this information is essential to understanding what the referent is. This is why line 117 differs from line 9 in a way that lines 105-106 do not differ from lines 78-79.

There is intonational evidence that relative clauses like the one in line 9 are not informative. Most clauses in the twenty narratives are separated from each other by either "comma intonation" (the rising intonation contour typical of intrasentential clause ends) or "period intonation" (the falling intonation contour typical of sentence ends). Most of the relative clauses that clearly pass the separability test (such as those which we've

already considered informative) are separated off by comma intonation. Relative clauses that are attached to indefinite noun phrases and which do not clearly pass the separability test (such as the one in line 9, which we've classified as specificatory) are never separated off by comma intonation (except when issued as afterthoughts). Furthermore, relative clauses that are attached to definite noun phrases and which fail the separability test (i.e. those which we've called identificatory) are never separated off by comma intonation, except when issued as afterthoughts. This seems to indicate the integrality of non-informative relative clauses to their noun phrases.

The relative clauses in lines 26 and 102 are also specificatory. In fact, any relative clause in which the noun phrase head is subsumed by the relative pronoun is specificatory. (Because the noun phrase head is subsumed by the relative pronoun, it is not possible to apply the separability test.) In such cases, the relative clause specifies the noun phrase referent by giving a defining property of the referent, one without which that referent would not be itself.

2.3. Problematic cases

The relative clause in line 52 is hard to classify as to its functional type. It cannot be identificatory because the noun phrase to which it is attached does not refer to a thing which the listener already knows about. One possibility is that it is an informative relative clause; it seems to express information about the hat. However, it does not pass the separability test: line 52 cannot be adequately replaced with

(118) and she knocks a hat off on the ground,
(119) he was wearing it,

The remaining possibility is that it is a specificatory relative clause. However, the quality it expresses (the quality of being worn by the bike boy) does not seem to be a defining property as were the qualities expressed in the relative clauses already classified as specificatory.

Notice that the noun phrase to which it is attached it definite and that it refers to something which the listener did not previously know about. Chafe (1976) has said that definiteness signals to the listener that the description given by a noun phrase is narrow enough to specify a unique likely referent. In this case, when the listener hears "the hat that he's wearing" the listener constructs a new referent in her/his mind, establishing it as that one hat which the bike boy is wearing. In this way, this relative clause does give a defining property of the hat. So it seems then that this relative clause is specificatory.

The relative clause in line 18 is attached to an indefinite noun phrase; therefore it does not refer to a referent already known to the listener and hence it cannot be identificatory. It seems to pass the separability test, at least better than the

relative clause in line 9 did (see 116-117 above), i.e. line 18 could be replaced fairly adequately with

(120) And there's one sequence right there,
(121) but I've forgotten it.

So it seems to be informative. But this relative clause doesn't seem as semantically independent of its noun phrase as did the truly informative relative clause in line 4. It is not clear whether the information about the movie sequence (that it was forgotten) was intended by the speaker to specify an defining property of the referent or to add information about the referent. The fact that it is not separated off from the rest of the clause by comma intonation would be evidence that it is specificatory. But the fact that the relative clause began with 1.15 seconds of silent pausing (quite a bit), indicates that the speaker may have processed the information conveyed in the relative clause as a separate piece of information. This suggests that it was not such an essential property of the referent as we would expect with a specificatory relative clause. The function of this relative clause is ambiguous.

2.4. Summary

First we have informative relative clauses, those which assert information about a noun phrase referent, which the listener may or may not have already known about. Second we have identificatory relative clauses, those which use information that the listener already knows to identify a noun phrase referent which the listener also already knows, either because it was explicitly mentioned by the speaker, or because the listener was able to infer its existence. Third we have specificatory relative clauses, which express a defining property of a noun phrase referent previously unknown to the listener. Some relative clauses may seem to be somewhat specificatory and somewhat informative because it is not clear whether the information expressed therein is intended to be a defining property or just additional information. Specificatory and identificatory relative clauses are similar in that they are integral parts of a noun phrase description, whereas informative relative clauses express information that could just as well have been expressed in an independent declarative clause. The placement of comma intonations supports this dichotomy.

3. The content of relative clauses in narratives

So far I have examined the functional types of relative clauses in narratives. Now I turn to the sorts of information that can be used in each of these functional types.

In this section I will show that non-informative relative clauses, as a mere consequence of their non-informative function, can only use certain information to identify or specify a noun phrase referent. Then I will show that informative relative

clauses unexpectedly have this constraint too. In accounting for this, I present a more general hypothesis about the function of the relative clause in narratives, one which applies to both informative and non-informative relative clauses.

3.1. The content of non-informative relative clauses

An independent clause can be used in all of three logically possible temporal ways in a narrative. First, it can be used to express a state or event that is simultaneous with the state or event last asserted. For example, line 98 expresses an event that is simultaneous with the one expressed in line 97. Second, an independent clause can be used to express a "next" state or event. For example, line 75 expresses an event that temporally follows the one expressed in line 74. Third, an independent clause can be used to express a state or event that temporally precedes the state or event last asserted. Because a narrative expresses a memory as a temporally ordered sequence of events (Labov, 1972), this seems to occur only when the speaker brings a character "on stage" and mentions some earlier event s/he was engaged in "off stage". There are no examples of this in the sample narrative above, but another subject, in narrating when the three boys walk off towards where the pear picker is, said

(122) [.3] are walking back towards .. the pea`r picker's [.35] area,
(123) [.95] a--nd [2.9] just eating their pears,
(124) walking along,
(125) {laugh} [.45] a--nd U--H [2.55] he has just clambered down,
(126) from his ladder,

The independent clause in line 125 expresses an event that precedes the event expressed in line 124.

An identificatory identifies a noun phrase referent by mentioning a state or event that the listener associates with the referent. Since the listener already knows about this state or event, it must be one which is either previous to or simultaneous with the last asserted state or event. For example, the relative clause in 89 identifies a particular direction with a previous event. The relative clause in 90 identifies the pear picker with a quality simultaneous with the last asserted event. An identificatory relative clause cannot mention a "next" event because the listener does not already know the "next" event. If a relative clause were to mention a "next" event, it would assert it; it would be informative.

Similarly, a specificatory relative clause uses a state or event simultaneous with or previous to the last asserted event as a defining property of the noun phrase referent. For example, the relative clause in line 52 specifies the nature of the hat by mentioning a quality which is simultaneous with the last asserted event. A specificatory would not use a "next" state or event, i.e. one which happens in the story after the referent is

introduced.

3.2. The content of informative relative clauses

Informative relative clauses, as previously stated, assert information much in the same way as independent clauses. We might expect that informative relative clauses can assert any sort of information that independent clauses can assert. In fact, Syder and Pawley (forthcoming) have claimed that the difference between lines 127 and 128

(127) I'm going with a girl, and you'll meet her tonight.
(128) I'm going with a girl, who you'll meet tonight.

is merely due to a difference in the syntactic strategy used by the speaker. The example given above in lines 107-109 is evidence of this. In that example, the speaker presumably wanted to express the information of line 108 first as a relative clause, but then decided to express it as an independent clause. Syder and Pawley would say that this was a switch from the "subordinating" to the "adjoining" strategy.

Now if informative relative clauses function in the same way as independent clauses, we would expect to find them expressing a simultaneous state or event, a "next" state or event, and a preceding state or event. The informative relative clause in line 79 expresses an event previous to the last asserted event, and the one in line 17 expresses a state simultaneous with the last asserted event. There are no examples of an informative relative clause expressing a "next" event in the sample narrative above, but another subject said

(129) [1.4] A--nd [.6] the boy with the ping-pong paddle brings the hat to the bicycle boy,
(130) [.95] who gives him [.45] three pears.

However, examples of informative relative clauses expressing the "next" event were rare in the twenty narratives. Out of the 53 informative relative clauses in the corpus of narratives, only 5 expressed a "next" event. Furthermore, all 5 examples occurred in only 3 of the 20 narratives.

Now, the scarcity of informative relative clauses asserting the "next" event could be merely a result of the smallness of the corpus of data. That is, perhaps we would have found such relative clauses in the speech of all our subjects if we had had a larger sample of their speech. The rest of what I have to say about relative clauses, however, supposes that such is not the case, that most (or at least some) speakers of English do not use relative clauses to assert the "next" event in narratives.

To put it briefly: although informative and non-informative relative clauses express information for different reasons, they seem to be restricted to expressing the same type of information. For non-informative relative clauses, this "restriction" is a mere

consequence of their function. Why then do informative relative clauses have this restriction?

3.3. The general function of relative clauses in narratives

For those speakers who have this restriction on informative relative clauses, it seems that relative clauses of whatever specific function are used to construct a "picture" of the noun phrase referent at a particular point in time in the narrative. Therefore this picture may include such things as (1) events in the history of the referent, (2) events that the referent is presently engaged in, and (3) static qualities of the referent. Even when the relative clause asserts information about the referent, it can only assert information that pertains to the referent at that point in the narrative.

A possible explanation is that the informative function of relative clauses developed after their non-informative function. This has some plausability since the information expressed in informative relative clauses need not be expressed in that form, while the information expressed in non-informative relative clauses cannot always be expressed in another form. (For example, the relative clause in line 9 could not easily be paraphrased as a prenominal adjectival modifier.) This is to say that relative clauses are necessary in their non-informative function, but not in their informative function. Perhaps then at one time, relative clauses only had a non-informative function. But when relative clause function was broadened to include informativeness, their content was not broadened to include "next" events. Apparently some speakers have lost this vestigial restriction; three of our twenty subjects clearly have lost it.

4. An old hat revisited

Now, a linguist doing armchair research might have judged a relative clause like the one in line 130 to be grammatical. It is not obvious from armchair introspection that it is unusual for a relative clause to assert the "next" event in a narrative. Only by looking at real discourse could this restriction in the language have been discovered. The lesson is that we must verify armchair hypotheses with evidence from natural discourse. This point may seem old hat, but at least two papers in this very volume deal with discourse and rely on artificial data!

Notes

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SPOKES IN A WHEEL: A LINGUISTIC AND RHETORICAL ANALYSIS OF NATIVE AMERICAN PUBLIC DISCOURSE[1]

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Public speeches by Native Americans are often stereotyped by Whites as "unorganized" or "rambling". Careful listening, however reveals considerable similarity between speeches. Further, Native Americans are easily able to separate bad speeches from good ones and to rate speakers according to their speaking skills. These last observations lead to the suspicion that it is not that these speeches lack structure, but that they follow different structural principles than do speeches by Whites. It is the lack of understanding of these different principles which is the problem. Cooley and Babich (1979) examined Native American speeches in an attempt to determine the principles by which they are organized and were immediately faced with the problem of what system to use to analyze them.

In that paper we aimed to furnish teachers with sufficient knowledge about the structures of these speeches that they could begin to attack the stereotype. For that purpose, complex linguistic analyses of discourse structure which require considerable theoretical background, such as the one that Longacre (1976) proposes, are inappropriate. Traditional rhetorical analyses are also inappropriate. Philipsen (1972) has shown that Navajo speech behavior operates within a different rhetorical framework than White speech behavior. One should not use traditional rhetorical constructs, which are based on Western cultural norms (Young, et al, pp. 1-9) since applying those constructs would then show Native American speakers as deviant.

It seems, however, inappropriate to totally discard either linguistic or rhetorical approaches. Instead, what is needed is a system which unilizes something of each: the cultural perspective on organization which rhetorical theory supplies and rigorous analytic methods from linguistics. Thus a system that appears to be revealing is an analysis of the linguistic structure which is tied to an analysis of the rhetorical structure. This paper describes a set of data using that analytic system. It first examines the organization and progression of topic, paying particular attention to the relation of topics to each other and to the subject of the discourse. Secondly, it examines the organization within each topic and the structure of the transitions between topics. Finally it examines the cohesive devices (Halliday and Hasan, 1973), in particular the device of reference, which these speakers use. This analysis reveals both the rhetorican structures and the ways those structures are realized.

The corpus is a series of speeches, 12 in all, by Native Americans from various tribes. Eight of these speeches were delivered by students in Principles of Communication, an introductory course at the University of Oklahoma. These speeches varied in length from three minutes, forty-five seconds to nearly 17 minutes.

All student speeches were simultaneously video- and audio-recorded with the permission of the entire class. The remaining four speeches were delivered by three older prestigious Native Americans. Only one was videotaped, but all were audiotaped with the full knowledge of the speaker. These speeches are of two types: two of them were delivered before an audience, the other two were recorded in an "as if" situation, in which the speaker had been asked to prepare a speech in advance and deliver it "as if" he speaking to an audience fron his tribe on some ceremonial occasion. These speakers were Kiowa, Creek, and Cherokee.

Data Analysis: Before proceeding, it is necessary to define the constructs which I have used. There are four: topic, topic change point, organization, and cohesive devices. Topic is defined as the speaker's talk about one and only one content area. Typically a speech will consist of several topics, all related to the subject of the speech in some way. Those places in the speech where the speaker moves from one topic to another are noted as topic change points. These points themselves are not of interest, instead I am interested in the manner in which transition from topic to topic across those points is achieved by the speaker. The perceived relationships which hold between topics, the way those relationships are made evident at topic change points, and the relations between units within topics are defined as the organization of the speech.

Cohesive devices, discussed at length in Halliday and Hasan, 1973, mark coreferential relationships and tie parts of the speech together, making it a text. Cohesive devices are not structural units, but markers of semantic relations which hold in a text. Halliday and Hasan discuss four different kinds of cohesive device: reference, substitution, ellipsis, and conjunction. Cohesion using reference, the device investigated here, is achieved by the use of pronouns or other words which stand in the place of the original referent noun. These words can either refer backward to a coreferent which has already occurred, or forward to one which has not.

There is a great deal of variation in the details of organization of these speeches, as one would expect. Nevertheless, strong similarities exist in the general patterns of organization. The typical speech consists of three to five topics which are related to the subject of the speech in that they are parts of it. For example, a speech on the "Moonie Cult" has three topics: Rev. Moon, Recruiting Techniques, and Brainwashing. (See Example 1 for the first portion of this speech) These three topics are offered by the speaker in a sequence which does not demonstrate any relation between topics, except through their relation to the subject of the speech. In other words, there is no organizational pattern which holds between the topics, but they all can be seen to relate to the subject.

1 This will be on the Moonie Cult, which is a cult started
2 by a gentleman who created every Moonie, which is, I guess,
3 a religious being that has no denomination, supposed to be
4 a unified - any denomination that you want. And he was
5 from Korea. He excaped Korea when the U.S. overcame this
6 POW camp where he was in jail at the time, and he went to
7 New York where he started his religious cult. He started
8 out as a Presbyterian, and he went to the Unification Church
9 which he started and designed himself. I was supposed to
10 talk over brainwashing techniques that the cults used. What
11 they do is they - the Moonies like people who are educated
12 or getting educated, that are young. They usually have
13 their own college canvassers recruiting, looking for people
14 that are depressed waiting for classes that had a test,
15 people who are worried about something, like low morale
16 people. And they invite them over to the group, which con-
17 sists of a lot of smiling faces and a lot of young people,
18 and try to impress them in that sort of state. The object
19 of their recruiting is to get the person to stay over a while
20 and visit and live with them for a little while. And what was
21 told to me was the best time to get a recruit was late in
22 the week, and if it was possible to keep him over and have
23 him miss class the beginning of the next week, chances were
24 that they had them in the cult. And brainwashing is a big
25 controversy right now. . .

EXAMPLE 1

At line 9, the speaker concludes his first topic, Rev. Moon, and begins the next, which is announced as "brainwashing techniques" but which turns out to be "recruiting techniques". At line 24, he concludes that topic and returns to "brainwashing". There are no overt markers of the relation between Rev. Moon and recruiting, or between recruiting and brainwashing. In speeches where the speaker begins with an overtly marked introduction there is often a brief outline of the planned speech which takes the form "first I will. . . next I will. . . and finally I will. . ." (See Example 2).

1 OK, my part of the symposium is dealing with some of the
2 reasons or couses that lead to suicide. And I attempted to
3 cover three specific areas: and I started with Indian
4 reservations, and went on down to the urban society, and I
5 also covered the area of boarding schools. And I found
6 that on a reservation that the living conditions were. . .

EXAMPLE 2

Speakers who use these phrases in their introduction often introduce each topic with a similar phrase. In example 2, line 5, the speaker introduces his first topic with "and I found that on a reservation". This speaker introduces his second topic with "I

went on to research some more in the urban areas", and his third with "and the last topic I attempt to do some research on was boarding schools". These phrases serve to announce a topic change and to tie each topic back to the introduction, but they do not demonstrate any direct relationship between topics. As transitions, then, they operate very abruptly. Often they are simply not there and the topic is merely changed without announcement. (See the last line of Example 1)

In only one of the twelve speeches was there any explicit marking of the relationship between a topic and its immediately adjacent topic. This speech, by one of the students, is immediately recognizable as being different from the others. It is this feature that makes it so. In all the other speeches the only relationship between topics is, as I have noted, implicit, through their relation to the subject of the speech.

. . .and the last topic I attempt to do some research on was boarding schools. And I have a statement here that was made by Laslow and ? on psychosocial adjustment of Indian youth, and this is from the American Journal of Psychiatry. It states that there is a high incidence of suicide among the American Indians on reservations and in Indian schools. Part of the boarding school problems were that there were behavior problems in the children before they even attended the schools. Like a lot of them didn't -- this was the only place they had to go. There were no parents and they had been in a lot of foster homes and stuff and finally they get old enough to go to boarding school they ship them off. They come there with a problem, you know. And its the boarding school, how its set up, a lot of times there isn't enough staff there to suit every child, you know, to help everybody like it should be. There was also some tribal conflict within the many tribes that integrated into the boarding school. I guess attempting suicide was putting oneself into a situation where he might be beat up to the point of death. And also alcohol and drugs, like I say.

EXAMPLE 3

Organization of information within the topic is very much like the organization between topics. In example 3, which illustrates a single topic, there are four information points: prior problems of students, staffing problems, intertribal conflict, and alcoholism. Even though the topic is a unified text, there are no overt marks of the relationship between these four points, excepting their occurence in the topic.

Within topics the text is strongly cohesive and most of the cohesion is realized by pronouns which are coreferential with nouns and other pronouns elsewhere in that topic. Of the four cohesive types which Halliday and Hasan discuss this type, reference, is used an overwhelming percentage of the time. See Example 4.

The first instance of Indian militancy was I guess, well not really the first but when the papers and everything started writing about it and started coming into public view, was the occupation of Alcatraz, and that was in San Fransisco bay. These indians, which weren't really California Indians, they were Indians from all over the United States and there really wasn't that many California Indians in the group that occupied the island. But the reason they took it over was because of an old treaty that said the government when its not using any land it should revert back to the original owners which was the Native Americans. They had a lot of plans for this place you know. They wanted to turn it into a cultural school, also a spiritual center, a museum. It was in San Fransisco Bay but in San Francisco the Native American Center there had burned down, and so they didn't really have any place to go. They lasted out for about two winters, but all the time they was holding out you know there was always confrontations with the federal marshals, which blockaded medical supplies, food, and sanitation facilities. Finally, in the spring of 1970, they cut off their electricity and water, but it wasn't until June of 1971 that they finally, you know, gave up. It was called the war of attrition but, you know, they really didn't accomplish that much but what they did accomplish they knew that they had to carry on and do something else. . .

EXAMPLE 4

In this example there are 30 markers of coreferentiality and 24 of these are third person pronouns, either "they" or "it". The cohesive string which begins with "these Indians", in line 5 , is 16 markers long, ending on line 25. All but two of these markers, "the group" (line 8) and "Native Americans" (line 11-12), are occurences of "they". The use of this device makes cohesion within topics very strong, if somewhat repetitious. However, cohesive devices are not used across topic change points, even in the one speech which is recognizably untypical.

These data demonstrate that these speeches can be described using the system discussed in the early parts of this paper. Each speech, with minor variation, consists of a series of topics whose contents are related to the subject of the speech. There is, however, no demonstrated relationship between topics. Transition devices, when they occur, serve mainly to announce a topic change, but often do not occur at all. Within the topic, points of information are organized in the same way; they are presented serially with little or no demonstrated relationship between them. Within each topic there is a strong cohesive effect which is achieved mainly by using pronominal reference. However, cohesive devices are not used to tie topics together.

The Rhetorical Organization of Native American Speeches: How can the organization of these speeches be related to the culture of the speakers? Ms. Diana Labadie-Wondergem, an Osage Indian, has suggested a useful rhetorical model: a wagon wheel with the subject of the speech located on the hub, and the speaker on the rim. The speaker moves along the rim to offer his audience a series of different perspectives on the subject. These topics, the spokes of the wheel, appear as though they were being presented serially. They all relate to the subject of the speech, but are separate from each other although the extent of the separation will depend on the knowledge and intentions of the speaker. If this analog characterizes the structure, it then becomes very difficult to discern any intertopic relationship, because none should exist. Spokes do not branch from each other.

In Native American culture it is the role of a public speaker to share with his audience as much of his knowledge as he can about a subject, but it is the role of the listener to put that information together and to arrive at a conclusion about its worth or about how it applies to the subject at hand. Any overt marking of the relationship between topics, whether by the use of transition devices, or of cohesive devices, could be construed as an attempt to lead the audience towards a decision, and that would be improper. As a rhetorical model, the spokes-in-a-wheel model adequately characterizes the structure of these speeches, allowing that structure to be related to the roles which Native American culture assigns to the speaker and the audience. To paraphrase one of the speakers in this data set, the speaker supplies the pieces in the puzzle, it is up to the audience to make a picture out of them.

NOTE

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On Discourse Syntactic Consequences of Certain Short Topic Sentences[1]

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A pervasive property of human language is that structures and processes with clear functional motivation at one level of grammar become "institutionalized" -- grammaticized -- and seep into other levels where they lack the motivation that created them. Phonologization of articulatorily and acoustically motivated phenomena and morphologization of phonological phenomena are two such processes. This paper presents a fragment of the investigation of one limit of grammaticization.[2] Although within its narrow scope serious questions remain unanswered and others unasked, the facts presented suggest that grammaticization proceeds at least far enough that grammar and speech event ritual begin to grade into one another.

The specific focus of this paper is a very small class of discourses, those containing the "introducer" Tell me. I will describe these in terms of surface syntactic, semantic, and pragmatic properties and then will argue that these properties require that the ways discourses are segmented into component sentences may have a syntactic (as well as a pragmatic) basis.

Even modest attempts to describe languages at the sentence level assume that one can in principle determine what a possible sentence is and that the appropriateness of a possible sentence is limited only by pragmatic factors. The discourses described here bring these assumptions into question. Discourses beginning with Tell me, it will be seen, require that a later sentence of the discourse, possibly rather distant from Tell me, have a particular pragmatic force and surface syntactic categorization. The constraints alluded to are not, it is crucial to note, between parts of the sentences, as in the case of intersentential pronominalization, but between whole surface sentences.

1. Tell me discourses.

To get some idea of the kind of discourses we will be looking at, consider the rather simple example

(1) Tell me. How do I get out of here?

The point of the discourse is clearly to request the information "how I might get out of here". This request resides intact within the second sentence of (1), and the first sentence Tell me somewhat redundantly points out what the discourse will be about -- it is a sort of topic sentence. It is also a rather peculiar sentence. It is very short, for one thing. So short that its sentencehood might be questioned, a point to which I will return very shortly. It is also unusual in form, being essentially an elliptical lexicalization of the performative

stratum of the second sentence. It is the appearance of this introducer or short topic sentence which I will argue governs a later sentence of the discourse. For the particular introducer Tell me, what is required is that there follow a sentence in question form that is a request for information.

I have claimed that Tell me is a sentence. This claim is actually stronger than needed for my main argument. All that is essential is that Tell me be a constituent of a different sentence than the actual request for information; a weaker form that satisfies this condition is suggested by the punctuation of (4) and (5) below. Nevertheless, my argument is easier to follow if Tell me is regarded as a sentence, and so I will present a few reasons why this characterization is at least plausible.

As implied above, discourses with Tell me may involve an indefinite number of sentences intervening between Tell me and the request for information:

(2) Tell me. I've seen you around a lot lately. What's your name?

(3) Tell me. You seem to know your away around here -- and don't say you don't -- I've seen you with your Disneyland guide uniform on. I'm with the National Review. Name's Al Bedoya. How can I get an interview with Snow White?

If Tell me is not a sentence in such discourses (cf. (4) and (5)), then it has a rather incongruous semantic relation to the sentence of which it is part.

(4) Tell me, I've seen you around a lot lately. What's your name?

(5) Tell me, you seem to know your way around here -- and don't say you don't -- I've seen you with your Disneyland guide uniform on. I'm with the National Review. Name's Al Bedoya. How can I get an interview with Snow White?

The intonation of Tell me is the same as lexically similar sentences like the imperative (6) and so is at least compatible with sentential status.

(6) Hit me.

Finally, discourses with Tell me such as (1) - (3) are similar formally and semantically to discourses beginning with what are clearly sentences, such as

(7) Tell me this.
(8) Tell me one thing.

If discourses with the latter are not a special problem to

generate, then they provide a parallel to a plausible source for Tell me.

2. Components of Tell me discourses.

Assuming the sentential status of Tell me, it is convenient to treat these discourses as consisting of three parts: the INTRODUCER (Tell me), (optional) INTERVENING SENTENCES, and the FOCAL SENTENCE (the request for information).

2.1 The introducer.

I have intentionally limited this paper to discourses with the exact introducer Tell me. Besides the quite different introducers listed in Appendix A, there are introducers similar to Tell me semantically (cf. (9) below) and even lexically (cf. (10) and (11)) which have quite different discourse properties. I will not discuss these here -- there isn't space to sketch even a few of them -- but some idea of the importance of keeping them distinct comes readily from substituting them for Tell me in the example discourses of this paper, an exercise I leave for the reader.

(9) Let me know.
(10) Tell me now.
(11) Just tell me.

As the term introducer implies, Tell me typically occurs discourse-initially. In appropriate contexts and with suitable intonation, it may appear in other discourse positions. In most acceptable such discourses, deviousness plays a part:

(12) You seem to know your way around here. I'm with the National Review. Name's Al Bedoya. Tell me. How can I get an interview with Snow White?

(13) I've seen you around a lot lately. Tell me. What's your name?

(14) I'm looking for a good used car. Tell me. Are there any reputable dealers in Del Mar?

This deviousness is hardly surprising given that we begin the discourse with information relevant to the request for information but whose relevance is not apparent while the information is being conveyed.[3] The appearance later of Tell me accentuates this, since it suggests that the information-gathering nature of the discourse has not yet been established -- compare (12)-(14) with Tell me removed:

(12') You seem to know your way around here. I'm with the National Review. Name's Al Bedoya. How can I get an interview with Snow White?

(13') I've seen you around a lot lately. What's your name?

(14') I'm looking for a good used car. Are there any reputable dealers in Del Mar?

2.2 The intervening sentences.

The intervening sentences contribute in various ways to the eventual success of the discourse. In Tell me discourses, they explain why the information is requested, explain why the hearer is being asked for it, clarify what kind of information is requested, etc. The latter function is exemplified by

(15) Tell me. I'm totally ignorant of algebraic hoop theory, but I need to understand the Biothanian Theorem by Friday. Do you think I could figure it out from Milo's notes?

(16) Tell me. I'm looking for a good used car. Are there any reputable dealers in Del Mar?

As with the introducer, it is possible to deviate from the usual sentence order, although the more peripheral nature of intervening sentences makes the effects less severe.

(17) Tell me. Who do you think will win the game? I want to know so I can be ready in their dressing room after it's over.

(18) Tell me. What do you think of the new provost? I mean with respect to his public image?[4]

2.3 The focal sentence.

The focal sentence is constrained both pragmatically and syntactically, as noted previously. The pragmatic requirement is that it must be a request for information. Preceding examples have been at least consistent with this requirement. Discourses where the focal sentence is not a request for information are deviant, whether they are grossly different in force (as is (19)) or are question forms used to communicate other speech act types.

(19) *Tell me. Today is the fifth of July.

(20) ?*Tell me. This is exam week. Why the hell don't you leave me alone!

(21) ?*Tell me. Who do you think you are!

(22) ?Tell me. What do you think you're doing?!

The relative acceptability of (22) seems problematic, but unlike (20) and (21), it is not just an exclamation -- it is also a question. The hearer is invited to supply an explanation if one is available. Of course the plausibility of a true question reading is not sharply defined in many cases. Varying the degree of "questionhood", however, confirms the dependence of focal

sentence acceptability on this property:

(23) ?Tell me. This is exam week. Why are you bothering me?
(24) Tell me. Do you really think Seattle is going to win again?

Substitution of the hedged introducer Just tell me for Tell me in (20)-(22) improves dramatically the acceptability of the discourses, but it is a quite different item from Tell me, with different commitments as to the focal sentence; most of the acceptable Tell me discourses become unacceptable with Just tell me.[5]

The syntactic requirement for focal sentences is that they must be explicit questions. In other words, they may not merely derive the force of a request for information via indirect speech rules.[6] Note the following:

(25) ?*Tell me. This seems to be Walnut. I sure wish I knew which one was Elm.

(26) ?*Tell me. This seems to be Walnut. I'll be in real trouble if I don't find Elm Street.

(27) ?*Tell me. I know this must be Walnut, but it sure would be nice of you to point out Elm Street for me.

Now consider

(28) Tell me. You seem like a nice fellow. Could you direct me to the bank?

(29) Tell me. Would you show me the way to the meeting?

Here the focal sentence is pragmatically a request for information but unlike earlier examples, it derives that force indirectly. Thus they might seem counterexamples to the claimed formal restriction. But (28) and (29), unlike (25)-(27), derive that force from a surface sentence which is already formally a question.

The relevance of the category surface question is further supported by the fact that focal sentences with tags are also acceptable:

(30) Tell me. This is the Maxwell Museum, isn't it?

(31) Tell me. You're the editor of the Metaphor Conference Proceedings, aren't you? [acceptable, of course, only if the speaker really isn't sure]

3. "Tell me" discourses are "grammatical".

I claimed earlier that the relation between the introducer Tell me and the focal sentence of the same discourse was a

"syntactic" as well as a pragmatic one. Consideration of the preceding data supports this characterization. Whether or not Tell me is a surface sentence, it is clearly a member of a formally (if not lexically) limited set of constructions. The focal sentence, even though it may be distant from Tell me and does not generally form a surface constituent with it, is constrained in its surface form by the earlier appearance of Tell me. It must have the form of a question. While discourse level functional considerations like overall schematization and functional sentence perspective contribute to the linear ordering of sentences within the discourse and to their various illocutionary forces, they are inappropriate to explain in themselves this constraint on the form of the focal sentence. The set of surface questions is not a natural class at the discourse level (i.e. pragmatically). Not only may the force of the question form itself vary, but, where a "real" question is intended, a variety of types of responses on the part of the hearer may be appropriate, including the full range of uses of declaratives.[7] Note, for example, that Tell me discourses may request displays as well as truly informative responses:

(32) Tell me. What's the capital of Washington?
(33) Tell me. How much is 12 + 5?
(34) Tell me. How would you derive John is eager to please?

If these discourses lack discourse functional explanations of the usual sort, how and why do they exist? At this point, more than a weak speculation is inappropriate, but what seems to be involved is this. The prototypic request for information takes question form. Tell me discourses of this sort seem to have become syntacticized -- ritualized -- so that the form of the prototype focal sentence has become a formal requirement, much as similarly "dysfunctional" constraints on syntactic category etc. have arisen in sentential syntax.

4. Relation to the performative stratum.

I suggested earlier that Tell me, like some other introducers, had its source in the performative stratum of the focal sentence. In this regard it parallels a large class of sentence adverbs, adverbial phrases, and adverbial clauses. I do not favor any purely syntactic or semantic treatment of performative phenomena, but I do claim that Tell me has a similar relation to the performative stratum to that held by other lexical realizations of the stratum.

Though formalization of the derivational, productive, or recognitional nature of these discourses would be premature, I do see two possible directions such an analysis might take. The first is similar to the general type proposed by early transformationalists like Katz and Fodor (1963) and Bever and Rosenbaum (1964), in which discourses are generated as wholes by phrase structure rules. The analogous treatment in later, more abstract

frameworks would be distinguished by having logical structural antecedents of the introducer present from the beginning in initial position; the relation to the focal sentence would be essentially anaphoric. An alternative is for Tell me to actually originate in the performative stratum of the focal sentence and be promoted ("raised") to surface sentence status and fronted to discourse-initial position. Its origin would be analogous to that of sentence topics in sentence-level grammar.[8]

The successful development of such speculation depends on the prior task of understanding what's going on semantically and pragmatically with topicalization generally and the topicalization which produces (some) introducers in particular. While in one sense we say we know what topicalization "means" -- it means that the sentence, discourse, etc. is "about" the topic -- on the other hand we are rather ignorant of a deeper meaning. We say we know what "topic" means, but how does a sentence with a topic overtly marked differ from the same sentence without such a topic? How do discourses with Tell me differ from the same discourses without it? The answer must raise the question of why topicalization of (part of) the performative accomplishes the "meaning" that it does.[9]

NOTES

1. I would like to thank for their valuable comments and suggestions on various versions of this paper Don Forman, Jim Hamilton, Ellen Kaisse, S.-Y. Kuroda, and Carol Woodall.
2. The phenomena discussed here might profitably be thought of in terms of linguistic metrology -- the investigation of the effects of scale on linguistic structures and processes. Many differences between linguistic levels are less qualitative differences in content than differences in the temporal (and cognitive?) "size" of the units comprising the levels.
3. The lesser sneakiness of (14) probably reflects the pragmatically-based informativeness of its opening sentence about the nature of the discourse.
4. The order of the sentences in (17) and (18) cannot result from mere rearrangement of surface sentences generated as part of a conventionally ordered Tell me discourse, since each of the last sentences contains an anaphor of material in the request for information. Even a quite abstract remote structure for these sentences would be bizarre if it gave rise to a surface structure preceding the request for information.
5. For example, Just tell me in (2) gives

(i) ?Just tell me. I've seen you around a lot lately. What's your name?

Just tell me foregrounds the impatient or sarcastic element that is peripheral at best with Tell me, so that its focal sentence is shifted toward a less straightforward reading, or, if an impatient

or sarcastic reading is incompatible, becomes infelicitous.

The relation between Just tell me and Tell me raises the complicated issue of the internal structure of introducers. While the degree of productiveness of the introducer construction is unclear, there are a number of items which seem to function as hedges on introducers -- items like just, now, and please plus vocatives of various forms. The productivity of these hedges and the question of what they contribute and why are inviting grounds for further inquiry.

6. A major exclusion from this claim is the situation of a discourse (as a whole) being interpreted indirectly. If I walked up to someone I knew fairly well at this Meeting and uttered the following, they would probably take the entire discourse as a more or less unitary input to some principle of indirectness:

(ii) Tell me. I'm with "60 Minutes". Do you think linguistics meetings should have top priority in our national energy policy?

Such examples point out the general difficulty of drawing the line between general cultural and cognitive phenomena and linguistic phenomena. One response would be to extend pseudo-syntactic indirect speech rules to include larger units like discourses, but I suspect it is better to recognize the inappropriateness of that approach not only for discourses but also for the treatment of single-sentence speech acts.

7. For a discussion of such uses, see Forman (1974).

8. If I understand it correctly, Lakoff (1974) in its later sections regards syntactic amalgamation as a very general process of framing (in the sense of Chafe (1977)) which would be applicable not only to sentence-level outputs but also to the kind of discourse structures discussed here.

9. My treatment here of Tell me has been focussed on its role in discourse, but it also faces outwards, toward the conversation of which it is always part. Carol Woodall has pointed out (personal communication) that it is typically a conversation opener. In particular, it may also function as one of those "empty" openers used to "get a foot into" the conversation by slightly overlapping the previous speaker. I have not yet investigated the significance of these functions for the discourse-internal role of Tell me or other introducers.

APPENDIX A: SOME INTRODUCERS

Anyway	I wonder	Okay	Well
After all	Let's see	Please	Oh
Gee	Now	Really	[any vocative]
I tell you	Of course	Tell her (etc.)	

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How to ask for wiper fluid in Montreal: struggling with the terminology of car parts in québecois

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The lexical domain of car parts in Montréal French represents the fusion of linguistic, sociolinguistic, and sociopolitical factors in a process of lexical change. The context of the domain includes several different factors:
1) English, here perhaps more than in other lexical domains or in other aspects of language use, represents the standard terminology, because of the fact that economically Québec is part of the North American market. All the linguistic paraphernalia (shop manuals, owners' manuals, labelled boxes of parts, etc.) accompanying American artifacts is, then, of course, in English.
2) Not all people who talk about cars speak English and/or have access to the source of terminology.
3) There has been some contact with the French car industry, but it has been limited and recent.
4) The present government of the province of Québec has a policy of encouraging the use of a standardized French terminology in all domains where the source language has always been English.

This is a particularly interesting domain, then, not only because it shows what may happen to a terminology when it is used by speakers of a language other than that of the terminology, but also because a) it is used by the populace at large as well as by technicians in the domain, and b) because it is presently the focus of a conscious attempt to change and standardize it by an official language planning organization. It is therefore subject to influences not felt either by domains in which only technicians may be involved (i.e. that are not part of the general vocabulary) or by domains that are generally known and standardized.

L'Office de la Langue Française, the Québec government organization responsible for language matters (as relaté to Bill 101, a law prescribing certain changes in the use of languages in the province, into the details of which I will not enter) has a terminology department which has recently published its recommended terminology of car parts.[1] This lexicon was developed in coöperation with representatives of various American and European automobile companies, and teachers from several Québec automobile technology training institutes. The Office was then faced with the following dilemma: to what extent was this to be considered a recommendation, and, on the basis of that, what sort of programme should be designed to help the dissemination of that lexicon? Two things, then, were not clear: 1) Whether or not the Office had legitimacy as an agent of change, and 2) What sort of actual use was going on out there that would have to be taken into account in the designing of the implementation programme (the term used in French by the Office is " programme d'implantation")?

The second question was the motivation for fieldwork I carried out as a stagiaire in the sociolinguistic research section of the Office from September to December, 1978 (the first question will only be answered indirectly, if at all).[2] The research was designed to get an idea of a) the distribution and variation in use of the terms used by speakers of French in Montréal, and b) the sorts of linguistic, sociolinguistic, and sociological factors that might be influencing that distribution and variation.

In order to net the widest range of factors possible I chose to investigate only the terms that would be most widely used in spoken and written French, that is, the terms for parts of the car body and for parts of the passenger compartment. Using two diagrammes, I interviewed 35 francophone Montréalers, varying in age, sex, profession, level of education, degree of acquaintanceship with the vocabulary (through degree of acquaintanceship with the domain in general), place of birth, the area of the city they lived in, and other languages used. I asked them to tell me what names they used for each indicated part (there were 13 for the body and 12 for the passenger compartment), when they would tend to use them (especially if they used more than one), where they learned them, whether they recognized certain terms other than the ones they gave, and to what degree they were acquainted with cars. I also asked them general questions related to their acceptanc of attempts on the part of the government to change language use, and particularly use of these terms. This group included a group[3] of students and professors at l'Ecole des métiers de l'automobile in Montréal[3], several garage mechanics, an administrator at a driving school, several truck and taxi drivers, and a few non-drivers. I also spoke to a translator at an insurance company and a representative of the public relations department of the General Motors plant at Ste-Thérèse about problems of "frenchification" ("francisation" in French) of terminology. As well, 19 undergraduates in the Faculté des Sciences de l'Education at l'Université de Montréal[4] filled the diagramme out in writing and gave some sociological information.

The result was that there was overwhelming variation in the terms used, not only in that most people had more than one term for each part of the car, but also in that no two subjects had the same set of terms.[5] Rather than discuss the entire set of terms I would like to look at a few which best exemplify the sorts of linguistic processes and sociolinguistic factors involved. I will then mention briefly some possible sociological factors and the implications of all this for the sort of "corpus-planning"[6] activity the Office has in mind.

Two aspects of the analysis must first be distinguished: one has to do with discussion of factors related to a term in particular; the other has to do with the nature of competition between terms (and this competition is nearly always present in the community, though not as often in any given speaker's use; this then is the distinction between synchronic variation on the level of the community and in the use of an individual speaker). It should be kept in mind, however, that competition is in some sense always present, if only between an English term and the absence of a French term.

There are, then, English terms which have been adopted into the French vocabulary, with greater and lesser degrees of adaptation to French phonology and morphology, depending on the form of the English word. All such words have at least been adapted to the French stress pattern. Thus, for example, tire becomes /ta'jɚr/, bumper, /bʌm'pɚr/. There has been alteration in some vowels; ex. clutch becomes /klɔtʃ/, and initial /h/ is dropped, ex., hood becomes /ʊd/. Consonant clusters that do not occur in French are simplified, ex., windshield becomes /wɛ nʃil/. (The final consonant cluster simplification is typical of québecois in any case, ex., table, /tæb/). In other more receptive cases the phonologization is more advanced, ex., speedometer becomes /spɪdomɛt/, /spɪdomɛtr'/, or /spɪdomaɹt/, with the first /ɹ/ often /ɛ/, and is realized orthographically as speedomètre or spedomètre.

Another way in which English words get used in French is their use in an otherwise French nominal compound; thus hubcap becomes cap de roue (literally, cap of the wheel). The extent to which speakers think of these words as English or French is not clear; it is naturally partly dependent on the extent

to which the speaker knows English, but also has to do with his/ her knowledge of any other term in French for that term, the circumstances under which the term is learned and used, and the shape of the term. Certainly explicit reference was made to such loanwords being English, but there were also instances of, for example, clutch, as being French, certainly acceptance of cap de roue as French, and at least one of real confusion as to whether clutch had originally been an English word or not. An interesting related question which I have not explored in any depth is the way in which gender is assigned to such loanwords; offhand, it seems that all terms are masculine except for la clutch (which is also spelled la clotch). One explanation that has been offerred is that this is a shortening of la pédale de clutch, although I hasten to point out that brake is still masculine although the term la pédale de brake is probably used as often as la pédale de clutch. There is another more interesting process by which terms are borrowed, slightly phonologized, but whose shape has changed. The shape used is still an English one, but does not correspond to the one actually used in English. Thus, steering-wheel would be either that or simply wheel in English; in québecois it is le steering.The gear-shift (or stick-shift, or shift) is le shifter.

Although English elements may be incorporated into nominal compounds, it is more frequent to find either straight compounds or calques with entirely French elements. The other major compound incorporating an English element is brake à bras (handbrake), which has a certain pleasing alliteration, especially when considered with its major competition frein à main, whose prime artillery consists of rhyme. Regrettably, brake à bras is weakening under the onslaught of hypercorrection to frein à bras; I even caught one informant red-handed as he gave the term as "brake à, uh, ah, frein à bras". I will deal with calques later as at least one of them has to do with the introduction of European terms in recent years, and is a somewhat more complicated case. The most illuminating case of nominal compounding is that for hubcap, for which I was given seven different nominal compounds (cap de roue, chapeau de roue, disque de roue, flasque de roue, flaque de roue, garde-roue, and couvre-roue) along with the English hubcap and standard French enjoliveur (de roue). It should be noted a) that the English term is assimilated with difficulty into French, and b) that the standard French term is usually rejected as being opaque and pretentious, although one teacher of automobile mechanics made a case for its technical precision. The proliferation of compounds then appears to be the result of the absence of a norm. Cap de roue appears to be the term most widely known and used; I would predict then a storm of controversy between the upholders of cap de roue and its québecois connotations on the one hand and those of the standard enjoliveur (literally, "embellisher"), which is held preferable for reasons of possibilities of wider communication as well as of prestige and "correctness" of linguistic form. This situation is analogo to the recent stop-sign controversy in which backers of arrêt are fighting it out with those of stop on exactly those grounds. (The score on that: arrêt: 1, stop:0)

Another process whereby a lexical gap may be filled is through the use of a term already existing in the language in another domain, often a general term for a specific car part that in standard French tends to have a specific name. So, for example, vitre, the general term for any kind of window glass, is used for all car windows, where standard French has three different terms: pare-brise (windshield), lunette (the back window), and glace (the others). Similarly, lumière (light) is used for all car lights, where standard French has phare (for lighting) and feu (for signaling). Miroir (mirror) is used for both exterior and interior rear-view mirrors, although they may be qualified with intérieur, extérieur, or de côté, or by a phrase such as " pour voir en arrière" (to look behind). However since both terms were given in an interview context the informants may have felt that disambiguation was necessary. Furthermore,

the standard French rétroviseur has recently been introduced, but is rarely used in exactly that form. Rather, the term most frequently given is miroir rétroviseur, which appears to be a calque on the English rear-view mirror. Occasionally, a form such as rétroviseur arrière was given: in such cases I would claim that rétroviseur is semantically opaque and is used as a direct substitute for miroir. Also some informants gave miroir for one of the mirrors (usually the exterior) and rétroviseur for the other, thus achieving instant disambiguation through differentiation of field of reference.

This brings up the general question of what happens when new terms are acquired, usually through exposure to booklets like owners' manuals, teaching (at a driver education or automobile mechanics school), or advertising, all of which have begun using terms in French, often the European French terms, as a result, again, of the provincial language policy. In this regard I would like to discuss the terms for lights, the dashboard, and the windshield wipers, as well as a poster produced by the Gulf Oil Company.

As I mentioned previously, the term most often given for lights is the general term lumière. Signal lights are sometimes qualified as lumières de côté (side lights), lumières de parking, or simply les parking (which, along with le steering seems to conform to a widespread form of English loanwords in -ing, as in le building, le parking used for parking lot, le smoking for a dinner jacket, etc.), or clignotant(e)s or its equivalent English forms, flasher and flicker. However, phare seems to have been acquired by many informants, and feu by some, but rarely both. The result is that either phare is used to replace lumière, and is used for both phare and feu , or else phare is used for for just the headlight, with lumière or the informant's previous term for feu, in the same way that miroir and rétroviseur are used to disambiguate the inner and outer rear-view mirrors. Similarly, brake and frein may be used by some informants to distinguish between the foot-brake and the emergency brake; one informant, however, explained her use of this distinction on the grounds that in her car the emergency brake had "BRAKE" written on it, which is what happens when you drive an English-speaking car. (Beginning a discussion of another example is like opening Pandora's box, but if I may permit myself yet another digression I would like to point out that the students at l'Université de Montréal often spelled brake as break. The whole question of orthography as reflection of oral vs. written sources of terms will be brought up again briefly in the discussion of the terms for windshield wipers.). To return, then, to shifts in field of reference, here is one more example: le dash is the term most often used for dashboard. The French term, which is fairly widely known, is tableau de bord. One young informant, however, used tableau de bord for the dashboard, and le dash as the term for the glove compartment. This appears to be a special case of the phare-miroir phenomenon, in which the term for the whole is restricted to a part when a new term for the whole is acquired.[7]

The case of the windshield wipers represents a processes of analogy, association, and folk etymology. The existence of a lexical gap in French (the use of the English wiper being fairly widespread) opens the way for acceptance of the standard essuie-glace (because the speaker knows no English, perhaps, or has a particularly raised consciousness as far as preservation of québecois culture goes). This compound is transparent in standard French, as glace is used for car windows (and, in European French can also mean ice or ice cream). This is not the case in Québec, however, where vitre is the general term. Several things have happened, then:

1) several informants used essuie-vitre, thus fitting the term into the québecois system;

2) several interpreted glace in its sense of ice (which is in fact the only sense in which the word exists in québecois: window glass is vitre, and ice cream is crème glacée or crème à la glace, both calques on the English). An essuie-glace, then, is something you use to wipe the ice off your windshield. This does seem to me to be rather a provincial folk etymology, since cars in the tropics undoubtedly have these things despite the fact that there is no ice to deal with there.

3) In the written forms filled out by the students glace was often written glass or glasses (plural) by association, no doubt, with the English glass. This is probably another case where the terms were learned orally. The plural form glasses brings up an interesting problem with respect not only to the homonymous terms glace and glass(es) but also with respect to the other English sense of glasses, that is eye-glasses, and to the French equivalent of that, that is, lunettes. Lunette (singular) is, of course, also the word for the back window of a car. One informant has already succumbed to the confusion: he gave me the English term for the small unopenable window in the rear side of large recent-model cars (this was a young man well-versed in the details of the world of cars, both in English and in French) as opera glasses. In fact, the term in English is opera window, and the French term is glace d'opéra. However, on the whole, lunette as a car-window term is not widely enough known yet to have really gotten into the fray, but it will be interesting to see what happens.

Finally, the case of the Gulf Oil poster. This poster, giving pointers concerning the preparation of the motor for the winter, was posted on the wall of a service station, and used standard French terms not generally used in Québec. I asked the mechanic if he used and/or understood those terms: yes, he understood them, but as for using them, well, no, he never did, "...mais quand tu fais une annonce de meme, il faut que ce soit en bon français!" ("...when you make a poster like that, it has to be in good French!"). Evidently, in many cases, certain terms are judged appropriate for use in certain situations and others for other situations. For example, upon entering a garage, I overheard one man call out to another: "Va chercher les tires!" ("Go look for the tires!"). Later, when I interviewed him, he gave me pneu as his word for tire, and swore that he never used any other term. A used-car saleswoman, who had several terms for almost every part of the car, seemed to feel that they were socially stratified in some way; that is, certain terms were appropriate for use with people interested in cheap cars, and others for use with people who were well-dressed with a little money on hand. However, she said, she usually tried not to commit herself to using one term or another: she would wait until the client made his choice. Once s/he did, of course, she was obligated to use the same forms.

I would claim, then, that when an individual uses more than one term, they may be semantically equivalent in that they have the same referent, but have different social and probably stylistic significance. This is true whether it is the terms the mechanic has that differ in degree of specificity, or whether it is some pair or all of the English (even British and American), québecois, and standard French terms. It is also possible, however, for the reference of a term in an individual's repertoire to change over time, and certainly for a term at any given time to have different referents on the level of the community; that is, within a community, different speakers will use the same term in different ways. This has partly to do with the nature of the social network and social situations in which terms are diffused and used, partly with the nature of the process that involves lexical change (such as language contact, and the particular characteristics of any particular case), and partly to do with the nature of the relationship among competing or co-existing lexical items.

In this particular case, the most important variables appear to be degree and kind of contact with atuomobiles, and to a certain extent, political attitudes which define one's attitude towards certain aspects of language which are symbolic of those sentiments. Age, sex, level of education, all enter into play, but more in the way that they constrain one's contact with English and with cars than in any direct way. On the whole, then, younger speakers tended to use more French terms and have less competing terms than older speakers, and those whose jobs brought them into contact with English and with cars had a better knowledge of English terms than those whose did not (whether or nor they ever spoke English for any other reason). Another important factor is the nature of the competition among terms, both on the level of the community and on the level of the individual speaker's use. Where there is competition between an English term and a French one, the French term seems to be winning out. Thus, le bumper is giving way to le pare-chocs, le hood to le capot, etc. Again, interestingly, judging by the students' written forms, these are learned orally, as pare-chocs is written as pare-choc or par-choc, and capot as capôt or capeau (probably by analogy with chapeau 'hat/cover'). The stiffest competition is between terms of québécois origin and terms of European origin, especially where one québecois terms has become widely accepted, unless that form belongs to the category of generalized terms, in which case a more specific terms is readily acceptable. Thus phare is accepted as a substitute for lumière (although the whole phare/feu distinction probably less so), volant is accepted as a substitute for roue (wheel, steering wheel), rétroviseur for miroir (again, not necessarily in that direct way, or in the way in which it was originally used at the source) and so on. Vitre seems to be holding ground against glace (which is at the same level of generality as vitre), but not against pare-brise 'windshield' (which is a more specific term and is semantically transparent in a way that, say essuie-glace, is not). In any case, the complexity of that situation makes predictions very difficult. The competition, however, between non-general quebecois terms and European terms is rough terms is rough indeed. There is, for example, the case of valise (québecois) vs. coffre (standard French). As I understand it, both are archaic terms once referring to the trunk-like thing that used to get strapped onto the backs of carts or carriages, and subsequently, to early-model cars; when that became part of the body, Quebec and France happened to pick different words, whereas in each case either term might have done just as well. Valise and coffre are, then, both quite French words, distinguished only by their social and political connotations. The same is true of cap de roue and enjoliveur, pédale à gaz and accélérateur, boite or coffre à gants and vide-poches (literally, 'empty-the-pockets' the glove compartment), although the purists would say that in each case the quebécois terms has been heavily influenced by English.

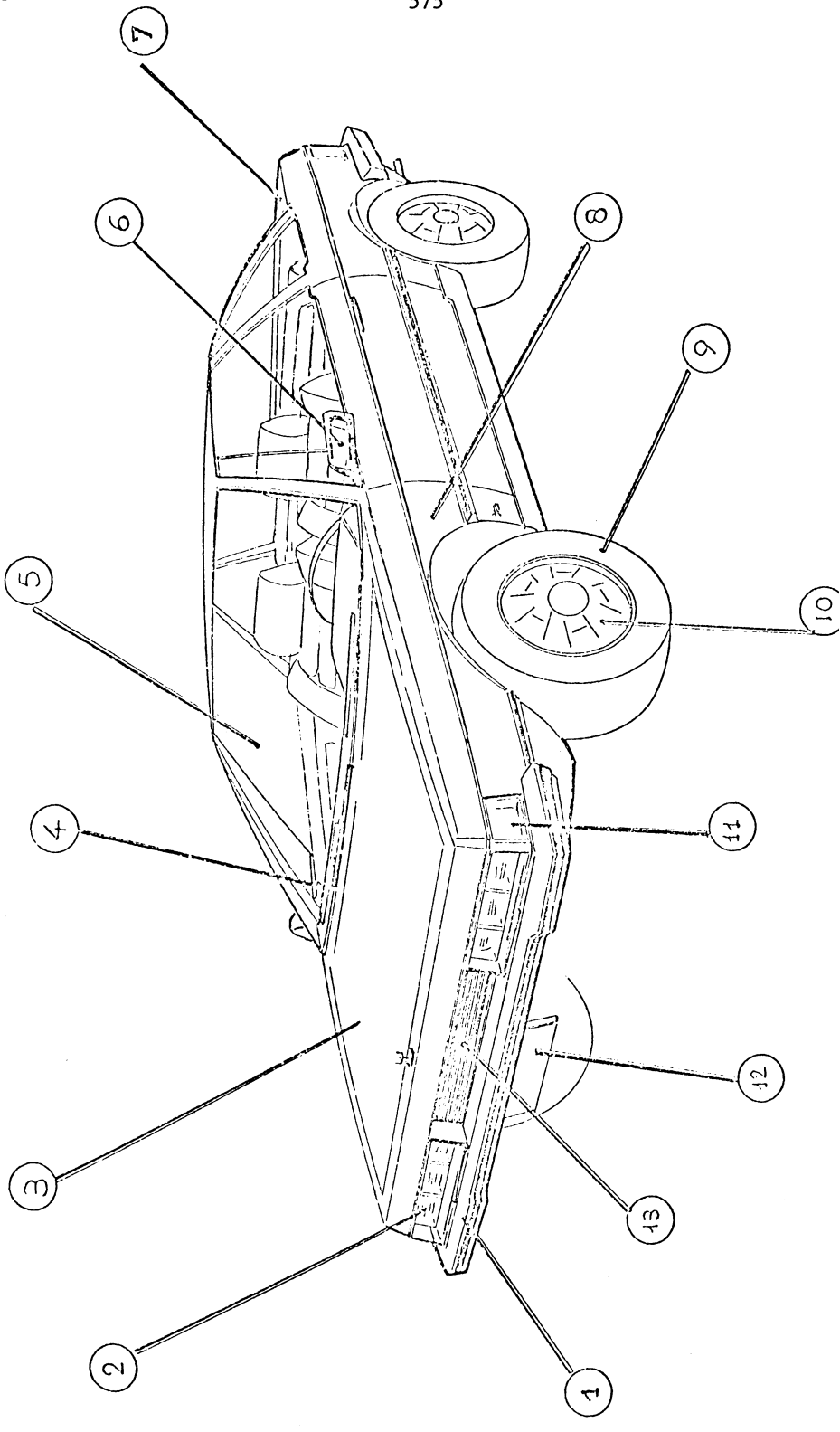
The result of this competition appears, then, to be a differentiation in domain of use, where the quebécois is used for informal spoken language and the standard French for formal spoken and/or written language, except for those with strong political feelings in either direction who choose consciously to use whatever they consider to be the "right" forms in all situations. Within the above distinction there are no doubt other salient aspects of interpersonal relationships and speech situations that enter into play, but it would be necessary to do on-site observation to discover what these are. Most individuals' terminological systems, then, seem to be in a state of change in this domain. The conditions of contact of English and French in Montréal, especailly as regards the atuomobile industry, have created space for the use of English/French pairs and for the use of several processes of word formation and naming, especially in those cases where access to English was restricted. The introduction of European terms is an additional factor; the upshot seems to be a trend towards social and stylistic differentiation, possibly referential differentiation for some terms, and possibly also social and stylistic stratification, partly determined by the conditions under which terms are learned. This is, then, an ideal situation in which to study the linguistic and sociolinguistic processes involved in lexical change, and a case where attempts at standardization have at best led to the use of new terms in new referential and socially significant ways.

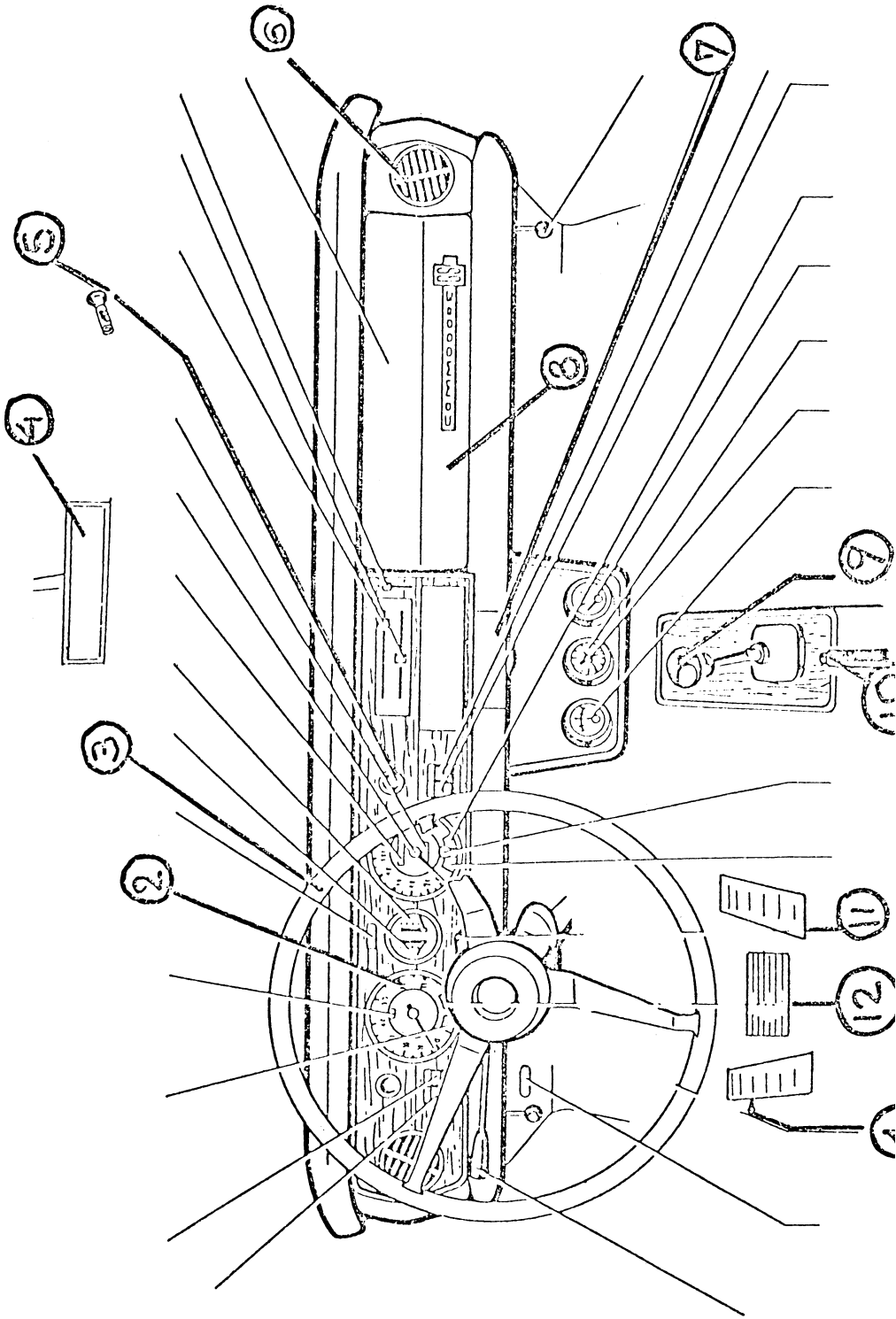
Footnotes.

1. Le lexique de l'automobile, Office de la Langue Française, Gouvernement du Québec, 1978.
2. I would like to thank Pierre E. Laporte, directeur de la recherche et de l'évaluation, Office de la Langue Française, Montréal, for allowing me to carry out this research under the auspices of the Office, and for providing materials and comments. I would also like to thank Denise Daoust-Blais and André Martin of the service de la recherche sociolinguistique and Anne-Marie Baudoin of the service terminologique of the Office, as well as Michel Chrétien of the dept. d'anthropologie of l'Université de Montréal for helpful discussion and advice, and Bernard Beaujardin who designed and produced the diagrams used in the interviews.
3. I would like to thank M. Jacques Desnoyers, directeur de l'annexe de l'Ecole des métiers de l'automobile for arranging the interviews, and for his comments and discussion.
4. I would like to thank Alison d'Anglejan, of the Faculté des Sciences de l'Education, l'Université de Montréal, for allowing me to carry out this research with her students.
5. See appendix for a list of the most usual terms for each part.
6. I am indebted to Joan Rubin for the distinction between "status-planning" (policy directed towards changing the status of a language in a community, such as making a language official) and "corpus-planning" (directed towards changing linguistic forms already in use, or introducing new forms).

7. A similar case is that of the cigarette lighter; most Québecois use either the English lighter or the French briquet. The distinction maintained in France between a briquet (a lighter held in the hand) and an allume-cigarettes (a lighter in a car) is not maintained in Québec.

I should also point out that the distinction between phare and lumière can work both ways, and that feu can replace phare and lumière. That is, lumière can be kept as the term for headlight, with feu or phare as the term for the signal lights.


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Appendix 3. Glosses.

pare: against
chocs: shocks
lumière: light
phare: beacon
capot: lid, cover, hood
essuyer: to wipe
glace: window glass
vitre: window (glass)
de côté: of or on the side
coffre: trunk, box, container
aile: wing
roue: wheel
garder: to protect
couvrir: to cover
enjoliveur: embellisher
(joli : pretty)
feu: fire
clignotant: flashing
plaque: plate
immatriculation: registration, license
cadran: dial
compteur: counter
vitesse: speed, gear
direction: steering
arrière: behind
allumer: to light
bouche: mouth, opening
bras: arm
main: hand
stationnement: parking

Appendix 4. Terms.

A. La carrosserie.

1. bumper
   pare-chocs
2. lumière
   phare
3. hood
   capot
4. essuie-glace
   essuie-vitre
   wiper
5. vitre
   pare-brise
   windshield
6. miroir (rétroviseur)
   (extérieur)
   (de côté)
   rétroviseur (extérieur)
   (de côté)
7. coffre
   valise
   trunk
8. aile
   fender
9. pneu
   roue
   tire
10. cap de roue
    chapeau de roue
    disque de roue
    flasque de roue
    flaque de roue
    garde-roue
    couvre-roue
    enjoliveur (de roue)
11. lumière (de cote)
    (de parking)
    (clignotantes)
    feu
    phare
    clignotant
    flasher
    flicker
12. plaque (d'immatriculation)
    (de la licence)
    licence
13. grill
    grille
    grillage

B. L'habitacle

1. clutch (clotch)
   embrayage (pédale d')
2. speedometer
   speedomètre
   spedomètre
   odomètre
   cadran de vitesse
   compteur de vitesse
3. volant
   roue (de direction)
   steering
4. miroir (rétroviseur)
   (intérieur)
   rétroviseur (intérieur)
   (arrière)
5. lighter
   briquet
   allume-cigarettes
6. trappe (d'air, d'aération, d
   ventilati
   bouche (" " "
   vent(ilateur)
7. cendrier
   ashtray
8. boite à gants
   coffre à gants
   compartiment à gants
9. shifter
   embrayage (bras d')
   bras de vitesse(s)
10. brake à bras
    frein à main
    frein (de securité)
    (de stationnement)
11. pedale à/de gaz
    accélérateur
    accélération
12. brake (pédale de)
    frein (pédale de)

Appendix 5. Loanwords.

-er	-ing	monosyllables
bumper	steering	dash
fender	parking.	vent
flasher		brake
flicker		clutch
lighter		hood
shifter		grill
mirror		cap?
tire		trap?

Appendix 6. Calques.

French:	English:
rétroviseur arrière miroir rétroviseur	rear-view mirror
plaque de la licence	license plate
cap de roue	hubcap
compartiment à gants	glove compartment
frein à main	handbrake
frein d'urgence	emergency brake

Appendix 7. Québecois vs. Standard French Terms.

Québec:	France:
valise	coffre
cap de roue	enjoliveur
pedale à gaz	accélérateur
frein à main	frein de securité
trappe à/d'air	bouche de ventilation
boîte/coffre à gants	vide-poches
bras de vitesse(s)	bras d'embrayage
vitre	glace
vitre arrière	lunette
essuie-vitre	essuie-glace
pédale de clutch	pedale d'embrayage
miroir	rétroviseur
briquet	allume-cigarettes
roue	volant
licence	plaque d'immatriculation
lumière	phare, feu
cadran de vitesse speedomètre	compteur de vitesse

Appendix 8. General vs. Specific Terms.

General:	Specific:
roue	steering, volant
vitre, glace	windshield, pare-brise, lunette , vitre X
miroir	rétroviseur, miroir X
lumière	phare, feu, lumière X

X = qualifying word or phrase

Appendix 9. Transphonologization.

speedometer ----- /spɪdomɪt/ and variants
hood ------------ /ʊd/
trap (?) -------- /tʁæp/
brake ----------- /bʁɛk/
wiper ----------- /wɪpœr/
clutch ---------- /klɔtʃ/

Appendix 10. Compounds.

a. With English elements.

brake à bras
cap de roue
? trappe à/d'air
lumière de parking
pédale de clutch
pédale de brake

b. Without English elements.

frein à main
frein à bras
disque, flasque, flaque, chapeau de roue
garde-roue
couvre-roue
bouche d'air, d'aération, de ventilation
miroir rétroviseur (de côté, extérieur, etc.)

COMMUNICATIVE STRATEGIES IN CONVERSATION
THE CASE OF *SCENES FROM A MARRIAGE*

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The question of artistic verisimilitude -- the relationship between the representation and the reality -- is one of the more intriguing issues in a theory of aesthetics. Until now, linguists have largely been isolated from this area of philosophical speculation because it seemed irrelevant to our interests and impervious to our methodology. But as we get more involved in the formal analysis of naturalistic conversation -- through tape recordings or transcripts -- we are struck, often, in a perverse way by their apparent unnaturalness, their difficulty in being understood. Compared, say, with the dialog in a play or a novel, naturalistic conversation strikes us as not what we expected, not working by preconceived pattern.

We would not claim that constructed dialog represents a reality lacking in transcripts, but rather that artificial dialog may represent an internalized model or schema for the production of conversation -- a competence model if you will, that speakers have access to. If, then, we are interested in discovering the ideal model of conversational strategy, there is much to be gained by looking at artificial conversation first, to see what these general unconsciously-adhered to assumptions are; and later to return to natural conversation to see how they may actually be exemplified in literal use. Thus, we are not claiming that the artificially-constructed dialog we are going to discuss literally represents natural conversation, but rather that one can inspect a different level of psychological reality and validity through the use of literary data, and in this paper we will illustrate how such work might responsibly be done. In this sense, our work here is in support of a theory of communicative competence -- the knowledge a speaker has at his/her disposal to determine what s/he can expect to hear in a discourse, and what s/he is reasonably expected to contribute, in terms of the implicitly internalized assumptions made in her/his speech community about such matters.

We need, then, some notion of what parameters the speaker can use as reference-points in determining how a contribution can appropriately be made in a particular context. The speaker must know first, what sort of extralinguistic facts pertain: what kind of a conversation it is, how well the participants know one another, what sorts of things must be communicated; and additionally, what mode of communication is the normal style for each speaker -- what can be expected of each from prior acquaintance and/or a priori assumptions based on age, sex, social position, and so on. All this specific information need not be directly represented as part of the speaker's specifically linguistic competence; but what is reflected in her/his pragmatic grammar is a general schema, a theory of communicative competence.

It has been suggested (Lakoff 1979) that there are four principal foci of communicative competence: that is, that while competence itself comprises a continuum, with infinite possible points prescribing the appropriate interaction for an individual in a particular setting, these infinite possibilities are organized in terms of four targets, and which target is relevant depends on the participant's perception of her/his role in the conversational setting as s/he perceives it. For each person, in any culture, there is a more or less unconscious sense of an idealized interactional human being: an idealized human being behaves in such a way, in this setting. The four points as they have been specified are: (1) distance. The aim is to inspire separateness and privacy. The least intrusiveness is the best. Hostility is not expressed therefore by confrontation (which is unthinkable) but by sarcasm, irony, impersonality. (2) deference. The aim is to avoid imposition. That is, unlike distance, deference allows interaction as long as the speaker does not attempt to get the upper hand. Hostility cannot be directly expressed, but can be made clear enough through questionsor silence, for instance. (3) camaraderie. The aim here is to acknowledge interrelationship. Participants are to express their equality and their feelings toward one another, friendly or hostile. The ideal is to be totally open, though openness in this mode is as politeness is to the others -- it can be conventional, though this is not perceptible to people who don't use this mode as an ideal. (4) clarity. Where the other modes implicitly or explicitly expressed relatedness, or the fact that the relationship was an important part of the communication, clarity is used where the pure expression of factual information is at issue. Hence closeness or distance is not an issue. This is not normally a possibility in ordinary dyadic communication; it is found with television newscasters (sometimes), or with certain forms of lecturing.

Our task then is to select a constructed example of dialog, discover what each participant's preferred strategy is, or whether what it appears to be is what it really is, and why; and talk about how the writer's realization of his characters' styles represents a reality that has correlates, if not necessarily direct ones, in more naturalistic texts.

We could have selected any of a wide variety of examples. We had to choose between plays, movies, novels, television -- just as a start. We felt that a genre that used dialog as the principal expository means of expressing characters and their relationships would make our position clearest. Novelists have many other techniques to fall back on, but for a playwright, dialog and its concomitant extralinguistic behavior is all the audience has to go on. Interpretation must be done by the viewer, or listener -- as in actual conversation; whereas in the novel, the novelist by careful selection and description can do a lot of his/her own interpretive work.

We wanted to find a contemporary example, as that would be the clearest to us. We needed something with a lot of dialog between

relatively few people -- so that register differences would be minimized, and we would be dealing with something like a minimal pair. We would want to examine as many possible interactional types between as few participants as possible -- to see what a single individual's or two people's strategies were, when confronted by different contexts. That is, we wanted the largest possible sample of conversational situations involving the smallest number of people, to maximize the contributions and types of contributions of each.

We wanted something that was supposed to approximate natural conversation, and that would seem to its audience as natural and as something they could identify with, something similar to their intuitive assumptions about ordinary conversation. Ideally, we would have preferred a contemporary American setting. But when practical considerations are involved -- amount of text, availability, and so on-- what we found to be the most useful compromise was the screenplay of the original 6-hour television version of Ingmar Bergman's *Scenes From a Marriage*. There is the possibility that Swedish couples do not talk to each other as American couples do, but the successful reception of this work in the United States, both in the shortened movie version and the complete version presented several times on PBS in the last year, indicates that we can understand perfectly well what's going on, and that although there may be slight differences in a particular choice of how to say a particular thing, the general concepts are universal, or at least the same in Swedish and American conversation.

Throughout *Scenes From a Marriage*, the metastrategy agreed upon by both Johan and Marianne is distance: the avoidance of the couple's deep differences and dissatisfactions, while maintaining the illusion of camaraderie: open communication and rapport. This can be seen clearly in Scene 1, when Johan and Marianne are discussing the grisly display of mutual viciousness in the breakdown of the marriage of their friends Peter and Katarina. Marianne proclaims that the problem with Peter and Katarina is that "They don't speak the same language," and she contrasts this with what she sees as the happy situation of Johan and herself:

> (1) Marianne: Think of us. We talk everything over and we understand each other instantly. We speak the same language. That's why we have such a good relationship.[1]

In fact, evidence to the contrary abounds in this very discussion. Johan does not agree with Marianne at all; he contends that Peter's and Katarina's problems stem from their money, and he responds to Marianne's analysis with characteristic sarcasm: "You and your languages" (27). She in turn chides him, "You always confuse the issue" (27), and she employs characteristic condescension: "You're sillier than I thought" (28).

The contrast between surface camaraderie and underlying distance is the theme of Scene 2, entitled "The Art of Sweeping Under the Rug." When one partner tries to break the system by expressing dissatisfaction, the other "sweeps it under the rug" to maintain the

surface of harmony. In the beginning of Scene 2 it is Marianne who expresses dissatisfaction:

(2) Marianne: Just think about it. Our life's mapped out into little squares -- every day, every hour, every minute. And on every square it's written what we're supposed to do. The squares are filled in one by one and in good time. If there's suddenly an empty square we're dismayed and scrawl something onto it at once.
(3) Johan: But we have our vacation.
(4) Marianne (with a laugh): Johan! You haven't a clue to what I mean. On our vacation we have more of a schedule than ever. It's all Mummy's fault, actually. And your mother's not much better.
(5) Johan (laughing): What have the dear old ladies done wrong?
(6) Marianne: You don't understand anyway, so there's no point talking about it. (44-45)

Marianne makes several other attempts to articulate her discontent, and Johan uses a variety of strategies to deflect her attempts. He blames her mood on her period ("Is it the curse?" [44]); he evades a direct request for information ("Do you like coming home?") with an ironic rhetorical one ("Is everything so awfully complicated today?"[48]); he is sarcastic ("You're suffering from mother persecution mania" [49]); he evades another direct information question ("Did you want your life to be like this?") with pontification ("I think that life has the value you give it, neither more nor less. I refuse to live under the eye of eternity" [49]).

Later in Scene 2, Marianne asks Johan to meet her for lunch, and she suggests that they take a trip in order to bring them closer together. Johan is unenthusiastic, and Marianne gives up the idea. Again, she declares that communication between them is open, and Johan agrees, although we know from the next Scene that he too is deeply dissatisfied; in fact, he is having an intense love affair with another woman. Nonetheless, he dismisses Marianne's inklings of trouble and supports her declaration of communication:

(7) Marianne (searchingly): Has something happened?
(8) Johan: Nothing. Absolutely nothing. I swear.
(9) Marianne: We're pretty honest with each other, you and I. Aren't we?
(10) Johan: I think so.
(11) Marianne: It's awful to go around bottling things up. One must speak out, however painful it is. Don't you think?
(12) Johan (irritably): Hell, yes. What time is it?
(13) Marianne: One fifteen.
(14) Johan: My watch is always stopping. What were you saying? Oh yes, honesty. I suppose you mean over sex, to put it bluntly.
(15) Marianne: Sometimes I think we...
(16) Johan: People can't always live cheek by jowl. It would

be too tiring.
(17) Marianne: Yes, that is the big question.
(18) Johan: Anyway, I must go now. (66-67)

In this dialog, it is Marianne who purports to believe in talking about everything, and Johan who proclaims that some things are best not talked about (especially things sexual). Later in the same scene, they exchange roles. Faced with Johan's admitted dissatisfaction with their sex life, Marianne espouses the distance strategy:

(19) Marianne: Let me tell you this. You can talk too much about these things.
(20) Johan (Giving up): I suspect you're right.
(21) Marianne: I know you're supposed to tell everything and not keep anything secret, but in this particular matter I think it's wrong.
(22) Johan (Who has heard this before): Yes, you're probably right.
(23) Marianne (Following up her advantage): There are things which must be allowed to live their life in a half-light, away from prying eyes.
(24) Johan (Total retreat): You think so?
(25) Marianne: I'm quite convinced of it. (75)

More abstractly, Johan and Marianne can be seen to be using similar devices, though not necessarily at the same time nor to the same end. Their conversational contributions display a pattern of deep and surface structure which replicates, on the pragmatic level, the basic semantic relations of synonymy, homonymy, and identity. That is, Marianne and Johan alternately use:

I. Pragmatic synonymy (the use of different linguistic devices to achieve similar ends).
II. Pragmatic homonymy (the use of similar linguistic devices to achieve different ends).
III. Pragmatic identity (the use of the same linguistic device toward the same end).

Pragmatic identity can be seen, for example, in the fact that both Johan and Marianne employ the tactic of proposing sleep when unpleasant information is confronted. Johan does this in Scene 2 when he and Marianne begin to argue about their sexual problems:

(26) Marianne: Then I don't understand.
(27) Johan: Let's drop the subject now and go to bed. It's late anyway. (74)

Marianne adopts the same strategy in Scene 3, when Johan has told her that he is planning to leave her for another woman:

(28) Johan: You know the truth now and that's the main thing.
(29) Marianne: I know nothing. Let's go to bed. It's late. (86)

The suggestion of sleep is a variant of the broader tactic of suggesting that a painful subject not be discussed. At the very

beginning of the film, Marianne and Johan are being interviewed for a woman's magazine. When the interviewer asks Marianne for her opinions about love in marriage, Marianne becomes upset and says, "I can't see through this problem, so I'd rather not talk about it" (13). In Scene 5, she is trying to tell Johan that they must get a divorce, whereas he has changed his mind. Just when he seems to be seeing her point, she says, "Let's not talk about it" (165). This is just what Johan says in Scene 3, after he has told Marianne that he has decided to leave her: "We'd better not talk. There's nothing sensible to say in any case" (86). Just as Marianne did not want to talk to the interviewer about love, Johan in Scene 5 begins to tell Marianne about his unhappiness with his girlfriend Paula but then stops: "I can't talk about this. You know it all anyway" (161). It has already been seen how Marianne uses this strategy in Scene 2 when Johan fails to respond to her expressions of dissatisfaction in their marriage (6).

Pragmatic synonymy can be seen when Johan and Marianne use different linguistic devices to achieve similar ends. In order to avoid unpleasant topics, Marianne characteristically uses excessive verbiage made up of trifling details or a barrage of questions. These questions take the form either of deferential offers to give aid or of unrealistic appeals to romanticism of the "Why can't..." sort. Johan characteristically employs the distancing strategies of sarcasm, pontification, pompousness, and talking on a theoretical plane. Both partners can be seen rubbing in a temporary conversational victory, but Johan does this by increasing sarcasm, while Marianne intensifies a strategy of patronization in which she treats him as if he were a child.

At the outset of Scene 3, Johan returns unexpectedly early to the country house where Marianne is about to go to bed alone. The stage directions supply a non-verbal analog to Marianne's verbal strategies:

> Before he has time to take his coat off, she flings her arms around his neck, hugs him, and gives him four loud kisses.
>
> (30) Marianne: Here already! You weren't coming home until tomorrow. What a lovely surprise. Are you hungry? And me with my hair in curlers. How good of you to come this evening. The children are asleep, we went to bed early. There was nothing on TV and we thought it would be nice to have an early night. The girls and I have been dieting today. Would you like an omelette or a sandwich and some beer?
>
> (31) Johan. That sounds good.
>
> (32) Marianne: Or would like a real meal? Shall I fry some eggs and bacon? Or heat some soup? (81)

The ensuing conversation reveals that Marianne and Johan had a fight on the phone when they last talked, and that she immediately called him back, but got no answer. That, coupled with his unexpected arrival late at night, might give her reason to suspect

some unpleasant news. After making some hasty comments about their telephone argument, Marianne launches a long and irrelevant soliloquy about life-as-it-should-be, occasioned by her announcement that she will eat a sandwich despite her diet.

(33) Marianne: Sometimes everything seems utterly pointless. Why should we grudge ourselves all the good things in the world? Why can't we be big and fat and good-tempered? Just think how nice it would make us. Do you remember Aunt Miriam and Uncle David? They were perfect dears and got along so well together, and they were so fat! And every night they lay there in the big creaky double bed, holding hands and content with each other just as they were, fat and cheerful. Couldn't you and I be like Aunt Miriam and Uncle David and go around looking comfortable and safe? Shall I take my curlers out? (83)

Johan's characteristic strategy is sarcasm. This has already been seen in a number of examples ("You and your languages"[27]; "What have the dear old ladies done wrong?" [45]; "You're suffering from mother persecution mania" [49]). Other examples abound. In addition to sarcasm, Johan characteristically pontificates: he talks in broad generalities, using high-flown language. For example, in Scene 3, when Marianne refers to the fact that she called him back after their telephone argument and he did not answer the phone, Johan avoids the admission that he was with his girlfriend by launching a pompous diatribe aimed at government bureaucrats:

(34) Marianne: I called you right back, but you must have pulled the plug out.

(35) Johan: I was pretty tired last night. I'd been out all day at the institute with the zombie from the ministry. You wonder sometimes who these idiots are who sit on the state moneybags and determine our weal and woe. (82)

When Marianne asks simply, in Scene 2, "Did you <u>want</u> your life to be like this?" Johan evades with a similar strategy:

(36) Johan: I think that life has the value you give it, neither more nor less. I refuse to live under the eye of eternity. (49)

It is interesting to note the consistency with which each partner uses her/his habitual strategies. When Marianne tries to use sarcasm, Johan does not let her get away with it; in fact, he rebukes her with sarcasm of his own:

(37) Johan: I don't have much self-knowledge and I understand very little of reality in spite of having read a lot of books. But something tells me that this catastrophe is a chance in a million for both of us.

(38) Marianne: Is it Paula who has put such nonsense into your head? Just how naive can you get?

(39) Johan: We can do without taunts and sarcastic remarks in this conversation.

(40) Marianne: You're right. I'm sorry. (95)

Pragmatic homonymy describes the phenomenon by which speakers use the same linguistic devices to achieve similar ends. For example, both partners employ a barrage of rhetorical questions. In (33) Marianne asks a string of "Why can't ..." questions which serve the surface function of camaraderie by involving Johan in an idealized romantic vision of their life, yet their underlying purpose is distance: to avoid their real problems.

Johan also asks strings of rhetorical questions (many more in fact), but he uses them quite differently:

(41) Johan: Do you know how long I've had this in mind? Can you guess? I don't mean about Paula, but about leaving you and the children and our home. Can you guess? (88)

Johan's rhetorical questions function as taunts. Similarly, he utters a string of questions which purport to represent what Marianne is thinking:

(42) Marianne: You're putting me in a ridiculous and intolerable position. Surely you can see that.

(43) Johan: I know just what you mean. What are our parents going to think? What will my sister think, what will our friends think? Jesus Christ, how tongues are going to wag! How will it affect the girls, and what will their school friends' mothers think? And what about the dinner parties we're invited to in September and October? And what are you going to say to Katarina and Peter? (91)

Johan's questions serve the surface purpose of camaraderie by taunting, which seeks to rouse Marianne to anger and hence involvement. At the same time they fulfill the underlying function of distance by their rhetorical nature, which precludes reply.

These, then, are brief examples of the three pragmatic relations of identity, synonymy and homonymy. It has been shown that Marianne and Johan use questions quite differently. In order to thoroughly exemplify how verbal strategies operate on multiple levels, we will further examine the use of questions in a single scene: Scene 3, in which Johan returns to the country house to tell Marianne that he is leaving her for his lover, Paula.

In sheer numbers, Marianne asks nearly twice as many questions in Scene 3 as Johan: 63 to his 37. If questions seek to draw in the interlocutor by necessitating a response, then Marianne seeks involvement through her greater use of questions. It is even more revealing, however, to examine the types of questions they ask. Of Marianne's 63, 50 are real (in most cases they ask for information; in some they constitute offers [see example 30]). 13 of Marianne's questions are rhetorical; that is, no response is expected. Thus, 21% of Marianne's questions are rhetorical while 79% are real. Of Johan's 37 questions, 32 (86%) are rhetorical, and 5 (14%) are real. Marianne's preferred strategy is the information question, while Johan's preference is for the rhetorical question.

The purpose of Marianne's questions seems to be to involve Johan with her. For example, she asks a series of questions about his relationship with Paula. In addition, she uses the indirect speech act strategy of offering assistance in question form:

(44) Marianne: Shall we pack now or have breakfast first? Would you like tea or coffee, by the way? (98)

(45) Marianne: Shall I pack the shaver, or will you take the one you have in town? (99)

(46) Marianne: Do you want the receipt for the dry cleaners?...

(47) Marianne: Which pyjamas are you taking? (99) (99)

She involves him, then, by seeking to participate in his departure.

While Marianne's information questions seek to draw Johan in by getting him to talk about himself, Johan's 5 real questions do not function this way. Three of those 5 real questions seek information about his belongings:

(48) Johan: Do you know if my grey suit is here or in town? (86)

(49) Johan: Do you know what has become of Speer's memoirs? I'm sure I left the book on the bedside table. (98)

(50) Johan [With reference to retrieving his grey suit]: Which cleaners is it? (99)

Thus his questions devolve back on himself. Furthermore, while they draw attention to Marianne's involvement with him, they focus on her role as household manager, in constrast with Marianne's questions, which focus on Johan's personal state.

Whereas in Scene 2 Johan was sexually interested in Marianne and she avoided his advances, in Scene 3 she tries to interest him sexually, but he does not respond. For example, after her flight of fancy about Aunt Miriam and Uncle David, Marianne asks,

(51) Marianne: Shall I take my curlers out? (83)

This seems like a prelude to lovemaking, but Johan demurs:

(52) Johan: Don't mind me. (84)

Similarly, early in the Scene, she tries to elicit a remark from him about her body, but meets with indifference:

(53) Marianne: I've lost over four pounds this last week. Does it show?

(54) Johan: No. (83)

The following diagram illustrates the ways in which Johan's and Marianne's strategies of questioning operate differently but ultimately collude to maintain a surface of open communication while maintaining the underlying purpose of avoiding communication.

Figure 2

SURFACE:	Johan & Marianne both ask questions	MATCH
DEEPER LEVEL:	Johan's questions are distancing Marianne's questions generate rapport	CONFLICT
DEEPEST LEVEL:	Johan's & Marianne's stylistic differences cause shared implicit strategy: non-communication	MATCH

So in the most complex case, illustrated above, there is a dual shift between match and conflict; sometimes, as when one asks questions and the other utters sarcastic jibes, the first two levels both represent conflict, but the third level always matches.

The levels of cooperation and conflict create a sort of paradoxical communicative situation: people can operate in complicity by talking at apparent cross-purposes, and an understanding of their communicative strategies is only possible through a recognition of this paradox. What is apparently conflict-ridden and anti-communicative is in effect deeply satisfying the participants.

The situation in *Scenes From a Marriage*, then, has overtones of the Batesonian double bind (Bateson 1972) in which a paradoxical communicative strategy keeps participants from fulfilling their communicative needs. A double bind, however, is by definition unilateral: it is effected from above by an authority who himself or herself remains free. But the situation here, while it has certain aspects of the double bind, is bilateral: it is arrived at by negotiation by both participants, both derive equal benefit, and it can be resolved by both participants together. In this way, while it creates confusion and conflict in its participants, it is not pathogenic in the way the double bind is.

In this paper, taking *Scenes From a Marriage* as a text, we have suggested both a new methodology for interpreting communication and a new development of a theory of communicative competence. We have argued that the examination of a constructed text enables us to inspect pragmatic competence -- speakers' abstract knowledge of what is expected of them in a discourse -- perhaps more effectively than natural texts can do. We have also given some evidence of the complexity of communicative strategies and the number of factors participants are operating with. We show that pragmatic structures, like those elsewhere in grammar, entail a multi-leveled analysis, from superficially accessible to deep and implicit, and that contributions of different participants can be related to each other in terms of their functioning as pragmatic paraphrases, ambiguities, or identities. We argue finally on this basis that the choice of forms and the effects of these forms can only be understood with reference to these levels, and that both the structure of a single conversation and the pattern of an entire relationship is explicable in terms of the matchings and conflicts among the consciously-accessible and deeper levels of the participants' conversational strategies.

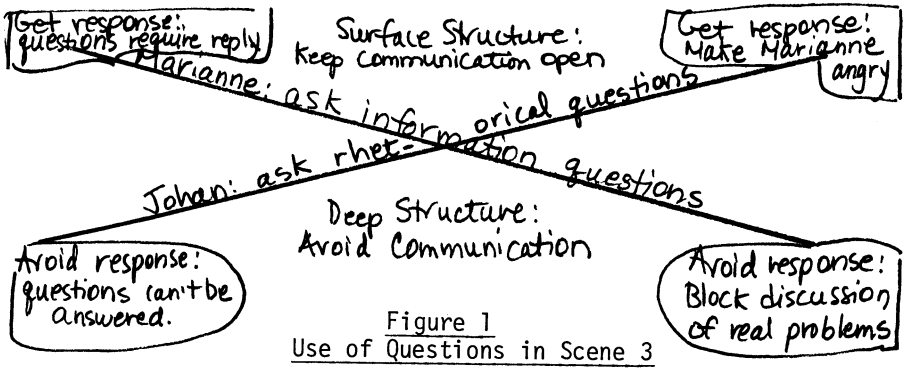


Figure 1
Use of Questions in Scene 3

In Figure 1, the diagonal lines represent Johan's and Marianne's use of questions: he asks rhetorical questions, while she asks information questions. Both strategies have the surface function of getting a response from the other, though they do this in different ways. Her information questions require answers, and his rhetorical questions seek to rouse anger. However, the underlying purpose of both strategies is to avoid communication. Rhetorical questions cannot be answered, and Marianne's information questions invite talk about issues other than their own problems.

This deep complicity underlying the dissension between Johan and Marianne is a key to the general plot of the series. At first glance, it is puzzling that these two apparently so compatible people should have to separate; but after a while, what becomes still more curious is that these two people who apparently are continually at odds with each other cannot stay apart. We who watch feel that it makes sense -- we know relationships like this -- but offhand it seems merely paradoxical, one of the inexplicable mysteries of human psychology. But if we disentangle Johan's and Marianne's communicative strategies thoroughly enough, the mystery turns out to be quite predictable.

Johan and Marianne become quite aware of their surface discord and, somewhat more dimly, of their deeper stylistic incompatibility. What they do not see is their essential complicity at the deepest level: their implicit agreement to disagree. Because of that underlying and overriding similarity of intent and desire, this couple actually has a great deal in common. It may not make for pleasant or productive communication, but the similarity creates a need and an indissoluble bond between them. As long as they both are in this close bond, they cannot break apart. But as long as they are operating under different assumptions about what constitutes an effective or appropriate contribution, they will create friction between them with everything they say. We can look at the situation diagrammatically:

Notes

[1] Ingmar Bergman, *Scenes From a Marriage*, translated by Alan Blair, NY: Bantam, 1974, p. 26. All quotations are taken from this edition. Future page references will appear in the text.

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Trickster and the Village Women:

a psychosymbolic discourse analysis of a Lahu picaresque story

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ABBREVIATIONS

≈	is an allofam of; has both a phonological and a semantic relationship to	Clf	classifier
		Conj	conjunction
Adv	adverb	Det	determiner
AE	adverbial expression	$Elab_n$	elaborate nominal expression
AE_{onomat}	onomatopoeic adverbial	esp.	especially
B_n	bound nominal morpheme	Interj	interjection
B_v	bound verbal morpheme	lit.	literally
AE_{stat}	stative adverbial		

M_{pfx}	prefixable morpheme
N	noun
N_{deverb}	deverbative noun
N_{ext}	extentive noun
$N_{interrog}$	interrogative noun
NP	noun phrase
N_{pron}	pronoun
N_{sd}	spatial demonstrative noun
N_{spat}	spatial noun
N_{time}	time noun
Num	numeral
P_{n}	noun particle
P_{quot}	quotative particle
P_{uf}	final unrestricted particle
P_{unf}	non-final unrestricted prt.
P_{univ}	universal unrestricted prt.
P_{v}	verb particle
prob.	probably
prt.	particle
smn.	someone
sthg.	something
syll.	syllable
ult.	ultimately
V	verb
V_{adj}	adjectival verb
$_{v}V$	pre-head versatile verb
V_{v}	post-head versatile verb

I. Introduction.

The story that is the subject of this paper was recorded in 1965 in the Christian Black Lahu village of Sha-to-du in northern Thailand.[1] This village, three hours' walk to the east from the Thai town of Ta Ton at the terminus of the Chiang Mai-Farng road, is on the north bank of the River Kok, a stone's throw from the Burmese border. The villagers are all quite recent immigrants from Shan State in Burma, where Lahu have been settled for centuries.

As will immediately be apparent, the story has nothing Christian about it, and must be presumed to go back to the remote past. Several different people tried to tell the story, but got it badly garbled, evidence that it represented a remnant of a moribund cultural tradition. Finally, a man in his thirties announced that he knew the story well, and proceeded to rattle it off in 6 minutes and 30 seconds, with considerable panache. Faintly audible on the tape is the sound of some youngsters in the background, practicing Baptist hymns in four-part harmony.

There matters stood until the spring of 1976, when Alton L. Becker visited Berkeley for a quarter. Becker's own pioneering researches into Burmese and Javanese narrative structure made him curious to examine some of my Lahu texts.[2]

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[1] Lahu is a member of the Central Loloish subgroup of Lolo-Burmese, one of the main divisions of the great Tibeto-Burman family.

[2] Several hundred pages of texts from my 1965-6 and 1970 fieldtrips to Lahuland have already been roughly translated, but so far the only ones I have published are a group which illustrate the genre of bilingual jokes (Matisoff 1969).

Together we went over the Trickster story, and Becker opened my eyes to its psychosymbolic dimensions. His insightful comments provided the inspiration for this paper, and to him it is affectionately dedicated.[3]

The body of this paper consists of four parts (Sections II-V): the verbatim Lahu text,[4] with interlinear glosses and form-class designations for each morpheme; an annotated translation; a linguistic analysis in discourse-structural terms; and a psychosymbolic analysis.

Several texts in one or another Loloish language have already been published, so that comparative work on Loloish narrative style and structure is now feasible.[5] Interlinear glosses, bothersome as they are for the author, typist, and printer, are essential for close textual analysis.[6] Equally necessary is a fluent running translation, neither so literal as to be awkward nor so free as to obscure the structure of the original -- no easy task between languages as profoundly different from each other as Lahu and English.

Perhaps it is unnecessary to warn against jumping to conclusions about Lahu grammar on the basis of English translations. Sentence (2) of the Translation, to take a random example, contains the phrase people were selected and

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[3]I am also indebted to several other scholars for their help, including Susan Matisoff, Edward and Bambi Schieffelin, Dan I. Slobin, Amin Sweeney, Gabrielle Yablonsky, and Karl Zimmer.

[4]There is one departure from verbatimity, as explained in Note 8 to the Translation. The transcription used is discussed in Chapter I of The Grammar of Lahu (henceforth GL). Hyphenization conventions for polysyllabic words are as described in GL, section 3.31.

[5]These languages include Akha (Egerod and Hansson 1974), Nasu (Kao Hua-nien 1958), Ahi (Yüen Chia-hua 1953), Sani (Ma Hsüeh-liang 1951), and Lu-ch'üan (Ma Hsüeh-liang 1948). The anthropologist Anthony R. Walker has published nearly 30 prayers in the archaic Red Lahu liturgical language (see Bibliography for a sample). Texts have also appeared in Moso (e.g. Li Lin-ts'an 1946; Li, Chang, and Ho 1957) and Nakhi (e.g. Rock 1937), two closely related dialects with a fascinating pictographic writing system. (Moso-Nakhi is now considered by most Loloists to lie somewhat outside of Loloish proper.)

[6]In this paper, as in Matisoff 1969, I have adopted the practice of giving each word in the text a number on its first occurrence, which it retains in all subsequent occurrences, so that each separate word need only be glossed once. The utility of this tedious process is suggested metaphorically by the cartoon character Foghorn Leghorn, a large bellicose rooster who talks in a Southern accent, and is always losing his plumage in fights. Totally featherless after one such encounter, he astounded his friends by reappearing completely refeathered the next day. "Fo'tunately," he announced proudly, "Ah always numbahs mah feathahs!"

they went off. "Universal grammarians," looking for an example of the "passive" in an exotic language in order to win some theoretical argument, had better be careful. There is no such thing as an active/passive distinction for Lahu verbs. I used an English passive because no agent NP was expressed in the Lahu. (The they in they went off is also not expressed in the original.)

This particular story was chosen for detailed analysis both for its tightly-knit linguistic structure and for the thematic interest of its content. It was told with elegance and economy, with occasional repetitions to increase the dramatic effect.[7] The action never flags, and climax is piled on top of climax (in more ways than one).

It is my hope that the linguistic, psychological, and sheer prurient interest of this text will foster a greater appreciation of Tibeto-Burman literature by the general public.

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[7]See especially the incident of the consultation of the Tree-oracle, in Discourse Units IV-A and IV-B.

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* *

II. Lahu text with interlinear glosses.

I

(1) *à-šwè thâ Hɛ̀ʔ-pā thàʔ Lâhū-yâ màʔ bɔ̄ʔ ve.* (2) *qhe-te-lɛ ô tê šɔ́ ɔ̄,*
1 2 3 4 5 6 7 8 9 10 11 12 13

màʔ bɔ̄ʔ e ve tê šɔ́, chɔ̀ šɔ̄ və lɛ qay ve cê. (3) *šu ɔ̄ thîʔ qo, è-qhè ô-ve ɔ̄*
6 7 14 15 11 12 16 17 18 19 20 8 21 22 23 24 25 26 27 13

ɡ̈âʔ=qú-ni tê khɛ thîʔ və lɛ, yàʔ-qɔ=qá ɔ câ thà, ɔ cà ve tê yàn thà ɔ̄, phàʔ
28 11 29 24 18 19 30 23 31 2 23 31 15 11 32 2 13 33

lɛ ɔ̄ câ ve te ve, yô ɔ . (4) *phàʔ ò lɛ ɡ̈âʔ-ɛ́ tê khɛ pɔ̄ʔ tɔ̄ʔ gè̀ e lɛ, "âa,ŋà*
19 23 31 8 34 8 35 13 33 36 19 37 11 29 38 39 40 14 19 41 42

mâ qay cɔ̂ lɔ. nɔ̀-hɨ́ qay," tè̀ qôʔ ve cê. "ŋà ɔ-qhe-lɛ ɔ̀-hêʔ chi tê mà mɔ̀ lɛ, qòʔ
43 20 44 45 46 20 47 48 8 21 42 49 50 51 11 52 53 54 55

e ve yò. màʔ bɔ̄ʔ mâ phèʔ. qòʔ e šɤ̄a," qôʔ ve cê. (5) *qhe-te-lɛ ɔ̄ šu yɔ̄ qòʔ*
14 8 56 6 7 43 57 55 14 58 48 8 21 9 13 22 35 55

e cɨ́ tá ve.
14 59 60 8

1 (N_{time}) long ago / 2 (P_{univ}) temporal prt. [1+2 'once upon a time'] / 3 (N) Chinese / 4 (P_n) accusative prt. [also *àʔ* or *hàʔ*] / 5 (N) Lahu people [see 90 *yâ* (N) 'child; son'] / 6 (N) war / 7 (V) shoot; fight / 8 (P_{univ}) indicative nominalizer [related to 15 'relativizer' and 77 'genitive'] / 9 (Conj) then; thereupon [lit. 'having done thus': cf. 117, 34, 19; see also 9-A (Sentence 20)] / 10 (N_{sd}) that; that one; a certain one; the one over there / 11 (Num) one; a / 12 (Clf) morning / 13 (P_{unf}) topicalizing prt. [related to 67-A (P_n) 'locative prt.'] / 14 (P_v) prt. indicating outer-directed motion; away; off to / 15 (P_{univ}) relativizing prt. [related to 8 'indicative nominalizer' and 77 'genitive'] / 16 (N) people; person / 17 (V) select / 18 (P_v) prt. showing transportatory motion or outer-directed action / 19 (P_{unf}) suspensive prt. marking its clause as non-final in the sentence [related to 54 (P_{univ}) 'causal'] / 20 (V) go / 21 (P_{uf}) quotative prt.; marker of reported speech / 22 (N_{pron}) remote 3rd person pronoun: they; others; somebody else / 23 (N) cooked rice; food; meal / 24 (V) make into packet; wrap up / 25 (P_{unf}) conditional or temporal prt.; when; if / 26 (N_{proper}) the Trickster (name apparently < Shan) / 27 (Det) that; that one; the aforementioned 28 (N) kind of tailless chicken without breast feathers [cf. 37] / 29 (Clf) classifier for animals / 30 (N) roadside; on one's route [cf. 127] / 31 (V) eat / 32 (Clf) time (also *yâ*) [11+32+2 'at the time that; when'] / 33 (V) unwrap; reveal / 34 (V) do; make [Clause + *ve* + *te* 'do in such a way that Clause'] / 35 (N_{pron}) 3rd person pronoun: he, him; she, her / 36 (P_v) prt. marking completed action or change of state / 37 (N) chick [*ɡ̈âʔ* (N) 'chicken' + *ɛ́* (M_{pfx}) 'baby'] / 38 (V) jump / 39 (V) emerge; (V_v) out, outwards / 40 (V_{adj}) be fast; (V_v) rapidly, in a flash / 41 (Interj) oh!; well...; ah! / 42 (N_{pron}) I; me / 43 (Adv) not / 44 (V_{adj}) be fitting, proper; (V_v) ought to, should / 45 (P_{uf}) emphatic prt. / 46 you (pl.) / 47 (P_{quot}) marker of end of quotation [related to 195 (P_{univ}) 'really, indeed'] /

48 (V) say / 49 (P_{unf}) strong topicalizer: as for [composed of 13+117+19]; (also *ɔ̄-qhe)* / 50 (N) sign; portent; omen / 51 (Det) this; this one; the one just mentioned / 52 (Clf) general classifier / 53 (V) see / 54 (P_{univ}) causal prt.: since, because [related to 19 (P_{unf}) 'suspensive'] / 55 (V) return; go home / 56 (P_{uf}) affirmative or declarative prt. / 57 (V) be; (V_v) be able, can / 58 (P_v) prt. marking intended action of 1st person / 59 (V) send on an errand; (V_v) causative: make do, let do; cause to do / 60 (P_v) prt. showing durative state, long-lasting or definitive action [also *tā, ā, á*].

II

(6) *qhe-te-lɛ ʂu yɔ̄ qɔ̀ʔ e cɨ́ lɛ ɔ̄-qhe, pɛ̂=ÿù-li thɔ̂ʔ lɛ, á-cɛ̀-gu khâʔ lɛ ɔ̄,*
9 22 35 55 14 59 19 49 61 62 19 63 64 19 13

vâ=lɛ́-qɔ̂ʔ àʔ phɛ-chî lɛ, á-qā ɔ̄ tɛ ve cê. (7) *mû phə̀ʔ qhe-te-lɛ ɔ̄, vɨ̀-vɨ́-vɨ̀*
65 4 66 19 67 67-A 68 8 21 69 33 9 13 70

qo tɛ̂ʔ-tɛ̂ʔ ô vâ=dɛ́-qō àʔ -- vâ=lɛ́-qɔ̂ʔ àʔ gâʔ ve tê yâ thâ, qhe-te-lɛ ɔ̄ yâ-mî=ma
25 71 10 72 4 65 4 73 15 11 32 2 9 13 74

ô tê ÿā qôʔ və ve: "âa, nɔ̀-hɨ́ ɔ̄-pā ve ɔ̀-ha-ku qɔ̀ʔ lâ ɔ̀ mɛ̄. tâ chɛ̂ ɔ̀ mɛ̄.
10 11 75 48 18 8 41 46 76 77 78 79 80 36 81 82 83 36 81

kɔ̀ʔ à mɛ̄." (8) *qhe-te-lɛ ɛ̀-qhɛ̀ á-qhɔ tɨ́ phôʔ yɨ̀ʔ e ve cê.*
84 85 81 9 26 86 87 88 89 14 8 21

61 (N) bumblebee / 62 (V) hook onto; strike with curved instrument / 63 (N) crab / 64 (V) scoop out (as a solid from a liquid) / 65 (N) bamboo-sheath / 66 (V) tie sthg so it hangs suspended ("tie-hang") [cf. 238] / 67 (N) outdoors; area outside / 67-A (P_n) locative prt. [related to 13 (P_{unf}) 'topicalizer'] / 68 (V) put down; place onto / 69 (N) sky; weather [69+33 'get dark; night falls'] / 70 (Interj; AE_{onomat}) bzz-bzz / 71 (Interj; AE_{onomat}) noise of scratching / 72 (N) tube of bamboo / 73 (V) scratch / 74 (N) woman / 75 (Clf) classifier for people / 76 (N) a male; (slang) husband / 77 (P_{univ}) genitive marker [related to 8 'indicative nominalizer' and 15 'relativizer' / 78 (N) soul; spirit / 79 (V) return; ($_vV$) do again, do back [*ʂqɔ̀ʔ* (V) 55] / 80 (P_v) benefactive prt. showing action impinges on a non-3rd person [cf. *pî* (V_v) 123] / 81 (P_{uf}) persuasive prt. / 82 (Adv) negative imperative / 83 (V) stay, be in a place; (V_V) continuous or progressive action / 84 (V) be afraid; be frightening / 85 (P_v) asseverative prt. / 86 (N) house; home / 87 (P_{univ}) only / 88 (V) pile up; ($_vV$) do in a group / 89 (V) sleep; lie down.

III

(9) *qhe-te-lɛ ɛ̀-qhɛ̀ ô-ve ɔ̄, "âa, ŋà á-qhɔ tâ yɨ̀ʔ. yâ qhɛ̂ ɔ̀ kə̀ la,"*
9 26 27 13 41 42 86 82 89 90 91 92 93 94

qôʔ ve cê. (10) *qhe-te-lɛ ɔ̄, "âa, mâ ɔ̀ kə̀ cɨ́. lâʔ-lɔ ve yɔ̀," tɛ̀ qôʔ ve tê*
48 8 21 9 13 41 43 92 93 59 95 8 56 47 48 15 11

yân thâ, yɔ̄-hɨ́ khā lɛ, ɛ̀-qhɛ̀ á-qhɔ ÿa yɨ̀ʔ ve. (11) *qhe-te-lɛ ɔ̄, ɛ̀-qhɛ̀ ô-ve ɔ̄*
32 2 96 97 19 26 86 98 89 8 9 13 26 27 13

yâ-mî=ma ô tê mō yɨ̀ʔ e pə̀ qhɔ̀ʔ-nɔ́, nɔ̂ʔ-qhɛ̂ ɡ̈â-thɛ̀ʔ tɛ̄ lɛ, chɨ̂ʔ lɛ, ô yâ
74 10 11 99 89 14 100 101 102 103 104 19 105 19 10 90

qha cɔ̀ pā̄ qhɛ̂-qhɔ ɔ̄ tɛ ve cê. (12) *mū thî la lɛ ɔ̄, "nɔ̀-hɨ́ ve yâ qhɛ̂ ɔ̀ kə̀*
106 107 108 109 67-A 68 8 21 69 110 94 19 13 46 77 90 91 92 93

ve lɔ ni-ʔ. à-thɔ̀ʔ-ma šāy lâ tù le," qhe qôʔ lɛ ɔ̄, "âa, à-thɔ̀ʔ-ma šāy lâ
8 45 111 112 113 114 80 115 116 117 48 19 13 41 113 114 80

tù thɔ̂, à-thɔ̀ʔ-ma hə̂ʔ kàʔ hə̂ʔ," qôʔ lɛ, te-lɛ ɔ̄, phu-ši pî kàʔ mâ hə̂ʔ.
115 118 113 119 120 119 48 19 121 13 122 123 120 43 119

(13) *à-thɔ̀ʔ-ma pî kàʔ mâ hə̂ʔ.*
113 123 120 43 119

90(N) child; son / 91 (N) shit / 92 (V) to shit [related to *qɔ̀* (V) 'expel; deliver'] / 93 (V) insert, go into; (V_v) do so it goes in; do in a thorough, penetrating way / 94 (P_v) action towards center of interest; becoming; entering a new state / 95 (V) guarantee / 96 (N_{pron}) they [35+ *-hɨ́* 'pluralizer'] / 97 (V) swear; take an oath / 98 (V) get, obtain; ($_vV$) manage to do, get to do; (V_v) able to do / 99 (Clf) group; bunch; party of people / 100 (V) finish, come to an end; (V_v) completed action / 101 (N_{time}) after, the time after; (N_{spat}) behind, the place in back; (N) back (body-part) / 102 (N) fermented soybeans (lit. "shit-beans") 103 (Adv) thoroughly; with all one's might / 104 (V) crush; mash / 105 (V) crumple into a ball / 106 (Adv) all / 107 (V) be there; have / 108 (P_v) agentive nominalizer; one who V's [106+107+108 'all those who were there'] / 109 (N) rear end; buttocks; anus / 110 (V) to dawn / 111 (V) look at; (V_v) try doing / 112 (P_v) imperative glottal stop / 113 ($N_{interrog}$) what / 114 (V) pay compensation / 115 (P_v) irrealis; future; unrealized, hypothetical, or purposive action / 116 (P_{uf}) prt. marking substance questions (as opposed to yes-or-no questions) / 117 (Adv) thus; in this way / 118 (P_{unf}) even; also [113+118 'whatever'] / 119 (V) hit upon; get, obtain; want to get / 120 (P_{unf}) even, also (synonym of 118) [118+120 'whatever'] / 121 (Clause) thereupon, then [same as 9] / 122 (N) wealth; money (lit. "silver and gold") / 123 (V) give; (V_v) marker of 3rd person beneficiary [cf. *lâ* (P_v) 80] <u>or</u> causative versatile verb.

IV-a

(14) *qhe-te-lɛ ɔ̄ ɛ̀-qhɛ̀ ɔ̂-ve ɔ-qhe-lɛ yâ-mî=ma ô tê mɔ̄ à̀ʔ qôʔ pî ve,*
9 13 26 27 49 74 10 11 99 4 48 123 8

"âa, a-yɔ=qɔ̄ dɔ̂ʔ na e," qôʔ ve cê. (15) *a-yɔ=qɔ̄ ô-ve ɔ̄ dɔ̂ʔ na e te lɛ*
41 124 125 126 14 48 8 21 124 27 67-A 125 126 14 34 19

yâ-mî=ma ô tê mō ɔ̄-qhe, yà̀ʔ-qɔ qɔ̀ʔ kɨ̀ ɔ̄ qay cɨ́ ve cê. (16) *ɛ̀-qhɛ̀ chi*
74 10 11 99 49 127 128 129 67-A 20 59 8 21 26 51

yà̀ʔ-qɔ thê-ɛ̀ qay lɛ, a-yɔ=qɔ̄ ɔ̀-qhɔ lɔ̀ʔ chɛ̂ a qo ɔ̄, ɔ̀-thà̀ʔ=phɔ̄ yâ-mî=ma dɔ̂ʔ
127 130 20 19 124 131 132 83 133 25 13 113 74 125

a qo ɔ̄, qɔ́-qɔ́ te a qo ɔ̄, "à-thɔ̀ʔ-ma šāy pî tù le, ɛ̀-qhɛ̀ hà̀ʔ," qôʔ ve cê.
133 25 13 135 34 133 25 13 113 114 123 115 116 26 4 48 8 21

(17) *qhe-te-lɛ̀ è-qhɛ̀ ô-ve ɔ̄ , "âa, šāy pî-ʔ, šāy pî-ʔ," qhe qôʔ ve cê.*
9 26 27 13 41 114 123 112 114 123 112 117 48 8 21

(18) *qhe-te-lɛ̀ tê pɔ̀ʔ qɔ̀ʔ qôʔ e .* (19) *è-qhɛ̀ chi kàʔ yâ-mî=ma qhɔ̀ʔ-nɔ́ haʔ-haʔ*
9 11 136 79 55 14 26 51 120 74 101 137

g̈ɨ̂ qɔ̀ʔ e lɛ̀, á-qhɔ qɔ̀ʔ mɨ̀, "âa, à-thɔ̀ʔ-ma qôʔ lâ le, nɔ̀-hɨ̀ àʔ," qôʔ lɛ̀,
138 55 14 19 86 79 139 41 113 48 80 116 46 4 48 19

"âa, è-qhɛ̀ hàʔ šāy pî-ʔ tɪ́ qôʔ lâ ɔ," qhe qôʔ ve cê.
41 26 4 114 123 112 87 48 80 140 117 48 8 21

124 (N) hollow *a-yaw* tree / 125 (V) beat on; strike / 126 (V) listen to; (B_V) ask a question / 127 (N) road [cf. 30] / 128 (V) be crooked; bent; curved [related to 79] / 129 (P_V) locative nominalizer: the place where / 130 (AE_{stat}) straight; directly / 131 (N_{spat}) interior; inside / 132 (V) enter / 133 (P_V) prt. of intent, trying out an action; also used in suggestions and mild imperatives / 134 (N_{spat}) outside surface / 135 (AE_{onomat}) thump, thump! / 136 (Clf) time; occasion [11+136: once again; immediately [cf. 150]] / 137 (Adv) quickly; fast; in a hurry [cf. 143] / 138 (V) run / 139 (V) sit / 140 (P_{uf}) emphatic declarative prt.

IV-b

(20) *"qhe-te tê pɔ̀ʔ qɔ̀ʔ dɔ̀ʔ mâ hêʔ qo mâ šɪ̄," qôʔ lɛ̀, tê pɔ̀ʔ qɔ̀ʔ dɔ̀ʔ na lɛ̀ ɔ̄,*
9-A 11 136 79 125 43 141 25 43 142 48 19 11 136 79 125 126 19 13

è-qhɛ̀ chi ɔ hâʔ qɔ̀ʔ lɔ̀ʔ chɛ̂ ā lɛ̀ ɔ̄ , yâ-mî=ma tê mʊ̄ te lɛ̀, qó-qó dɔ̀ʔ a lɛ̀,
26 51 13 143 79 132 83 60 19 13 74 11 99 34 19 135 125 133 19

"âa, cha pî-ʔ, cha pî-ʔ," qhe qôʔ cê. (21) *qhe-te-lɛ̀ ɔ̄, yâ-mî=ma ô tê mʊ̄*
41 144 123 112 144 123 112 117 48 21 9 13 74 10 11 99

g̈ɨ̂ qɔ̀ʔ e lɛ̀ ɔ̄, è-qhɛ̀ chi kàʔ hâʔ g̈ɨ̂ qɔ̀ʔ e lɛ̀, á-qhɔ ɔ gɔ̀-ne qɔ̀ʔ te chɛ̂ lɛ̀,
138 55 14 19 13 26 51 120 143 138 55 14 19 86 67-A 145 79 34 83 19

"âa, à-thɔ̀ʔ-ma qôʔ ve le. à-thɔ̀ʔ-ma qôʔ lâ le," qôʔ lɛ̀, "âa, cha pî-ʔ, cha pî-ʔ
41 113 48 8 116 113 48 80 116 48 19 41 144 123 112 144 123 11

tɪ́ qôʔ lâ ɔ, è-qhɛ̀ ɔ̀," qôʔ cê. (22) *qhe-te-lɛ̀ ɔ̄, yâ-mî=ma tê qhâʔ-qhâʔ ve*
87 48 80 140 26 146 48 21 9 13 74 11 147 77

è-qhɛ̀ tɪ́ phôʔ pàʔ ve cê.
26 87 88 148 8 21

9-A (Conj) well then; in that case [cf. 9] / 141 (V) be the case [43+141+25: 'if it is not the case that; unless'] / 142 (V) know / 143 (Adv) fast; quick [same as 137] / 144 (N) cunt / 145 (N) rattan strips [for weaving baskets, etc.] / 146 (P_n) vocativ prt. / 147 *qhâʔ* (N) village: *tê qhâʔ-qhâʔ ve* 'of the whole village' / 148 (V) fuck.

V

(23) *qhe-te-lɛ̀ ɔ̄ ɔ̀-phɔ̂ tê mʊ̄ qɔ̀ʔ la lɛ̀ ɔ̄-qhe, "âa, è-qhɛ̀ chi qhe chi qhe te*
9 13 149 11 99 79 94 19 49 41 26 51 117 51 117 34

lâ ɔ. nɔ̀-hɨ̀ mâ chɛ̂ qhɔ̀ʔ-nɔ́ è-qhɛ̀ pàʔ lâ ve," qôʔ lɛ̀ ɔ̄, tê pɔ̀ʔ lɛ̀ ɔ̀-phɔ̂ tê pa
80 140 46 43 83 101 26 148 80 8 48 19 13 11 136 150 149 11 151

qɔ̀ʔ la lɛ, è-qhɛ̀ àʔ ɡàʔ-yù lɛ, tî-pɛ̄ a te lɛ phɔ e ve cê. (24) *phɔ lɛ ɡɔ̀ ɡàʔ-y*
79 94 19 26 4 152 19 153 133 34 19 154 14 8 21 154 19 155 152

lɛ-ɛ̄-ɛ, ɡàʔ mâ mi. (25) *qhà-qhe te ɡàʔ-yù kàʔ mâ mi.* (26) *tê pɔ̂ʔ mâ ɡa tá lɛ qɔ̀ʔ*
156 157 43 158 159 34 152 120 43 158 11 136 43 98 60 19 79

la lɛ, è-qhɛ̀ chi ɔ̄, chi ve ɔ, pɛ̂-ɡɨ̀ ɡɔ̀ khâʔ hɔ lɛ, qhe te šɛ̄ lɛ ɔ, šá-lâ=yɛ̀
94 19 26 51 13 51 77 13 160 155 64 161 19 117 34 162 19 13 163

ɔ̄ thɛ-qɔ̄ qhɔ ɔ̄ lɔ̀ʔ yɨ̀ʔ tá lɛ, ô ve ɔ̄ ša-tû=kɨ̀Ξyɛ̀ hàʔ ni tā lɛ ɔ,
67-A 164 165 67-A 132 89 60 19 10 77 67-A 166 4 111 60 19 13

"ôo, ɡɨ̀-ša tɔ̂ʔ la lɔ, yàʔ-ni lɛ̀," qhe qôʔ ve cê. (27) *qhe-te-lɛ yɔ̂ àʔ tân-tù tân*
167 168 39 94 45 169 150 117 48 8 21 9 35 4 170 171

pî ve. (28) *ɔ̄ cā pî a qo câ.* (29) *qhe te šɛ̄ lɛ ɔ̄, "è-qhɛ̀ tí lɔ" dɔ̂ lɛ,*
123 8 23 172 123 133 25 31 117 34 162 19 13 26 87 45 173 19

šu tê pɔ̂ʔ šɪ̄ la lɛ, yù lɛ, dɔ̂ʔ-pɛ̄ a te lɛ, qɔ̀ʔ phɔ e .
22 11 136 142 94 19 174 19 125 175 133 34 19 79 154 14

149 (N) husband / 150 (P_{unf}) topicalizing prt. [11+136+150 means either 'straightaw immediately' or 'this time (as opposed to last time)'] / 151 (Clf) group-classifie 152 (V) chase after; chase in order to seize [cf. 157, 174] / 153 (V) kill / 154 (V) flee; run away / 155 (V) pull, drag; ($_{v}$V) do vigorously / 156 intonational variant of 19 [cf. note 34 of Translation] / 157 (V) chase; drive (as a hunted ani [cf. 152] / 158 (V) overtake; catch up with / 159 (Adv) how [159...120 'no matter how; however'] / 160 (N) honey ["bee-juice": cf. 61] / 161 (V) dye; daub / 162 (P_{v} prt. indicating prerequisite action; inchoative; do first or as a prelude to a following action / 163 (N) cotton-storage building / 164 (N) large storage basket [also *phɛ-qʊ̄*] / 165 (M_{pfx}) unprefixed form of 131: inside / 166 (N) joss-stick temple [building with an altar for burning incense to *ɡɨ̀-ša* (cf. 168)] / 167 (Inte oh! / 168 (N) God; Great Spirit / 169 (N_{time}) today / 170 (N_{deverb}) an offering [cf. 115] / 171 (V) make an offering (religious) / 172 (V) feed; give to eat [causative of *câ* 'eat' (31)] / 173 (V) think / 174 (V) take; seize, grab [cf. 152] 175 (B_{v}) to death [125+175: 'beat to death'; 104+175 (sent. 41) 'crush to death'].

VI

(30) *qɔ̀ʔ ɡàʔ-yù lɛ, âa, tê pɔ̂ʔ lɛ̀ qɔ̀ʔ=ɡàʔ=qɔ̀ʔ=ɡàʔ-yù lɛ, nɪ̄ qɛ́ lɛ ɔ̄, tɛ*
79 152 19 41 11 136 150 79 157 79 152 19 176 177 19 13 68

šɛ̄ lɛ ɔ̄, á-phàʔ ɡâʔ-bɛ, nɪ̄ ŋɔ̂ʔ-è-thê-è te ā pî lɛ, "âa, è-qhɛ̀ qhâ-šɨ́ ɡàʔ-yù
162 19 13 178 179 176 180 34 60 123 19 41 26 181 152

qhâ mâ hêʔ ò lɔ. chò kàʔ mù=nɪ́-ɡwɛ kàʔ tɔ̂ʔ ò lɔ," qôʔ cê. (31) *qhe te á lɛ*
182 43 141 36 45 183 184 185 120 39 36 45 48 21 117 34 60 19

ɔ̄ qɔ̀ʔ e cê.
13 55 14 21

176 (N) penis [176+68 'expose the penis to view; pull out one's penis'] / 177 (V) extract through a narrow opening [176+177 'retract the foreskin'] / 178 (N) leaves 179 (V) scratch together and cover with [also *gâʔ-bɛ* (cf. 73)] / 180 ($Elab_{adv}$) all stiff and straight [cf. 130] / 181 (M_{pfx}) trail; tracks; the wake of smn / 182 (N) way; path [either concrete or abstract] / 183 (N_{sd}) here / 184 (P_{n}) locative prt., used esp. with N_{sd}'s / 185 (N) kind of ground mushroom with red cap.

VII

(32) *qɔ̀ʔ e qhɔ̀ʔ-nɔ́ tê pɔ̂ʔ, ɛ̀-qhɛ̀ chi tê pɔ̂ʔ qɔ̀ʔ qɔ̀ʔ e tê pɔ̂ʔ, qɔ̀ʔ ÿàʔ-yù ve chi*
55 14 101 11 136 26 51 11 136 79 55 14 11 136 79 152 8 51

ɔ̄, ɛ̀-qhɛ̀ chi ve ɔ̄, šɨ̂ʔ-cɛ̀ ɔ̀-pu=lɔ́ ɔ̄ tâʔ gà-e ve cê. (33) *šɨ̂ʔ-cɛ̀=lɔ́ ɔ̄ tâʔ*
13 26 51 8 13 186 187 188 67-A 189 190 8 21 186 188 67-A 189

gè?-e lɛ ɔ̄, qhe-te-lɛ ɔ̄, thu lɛ, mô lo lɔ̀-qá qhɔ kə a tɛ̀ te lɛ, "âa, ŋà lɛ̀
191 19 13 9 13 192 19 193 194 195 165 93 133 196 34 19 41 42 150

nɔ̀-hɨ thu lɛ mô ǐ-kâʔ qhɔ kə a lâ qo lɛ̀, ŋà ǐ-kâʔ lɔ̂ tɔ̂ʔ gè?-e mâ šɨ. ŋà àʔ thu
46 192 19 193 197 165 93 133 80 25 150 42 197 198 39 191 43 199 42 4 192

lɛ nô há-phɔ̂ kə a lâ qo ɔ̄, ŋà lɛ̀ nɛ̀?-kàʔ qay yɔ̀. šɨ e yɔ̀," qôʔ lɛ ɔ̄, thu lɛ
19 200 201 93 133 80 25 13 42 150 202 20 56 199 14 56 48 19 13 192 19

nô há-phɔ̂ ŋɛ pî a lɛ, há-qō qhɔ phɔ lɔ̀ʔ gè?-e ve cê.
200 201 203 123 133 19 204 165 154 132 191 8 21

186 (N) tree / 187 (N) clump / 188 (B_n) sthg big / 189 (V) climb; ascend / 190 *gà* (V) 'arrive at, reach'; (V_V) succeed in doing [*gà-e* is a fusion of this verb with *e* (P_V) 14; cf. *gè?-e* 191] / 191 (V_V) prob. an assimilated (even more fused) variant of *gà-e*, meaning 'vigorous or rapid execution of an action'; alternatively *gè?-e* may have developed from *gɛ̀* (V_{adj}) 'fast' / 192 (V) chop at; chop down / 193 (N_{sd}) down there / 194 (P_n) locative prt. / 195 (N) river / 196 (P_{univ}) really, indeed [related to *tɛ̀* (P_{quot}) 'quotation-marker']; VERB+133+195+34: 'try to VERB' / 197 (N) water / 198 (V) swim / 199 (V) die / 200 (N_{sd}) up there / 201 (N) cliff; rock-face / 202 (AE) to smithereens; all smashed up / 203 (V) lean against / 204 (N) cave ("rock-hollow") [cf. 124, 205].

VIII

(34) *qhe te šē lɛ ɔ̄, ɛ̀-qhɛ̀ chi ve nô há-qhɔ lɔ̀ʔ e lɛ ɔ̄, šu a-mɨ̂ ÿɔ̀ mâʔ*
117 34 162 19 13 26 51 77 200 205 132 14 19 13 22 206 155 207

kə ve. (35) *qhà-qhe te kàʔ mâʔ kə mâ gà.* (36) *yɔ̂ á-pɔ̀ʔ qɛ̂ʔ phɔ̂ tɔ̂ʔ e ve cê --*
93 8 159 34 120 207 93 43 190 35 208 209 210 39 14 8 21

cô ɔ̀-qhɔ chɛ̂ ā lɛ. [(37) *qhe te šē lɛ ɔ̄, va-tɛ̂ te kə á ve cê.*] (38) *šɨ̂ʔ-tà jûʔ*
211 131 83 60 19 117 34 162 19 13 212 34 93 60 8 21 213 214

šɨ̂ʔ-tà chɔ-chɔ lɛ, jûʔ kə ve cê. / (39) *ɛ̀-qhɛ̀ chi ɔ̄ qhɛ̂ qɔ̀ lɛ, ô šɨ̂ʔtà àʔ nɛ́*
213 215 19 214 93 8 21 26 51 13 91 216 19 10 213 4 217

pɨ̂ a lɛ, nǔ-ū-u šē lɛ, "âa, ɛ̀-qhɛ̀ chi qhɛ̂ tɔ̂ʔ ò lɔ. šɨ̀ ò," qôʔ lɛ, va-tɛ̂
123 133 19 218 219 19 41 26 51 91 39 36 45 199 36 48 19 212

te á lɛ ɔ̄, qɔ̀ʔ e cê.
34 60 19 13 55 14 21

205 (N) hole in the rocks; cave [cf. 204, 165] / 206 (N) fire / 207 (V) blow / 208 (N shirt / 209 (V) strip off, remove (as clothing) / 210 (V) fan / 211 (N_{sd}) way over there; way in there / 212 (N) falling-log trap / 213 (N) stick [cf. 186] / 214 (V) stab; pierce; poke with sharp object / 215 (V) hack off; chop off [here reduplicated] 216 (V) expel; send back [91+216 'defecate': same as 91+92] / 217 (V) smear onto; stick sthg onto / 218 (V) stink [see note 72 to Translation] / 219 (P_V) prt. expressin regret at the state of affairs [perhaps ult. related to 162].

IX

(40) *qhe-te-lɛ ɔ̄, ɛ̀-qhɛ̀ chi á-thâ thàʔ -- á-thâ-á-yɛ̂ pû a lɛ, mâʔ pî qha*
9 13 26 51 220 4 221 222 133 19 207 123 223

lɛ-ɛ̄-ɛ, yâ-mî=há nî mà mû-šɔ́=nàʔ ca ni gɨ̂ a lɛ ɔ̄, ɛ̀-qhɛ̀ chi á-thâ-á-yɛ̂ mâʔ
19 224 225 52 226 227 111 228 133 19 13 26 51 221 207

khɔ̂ kâ e lɛ, "ɛ̀-qhɛ̀ ò, ŋà=hɨ́-mà a-cî lòʔ cɨ a," qôʔ ve cê. (41) *qhe-te-lɛ ɔ̄,*
229 230 14 19 26 146 231 232 132 59 133 48 8 21 9 13

"ɔ̀-chi, mâ dàʔ ve tɛ̀ qɔ́-lɔ́ lòʔ la-ʔ," qôʔ a lɛ ɔ̄, mâ dàʔ ve tɛ̀ qɔ́-lɔ́ lòʔ la
233 43 234 8 196 235 132 94 112 48 133 19 13 43 234 8 196 235 132 94

lɛ ɔ̄, tɛ̄-pɛ̄ šɛ̄ cê. (42) *qhe-te-lɛ ɛ̀-qhɛ̀ chi ve ɔ̄ qɔ̀ʔ phɔ tɔ̂ʔ e gèʔ-e ve*
19 13 104 175 219 21 9 26 51 77 13 79 154 34 14 191 8

cê, tê pɔ̀ʔ.
21 11 136

220 (N) bamboo jewsharp / 221 (Elab$_n$) id. [see note 75 to Translation] / 222 (V) carry [220/221+222: 'take up the jewsharp (for courting)'] / 223 (P_v) enlivening prt. / 224 (N) nubile girl / 225 (N_{um}) two / 226 (N_{time}) morning / 227 (V) look for, seek; ($_vV$) go and do / 228 (V) visit; (V_v) do for pleasure, do for the fun of it / 229 (N) sound; noise; voice / 230 (V) hear / 231 (N_{pron}) the two of us [1st person dual] / 232 (Adv) a little; polite request-softener / 233 (Demonstrativ Interj) look here!; well now! [cf. 51] / 234 (V_{adj}) be pretty; be good / 235 (N_{time};Adv) first.

X

(43) *te-lɛ-ɛ̄ tê pɔ̂ʔ qɔ̀ʔ ɡ̈àʔ-yù ɡ̈àʔ-yù lɛ, ɡ̈àʔ-mi šɛ̄ cê.* (44) *ɡ̈àʔ-mi šɛ̄*
236 11 136 79 152 152 19 157 158 219 21 157 158 219

lɛ ɔ̄, ɔ́-qā qhɛ̂-qhɔ ɔ̄ phɛ-tɪ̄ ā lɛ, ɡ̈ɔ̀-šɛ pî cê. (45) *qhe-qo ɔ̄ mɛ̂ʔ-phû hɔ́*
19 13 237 109 67-A 238 60 19 239 123 21 240 13 241 242

mùʔ lɛ há-pɨ́=de ɡ̈ɔ̀-šɛ pî qo, "álôo, álôo, álôo," qôʔ cê. (46) *qhe-te-qo šɨ́-bǔ=de*
243 19 244 239 123 25 245 245 245 48 21 246 247

ɔ̄ ɡ̈ɔ̀-šɛ pî a qo ɔ̄--èe--šɨ́-bǔ=de ɔ̄ ɡ̈àʔ-šɛ ɡ̈ɔ̀-šɛ pî a qo ɔ̄, "álôo,
67-A 239 123 133 25 13 248 247 67-A 249 239 123 133 25 13 245

álôo, álôo," qôʔ cê. (47) *há-pɨ́=de ɡ̈ɔ̀-šɛ pî a qo, "qâ-càʔ, qâ-càʔ, qâ-càʔ,"*
245 245 48 21 244 239 123 133 25 250 250 250

qhe qôʔ ve cê. (48) *qhe-te-lɛ ɔ̄ mâ šɨ́.*
117 48 8 21 9 13 43 199

236 (Conj) then; thereupon [same as *qhe-te-lɛ* 9; here pronounced with drawled intonation on *lɛ*] / 237 (N) water-buffalo / 238 (V) tether to; tie to [cf. 66] / 239 (V) drag along; pull roughly ("drag-lead") / 240 (Conj) then; at that point [same as 246, 9, 9-A] / 241 (N) face / 242 (M_{pfx}) underneath; bottom part / 243 (V) bend downward [242+243: 'turn upside down'] / 244 (N) rocky ground; expanse of rocks / 245 (Interj) ouch!; alas!; oy, oy, oy! / 246 (Conj) then; at that point [same as 9, 9-A, 240] / 247 (N) grassy ground/ 248 (Interj) er...; uh...; I mean... [self-correcting syllable] / 249 (V) lead by driving [cf. 157 and 239] / 250 (Interj serves you right!; nyaah, nyaah!

XI

(49) *qɔ̀ʔ tɔ̄ʔ e gèʔ-e šḗ ve lɛ̀ ɔ̄, tê pɔ̂ʔ lɛ̀ qɔ̀ʔ g̈àʔ-yù ve.* (50) *šu yù g̈a*
79 39 14 191 219 8 19 13 11 136 150 79 152 8 22 174 98

šḗ lɛ̀ ɔ̄, ô-ō, ɪ́-kâʔ cɔ̀-lɔ́ ɔ̀-hɔ́ ɔ̄ phɛ-chî tá ve cê. (51) *phɛ-chî tá lɛ̀ ɔ̄,*
162 19 13 251 197 252 188 253 67-A 66 60 8 21 66 60 19 13

qhe te šḗ lɛ̀, tâ-kà=pā tê mṑ=lɔ́ là cê. (52) *qhe-te-lɛ̀ "ɛ̀-qhɛ̀ ɔ̀, nɔ̀ à-thɔ̀ʔ-ma*
117 34 162 19 254 11 99 188 255 21 9 26 146 256 113

te cɔ̀ ɔ̀-hɔ́ ɔ̄ chê̂ le," qɔ̂ʔ lɛ̀ ɔ̄, "mɛ̂ʔ-šɪ̀ nà lɛ̀, mɛ̂ʔ-šɪ̀ šá mɨ̀ ve yâ ɔ nē,"
34 252 253 67-A 83 116 48 19 13 257 258 19 257 259 260 8 261 140 262

qɔ̂ʔ cê, Hɛ̂ʔ-pā ô tê mɔ̄ àʔ. (53) *"âa, ŋà-hɨ́ kàʔ mɨ̀ gâ, ɛ̀-qhɛ̀ ɔ̀," qɔ̂ʔ lɛ̀ ɔ̄,*
48 21 3 10 11 99 4 41 263 120 260 264 26 146 48 19 13

"yù tɔ̄ʔ a" qɔ̂ʔ pî cê ma nē.
174 39 133 48 123 21 265 262

(54) *yù tɔ̄ʔ pî a lɛ̀, tɔ̄ʔ gà šḗ cê.* (55) *ɛ̀-qhɛ̀ ô-ve -- qhe-te-lɛ̀, tâ-kà=pā*
174 39 123 133 19 39 190 219 21 26 27 9 254

ô ve tê mṑ ɔ̄, lɔ̄ ɪ́-mû hɔ qhàʔ g̈àʔ ā ve, tâ-kà te là ve. (56) *mɛ̂ʔ-šɪ̀ nà pā*
10 77 11 99 13 266 267 268 147 157 60 8 269 3 255 8 257 258 108

dê-dê cɔ̂ šḗ lɛ̀, phɛ lɛ̀ ɔ̄, ô ɔ̀-hɔ́ ɔ̄ cɔ̀ hɔ́ ɪ́-kâʔ šá mɨ̀ ve te lɛ̀, tɔ̂ʔ-chêʔ
270 271 219 19 272 19 13 10 253 67-A 252 242 197 259 260 8 34 19 273

ce a lɛ̀ šɨ́ pà̀ lɛ̀ ɔ̄, tâ-kà=pā ô tê mṑ ve mɔ̂ phu šɪ̀ ɛ̀-qhɛ̀ g̈a və̀ ve cê.
274 133 19 199 100 19 13 254 10 11 99 77 275 276 277 26 98 18 8 21

251 (N_{sd}) way over there [intonational variant of 10] / 252 (N) bridge / 253 (N_{spat}) underpart; bottom [prefixed form of 242] / 254 (N) merchant; trader / 255 (V) come [related to *la* (P_v) 94] / 256 (N_{pron}) you [singular] / 257 eyes / 258 (V) hurt; be sore / 259 (N) air, breeze, vapor; breath; vital force, spirit, energy / 260 (V) pass air noisily [259+260: 'imbibe the essence'; cf. note 94 to Translation] / 261 (P_{uf}) exclamatory prt. / 262 (P_{uf}) exclamatory prt. / 263 (N_{pron}) we [plural] (cf. 42, 231, 46) / 264 (P_v) want; desire [desiderative prt.] / 265 (P_{uf}) exclamatory prt. / 266 (N) mule / 267 (N) horse / 268 (N) elephant / 269 (N) trade / 270 (N_{ext}) all; the whole group of / 271 (V) happen to be the case [another sense of 44] / 272 (V) tie up [cf. the compounds 66, 238] / 273 (V) cut through [1st syll. *tɔ̄ʔ* 'cut' is an unrelated homophone of 39] / 274 (V) fall from a height; (V_v) do so sthg falls / 275 (N) things; property / 276 (N) silver / 277 (N) gold [276 and 277 also form a more collocated expression (122) meaning 'wealth (of all kinds)'].

XII

(57) *qhe-te-lɛ̀ qɔ̀ʔ e lɛ̀ ɔ̄, á-qhɔ qɔ̀ʔ qɔ̀ʔ e ve tê yâ thâ, "ôo, ɛ̀-qhɛ̀,*
9 55 14 19 13 86 79 55 14 15 11 32 2 167 26

nɔ̀ qhà-qhe te g̈a le. ŋà-hɨ́ nɔ̀ àʔ šɨ́ tù te ve kàʔ nɔ̀ phu-šɪ̀ chi ma g̈a ve
256 159 34 98 116 263 256 4 199 115 34 8 120 256 122 51 278 98 8

qhà-qhe te le," qôʔ lɛ̀ ɔ̄, "âa, ɪ́-kâʔ šá mɨ̀ lɛ̀ g̈a ve yò-qo. nɔ̀-hɨ́ te á lâ lɛ̀"
159 34 116 48 19 13 41 197 259 260 19 98 8 279 46 34 60 80 19

qôʔ cê. (58) *qhe-te-lɛ̀ ɔ̄, "âa, ŋà-hɨ́ kàʔ hə̂ʔ gâ,' qôʔ lɛ̀ ɔ̄, te šī̀ və̀ lɛ̀ ɜ̄,*
48 21 9 13 41 263 120 119 264 48 19 13 34 280 18 19 13

ô kàʔ hɔ̀ lo qhá-jū-lu hɨ́-ɛ̂ ǐ-mû=qō tê ÿâ tê mà pû cɨ́ lɛ̀ ɔ̄, ô-ve hɔ́
10 184 281 194 282 283 284 11 75 11 52 222 59 19 13 27 242

phɛ̀-chɨ̌ lɛ̀ ɔ̄, chɔ̀ lòʔ chê pə̀ qhɔ̀ʔ-nɔ́, cô ǐ-kâʔ qhɔ̀ ɔ̄ lòʔ e ve cê.
66 19 13 16 132 83 100 101 211 197 165 67-A 132 14 8 21

(59) *tê pɔ̀ʔ lɛ̂ ǐ-kâʔ cú pî a lɛ̯, phêʔ-dɔ̂ a-lâ cê.* (60) *qhe-te-lɛ̯ ɔ̄, ô*
11 136 150 197 285 123 133 19 286 287 21 9 13 10

à-pū=qu tê mà mâ lòʔ e lɛ̀, "cô, cô, cô ni-ʔ. šu šɨ́ bɛ̂ dàʔ ve," qôʔ a
288 11 52 43 132 14 19 211 211 211 111 112 22 277 289 290 8 48 133

lɛ̀ ɔ̄, yɔ̄ kàʔ pɔ̀ʔ lòʔ e lɛ̀, tɔ̂ʔ-chêʔ a lɛ̀, tê qhâʔ ma šɨ́ e pə̀ lɛ̀ ɔ̄,
19 13 35 120 38 132 14 19 273 133 19 11 147 278 199 14 100 19 13

chɔ̀ tê qhâʔ ve yâ-mî ɔ̄ yɔ̂ tǐ ÿa ve cê.
16 11 147 77 291 13 35 87 98 8 21

278 (N_{ext}) as much as; to the amount of / 279 (P_{uf}) emphatic variant of *yɔ̀* 56 / 280 (V) lead to a place [here concatenated with a semantically empty *te* 'do' (34)] 281 (P_n) variant of locative ɔ̄ 67-A / 282 (N) forehead-basket / 283 (N_{ext}) as big as; the size of [*hɨ́* is combined here with *ɛ̂*, a subordinating prt. that also occurs in other kinds of stative adverbials (cf. 130, 180)] / 284 (N) large-mouthed pickling jug / 285 (V) sink / 286 (V) struggle; writhe; flail around / 287 (P_v) enlivening prt. [1st element related to *qha* 223] / 288 (N) old codger; gramps [slightly pejorative, reinforced by choice of *mà* (general classifier) instead of *ÿâ* 75] / 289 (V) contend for; vie / 290 (P_v) mutual or reciprocal action / 291 (N) females; girls; women [near synonym of 74].

* *

*

III. Annotated translation.

I

(1) Once upon a time the Lahu were fighting a war with the Chinese.[1] (2) Well, on a certain morning, the morning for going off to war, people were selected[2] and they went off. (3) [But] while the others had made rice-packets[3] for themselves, this fellow è-*qh*è[4] had wrapped up a sparse-feathered little chicken[5] to take with him, and on the road, when they ate, when it was time to eat, he unwrapped it and made as if to eat his meal. (4) As he unwrapped it and the little chick hopped right out, he said, "Oh, dear, I mustn't go [with you]! You all go [on ahead without me]! As for me, since I've seen this omen,[6] I'm going home. I can't possibly fight a war now. See you guys later!"[7] (5) And so the others let him go back.[8]

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1 This story, although recorded in Northern Thailand in 1965, dates from the faraway time when the ancestors of these Thailand Lahu were living in close contact with the Chinese. The Chinese by no means always came out ahead in conflicts with the once fierce Loloish tribes of Yunnan, and it was common for some Lolo groups to keep Chinese war-prisoners as slaves. See Lin Yueh-hua, The Lolo of Liang-shan, HRAF Press (1961). Most of the Lahu people still live in China.

2 The Lahu now in Thailand are all quite recent immigrants from Shan State in Burma, where they have been living for centuries as they slowly filtered southward from their ancestral homeland on the Yunnan-Tibet border. It is likely that it was the Shans who did the conscripting of recruits for military service in skirmishes against the Chinese. There are still many more Lahu living in Shan State than in Thailand. (The Shan are a Tai people.)

3 The usual wayfarer's food is a cake of steamed rice wrapped in a banana leaf.

4 This is the Trickster's proper name. (It is sometimes pronounced more like è-*qhài* or è-*qhàn*.) This name is clearly non-Lahu in origin, though its etymology is obscure. è- is a common prefix to Shan men's names. Henceforth we translate è-*qh*è as 'Trickster.'

5 *ɣâ?=qú-ni* is "a kind of tailless chicken without breast feathers," literally "naked chicken" (ɔ̀-*qú-ni* 'something naked'). It is possible that there is some pun intended here with *nī* 'penis,' though the *ni* (~*ní*) of ɔ̀-*qú-ni* really means 'red' [see note 52].

6 According to traditional Lahu belief, anything unusual or scary that happens on a journey (e.g. seeing a dead body) is taken as an evil omen, and as a persuasive reason to go back home.

7 The expression *qɔ̀? e šā*, literally "I shall go back," is a common Lahu formula for leavetakings.

8 On the tape Sentence 5 appears right after You all go. This was felt to be a clumsy ordering both by the story-teller himself and by other Lahu who listened to the tape, a feeling which is reinforced by the fact that the first clause of the first sentence in Section II recapitulates Sentence 5 in the normal "chaining" way.

II

(6) Then, when they had let him go back, he ripped open a bumblebee's nest,[9] scooped out some crabs,[10] and tied them so they dangled from a bamboo-sheath,[11] and

placed this [all] outside the house [of a certain woman]. (7) Then when night fell and [the bees went] bzz-bzz-bzz and [the crab] went scratching *teh-teh*[13] against the bamboo-tube -- er, bamboo-sheath,[14] Trickster said to the woman, "Aha, the spirits of your husbands [15] have come back to you! Don't stay here any more! It's too scary!"

(8) So they all went trooping over to the Trickster's house to sleep.

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9 *pɛ̂=ɡ̈ù-li* 'bumblebees' live in holes in rotting trees, one insect per hole. It is not specified how many bees the Trickster took. He also must have put the bee(s) in some kind of container, though the narrator does not bother to say this.

10 From a body of water nearby. Again the narrator does not say how many crabs were fished out.

11 *vâ=lɛ́-qô?* 'a crinkly covering adhering to the surface of young bamboo plants.' The Trickster selected this material for the noise it would make when scratched.

12 *mû phə̀? ve*, lit. "the sky is revealed," is the Lahu idiom for night falling. The idea seems to be that only at night is the sky revealed for what it really is, a black star-studded expanse. *phə̀?* is the same verb as 'unwrap' [Section I].

13 Bees go *vɛ̀-vɛ̀-vɛ̀* in Lahu, while crabs go *tɛ̂?-tɛ̂?* when they scratch.

14 The narrator momentarily misspoke himself, saying first *vâ=dɛ́-qō* 'tube of bamboo' instead of *vâ=lɛ́-qô?*.

15 The Trickster is now talking to all the jittery women of the village, who have evidently all come running out of their houses. He uses the expression *nɔ̀-hɨ̀ ɔ̀-pā* 'your (pl.) husbands.' *ɔ̀-pā*, lit. 'a male,' is a slightly vulgar or insulting term for 'husband,' since the mot juste is *ɔ̀-phɔ̀*.

III

(9) Then that[16] Trickster said, "Oh, come now, don't sleep at my house. Your kids will shit all over everything." (10) So then they swore to him, saying, "Oh, we won't let them shit. We guarantee[17] it!," and they were allowed to sleep at Trickster's house. (11) Then, after the bunch of women fell asleep, the Trickster thoroughly mashed up some shitbeans,[18] squeezed [the paste] into balls,[19] and smeared it on the rear ends of all the children who were there.

(12) When dawn broke he said, "Just look at the way your kids have crapped up my whole house![20] What will you give me as compensation?,"[21] and they said, "Oh, any compensation at all! Whatever you want to take, take!," but when they offered him money he wouldn't take it. (13) No matter what they offered, he wouldn't take it.

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16 *ɛ̀-qhɛ̀ ô-ve*, lit. "that Trickster." The demonstrative *ô-ve* functions as an anaphoric marker in this narrative: 'the Trickster we have been talking about, the Trickster already mentioned.' To avoid heaviness in the English, this is usually simply translated with the definite article, 'the Trickster' [as in Sentence 11]. For the anaphoric use of *chi* 'this,' see Note 25.

17 The women use the rather high-flown loanword *lâ?-lɔ* 'guarantee' (cf. Thai *rábɔɔŋ*), which adds to the comic effect.

18 *nɔ̂ʔ-qhê*, lit. "shit-beans," are fermented soybeans made into paste or cakes and often eaten fried with vegetables and ginger. The name arises from its dark brown color, its consistency, and its pungent odor. This is also called *nɔ̂ʔ-kɨ̂*, lit. "rotten-beans," which is also the literal meaning of its Burmese name *pê-pouʔ* (written Burmese *pâi-pup*).

19 *chɨ̂ʔ* 'to crumple up, make into a ball.'

20 *qhê ɔ̀ kə*, lit. "shit into." The verb *kə* 'insert' is sometimes used as an auxiliary verb to indicate thorough, penetrating action. The phrase 'my whole house' is an attempt to render this idea in English.

21 *šāy* (or *šɛ̄*) 'pay compensation' is another legalistic loanword from Tai (cf. Siamese *càaj* 'pay').

IV-a

(14) Then the Trickster said to the bunch of women, "Well, go and beat on the Hollow A-yaw Tree,[22] and listen [to what it tells you]."[23] (15) In order to go beat on that Hollow A-yaw Tree-oracle, he made the women take the long way around.[24] (16) The Trickster himself[25] went by the straight road, and got inside of the Hollow A-yaw, and the women tried beating on the outside, going thump-thump,[26] saying, "What sort of compensation shall we give to Trickster?" (17) And the Trickster said,[27] "Ah, give him compensation, give him compensation!" (18) So they went back home again. (19) The Trickster also ran back after the women as fast as he could, [so he was] sitting in his house [when they got there], and said, "Well, what did it say to you?," and they said, "Well, all it said was, 'Give compensation to Trickster!'"

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22 *a-yɔ=qō* 'hollow (*qō*) a-yaw tree.' The *a-yɔ* (either Lagerstroemia cylindrica or L. macrocarpa) is one of the four 'master trees' (*šɨ̂ʔ=jɔ̂-mɔ̂*) of Lahu tradition. It is a very tall, straight tree, believed especially apt to be hit by lightning.

23 The whole complex verbal idea, 'beat on and listen to what it says' is conveyed by the concise two-verb concatenation *dɔ̂ʔ na* 'beat' + 'listen.' It could equally well be translated 'beat on and ask it [a question],' since the verb *na*, like Japanese *kiku*, can mean either 'ask' or 'listen to,' according to context. (When it means 'ask' it usually appears in the compound *na-ni*.) Instead of repeating 'listen' in the translation of Sentence 15, the phrase is rendered there as 'beat on ... oracle.'

24 *yàʔ-qɔ qɔ̀ʔ kɨ̀*, lit. "a place where the road curves."

25 *è-qhè chi*, lit. "this Trickster," here translated 'the Trickster himself' for contrast with the women. The determiner *chi* 'this' and the demonstrative *ô-ve* 'that' (see Note 16) are sometimes interchangeable as anaphoric markers, and are usually both translated simply as 'the.' (The narrator tends to alternate them for variety. He used *ô-ve* in Sentences 14 and 17, but *chi* in Sentences 16 and 19.)

26 *qó-qó* or *qô-qô*.

27 No doubt in a disguised "oracular" voice, though the story-teller made no effort to reproduce this in his narration.

(20) "Well, then," he said, "unless you beat on it once more, you won't know [what to do]," so again they [went to] beat on it and ask it [a question][28] -- the Trickster had quickly gotten inside of it again -- and the women in a body[29] beat on it, thump-thump, and it said, "Oh, give him cunt, give him cunt!"[30]

(21) At this the bunch of women ran back home, and the Trickster also ran back fast, and sitting in his house working this time[31] with strips of rattan he said, "Well, what did it say? What did it tell you?" and they said, "Well, Trickster -- it just said, 'Give him cunt, give him cunt!'"

(22) Whereupon Trickster proceeded to fuck[32] every single woman in the village, one after the other.[33]

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28 Or 'beat on it and listen [to what it said].' See Note 23.

29 *tê mō te lɛ*, lit. "making a group."

30 *cha* 'cunt, vagina, female pudenda.' The Lahu language has no euphemisms for human sexual organs or excretory functions. *cha* (or *cha-pɛ̀*?), like *nɪ̄* or *nɪ̄-qhɛ̀*? 'cock, penis, male genitalia,' is plain-spoken, neither medical, circumlocutory, nor vulgar.

31 'This time' renders the Lahu auxiliary verb *qɔ̀*? 'do again, do in turn, do as another in a series of actions.'

32 *pà*? 'copulate, have intercourse with, fuck.' See Note 30.

33 *yâ-mî=ma tê qhâ?-qhâ? ve*: the meaning 'every one in the village' is conveyed by the reduplication of *qhâ*? 'village.' The idea 'one after the other' is provided by the auxiliary verb *phô*? 'perform an action as one of a group; perform several similar actions.' As a main verb, *phô*? means 'to pile up, make a heap.'

V

(23) Well, when all their husbands came back [from the war], they said, "Oh, Trickster did this and that to us! After you all were gone, Trickster fucked us!," so straightaway, as soon as all the husbands were back, they chased after Trickster trying to kill him, and he ran away. (24) He ran away and they chased him and chased him,[34] but they couldn't catch him. (25) No matter how they chased him they couldn't catch him. (26) Unsuccessful once again,[35] they came back home, while this Trickster, this guy,[36] he scooped out some honey[37] and smeared himself with it,[38] and then[39] he went and lay down inside[40] a storage-basket[41] in a cotton-house,[42] then when they saw him in the joss-stick temple[43] they said, "Oh, the god has appear to us today!"[44] (27) So they made offerings to him.[45] (28) When they gave him the food he ate it. (29) When he did this,[46] they thought "It's only the Trickster!," realizing[47] it all of a sudden, so they grabbed him and tried to beat him to death, but[48] again he ran away.

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34 The prolongation of the action is conveyed in the original by an exaggerated drawling intonation on the clause-concatenating particle *lɛ*.

35 *tê pɔ̂ʔ mâ g̈a tá lɛ*: lit. "once again not having gotten him."

36 The story-teller uses a succession of two topic noun-phrases in apposition, both to establish sufficient contrast with the ineffectual actions of the husbands, and to give himself a bit of breathing space before launching into the rapid series of clauses which is to follow in the same sentence.

37 Presumably from a nearby honey-tree. The economy of detail the story-teller permits himself is possible because his whole audience (except the poor recording linguist) had already heard the story many times before.

38 All these English words are necessary to translate the three-verb concatenation, *g̈ɔ̀* 'perform vigorous action' + *khâʔ* 'scoop' + *hɔ* 'dye': *pɛ̂-g̈ɨ́ gɔ̀ khâʔ hɔ lɛ*, lit. "honey-VIG.ACT.-scoop-daub-MORE TO FOLLOW."

39 Instead of 'and then,' the phrase *qhe te šē lɛ ɔ* could be translated 'having done this.' The presence of the verb-particle *šē* 'prerequisite action' makes this expression 'verbier' than the lexicalized concatenative conjunction *qhe-te-lɛ* which occurs so often in this text. See Linguistic Analysis, Section D.

40 *thɛ-qō qhɔ ɔ lòʔ yɨ̀ʔ tá lɛ*: lit. "storage-basket + interior + LOCATIVE + enter + lie down + DURATIVE + MORE-TO-FOLLOW."

41 *thɛ-qō* or *phɛ-qō* 'a huge basket, often taller than a man and several feet in diameter, used for storing paddy or other harvested crops.'

42 *šá-lâ=yɛ̀* 'an outbuilding where cotton was stored.' The cotton sticking to the honey gave the Trickster a sort of tarred-and-feathered appearance, so that he looked like something 'out of this world.'

43 *ša-tú=kɨ̀≡yɛ̀* (or *ša-tú=kɨ̀* or *ša-tú=yɛ̀*): lit. "incense-burn-place-house," a building where there was an altar for burning incense-sticks. Lahu 'animists' burn incense and candles to honor the supreme supernatural *g̈ɨ̀-ša* [see Note 44, and the works of anthropologist A.R. Walker], the last syllable of whose name seems to be related to the morpheme *ša* 'joss-stick, incense-stick.' The Pidgin English word *joss*, meaning 'idol, cult-image,' itself derives ultimately from Portuguese *deos* 'god.'

44 *g̈ɨ̀-ša*, here translated 'the god,' is the Great Spirit of Lahu animist religion, conceived of as an incorporeal and abstract being far above the nature spirits (e.g. Mountain-Spirit, Water-Spirit, Rainbow-Spirit, etc.), who are rather stupid and often malevolent. *g̈ɨ̀-ša* has his own priests, who enjoy higher status in the community than the 'spirit-doctors' who deal with the *nê* or nature-spirits.

45 *tân-tù tân pî ve*: Lahu has a cognate-object construction here which would be too heavy in literal English translation ("they offered him offerings"). *tân* is a loan-word from Shan, which in turn borrowed the word from Burmese.

46 A real god is supposed to inhale merely the 'breath' or essence (*šá*, *ɔ̀-šá*) of a food-offering, so Trickster is revealed as a non-divine being. This incident is reversed symbolically at the end of the story, where Trickster claims to have made his fortune by 'inhaling the air' or 'imbibing the essence' -- thus indirectly proclaiming himself to be a god. See Section XII, below.

47 *šī la lɛ*: lit. "coming to know," i.e. 'realizing.' The verb-particle *la* 'enter a state' is related to the full verb *là* 'come.'

48 'But' here translates the concatenative particle *lɛ* 'MORE-TO-FOLLOW,' which serves to indicate that the preceding clause is not the last in the sentence. It is usually translated 'and,' though occasionally we render it by a different conjunction (so, but, etc.) or by a participial construction. Any number of *lɛ* may occur in a Lahu sentence or narrative without the hearer experiencing a feeling of repetitiveness. The same is not true of English and, which gives a tedious, babyish quality to a narrative if used between every clause. [See Linguistic Analysis, Section E.]

VI

(30) Again they chased him, and oh, this time as they were chasing and chasing him, he pulled out his penis and skinned back his foreskin,[49] and scratched togethe some leaves to cover himself, and made his penis all stiff and straight,[50] and they said, "Well, Trickster's trail has petered out now![51] And here's a red Phalloides mushroom[52] that has sprouted." (31) After this they went home.

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49 *nɪ̄ qɛ́ ve* 'retract the foreskin.' *qɛ́* means 'to extract through a narrow opening (It is also used, e.g. for removing mucus from the nose.)

50 So that only his glans protruded through the covering of leaves. (It is to be noted that our word glans itself is a metaphorical extension of a plant-name, 'acor

51 The reader will perhaps forgive this pun. The literal meaning of this sentence is "There is no longer any way to chase after Trickster's trail."

52 *mù=nɪ́-ǧɔ* or *mù=nɪ́-ǧwɛ* 'a kind of tasty ground mushroom with a red cap (white underneath) that resembles a glans penis.' The second syllable *nɪ́* means 'red,' but recalls the homophonous (except for tone) syllable *nɪ̄* 'penis.' *mù* means 'mushroom' and *ǧɔ* means 'round.' 'Red phalloides' is a feeble attempt to render this phytonym in English.

VII

(32) After they went home, the Trickster went back again too, and this time when they were chasing him, this guy, this Trickster,[53] he managed to climb up into a big clump of trees.[54] (33) When he had gotten to the top of a big tree,[55] at tha point,[56] as they chopped away at it, trying to get it to fall into the river down below, he said, "Oh, in my position,[57] if you would only chop so that I fall into t water down there, I'd be able to swim back out and I wouldn't die.[58] [But] if you chop me[59] so I land on that rocky cliff up there, I'd surely be smashed to smithereens![60] I would die!," and so they chopped it in such a way that its fall was brok by the cliff up there,[61] and he managed to escape into[62] a cave in the rocks.

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53 The story-teller uses a double topic NP to give himself a second to think. See Note 36.

54 *šɜ̂ʔ-cɛ̀ ɔ-pu=lɔ́*: the narrator amends this to *šɜ̂ʔ-cɛ̀=lɔ́* 'a big tree,' when this clause is "chain-repeated" in the next sentence.

55 *tâʔ gà-e* or *tâʔ gèʔ-e*, lit. "climb" + "arrive," i.e. 'get to the top of, climb to the top.' In the Lahu, this clause is an almost verbatim "chain-repetition" of the last clause of the previous sentence, but an exact repetition would be tedious in English: '...he got to the top of a big clump of trees. When he got to the top of a big tree...' This is another example of the truism that one language's cohesiv devices may be too 'gummy' for another language. See Note 48.

56 This translates the Lahu 'filler' *qhe te lɛ ɔ*.

57 This renders *ŋà lɛ̀*, lit. "as for me," a strongly topicalized first person pronoun. See Note 59.

58 This sentence is translated with conditional auxiliaries, because it sounds somewhat better than the more literal: "If you chop and I fall into the water down there, I'll be able to swim back out and won't die." The only marker of

conditionality in the Lahu is the particle *qo* 'if; when' at the end of the first clause.

59 The verb *thu* 'chop down' is here construed with a personal direct object, though it is much more usual to have 'tree' as its object. This is preserved in the translation, and in fact reinforces the symbolic psychosexual meaning of the chopping -- i.e. an attempt at castration of the potent by the impotent.

60 *nɛ̂ʔ-kàʔ qay ve* 'go smash, get smashed to smithereens.' *nɛ̂ʔ-kàʔ* is one of a class of morphemes that forms vivid adverbial expressions with the verb *qay* 'go,' much like English 'go kaputt,' 'go blooey,' etc. The 'surely' in the translation is motivated by the strongly topicalized *ŋà lɛ̀*, which appears in this sentence too [see Note 57].

61 *ŋɛ pî*: lit. "lean against" + "give," i.e. 'cause to lean against, cause to be propped up on.'

62 'Managed to escape into' is conveyed by a string of three Lahu verbs: *phɔ* 'flee' + *lòʔ* 'enter' + *gà-e* 'arrive at [one's goal].' The latter morpheme has developed an assimilated fusional variant (*gèʔ-e*) with a more abstract meaning, 'vigorous execution of an action.' See Note 55.

VIII

(34) Then, when the Trickster had gone into the cave up there, the others blew smoke[63] inside with all their might.[64] (35) But try as they would,[65] they couldn't get it to blow inside.[66] (36) He had taken off his shirt and was fanning it out again[67] -- from where he was, inside there.[68] [(37) After this, they made a falling-log trap for him to get caught in.[69]][70] (38) They poked in sticks[71] -- they hacked off some sticks and poked them inside. (39) So the Trickster took a shit and smeared it on the sticks, and it sta-a-nk[72] like hell, and they said, "Aha, the Trickster's shit is coming out of him now![73] He's dead!," and they set a falling-log trap[74] and went back home.

---

63 *à-mī* 'fire.' The Lahu says 'blew fire inside,' though this must be translated as 'smoke' for clarity in English. Burning brush at the mouth of a cave is a common method for smoking animals out, or of asphyxiating them so they can be removed after they die.

64 *ɣɔ̀ mâʔ kə* is a three-verb concatenation meaning literally "drag-blow-insert." *ɣɔ̀* 'drag' here functions simply to make the verbal action more vivid, and is rendered as 'with all their might.'

65 *qhà-qhe te kàʔ*: lit. "whatever they did."

66 *mâʔ kə mâ gà*: lit. "blow-insert-not-reach." *gà* 'reach, arrive' is a 'potential complement,' here negated by *mâ*, that expresses the non-successful outcome of the verbal action *mâʔ kə* 'blow into.'

67 This sequence of actions is expressed by a concise sequence of three Lahu verbs, *qɛ̂ʔ phâ tɔ̂ʔ*: 'take off' (this is preceded by its object *á-pôʔ* 'shirt') + 'fan' + 'emerge, do outwards.'

68 This last clause is stuck onto the end of the sentence as an afterthought, and is marked as such by the concatenative particle *lɛ* at the end, which normally occurs only in non-final position.

69 *va-tɛ̂ te kə*: lit. "falling-log trap + make + insert." Since the trap was set up outside the cave, *kə* does not have its literal meaning 'insert' here, but its

more abstract meaning of 'in such a way that the verbal action penetrates its goal. See Note 20.

70 This whole sentence was uttered prematurely by the narrator, who had forgotten momentarily to recount the episode of the sticks. He supplies the falling-log trap incident in its proper place below, at the end of Sentence 39.

71 Slightly rattled by his error, the story-teller makes a false start in this sentence also, uttering the clause about poking the sticks before the one about hacking them off the trees they came from. He immediately corrects himself. (This story was told at high speed, in 6 minutes and 20 seconds, and it is not surprising that the narrator made a mistake or two. In general it is told extremely well, with great economy of detail, so that the pace never flags.)

72 The verb *nù* 'stink' is pronounced with exaggerated drawled intonation. See Note 34.

73 *è-qhè chi qhê tɔ̂ʔ ò lɔ: qhê tɔ̂ʔ* 'shit emerges.' The tape is not perfectly clear at this point, and it is possible that it should be transcribed *qhê tē* 'shit is crushed (out).'

74 *va-tê* 'falling-log trap': a complicated and delicately contrived kind of trap, which the animal springs by stepping on a board which instantaneously activates a series of rods, the last of which releases a heavy log. The husbands, although they believe Trickster to be dead, leave this trap at the mouth of the cave as a precautionary measure.

IX

(40) After this, the Trickster took up his jewsharp -- his jawharp,[75] and blew on it with gusto,[76] and early the next morning two young girls[77] came to have a look,[78] and when they heard the sound of the Trickster playing the jawharp, they said, "Yoo-hoo,[79] Trickster, please let the two of us come in!"[80] (41) Then he said, "Well, then, let the one who is truly uglier come in first," and when the one who was truly uglier came in first, she was crushed to death.[81] (42) Thereupon the Trickster managed to escape outside once more.[82]

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75 *á-thâ* 'jewsharp': a pair of supple bamboo strips with thin reeds and notes a fourth apart, which the player blows on while flicking the ends up and down. The two notes are alternated and iterated with considerable rhythmic complexity, and the instrument is used mostly in courtship. The story-teller corrects the simple word *á-thâ* to the more formal compound word *á-thâ-á-yê* (here rendered by the euphemism 'jawharp'). Technically, *á-yê* refers to a slightly different kind of instrument with strips tuned an octave apart. *á-thâ-á-yê* sometimes means 'jewsharps of both kinds,' but here it is simply a more sonorous synonym of *á-thâ*.

76 'With gusto' translates the emphatic particle *qha*, as well as the drawled intonation on the following concatenative particle *lɛ*.

77 *yâ-mî=há* 'girl of marriageable age, nubile young woman.' The Trickster had so far confined his relationships to married women.

78 *ca ni gɨ̂* 'come to look for the fun of it.' It is not entirely clear whether the girls came simply out of idle curiosity to view Trickster's 'remains' (before having heard the music), or because they were entranced by the music. The latter interpretation seems more likely.

79 'Yoo-hoo' was chosen to render the Lahu vocative particle *ò*, since its 'Blondie-and-Dagwood' quality suggests the empty-headedness the girls display.

80 The girls had evidently learned of Trickster's amatory prowess from their mothers and were eager to see for themselves.

81 It is hard to understand the girls' docile stupidity here. From our point of view it should have been more effective for Trickster to have said, "Let the prettie one of you come in first." Then presumably they would have vied for the honor of being first. One can only conclude that the girls were so much under Trickster's spell that they obeyed him literally, making an objective assessment of who was uglier.

82 The verbal idea is expressed by a string of four verbs: *qɔ̀ʔ* 'return, do again' + *phɔ* 'flee' + *tɔ̂ʔ* 'emerge' + *gà-e* 'manage to do successfully' (or *gèʔ-e*). See Note 62.

X

(43) Then, again they chased and chased him, and [this time] they caught him.[83] (44) When they caught him they tied him to the ass of a water-buffalo, and dragged them along.[84] (45) Then they bent his face over downwards and dragged him over a piece of rocky ground, and he said "A-lo, a-lo, a-lo!"[85] (46) Then they dragged hi over some grassy ground -- uh, they drove him and dragged him along ove some grassy ground,[86] and he said "A-lo, a-lo, a-lo!" (47) And when they dragged him [again] over the rocks they said, "Serves you right, serves you right, serves you right!"[87] (48) [But] he didn't die.

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83 The verb-particle *ɕ̄ē* is used after the verb *g̈àʔ-mi* 'catch by chasing,' in order t convey a nuance of regret. (The narrator here takes Trickster's point of view.)

84 *g̈ɔ̀-ɕɛ*, lit. "drag-lead." Here *g̈ɔ̀* is used in its literal sense of 'drag,' and not merely as an enlivener of the verbal idea [see Note 64]. It is immaterial whethe we take the object to be the buffalo or the Trickster, since they are tied together. (No object is expressed in the Lahu.)

85 *álôo* (or *àlòo*, or *alôo*) is an interjection expressing pain, grief, surprise, etc.

86 The narrator retracts his original clause by means of the "self-correcting" interjection *èe*, here translated as 'uh.'

87 The interjection *qâ-cà?* is used to gloat at somebody's discomfiture. The story-teller emphasizes Trickster's plight so that the audience can fully enjoy it. He won't be kept down for long. This episode, among its other functions in the story serves to put Trickster's ultimate complete triumph into higher relief.

XI

(49) Again he managed to get out, and once more they chased after him. (50) Once they had seized hold of him, they tied him so he hung underneath a big bric over the water, some distance away.[88] (51) After they had left him strung up there, at that point,[89] a large group of traders[90] came along. (52) And they said, "Hey, Trickster![91] What are you doing there under the bridge?,"[92] and he said -- to that bunch of Chinese[93] -- "Since my eyes are sore, my eyes are 'imbibing the essence!'"[94] (53) "Well, we would like to imbibe it also, Trickster!" they said, and he said, "Let me loose then!" (54) So they let him loose, and he got free.[95]

(55) So the Trickster[96] -- now that group of traders had been driving their mules, horses, and elephants around to the villages, having come to trade them. (56) Since they all happened to have sore eyes,[97] he tied them up, and as they were trying to "imbibe the essence of the water" under there, under the bridge, he cut them down so they fell in and died, and Trickster got away with all their goods, their silver and their gold.

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88 'Some distance away' translates the spatial demonstrative pronoun *ô* 'over there here pronounced with exaggerated intonation to indicate greater distance.

89 This renders the connective filler *qhe te šē lɛ*.

90 As we soon find out, these were Chinese travelling merchants. This provides an interesting symmetry with the beginning of the story, where the men are going off t fight the Chinese. Evidently the confrontation with the Chinese operated at many levels in ancestral Lahuland.

91 Note that the traders recognize the Trickster without ever having been introduc to him. Trickster is larger than life and known to everybody. He shares this univ ersal recognizability with Wakdjunkaga, the Trickster figure of the Winnebago Indians [Radin 1956/1973].

92 This could equally well be translated 'Why are you under the bridge?', since the usual Lahu way of saying 'why' means literally "doing what?" (*à-thɔ̀ʔ-ma te [lɛ]*).

93 The phrase 'to that bunch of Chinese' is inserted as an afterthought at the end of the Lahu sentence.

94 *šá mɨ̀ ve*, here translated 'imbibing the essence,' is an expression of key symbo importance in this story. It does not occur in ordinary speech, and is clearly mea to be pregnant with meaning. *šá* means 'air, breeze, vapor; breath; vital force, spirit, energy, incorporeal essence.' The verb *mɨ̀* means 'to pass air noisily throu the mouth or nose,' as in the following expressions: *ɔ̂ʔ-mɨ̀ ve* 'hiccup,' *ɔ̀ʔ-mɨ̀ ve* 'belch,' *qa-mɨ̀ ve* 'sing,' *tí-šîʔ mɨ̀ ve* 'whistle,' *há-mɨ̀ ve* 'yawn,' *há-thî mɨ̀ ve* 'sneeze.' See Section XII.

95 The verb-particle *šē* 'regret' (homophonous with another particle of aspectual meaning, something like 'prerequisite action') is used in this clause, as if the narrator were sorry that Trickster got loose. He is here taking the opposite attitu to the one mentioned above [Note 83]. It should be noted that it is often difficult to tell the two *šē* particles apart in connected narrative. [See Linguistic Analysis Section E.]

96 The narrator, who had started to say what the Trickster did next, backtracks in order to give us some more background information on the traders.

97 Due to the long dusty roads they had to travel. Trickster had alertly noticed that their eyes were red.

XII

(57) After this he went back, and when he had returned to his home again they said, "Oh, Trickster, how did you get [all this]? How did it happen that you got so much silver and gold even though we tried to kill you?," and he said, "Well, I just got it by 'imbibing the essence' of the water![98] Since it was you all who did this for me..."[99]

(58) Then they said, "Oh, we'd like to get it too!," so he led them away, making each man carry with him to that place a pickling-tub[100] as big as a

forehead-basket,[101] and he strung them up there underneath [the bridge], and after the people had gotten inside [their tubs] they entered the water.[102] (59) Immediately he made them sink down into the water, and they thrashed around furiously.[103]

(60) Then, since there was one old codger who hadn't gone in, he said to him, "There, there, there, look! The others are fighting with each other over the gold!," so he jumped in too, and [Trickster] cut through [the ropes], and after the whole villageful [of men] had died, he got the women of all the people in the village for himself.

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98 With this remark the Trickster is indirectly revealing himself to be a god, for only gods can live off the incorporeal essence of things. This is a symbolic inversion of the incident in Section V, where he was found out not to be a god when he ate the substance of the food-offerings in the temple. See Note 46.

99 *nɔ̀-hɨ́ te á lâ lɛ*: the particle *lâ* indicates action that benefits a non-third person (in this case 2nd person benefitting 1st person). Trickster is pretending to be grateful to the men for having strung him up under the bridge.

100 *ǐ-mû=qō*: 'a large-mouthed vessel made of earth, sand, and cement, used for pickling.'

101 *qhá-jū-lu*: 'a deep loosely-woven basket used for transporting water-gourds, carried by a strap around the forehead so that the hands are left free.'

102 Instead of the rather flat clause 'they entered the water,' my chief informant (1965-6) suggested the emendation:

a-yɛ́-yɛ́ phɛ̂ lɛ, cô ǐ-kâʔ qhɔ ɔ̄ lòʔ e cɨ́ ve cê

'he slowly (*a-yɛ́-yɛ́*) released (*phɛ̂*) [the ropes] and made (*cɨ́*) them enter the water.'

103 'Furiously' translates the emphatic verb-particle *a-lâ* (sometimes pronounced *qha-lâ*).

* *
*

IV. Linguistic analysis: cohesive devices and text-building strategies.

To facilitate discussion, the text has been divided into twelve subparts or "discourse units," following the natural breaks in the unfolding of the plot line of the narrative.[1]

A. The Quotative Mood

The sentences of the entire text are numbered consecutively from 1 to 60, with the proviso that all utterances within a single turn of quoted dialogue receive the same number. Thus, in (7) we find a string of three grammatically separate sentences within the same turn:

...*"âa, nɔ̀-hɨ́ ɔ̀-pā ve ɔ̀-ha-ku qɔ̀ʔ lâ ò mɛ̄. tâ chê̂ ò mɛ̄. kɔ̂ʔ à mɛ̄."* /
"Aha, the spirits of your husbands have come back to you! Don't stay here any more! It's too scary!"

Similarly, some utterances we number as single units contain sentential material from a succession of two different speakers:

(19) ... *"âa, à-thòʔ-ma qôʔ lâ le, nɔ̀-hɨ́ àʔ," qôʔ lɛ, "âa, ɛ̀-ghɛ̀ hàʔ šāy pî-ʔ tí qôʔ lâ ɔ," qhe qôʔ ve cê.* / ... and [Trickster] said, 'Well, what did it say to you?' and they said, 'Well, all it said was Give compensation to Trickster!'[2]

The story does in fact include a great deal of quoted dialogue (no fewer than 34 turns of reported speech), which contributes greatly to the lively immediacy of the narrative tone. The only verb available in Lahu for marking quoted material is *qôʔ* 'say,' which recurs constantly in the text, but so "automatically" and unobtrusively that it conveys no unpleasant feeling of repetitiveness.[3] It may precede the quoted material, follow it, or both.

A more general way of indicating that something is reported at second-hand is the "final unrestricted particle" (P_{uf}) *cê*.[4] This particle is not limited to reported

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[1] The fourth unit has been subdivided into IV-a and IV-b, since the same motif (the consultation of the tree-oracle) is repeated twice for dramatic effect.

[2] The second turn in this particular example contains a quote within a quote (the innermost one being underlined).

[3] It appears, e.g., four times in the passage from (19) just cited. In English also, many good writers and talkers use the verb say exclusively for marking reported speech with no ill effect. Lesser writers (e.g., children's authors who are concerned with building up the kiddies' vocabulary) have dozens of different verbs of saying in their arsenals: "Why, yes!" he agreed/expostulated/replied/averred/maintained/exclaimed/objected/insisted, etc. etc.

[4] Discussed in sections 2.1, 4.725, 6.32 of Matisoff 1973 (henceforth "GL"). See the List of Abbreviations for "P_{uf}" and all other grammatical terms introduced, and GL for full details.

speech, but may be used to mark any sentence as hearsay:

(2) ... *chɔ ʂɔ̄ və lɛ qay ve cê.* / ... people were selected and they went off [so the story goes].

In such cases, where reported speech is not involved, *cê* is usually better left untranslated, since it would be intolerable in English to keep throwing in tags like so the story goes, it is said, we are told that, etc. The liberal use of *cê* is one of the most striking characteristics of the Lahu story-telling style. It need not be used at the end of every single sentence -- that would be too much -- but about once every two sentences is just right to maintain the proper narrative atmosphere,[5] placing the whole discourse in the realm of storyland. It puts the listener into a "quotative mood," enticing him to a suspension of disbelief. At the same time, it absolves the narrator from responsibility for the fantastic goings-on he recounts.

In the case of actual reported speech, it is usual to close the quote with a combination of the verb *qôˀ* and the particle *cê*:

(26) ... *"ôo, ɣɨ̀-ša tɔ̂ˀ la lɔ, yàˀ-ni lɛ̀,"* *qhe qôˀ ve cê.* / ... they said, "Oh, the god has appeared to us today!"

The combined meaning is something like it is said that X said "Y"; or the story tell us that X said "Y".[6]

B. Inter-sentential chain-repetition and the manipulation of old/new information

A favorite Tibeto-Burman narrative strategy is to link adjacent sentences to each other by repeating elements of the final clause of the previous sentence in the first clause of the following one.[7] Our story provides over 20 examples of these "chain-repetitions," and it is clear that they are the most important cohesive devic in the Lahu story-teller's arsenal.

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[5] *cê* occurs 43 times in our text, in the following sentences: 2,4(twice),6,8, 9,11,14,15,16,17,19,20,21,22,23,26,30,31,32,33,36,37,38,39,40,41,42,43,44,45,46,47, 50,51,52,53,54,56,57,58,59,60. If we also give numbers to each individual sentence in the quoted dialogue, the text contains exactly 86 sentences, twice the number in which *cê* appears.

[6] Often, as in this example, the nominalizer *ve* intervenes between the *qôˀ* and the *cê* (cf. also sentences 16,17,19,40,47). Sometimes *qôˀ cê* is used alone (20,21, 30,45,46,52,57).

ve is the most complicated particle in Lahu grammar. Its most important functions are nominalization, relativization, and genitivization, three processes which are closely interconnected in the grammar (cf. Matisoff 1972 and GL passim). In the Lahu text (Part II) the occurrences of *ve* are numbered 8, 15, or 77 according to the role it is playing in each instance.

[7] This discourse feature was already discussed briefly in Matisoff 1969, p. 206

These repetitions may be classified according to several criteria, including (a) the grammatical nature of the repeated material; (b) the amount and nature of th material intervening between the repetitions of the identical elements; and (c) the point in the narrative where the chaining occurs.

Often the only elements that are repeated belong to the VP's of their respecti clauses. In the minimal case, a single verb in the prior clause recurs in the later one:

... *tî-pɛ̄ a te lɛ phɔ e ve cê. phɔ lɛ ǧɔ̀ ǧà?-yù lɛ, ǧà? mâ mi.* [V.23/24][8] / ... trying to kill him, and he ran away. He ran away and they chased him, but they couldn't catch him. [*phɔ* (V) 'run away, flee']

Sometimes a verb-particle (P_v) or auxiliary verb (VV)[9] is repeated along with the verb-head:

... *í-kâ? cò-ló ɔ̀-hɔ́ ɔ̄ phɛ-chî tá ve cê. phɛ-chî tá lɛ ɔ̄ ... tâ-kà=pā tê mɔ̄=ló là cê.* [XI.50/51] / ... they tied him so he hung underneath a big bridge over the water. After they had left him strung up there a large group of traders came along. [*phɛ-chî* (V) 'tie something so it hangs, string something up' + *tá* (P_v) 'perfective or durative action; action that is long-lasting in its effect'][10]

Similarly,

... *ɔ́-qā qhê-qhɔ ɔ̄ phɛ-tī a lɛ, ǧɔ̀-šɛ pî cê. qhe-qo ɔ̄ mê?-phû hɔ́ mù? lɛ há-pɨ=de ǧɔ̀-šɛ pî qo, "álôo, álôo, álôo," qô? cê.* [X.44/45] / ... they tied him to the ass of a water-buffalo, and dragged [him] along. Then when they bent his face over downwards and dragged [him] over a piece of rocky ground, he said "A-lo, a-lo, a-lo!" [*ǧɔ̀-šɛ* (V) 'drag along' + *pî* (V_v) 'give; perform action that affects a third person'].[11]

Sometimes the repeated portion is more complex grammatically, comprising material from one or more NP's in addition to the verb:

[I.1/2] ... *Lâhū-yâ | mà? | bɔ̂? ve. qhe te lɛ ... mà? | bɔ̂? e ve tê sɔ́ ɔ̄ ...* / ... the Lahu were fighting a war ... Well, on the morning for going off to war ... [*mà?* (N) 'war' + *bɔ̂?* (V) 'shoot, fight'][12]

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[8] In these references to the story, roman numerals show the discourse unit, while the two chained sentences are in arabic numerals separated by a slash. Like this example are I.3/4 [with *phɔ̀?* (V) 'unwrap'] and III.10/11 [with *yɨ̀?* (V) 'sleep'].

[9] In this story the only auxiliary verbs which happen to occur in chain repetitions are all "post-head versatiles" (V_v). See Matisoff 1973, section 4.33.

[10] Like this example are I.4/5 and VI.31/VII.32 [with *qò?* (V) 'return home' + *e* (P_v) 'motion away'] and X.43/44 [with *ǧà?-mi* (V) 'catch by chasing' + *šē* (P_v) 'regrettable event'].

[11] Like this example are III.9/10 [with *ò* (V) + *kə* (V_v)], VIII.34/35 [with *mɔ̂?* (V) + *kə* (V_v)], and XI.53/54 [with *yù* (V) + *tɔ̂?* (V_v)].

[12] By convention we diagram the boundary between two Lahu NP's by a dotted vertical line, and the boundary between the last NP of a clause and its VP by a solid vertical. Like almost all members of the Tibeto-Burman family, Lahu is a verb-final language.

[I.5/II.6] *qhe-te-lɛ ɔ̃ šu ¦ yɔ̂ | qɔ̀ʔ e cɨ́ tá ve. qhe-te-lɛ šu ¦ yɔ̂ | qɔ̀ʔ e cɨ́ lɛ ɔ̃-qhe* ... / And so the others let him go back. Then, when they had let him go back ...

[III.8/9] ... *ɛ̀-qhɛ̀ á-qhɔ tí | phôʔ yɨ̀ʔ e ve cê* ... "*âa, ŋà á-qhɔ | tâ yɨ̀ʔ*..." / ... they all went trooping over to Trickster's house to sleep ... "Oh, don't sleep at my house ..." [*ɛ̀-qhɛ̀ á-qhɔ* (NP) 'Trickster's house' or *ŋà á-qhɔ* (NP) 'my house' + *yɨ̀ʔ* (V) 'sleep]

[IV-A.14/15] ... "*âa, a-yɔ=qɔ̄ | dɔ̂ʔ na e*," *qôʔ ve cê. a-yɔ=qɔ̄ ô-ve ɔ̃ | dɔ̂ʔ na te lɛ* ... / "Well, go and beat on the Hollow A-yaw Tree and listen ..." In order to go beat on that Hollow A-yaw Tree-oracle ...[13]

[VII.32/33] ... *šɨ̂ʔ-cɛ̀ ɔ-pu=ló ɔ̃ | tâʔ gà-e ve cê. šɨ̂ʔ-cɛ̀=ló ɔ̃ | tâʔ gèʔ-e lɛ ɔ̃* ... he managed to climb up into a big clump of trees. When he had gotten to the top of a big tree ...[14]

[VII.33/VIII.34] ... *há-qɔ̄ qhɔ | phɔ lòʔ gèʔ-e ve cê ... nô há-qhɔ | lòʔ e lɛ ɔ̃* ... and he managed to escape into a cave in the rocks ... When [Trickster] had gone into the cave up there ...

A more complex type of repetition, where a noun and a verb are held constant across two sentences while other material is varied antonymically or contrastively, is found in:

[IV-A.15/16] ... *yâ-mî=ma ô tê mɔ̄ ɔ̃-qhe, yàʔ-qɔ qɔ̀ʔ kɨ̀ ɔ̃ | qay cɨ́ ve cê. ɛ̀-qhɛ̀ chi yàʔ-qɔ | thê-ɛ̀ qay lɛ* ... / ... he made the women take the long way around. The Trickster himself went by the straight road ... [*yàʔ-qɔ* (N) 'road' and *qay* (V) 'go' are repeated, while *qɔ̀ʔ kɨ̀ ɔ̃* and *thê-ɛ̀* are contrasted]

It is worth noting that chain repetition involving both nominal and verbal morphemes seem especially frequent at the boundary between successive discourse units,[15] though too much cannot be made of this in view of the ease with which VP's can constitute clauses all by themselves in Lahu.[16]

Another way to classify inter-sentential repetitions is by looking at the material which intervenes between the repeated elements. Often the chaining is direct,

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[13]See Note 23 to the Annotated Translation.

[14]See Notes 54 and 55 to the Translation.

[15]I.5/II.6; II.8/III.9; VII.33/VIII.34. It should be remembered that I have set up these discourse-unit boundaries on the basis of the story line, rather than by any purely linguistic criteria.

[16]A trans-unit chain repetition involving only VP's is in VI.31/VII.32 [with *qɔ̀ʔ* (V) and *e* (P_V)].

with nothing coming in between the repetends except perhaps for final particles in the prior sentence and/or an initial conjunctive expression [17] in the following sentence.[18] Sometimes, however, a full NP or even a whole clause may intervene:[19]

[I.1/2] ... *ô tê sɔ́ ɔ̄* ... (temporal NP: 'on a certain morning')

[VII.33/VIII.34] ... *è-qhɛ̀ chi ve* ... (subject NP: 'this Trickster')

[III.10/11] ... *è-qhɛ̀ ô-ve ɔ̄ ¦ yâ-mî=ma ô te mɔ̄* ... (two subject NP's: 'that Trickster' + 'the bunch of women')[20]

[I.3/4] ... *ɔ̄ | câ ve te ve, yɔ̂ ɔ̄* ... (final clause of prior sentence: 'and made as if to eat his meal, he did')

[VIII.34/35] ... *qhà-qhe te kà?* ... (concessive clause: 'but try as they would')

[X.44/45] ... *mê?-phû ¦ hɔ́ | mù? lɛ* ... (non-final clause of subsequent sentenc 'they bent his face over downwards and').

Inter-sentential chain repetition, viewed in terms of its function in discours is a powerful and flexible device for manipulating the flow of old and new informati as a narrative unfolds.[21] This "information" does not reside primarily in the NP's of the sentences. Nouns are clearly subordinate in importance to their verbs in the verb-final Tibeto-Burman languages. The VP is the power center of the Lahu sentence What moves a Tibeto-Burman narrative along, what gives it its dynamism, is the flash by of verbal events in series.

Let us return to the example of V.23/24:

... *ɔ̀-phɔ̂ tê pa qɔ̀? la lɛ, è-qhɛ̀ à? ɡ̈à?-yù lɛ, tî-pɛ̄ a te lɛ, phɔ e ve cê. phɔ lɛ ɡ̈ɔ̀ ɡ̈à?-yù lɛ, ɡ̈à? mâ mi.* / ... The husbands came back and [they] chased after Trickster, and [they] tried to kill [him], and [he] ran away. [He] ran away and [they] chased [him], and [they] couldn't catch [him].

The first clause has an overt subject (*ɔ̀-phɔ̂ tê pa* 'the husbands') and the second clause has an overt object (*è-qhɛ̀ à?* 'Trickster'), but, as the brackets in the translation indicate, the remaining five clauses in this passage have no overt subjects o objects at all, indeed no NP's of any kind. The verbs themselves ('tried to kill,' 'ran away,' 'chased,' 'couldn't catch') have the power to make it abundantly clear who is doing what to whom, even when the subject and object roles are reversed within the same sentence.

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[17] See below, Section D.

[18] A good example is I.5/II.6, quoted above. Also V.23/24, VI.31/VII.32, VII.32/33, X.43/44, XI.50/51.

[19] A Lahu clause minimally contains a VP (plus zero or more preceding "associate NP's). See Matisoff 1973, pp. 39 ff.

[20] These two NP's belong to separate underlying clauses, with the predicate of 'women' (*yɛ̀?* 'sleep') actually occurring before the predicate of 'Trickster' (*tɛ̄* 'mas up') in the surface sentence.

[21] It would betray a narrow Western outlook to wonder how a 'flow' can 'unfold.' Today's mixed metaphor may be tomorrow's accepted model.

These two sentences are linked as wholes by means of the chain-repetition of the verb *phɔ* 'run away,' which occurs both in the final clause of #23 and in the initial clause of #24. The 'running away' was new information at its first mention, but immediately becomes old information in the next sentence. The fleeing is a prerequisite to (or presupposed by) the subsequent act of chasing.

Within each individual sentence the series of verbal events are demarcated by the concatenative particle *lɛ*,[22] which here occurs at the end of each non-final clau (three times in #23 and twice in #24). *lɛ* serves merely to indicate that its clause is not the last in a series of verbal events within a single sentence. Often it is best translated by 'and':[23]

'... the husbands returned and
[they] chased after Trickster and
[they] tried to kill [him] and
[he] ran away.'

This quickly becomes tedious in English, however, and it is better to vary one's tra lation by using participles ('they chased after Trickster trying to kill him') or conjunctions other than and ('they tried to kill him, but he ran away'), etc.[24]

Since it is grammatically possible to string together *lɛ*-clauses endlessly in single Lahu sentence, the narrator must decide on the basis of other criteria when i is time to bring a sentence to a close. When the sentence has grown so long and com plicated that clarity is threatened, or when the narrative action takes a sharply di ferent turn, or simply because he has run out of breath or needs a second to think about what to say next, the storyteller will end the sentence (often in a burst of final particles). This done, he can then start afresh on a new sentence, using as his jumping-off point a clause containing the same verb he has just used in the tail end of his last sentence. But this time the entire preceding string of verbal actio has become old information, presupposed by and prerequisite to what will follow. In languages with inflectional verb morphology, this can be conveyed by a participial o gerundive construction: '... and he ran away. Having run away ...' (The auxiliary verb have in English nicely conveys the idea of givenness or old information: 'here we have before us as something given the fact that he ran away.') Verb-final inflec tional languages like Sanskrit, Tamil, and Japanese are even closer to Lahu in their

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[22]Technically speaking, *lɛ* belongs to the syntactic class of particles I call "non-final unrestricted" (P_{unf}'s).

[23]When *lɛ* conjoins NP's rather than clauses, 'and' is the only possible translation: *Lâhū-yâ lɛ Hɛ̂?-pā* 'Lahu and Chinese.'

[24]See Note 48 to Annotated Translation. The particle *lɛ* occurs clause-finally over 100 times in our text. In 66 of these cases it appears alone at the end of its clause; in 35 cases it is followed by the topicalizing P_{unf} *ɔ́*, and twice by the latter's variant *ɔ́-qhe* [see below]. This count does not include the many cases where *lɛ* follows the pro-verb *te* in lexicalized conjunctive clauses [below, Section D].

concatenative techniques. They have overt morphological means of marking clauses as non-final[25] (e.g. the *-tvā* 'gerund' in Sanskrit or the -TE form in Japanese) which correspond exactly in function to the Lahu particle *lɛ*, especially insofar as these non-final clauses may be strung together endlessly without stylistic harm -- without seeming tedious or babyish or prolix. There seems to be something in the very natur of verb-final languages which favors multi-clausal sentences. It is as if speakers of such languages are used to delaying their gratification for a long time -- the jo of rounding off a completed sentence is all the sweeter for having been deferred.

C. Static repetitions

In all the cases just discussed, repetition serves to advance the narrative, pushing the hearer along from one event to the next in a dynamic way. Other kinds of repetitions occur in Lahu discourse which serve more 'static' functions: paraphrases or "repairs." In these instances the narrator feels a little more elucidati is necessary, so he repeats what he has just said in fuller form or in slightly different words:

[I.2] ... *ô tê sɔ́ ɔ̄, mà? bɔ̂? e ve tê sɔ́* ... / ... on that certain morning, the morning for going off to war ...

[I.3] ... *ɔ̄ câ thâ, ɔ̄ câ ve tê yâ thâ ɔ̄* ... / ... when they ate, when it was time to eat ...

[III.12/13] ... *phu-ši pî kà? mâ hɔ̂?. à-thò?-ma pî kà? mâ hɔ̂?.* / ... but when they offered him money he wouldn't take it. No matter what they offered, he wouldn't take it.

[V.24/25] *phɔ lɛ ɡɔ̀ ɡà?-yù lɛ, ɡà? mâ mi. qhà-qhe te ɡà?-yù kà? mâ mi.* / He ran away and they chased him, but they couldn't catch him. No matter how they chased him they couldn't catch him.

[XII.57] ... *"ôo, è-qhè, nɔ̀ qhà-qhe te ɡa le. ŋà-hɨ́ nɔ̀ à? šɨ́ tù te ve kà? nɔ̀ phu-ši chi ma ɡa ve qhà-qhe te le"* ... / ... "Oh, Trickster, how did you get all this? How did it happen that you got so much silver and gold even though we tried to kill you?"

Repetitions of this type may be called appositional (as opposed to chaining). They involve referentially synonymous NP's [I.2, I.3] or entire sentences [last three examples] that have identical value on the scale of new vs. old information. Chaining repetition, by contrast, mediates a value-change from new to old.

D. Initial conjunctions: lexicalized conjunctive clauses

At about forty points in our text, we find at the beginning of a sentence (or, less often, at the beginning of a non-initial clause within a sentence) a conjunctive

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[25]For these languages we might even say non-finite. But it is better not to use terms like 'finite' and 'non-finite' for analytic languages like Lahu, since they seem more appropriate to inflectional languages. (One speaks of 'non-finite verb forms,' but Lahu verbs are invariant in form.)

expression of the general type *qhe-te-lɛ*, literally 'having done thus' [*qhe* (Adv) 'thus, in this way' + *te* (V) 'do' + *lɛ* (P_{unf}) 'MORE-TO-FOLLOW']. The verb *te* is her filling the abstract role of a 'pro-verb,' with the power to refer anaphorically to any preceding verbal event.[26]

By its internal structure *qhe-te-lɛ* is a full non-final clause in its own righ containing a bona fide verb (modified by an adverb *qhe*) and a P_{unf} which connects it to the next clause in its sentence. However, this expression is now lexicalized to the point where it must be translated by some English conjunction like 'then,' 'so,' or 'thereupon.' It would be too "painfully literal" to render it has 'having done thus'!

qhe-te-lɛ occurs 11 times in the story [Sentences 2,6,8,9,17,18,27,42,52,55,5 Even more often (15 times) it is followed by the topicalizing P_{unf} *ɔ̄* (see Note 24), forming the expression *qhe-te-lɛ ɔ̄* [Sentences 5,7 (twice),10,11,14,21,22,23,33,40,4 48,58,60]. Once in a while the *qhe* is omitted, yielding *te-lɛ* [Sent. 43] or *te-lɛ* [Sent. 12].[27] Alternatively, the particle *lɛ* may be left out, giving *qhe-te* [Sent. Instead of *lɛ* a different P_{unf} may be used: *qo* 'when; if; topicalizer,' forming ex pressions like *qhe-te-qo (ɔ̄)* (lit. "when it was done thus") [Sent. 46]. If *qo* is u the *te* may be omitted, yielding *qhe-qo* ("when thus") or *qhe-qo ɔ̄* [Sent. 45].

It is also possible to retain all three morphemes of *qhe-te-lɛ*, and also add verb-particle (P_V) after *te*, either the 'prerequisite action' particle *šē* or the perfective particle *á*, forming conjunctive mini-clauses like *qhe te šē lɛ* [Sent. 51 *qhe te šē lɛ ɔ̄* [Sents. 26,29,34,37], and *qhe te á lɛ ɔ̄* [Sent. 31]. In these cases, the *te* is somewhat verbier than a pro-verb, and we write the expressions without hyphens.

Lahu thus has a wide assortment of conjunctive expressions available for use initial position. These may be varied and alternated with each other so that no tedium results from their constant use.

Just as *lɛ* is the '... and ... and ... and' which strings together clauses wi in a sentence, *qhe-te-lɛ* and its variants are the 'then ... then ... then' which link sentences to each other in a narrative.

The intonational behavior of these initial conjunctions seems paradoxical at first. Although the presence of a non-final unrestricted particle (*lɛ* or *qo*) is enough to prove that the conjunctive expressions belong grammatically with the following material in their sentences, intonationally they are often pronounced in the same breath as the end of the preceding sentence, with a noticeable pause befor the rest of their 'own' sentence:[28]

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[26]Verbs meaning 'do' are pressed into pro-verbal use in perhaps all languages The Japanese conjunctive clauses *sō shite* or *sō suru to* 'having done thus; thereupo then' are exactly equivalent in semantic structure to Lahu *qhe-te-lɛ* and its variant

[27]This is exactly analogous to Japanese *suru to*, a reduced variant of *sō suru to*, with the adverb *sō* 'thus' omitted.

[28]I had never paid any attention to this phenomenon until I relistened to the tape of this story in February 1979.

[IV-A.16/17] "... *à-thò?-ma šāy pî tù le, è-qhɛ̀ hà?," qô? ve cê͡ qhe-te-lɛ*
è-qhɛ̀ ô-ve ɔ̄ ... / ... and said "What sort of compensation shall we give to Trickster?" So the Trickster said ...

This tension between the grammatical and intonational constituency of the conjuncti expressions can be seen to serve an important discourse function. By starting the next sentence in the same breath as the previous one, the narrator succeeds in 'hol the floor': the listeners know that more is to come, and are not at liberty to int rupt. At the same time, the narrator can take a moment to think before going on tc frame the rest of his new sentence. Having established that more is to come, he ca take his time about continuing.[29]

E. Particles in Lahu discourse

Lahu has dozens of grammatical particles for showing the syntactic and semant interrelationships among the parts of a single sentence, between different sentence in a discourse, or between what is said and the speaker's attitude toward what he i saying. The behavior of these particles is a vast and intricate topic, and cannot gone into systematically here.[30]

I would just like to make a few points about the dynamics of the Lahu particl in connected discourse.

The most basic particles (*ve*, *lɛ*, *ɔ̄*, etc.) occur with consistent frequency throughout a discourse. The functions they serve are so vital to the grammar, and so abstract, that it is impossible to build sentences without them. In the case of less basic particles, however, a curious asymmetry of distribution can sometimes be observed. Thus the "psycho-ostensive" verb-particle *šɛ̄*,[31] which indicates that the speaker feels the verbal event he is reporting is regrettable,[32] is not used at all in our text for the first 38 sentences. Then it suddenly pops up several times in quick succession [Sents. 39,41,43,44,49,54,56]. This 'clustering effect' does not seem to be due to anything objective in the story-content itself -- the wild and woolly incidents reported in the text are all equally 'regrettable' from the stand-point of conventional morality from start to finish. Rather it is as if once the

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[29]Lahu has another sentence-introducer with special intonational properties. This is *à-šwè thâ* 'once upon a time,' which occurs only at the very beginning of a story, and is usually pronounced with exaggerated drawling intonation. See I.1.

[30]For full details the reader is referred to The Grammar of Lahu.

[31]By 'psycho-ostensive' I mean 'purporting to indicate the speaker's attitude toward what he is saying.' For an extended analysis of psycho-ostensive formulaic expressions in Yiddish, see Matisoff 1979.

[32]This particle is apparently of Tai origin. It is homophonous with another verb-particle *šɛ̄* of aspectual meaning ('prerequisite action'). See Notes 83 and 95 to the Translation.

story-teller 'activates' the particle it remains subliminally in his consciousness, and he finds himself using it again and again for a while until the 'contagion' subsides.[33]

Similarly, the final unrestricted particle *mɛ̄* 'persuasive; urging' is used three times in succession in II.7:

... *"âa, nɔ̀-hɨ́ ɔ̀-pā ve ɔ̀-ha-ku qɔ̀ʔ lâ ò mɛ̄. tâ chê ò mɛ̄. kɔ̂ʔ à mɛ̄."* / ... "Aha, the spirits of your husbands have come back to you! Don't stay here any more! It's too scary!"

In IV-A.16, the particle sequence *a + qo + ɔ̄* (roughly equivalent in meaning to the much more frequent *lɛ*) suddenly occurs in three successive clauses:

... *chê a qo ɔ̄ ... dôʔ a qo ɔ̄ ... te a qo ɔ̄ ...*

In VI.30, the sequence of *ò* (P_v) 'completed action' and *lɔ* (P_{uf}) 'emphatic' occurs twice in succession:

... *"âa, ɛ̀-qhɛ̀ qhâ-šɨ́ g̈àʔ-yù qhâ mâ hêʔ ò lɔ. chò kàʔ mù=nɨ́-g̈wɛ kàʔ tɔ̂ʔ ò lɔ"* / ... "Well, Trickster's trail has petered out now! And here's a red Phalloid mushroom that has sprouted!"

Sentences XI.52/53 provide us with a more subtle example of "particle contagion". In #52, Trickster says:

"... mêʔ-šɪ̄ šá mɨ̀ ve yâ ɔ nē" ... / "... My eyes are imbibing the essence!"

This clause ends with a series of highly colloquial emphatic final particles (*yâ + ɔ + nē*), which are here appropriate since they occur in reported speech. However, the following sentence also ends this way:

... *"yù tɔ̂ʔ a" qôʔ pî cê ma nē.* / ... "Let me loose then," he said!

As the peculiar punctuation in the translation indicates, the narrator has again used two colloquial emphatic particles (*ma + nē*), but not where they "belong" (i.e. in the quoted clause). He puts them outside the quotation, even after the quotative P_{uf} *cê* [see Section A above], where he should be talking in his neutral narrator's persona, at a remove from the reported dialogue.

F. Anaphora and topicalization

Lahu has a rich array of particles and particle sequences available for topicalization duty, including *ɔ̄*, *ɔ̄-qhe*, *ɔ̄-qhe lɛ*, *lɛ̀*, *qo*, *qo ɔ̄*, *tɨ́ qo*, *tɨ́ qo lɛ̀*, etc. Any Lahu NP or clause[34] may be topicalized, with a variety of semantic effects. We cannot begin to go into this ramified 'topic' here!

Suffice it to say that the Lahu topicalization apparatus interacts closely with its system of anaphoric demonstratives, and that together they regulate the play of

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[33]We have all had the experience of rereading a letter we have just written and being shocked to find that we have used the same word three times in the course of a couple of sentences.

[34]We have seen [Note 24, above] that *ɔ̄* occurs freely after the particle *lɛ* at the end of non-final clauses.

old and new information, foregrounding and backgrounding, definiteness and indefiniteness, in the discourse.

The Lahu demonstrative morphemes *chi* and *ô-ve* are usually best translated 'this' and 'that' respectively.[35] When used in connected narrative, however, they may function more or less interchangeably as anaphoric markers and are usually best translated simply as 'the':

[IV-A.14/15] ... *"âa, a-yɔ=qɔ̄ dɔ̂ʔ na e," qôʔ ve cê. a-yɔ=qɔ̄ ô-ve ɔ̄ dɔ̂ʔ na e te lɛ* ... / ... "Well, go and beat on the Hollow A-yaw Tree and listen," he said. In order to beat on that/the Hollow A-yaw Tree ...

ô-ve is not used here to make *a-yɔ=qɔ̄* definite -- there is only one A-yaw Tree-oracle in any case.

Similarly, the Trickster is introduced on his first mention in the story (I.3) as *è-qhè ô-ve ɔ̄*, literally 'as for that Trickster.' Clearly, *ô-ve* can have exophoric as well as anaphoric force: 'that Trickster that we all know about already.'

The Trickster is referred to most often in the story with the demonstrative *chi*, with optional *ve* and/or topicalizing *ɔ̄*:

è-qhè chi : Sents. 16,19,21,32,39,40 (twice).

è-qhè chi ve : Sent. 34.

è-qhè chi ɔ̄ : Sents. 20,26,39.

è-qhè chi ve ɔ̄ : Sents. 26,32,42.

Whenever Trickster is referred to with *ô-ve*, the topicalizer *ɔ̄* is also used:[36]

è-qhè ô-ve ɔ̄ : Sents. 3,9,11,17.

è-qhè ô-ve ɔ̄-qhe lɛ : Sent. 14.

One's choices among *ô-ve*, *chi*, and the topicalizing particles are dictated by a complex interplay of stylistic and esthetic factors as subtle as those which govern the use of English intonation, and words like the, a, this, that. I submit that no mere formalism can ever do justice to this complexity, in principle.

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[35]These two words have different syntactic properties, since *ô-ve* derives from the spatial demonstrative pronoun *ô* 'over there' plus *ve* 'genitive particle' (i.e., 'that' = 'of over there'). See Matisoff 1973, Section 3.5.

[36]An apparent exception is Sent. 55, but that involves a false start.

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V. Psychosymbolic analysis.

A. Universality of the Trickster figure

In his famous book, The Trickster: a Study in American Indian Mythology, the anthropologist Paul Radin flatly declares:

> "[The Trickster] is admittedly the oldest of all figures in American Indian mythology, probably in all mythologies." [p. 164][1]

The psychologists C.G. Jung and Karl Kerényi, in their contributions to Radin's volume [see Bibliography], make it clear that they consider Trickster to be one of the archetypes of the collective unconscious of humanity. He appears all over the world in a thousand guises, sometimes cosmic and supernatural, but often a schlemiel or buffoon, or even an animal.

On the cosmic end of the scale, the Greek god Hermes (patron of thieves as well as of physicians) has a Trickster aspect to his complex personality.[2] In India, Lord Krishna, regarded as the 8th avatar of Vishnu in his divine aspect, is also often portrayed as a powerful but mischievous child, who plays gently erotic tricks on milk-maids, etc.

In the Judaeo-Christian tradition we have our very own Trickster in the form of Satan or Mephistopheles. On the other side of the world, in the 8th century Japanese mythological chronicles, Nihongi and Kojiki, the sun-goddess Ama-terasu-ō-mi-kami has a younger brother, Susa-no-ō (須佐之男), who acts in classic Trickster ways.[3]

Mediating between the gods on the one hand and mankind on the other are culture heroes, who typically exhibit Trickster-like characteristics. Prometheus craftily stole fire from the gods to bestow it upon mankind. Wakdjunkaga, the Trickster of Radin's Winnebago Indians, uses the bruised pieces of his once-gigantic penis, now mostly gnawed up by a chipmunk, in order to create useful crops for human beings:

> "Oh, my, of what a wonderful organ he has deprived me! But why do I speak thus? I will make objects out of the pieces for human beings to use." Then he took the end of his penis, the part that has no foreskin, and declared, "This is what human beings will call the lily-of-the-lake" ... Then he took the other pieces declaring in turn: "This the people will call potatoes ... turnips ... artichokes ... ground-beans ... dog-teeth ... sharp-claws ... rice ..." [p. 39]

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[1] And again (p. 132), "The similarity of the exploits attributed to ... all ... trickster-heroes in North America is quite astounding. The only possible inference is that this myth-cycle is an old cultural possession of all the American Indians."

[2] Kerényi points out the contrast between wily Hermes and guileless Herakles, who is merely a strongman.

[3] One of his notorious pieces of mischief involved "flaying a piebald horse backwards," an act so startling to Amaterasu that she pricks herself in the pudenda with her distaff, and withdraws in terror into her cave, leaving the world in darkness. My thanks for this information to Susan Matisoff.

As this passage shows, Wakdjunkaga is a schlemiel and buffoon as well as a culture hero -- it was very dumb of him to have let the chipmunk gnaw off most of his penis in the first place.[4]

The buffoonery becomes more and more salient as we follow our Tricksters down the great chain of being to the strictly human level in world literature and folklor The cunning Odysseus of Greek epic is a relatively dignified specimen of the breed.[5] More earthy is the medieval Till Eulenspiegel, a north German peasant clown of the 14th century, probably a real person whose practical jokes on clerics and townsfolk were embellished in popular literature.[6] In Renaissance France, the immortal charac ters of Rabelais (1490-1553) -- Gargantua, Pantagruel, Panurge, Frere Jehan des Ento meures -- are all Trickster figures, ribald and outrageously larger-than-life. Tric sters are still alive and well in modern Western literature, from highbrow novelists like Thomas Mann[7] to cartoon characters like the Roadrunner and Bugs Bunny (who in- variably outwit the Coyote and Elmer Fudd, respectively.)[8]

Moving East of Suez, the Turks and the Persians have laughed for centuries at the exploits of the trickster Nasruddin Hodja. Amin Sweeney describes a very simila character in Malay literature.[9] The anthropologists Edward and Bambi Schieffelin report a classic cosmic-schlemiel type of Trickster among the primitive Kaluli tribe of the Bosavi Highlands, Papua New Guinea. He is called Newelesu, and is regarded as the ancestor of the Kaluli, who ascribe their low status in the world to his cosm stupidity.[10]

Zeroing in on the Lahu geographical area, it is becoming apparent that Trickst figures abound all over northern Southeast Asia as well. Viggo Brun (1976) has pub-

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[4]"The two-fold function of benefactor and buffoon is the outstanding character- istic of ... trickster heroes ... in aboriginal America." Radin, p. 124.

[5]Cf. "tricky" episodes in the Odyssey like the blinding of the Cyclops Poly- phemus, the passage between Scylla and Charybdis, the escape from the Siren's song,

[6]His name, "owl-mirror" in German, was Englished to Howleglas at an early date

[7]See his Confessions of Felix Krull, Confidence Man (1954).

[8]Anthropomorphized animal Tricksters are of course to be found in folk traditi all over the world. Reynard the Fox was the foxiest animal in medieval Europe. The North American Indians have Hare (in the East) and Coyote (in the West). The Spider is often cast as a Trickster, probably because of the guile it displays in spinning traps for its prey. Radin reports a Spider Trickster among the Oglala Dakota. Danancey the Spider is the chief Trickster in Caribbean folklore, and has obvious antecedents in African legend (see Rattray 1930). The elegant spider "Bug Rogers," in the comic strip Gordo, as well as the bumbling teenage superhero Spiderman, are more recent avatars of this arachnid archetype.

[9]Personal communication, February 1979.

[10]He is usually contrasted to his brother Dorsali, a "smart Trickster" now ofter identified as the ancestor of the white man. The name newelesu is also applied to a huge and spectacularly ugly insect.

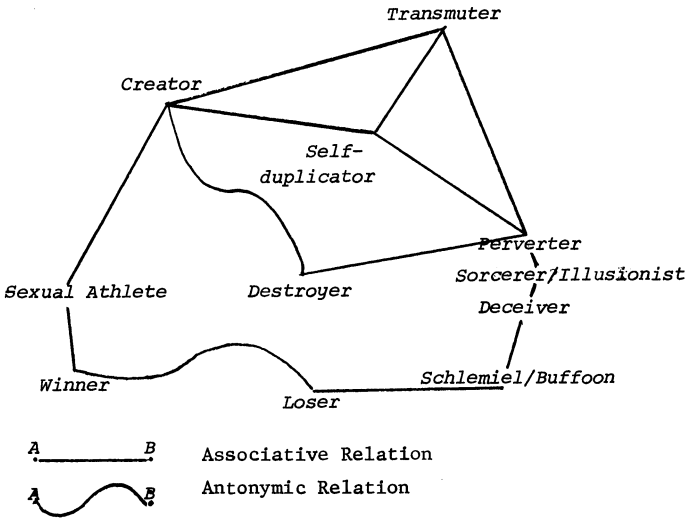
lished a long Northern Thai tale called Sug, the Trickster who Fooled the Monk. The Tibetans have their own Uncle Töng-pa.[11] Gabrielle Yablonsky describes a Bhutanese lama-trickster called Džug-pa Kun-legs, subject of a book by R.A. Stein [see Bibliography].

A lot of detailed comparative study will be necessary before we can trace the genealogy of the Lahu è-*qhè* in relation to the Trickster figures of any other Southeast Asian peoples. For now let us just proceed to examine the symbolic structure o our text in more detail, trying to unravel the seemingly disparate motifs that are united in the Lahu Trickster's personality.

B. Symbolic dimensions of the Lahu Trickster

Perhaps a little diagram will help to make things clear. See Figure 1:

FIGURE 1.



(1) è-*qhè* as supernatural: creator and transmuter. The behavior of è-*qhè* is total self-serving. What he wants, he takes -- and he wants everything, all the women, al the silver and gold, all the husbands' penes on a platter. He is not constrained by ordinary standards of morality; amoral rather than immoral, beyond human praise or blame. He causes the death of many people -- a girl who was attracted by his music, the Chinese traders, the husbands, the old codger at the end. But he never loses ou sympathy. We don't give a damn for the other people in the story. They are two-dimensional cartoon characters, mere foils for Trickster. The traders are greedy an

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[11] *ǎqu tǒpa*. A brief text featuring this character is given in Goldstein 1970, pp. 176-7. See also Rinjing Dorje 1975.

gullible, the wives are stupid and lascivious, the girls are empty-headed, the husbands are impotent cuckolds. è-*qh*è can do what he wants with them and we will laug He has the right to destroy precisely because he is the creator himself.[12]

Like Wakdjunkaga, the Trickster of the Winnebago Indians, who calls everythin in creation, animal or vegetable, "younger brother," and whom every creature instan recognizes without needing to be introduced to him, è-*qh*è is immediately addressed name by the Chinese traders[13] who had presumably never seen him before [Sent. 52].

è-*qh*è in fact controls all of creation. In his own grotesque way, he manipul the entire animal and vegetable world for his own purposes. He turns a rice-packet into a live chick (I); he transforms some crabs, bees, and a bamboo-sheath into the spirits of human beings (II); he transmutes fermented soybeans into babyshit (III); he metamorphoses his glans penis into the cap of a mushroom (VI).[14]

è-*qh*è can even change his own form, revealing his true nature as a supernatur being. He becomes a tree-oracle (IV-A,B). He smears himself with honey and cotton and receives the people's worship (V).

Using whatever is at hand -- snips and snails and puppy-dogs' tails -- he int changes life-forms, shuffles up the links in the great chain of being.

It does not matter that è-*qh*è's metamorphoses are illusions, sleight-of-hand, parodies of creation.

(2) è-*qh*è as enantiodromiast: reconciler of opposites and enemy of boundaries. Let us return for a moment to Susa-no-ō, the Trickster-like god of the Kojiki. We have seen [Note 3 above] that one of his pranks involved flaying a piebald horse backwards, an act so perverse it provoked terror. Another of his infamous exploits was to break down the earthen dikes between Amaterasu's rice-fields,[15] so that her fields were indiscriminately flooded. These are two typical pieces of Trickster-like behavior: doing the opposite and destroying boundaries.

Satan, the Anti-Christ, the arch-deceiver, can change his form at will. His devotees used to worship him by saying the Mass backwards. He is the perverse one, always doing the opposite of what one expects.[16]

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[12] As Lenin so charmingly put it, "You can't make an omelette without breaking eggs."

[13] Unlike Wakdjunkaga, however, è-*qh*è does not fit the profile of a culture hero in this story. There are many different subtypes of Trickster!

[14] Amin Sweeney points out a very similar episode in a Malay Trickster story, where a woman pulls and pulls on Trickster's "mushroom" but is unable to pluck it out (in fact it just keeps getting bigger). Eventually she gives up in disgust, complaining loudly about how tough the roots must be.

[15] The Lahu call such dikes ɔ̀-*t*ê.

[16] Goethe has him say, *Ich bin der Geist, der stets verneint* ("I am the spirit who always denies"), Faust, Part I, line 1338.

Wakdjunkaga constantly acts in precisely the opposite ways from what the cultural norms of the Winnebago would require. (E.g. he sleeps with his wife just before going on the warpath, an absolute cultural no-no.[17])

Our Lahu Trickster also knows no boundaries and plays with opposites.[18] In one key episode (IV-A,B) he actually succeeds in being in two places at once. When the women return from consulting the tree-oracle they find è-*qhè* calmly sitting at home weaving rattan strips, not even breathing hard from the exertion of cloning himself!

Breath or air (Lahu *šá* or ɔ̀-*šá*) is actually a key image in the story, serving on one level as a metaphor for è-*qhè*'s elusiveness and ubiquity. He is master of sounds, which are carried on the air. Though imprisoned in a cave, the sound of his jewsharp carries through the air and attracts the girls who will set him free.[19] In his guise as a god in the joss-stick temple (V), he is presented with food-offerings. Instead of merely inhaling their essence (ɔ̀-*šá*), as would be expected of a "real" god, he does the opposite and eats the corporeal food itself.[20] Later, by a brilliant symbolic reversal, he triumphs over the traders (XI) and the husbands (XII) by "imbibing the essence" (*šá mɛ̀ ve*) of the river-water, revealing himself to be a god after all.

è-*qhè* is in fact an embodiment of enantiodromia, the conversion of things into their opposites.[21] This strategy pervades the struggles between him and his antagonists, the hapless husbands, on whom he uses "reverse psychology" and what we might call the "boomerang technique" to devastating effect. When cornered up in a tree, è-*qhè* convinces the husbands to chop him down so he'll be smashed on the rocks, and won't fall into the water, from where he claims he could swim to safety. Actually he had planned to land on the rocks all the time. He knew that if he wanted A, all he had to do was to say he wanted not-A. He is always one reversal ahead of his outmatched "opponents." Everything the husbands try to do to him backfires or boomerangs. They try to smoke him out of the cave where he has taken refuge -- but è-*qhè* is master of the air! He simply fans the smoke back out again (VIII). They set a trap for him at the cave-mouth, but it is somebody else who gets caught in it (IX). They string him up under the bridge (XI), but he succeeds in turning the tables, changing

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[17] See Radin, pp. 4-6. The flouting of cultural norms in folklore has of course a great pedagogical value. By implicitly holding such "opposite" behavior up to ridicule the story-teller is inculcating the proper code of conduct in his listeners.

[18] From one point of view, transmutations of matter [preceding section] are a denial of boundaries between states of being.

[19] è-*qhè* also exploits the sounds of bees and crabs for his own purposes (II).

[20] See Note 46 to the Translation.

[21] This sonorous Greek root, enantio- 'opposite,' also occurs in the rhetorical term enantiosis, saying the opposite of what is really meant (a fancier name for 'irony'). For some discussion of the close relationship between antonymy and synonymy, see Matisoff 1978, pp. 82-86.

places first with the traders (XI) and finally with the husbands themselves (XII).[2]

With the women too, è-*qhè* talks out of both sides of his mouth, dazzling them by his simultaneous espousal of opposite positions. He warns them not to let their babies shit in his house -- then he makes it impossible for them to comply by creat the "shit" himself. This is the technique that Gregory Bateson has called the "dou bind,"[23] and in real life it can lead to "schismogenesis" as the victim goes crazy with guilt trying to satisfy two contradictory demands at once.[24] To put it somewh crudely, not only does è-*qhè* fuck the women's bodies, he fucks with their minds as well.

(3) è-*qhè* as sexual athlete and buffoon. Once in a while è-*qhè* gets caught -- let himself get caught, we suspect -- and he is tied to the ass of a water-buffalo (X), or strung up under a bridge (XI). There is a great esthetic pleasure for the liste ers in this further reversal -- seeing the tables turned on the table-turner himsel For the moment the Trickster is the butt of the joke, the schlemiel, the buffoon. But everyone knows this cannot go on for long. è-*qhè* is no martyr, no loser. No matter what happens he will bounce back, like the cartoon character flattened by a steamroller who pops back out to his normal shape afterwards.

è-*qhè* is clearly not a loser, but the big winner. He is the champion, in par- ticular the sex champion, overflowing with appetite and generative power. As such, he is on one level the object of wish-fulfillment fantasies by both the male and fe- male listeners (the men wishing to be just like him and the women wishing they coul go to bed with him themselves). The story is in fact full of sexual imagery, so obvious that you don't have to belong to a particular school of psychological analys to appreciate its significance.

The Hollow A-yaw Tree-oracle and the cave[26] are places of powerful refuge for è-*qhè* -- about this there seems little womb to dispute. While the hollow of the tre is female, the upright trunk itself is male.[27] When the women beat on it, the tree-

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[22]One thinks of the lines from Shakespeare:

> "This even-handed justice
> Commends the ingredients of our poisoned chalice
> To our own lips." (Macbeth I.7, lines 10-12)

On a less exalted level, the boomerang technique is a favorite device in cartoons of the Coyote-and-Roadrunner type. It seems to appeal to that childish sense of justic that lies behind defensive taunts like "Everything bad you say goes right back to you -- nyaah, nyaah!"

[23]See Bateson 1972.

[24]Everyone knows the story about the mother who gave her son two neckties for his birthday. When he appeared wearing one of them at their next meeting she said, "So what's wrong with the other one?"

[25]This is comparable to, e.g. the pleasure 17th or 18th century audiences woul feel at witnessing temporary reversals of master and servant roles in a play of Molière or an opera by Mozart.

[26]Both of these words, *a-yɔ=qō* and *há-qhɔ=qō*, contain the morpheme *qō* 'hollow object.'

[27]The *a-yɔ* tree is known for its height and straightness. See Note 22 to the Translation.

penis is stimulated to speak to them. è-*qh*è specifically uses his penis as a weapon of deceit, transforming it into a mushroom (VI). It is as if he hypnotizes the others by his phallic power, and they must suddenly break off the chase and slink home.

In symbolic potency contests with the other men, è-*qh*è always wins. The husbands try to cut down the tree he's in, an act of castration, but è-*qh*è escapes into a power-place. The husbands try to stab him to death by poking sticks inside the cave -- a phallic image if there ever was one. To this è-*qh*è replies by the clownish act of shitting on the sticks, symbolically negating and dismissing their sexuality. (His worst part is better than their best part.)

* *

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The Lahu Trickster, è-*qh*è, like his counterparts in literature, mythology, and folklore the world over, is a complex figure that can be appreciated on many different levels. It is hard to improve on the formulation of Radin (pp. 168-9):

> "The symbol which Trickster embodies is not a static one. It contains within itself the promise of differentiation, the promise of god and man. For this reason, every generation occupies itself with interpreting Trickster anew. No generation understands him fully, but no generation can do without him... And so he became and remained everything to every man -- god, animal, human being, hero, buffoon, he who was before good and evil, denier, affirmer, destroyer and creator. If we laugh at him, he grins at us. What happens to him happens to us."

The image of the Trickster is still very much with us in our own culture. The days of the Watergate "dirty tricks" and Tricky Dick Nixon are still not so far behind us. Could the manifold absurdities of our world be due to the mad caprice of some cosmic Trickster who is experimenting with us?

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CLITICS, CLAUSES, CLOSURE, AND DISCOURSE IN EASTERN POMO[1]

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Eastern Pomo, a Hokan language spoken around the western end of Clear Lake in northern California, makes use of a number of clitics in natural discourse, the precise meaning and function of which can not usually be defined by native speakers. One in particular, the hearsay evidential clitic xa, seems not only opaque in meaning and function but redundant since it always occurs with the hearsay evidential suffix -·le to mark the evidential mode.[2] The evidential mode would, of course, be distinctively marked by the hearsay evidential suffix alone, and sometimes, in fact, is. Not only does the hearsay evidential suffix appear without the hearsay clitic xa, but the hearsay clitic xa may appear repeatedly in a sentence. At first glance, then, the hearsay clitic xa seems both to have little or no communicative function and to be used variably, perhaps idiosyncratically and unpredictably by speakers. A systematic examination of its distribution in recorded natural discourse, however, reveals a number of pervasive patterns.

In non-complex sentences, the hearsay evidential particle xa consistently appears after the first constituent of the sentence, to which it is phonologically bound. This is most commonly a sentential adverb as in Example 1, but may be a substantive, i.e., a noun, pronoun, kinship term, proper name, or demonstrative, indicating

1) yu xa ku·nú·la-bù·ʔcike má·l-·le.
perfective, coyote-old man go around-they say
'Old Man Coyote had been going around' (1st sentence of text).

the agent, patient, source, etc., as underlined in Example 2. (In Example 2, the agent is expressed with the third person clitic khi,

2) káwwa xa khi ba·tá·yake-·le.
house-from, 3rd p. call-plural-they say
'They called from the house.'

which may not occur sentence initially, so it is the phrase indicating source, kawwa 'house from,' which the hearsay clitic follows.)

In complex sentences, the first constituent may be, and almost always is, a dependent clause subordinated with one of the four pairs of switch-referencing suffixes which 1) indicate that the suffixed clause is syntactically dependent, 2) distinguish semantic relations of sequentiality, prior necessity, or simultaneity between the suffixed clause and the matrix clause, and 3) indicate that either the case roles remain the same in the two clauses (co-referentiality) or there is a switch in case roles between the two clauses (hence the name switch-reference suffixes). These suffixes

are charted below together with the semantic distinctions they mark as pertaining between clauses.

	Co-Reference (Co-R)	Switch Reference (S-R)
Action of verb suffixed precedes in time that of main verb.	-iy	-qan
Action of suffixed verb (1)explains, justifies that of main verb; (2)is simultaneous with that of main verb.	-in	-sa*
Action of suffixed verb is prior to and a prerequisite for the realization of the action expressed by the main verb.	-p^{h}i	-p^{h}ila
Action of main verb continues over same period or begins with time specified by suffixed verb.	-bàya	-iday

*Only meaning (1) applies.

Examples 3 and 4 below illustrate complex sentences in which the initial constituent is a dependent clause of this type, and xa occurs following the whole clause, even when the clause itself consists of a number of constituents.

3) dá·yawal yó·-qay xa kʰi bá-y líl-uhò-·le.
young woman become-then, 3rd p. that-in away-go-they say
Co-R
'Having become a young woman, he left for over there.'

4) ʔí-qan xa kʰi báya-wa yu ká́l-pʰi·lì-·le,
be-then, 3rd p. there-from perfective home-come,plurally- they say
S-R

ke·hé·l; qa·wí·-heʔmì·p ma·ṭhé-yi·ko· ma·xár-ki· káya;
alone boy-agent his own mother-for the sake of cry-semelfactive after

ma·ká·-yiNal ká́l-uhò-·le.
own grandfather-towards home-come; singular- they say
'Then from there they went home, alone; the boy bursting into tears for his mother; they came home to their grandfather.'

Independent clauses are frequently juxtaposed to matrix clauses within a sentence in Eastern Pomo discourse.[3] However, the hearsay clitic xa only appears in an independent clause which is the matrix clause and in which the main (inflected)verb is suffixed with the hearsay evidential suffix -·le. The hearsay clitic xa does not

occur in juxtaposed or apposed independent clauses following the matrix clause, even when the main verb of these clauses is also suffixed with -•le. Thus, in Example 4, the independent clause ma•ká•yiNal kál-uhò•le 'they came home to their grandfather' is juxtaposed following the matrix clause (which is on the first line) 'Then from there they went home alone' and does not include an occurrence of the hearsay clitic xa, while in Example 5, one must recognize that the two independent clauses: báy xa ba• si•q̓á•lmanke•le 'they were screaming inside' and xa•ʔá•qan xa ku•mú co•m•le 'Next morning they were all gone (dead)' belong to two separate sentences,

5) bá-y xa ba• si•q̓á•l-ma-nke-•le, qu•már-he?
that-in that screaming-extentive pl. agents-personal perception-they say ground squirrels-specific

si•q̓á•l-ma•. xa•ʔá•-qan xa ku•mú čó•m-•le.
screaming-extentive pl. agents dawn-then,S-R all gone-they say
'They were screaming inside, the ground squirrels were screaming. Next morning, they were all gone (dead).'

since each contains an occurrence of the hearsay clitic xa. The occurrence of xa, thus, marks the matrix clause.

The hearsay clitic does not appear in dependent clauses such as the sentence-initial dependent clause dá•yawal yó•qay 'having become a young woman' in Example 3 (and neither does the hearsay evidential suffix -•le). It can, however, appear repeatedly within a matrix clause. In the examples of natural discourse examined so far, the hearsay clitic appears repeatedly in the same matrix clause only if a number of internally complex constituents (embedded clauses) are incorporated into the matrix clause, as in Examples 6 and 7 below, in which several dependent clauses (underlined) are followed by xa.

6) xa•ʔá•-qan xa kʰi yáq̓a-Mi Wíl-he? ma•ká-y xa
dawn-then,S-R 3rd p. right away abalone shell-specific look for-then, Co-R

kʰi dúyeqal•-•le
3rd p. make (some)-they say
'Next morning, first thing, he looked for that abalone shell and made some (shell pendants).'

7) bá yu ká•y-di•lè• xól-uhù-day xa kʰi
then perfective middle towards-go-then 3rd p.

q̓óy-he? kʰi bi•xé•t-ki-qan xa . . . dáq̓a•rà
neck-specific 3rd p. twist to one side-semelfactive-then, S-R old lady$_2$

xa	xá-xa•m	ba•kú•-y	xa•bé-ʔbà•-Mak	ba•kú•-y
	water-in	fall-then Co-R	rock(s)-that-with	fall-then Co-R

xa ka•lé•l ti•ší•ti•šì-kʰ-•le.
simply make a hissing noise-distributively-they say
'Then when the bear had gone across to the middle (to that hot rock) he suddenly twisted his neck to one side and (the) old lady fell in the water together with those rocks, making a hissing sound (like a hard wind).'

However, not every internally complex constituent (embedded or dependent clause) of a matrix clause is followed by an occurrence of the hearsay clitic xa, as Examples 8, 9, and 10 indicate.

8) mí•n ʔí•-day xa qa•wí•-heʔè xów-iday má•l-in,
like that was-then, S-R boy-specific outside-in go around-while Co-R

ba• ma•ʔáy-heʔ qa•wá•l-in, bá•-Mak tʰá•l-•le.
that food-specific eat/chew-while Co-R that-with play -they say

'It was like that and then after awhile the youngest boy was outside, eating the meat while playing around.'

9) bá-y kʰi mí•n kì•yá-yk, mí•n kʰi
that-in 3rd p. like that do-distributive plural like that 3rd p.

kì•yá-yk, yu xa•ʔá•-yaq-aday xa
do-distributive plural perfective dawn-future when,

kʰi ba•qó-•le
3rd p. find out (what they are singing about)-they say
'Iñ there they kept doing like that and doing like that, and finally towards morning he found out.'

10) ʔí-y xa ku•mú-la• bi•tém-aki-y
was-then Co-R everybody-agent many to cling-plural agents-then, Co-R

šu•múk-aki-y šu•múšu•mù-yk-iy xa kʰi
pull-plural agents-then Co-R pull-distributively-distributive plural continuative-then, Co-R 3rd p.

ču•wá•-heʔ šu•qúpʰ-ki-yake-•le
arm-specific$_2$ pulled off-semelfactive-plural agents-they say
'So everybody got on his hand and they all pulled and each one pulled and pulled continuously and pretty soon they pulled his arm of

In Example 8, the first internally complex constituent, mí·n ?í·day 'it was like that then,' is followed by the hearsay clitic xa, but not the subsequent two internally complex constituents: qa·wî·he?è xówiday má·lin 'the boy was outside' or ba· ma·?áyhe? qa·wá·lin 'eating the meat.'

In Example 9, the first two internally complex constituents, báy khi mi·n ki·yáyk 'in there they kept doing like that' and mí·n khi ki·yáyk 'kept doing like that' are not followed by the hearsay clitic xa. Only the third internally complex constituent xa·?á·yaqaday 'towards morning' is followed by the hearsay clitic xa.

In Example 10, the first constituent, which is a dependent clause, ?íy 'was-then', is followed by xa, but the next two dependent clauses:

(1) ku·múla· bi·ṭémakiy
everybody clung (to his hand)

(2) šu·múkakiy
they all pulled

are not; only the last dependent clause:

(3) šu·múšu·mùykiy
each one pulled and pulled continuously

is.

Examination of all such examples collected so far suggests that the variable repetition of xa is associated with a distinction in the sorts of semantic relations which pertain between the successive clauses. The repeated use of xa signals that the actions or events described by a sequence of dependent clauses are discrete, not interrelated or dependent, and happen sequentially (or are "logically" sequenced), as in Example 6:

It was dawn
he right away looked for abalone shell
he made (some shell pendants)

or Example 7:

When (the bear) got to the middle
he twisted his neck
the old lady fell in the water
making a hissing sound.

The lack of xa signals that one clause expands the preceding clause or describes an action that co-occurs with that described by the preceding clause. In Example 7, there is no xa after xáxa·m ba·kú·y 'fell in the water' because the following dependent clause xa·bé?ba·Mak ba·kú·y 'fell with those rocks' expands informationally on the preceding clause, but, in fact, describes the same event.

In Example 8, the first clause 'It was like that then' refers back to the events described in the preceding sentence--in this case, that Bear's Son was keeping the good game for himself and his wife and children, and giving his mother, Bear, the least desirable game--and the occurrence of xa following this first clause signals a disjunction, a switch to a new discrete event that is sequentially later. The subsequent clauses, however, all describe co-occurring, overlapping events:

The boy was going around outside
while the boy was eating food
while the boy was playing

that is, the boy was simultaneously outside, eating, and playing, and the absence of xa after either of the two dependent clauses marks this.

In Example 9, the first two clauses refer to the same event (that the ground squirrels are continuously singing a song (in fact, insulting to Coyote) while dancing), while the third dependent clause, which is followed by xa, describes the nearness of morning, at which point Coyote finally understands what the ground squirrels are singing.

In Example 10, the first dependent clause refers back to the preceding sentence and is followed by xa marking the discreteness of the preceding sentence's activities from this one's. The next clauses:

ku•múla• bi•ṭ́émakiy
everybody clung (to his hand)

šu•múkakiy
they all pulled

šu•múšu•mùyḳiy
each one pulled and pulled continuously

all describe co-occurring events, and expand on the description of that event: they got on/clung to the hand and pulled while clinging, each one pulling continuously while clinging. xa follows the fourth and last dependent clause and signals the discreteness and temporal laterness of the events described by the matrix verb. Compare Example 8, where the events described by the matrix verb co-occur with those described by the dependent verbs: the boy is simultaneously outside, eating, and playing, and no xa intervenes between the final dependent clause and the remainder of the matrix clause.

Since the hearsay clitic occurs after a constituent of the matrix clause which may be, and frequently is, a dependent clause itself, the presence of the hearsay clitic simultaneously identifies the matrix clause, the initial constituent of a matrix clause, and the closure of certain dependent clauses. Recognition of the sensitivity of the hearsay

clitic to types of clauses, the semantic relations that pertain between clauses as well as types of internally complex constituents of matrix clauses provides an explicit, non-impressionistic device for identifying both sentence boundaries and the internal organization of complex sentences in Eastern Pomo.

Understanding this aspect of the clitic also makes more comprehensible the Eastern Pomo tendency to pause after xa, if there is to be a mid-sentence pause.

Thus, the redundancy of the hearsay evidential clitic on closer examination proves to be only apparent. In fact, the hearsay clitic is a discourse tracking device that signals semantic sequencing relations between clauses, identifies the matrix clause and helps to mark off subordinate structure, while constantly reminding the listener that what is being described is known not from personal experience or observation, but from hearsay.

Postscript on the Stylistic Function of xa

Dell Hymes (1975, 1976, 1977) has suggested that oral literary discourse could be more effectively reduced to writing if the similarity of much of native North American oral literature to measured verse were emphasized in the presentational format, by breaking sentences into lines on the basis of recurrent patterning within them--patterning frequently involving particles or clitics.

Hymes has focused so far on organizing the English translation of native American texts as measured verse based on the structuring present in the native American originals. During fieldwork with an NEH Summer Stipend last summer to explore what sorts of presentational formats Eastern Pomo might prefer for their oral literature, I showed the most gifted myth narrator alive some of the possibilities which had been suggested by Tedlock (1972) for Zuni. The odd punctuation and spacing conventions employed by Tedlock neither fazed him nor impressed him. He read it through and then commented: "I wonder why they would want to leave the Indian out." Further discussion revealed that for him the text primarily existed in Eastern Pomo. An English translation was just that--a translation--and he was mystified as to why anyone would want to present a native American myth solely in English. I have been experimenting with presentational formats for Eastern Pomo, breaking Eastern Pomo sentences into lines on the basis of recurrent patterning within them, and it seems to work out well[4] to use an occurrence of xa as one marker of the end of a line.

The first three sentences of an already published Eastern Pomo myth "Bear Kills Her Own Daughter-in-Law, Deer" (McLendon, 1977) are given here in a presentational format which organizes sentences into lines based on syntactic and intonational structure used by the narrator in his oral performance of that sentence. For myths this involves breaking sentences up into lines which either 1)end with an occurrence of xa or the evidential suffix -'le, or 2) are marked off in the actual performance by intonational features--primarily pauses. Such a presentational format would be more expensive to

print, taking as it does more room (although in these days of camera-ready copy, that is probably not such a problem). It does, I think, give some feeling for the rhythm and pacing in the oral performance, and as Hymes (personal communication) has pointed out, "It slows the eye and hence feeds appreciation of the words."[5]

(1) yu xa . . . .
perfective they say

na·pʰó·le,
dwelt plurally-they say

bu·ráqal-dàq̓a·ràqay
bear-old lady$_1$-and

qa·wíkiykàya, má·yawala xóčh;
have children-after young ladies$_2$ two

šé·laqay k̓áli.
young man$_3$-and one

(2) bá· mí·n ʔí·day xa
then like was-then they say
that switch ref.

kʰi bi·šé-dàyawal dá·kʰ·le;
he$_3$ deer-young lady$_4$ married-they say

bu·ráqal qa·wé·leq̓
bear$_1$('s) son$_3$

(3) bá· mí·n na·pʰókʰkìliday xa
then like dwelt plurally habitually- they say
that then switch ref.

mí·p̓
he$_3$

ma·ʔáy ba·bíl-du·lè·le;
food gather (i.e., run trapline)
durative-constantly-they say

č̓i·yá kál-kʰi·dìkʰkìl·le.
bird(s) home-carried-punctual
habitually-they say

(1) Already, they say
they were living there, they say
And Bear Old Lady
then had children, two young ladies,
and one young man.

(2) It was like that, they say
[i.e., time passed]
then he married Deer Young Lady, they say
Bear's son did.

(3) They all continued living there like that, they say
he
trapping all the time, they say
bringing home birds, they say.

FOOTNOTES

1 This is a revised version of a paper read at the 1978 annual meetings of the American Anthropological Association in Los Angeles. I am grateful to the audience there and Ives Goddard, William Gage, Michael Silverstein and Paul Friedrich for stimulating discussion and comments---not all of which are reflected in the present form of the paper. Research on Eastern Pomo has been carried out since 1959 with the much appreciated support of the Survey of California and Other Languages, NIMH Grant RO1 MH22887-01, a Guggenheim Fellowship in 1975-76, and an NEH Summer Stipend in 1978.

2 The evidential mode is consistently used throughout most performances of one genre of Eastern Pomo discourse, ma·rú· 'myth', although it is used whenever appropriate in all types of discourse. Examples cited in this paper have all been drawn from performances of ma·rú· recorded between 1959 and 1978.

3 It is therefore useful to maintain a distinction between clauses and sentences, since sentences can, and often do, include several independent clauses as well as dependent clauses. Eastern Pomo is a strict verb last language in terms of clause structure, but the main inflected verb of the matrix clause is often not last within a sentence (as the first and second sentence of the text fragment given at the end of this paper illustrate).

4 I am grateful to Dell Hymes for pointing out this line marking function of xa when he re-drafted the English version of this myth in terms of lines of measured verse, in response to my complaint that I did not see any verse inherent in the material.

5 During the oral presentation of this paper it became clear that such a format has a practical utility for linguists as well. The taped performance of the first three sentences of myth presented below was played to illustrate the presentational format's ef-

fects. The audience of largely professional linguists seemed agreed that the tape could be much more easily followed, and the language understood, when the written text was organized in this way. It would seem to be a useful format for preserving transcripts of taperecorded oral literature in a way that makes them maximally accessible to future scholars, without requiring great prior knowledge of the language.

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A Study of Sharing Time With First Grade Students: Discourse Narratives in the Classroom

"Sometimes the world doesn't need
to know about everything, right?"
-- 1st grade teacher at sharing time --

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For children, entry into the adult conversational world requires a lengthy apprenticeship which is developed partially through the ways in which adults interpret and respond to messages from children (Ryan, 1974) and partially by direct teaching of narrative accounting skills. Such skills begin to be taught formally when the child enters school in speech events such as "show and tell" sessions, where an object is used as a focus for a single child to present an account to the whole class.

The child's problem in these sessions (and subsequent similar occasions) is firstly to select from the multiplicity of things to tell about, as the quotation above suggests. Secondly, the child must present information in a form which is interpretable to others who do not share the child's background knowledge and assumptions and so develop a sense of how to present this selected information to an audience. It is these two problems of selection and discourse form which we will explore in this paper, as they occur in sessions of show and tell, which is called "sharing", in a particular first grade classroom.

Models of narratives

The literature on narratives does not usually treat narratives as a part of everyday conversational exchange but as speech events somewhat separate from other kinds of talk. The exception is the model developed recently by Becker & Polanyi which simplifies and builds upon the Labov-Waletsky model of narrative structures. Labov suggests that there are six structural components to a story: 1) abstract, 2) orientation, 3) complicating action, 4) evaluation, 5) resolution, and 6) coda. These syntactically and semantically organized elements represent the necessary temporal sequence of any story. The elements must occur in their designated order with the exception of evaluative devices which can occur in any of the segments. Most other models of narratives similarly take the form of a structured organization of elements which account for temporal sequencing but vary in the degree and extent to which the structures compose necessary and definable parts of the narrative. We can, in fact, distinguish between those approaches that emphasize hierarchical structure and those that focus on the linear flow of elements.

Story grammars make use of the structural elements of a story but see these as specifically hierarchically arranged, where the elements are part of a necessary entailment of levels and story

parts. Chafe (1979), on the other hand, suggests that stories are more linearly organized, focusing not on elemental organization but on the real-time production of stories where an element grows out of another and gets related to the story line in different ways in retelling. This flow model approach allows for fuzziness in the presence or absence of any one structural element and in the boundaries between them.

Oral tradition versus literate tradition differences

Both these approaches can be seen as having something of a literate bias, in that they assume that narratives whether orally presented or written will follow the same rules of form. Moreover it is assumed that oral narratives can be analyzed from a written transcript showing at best only hesitation phenomena and the rudiments of intonation afforded by punctuation. Folklorists, however, who have worked more specifically with the oral presentation of narratives, albeit usually within a ritual storytelling context, have found that oral narratives are built around formulas of content, syntactic form and meter which allow for the rapid production of sequences necessary in oral composition (Lord, 1960). This work has shown the difficulty of translating into writing an oral performance, which depends upon the paralinguistic presentation (stress, intonation, and pitch) to carry essential information (MacClendon, 1977). These findings have influenced our study of the materials from the children's sharing time.

Sharing -- some ethnographic background

Sharing takes place every morning in this particular first grade classroom, within the context of a larger episode which we refer to as "rugtime", a time when the children assemble on the rug for various teacher-structured activities such as taking roll, doing the calendar, etc. During this time the children are expected to sit quietly on the rug, engaged in what Cook-Gumperz (1978) has called "attentive listening."

Sharing is a clearly bounded speech event, opened formulaically by the teacher (or student teacher), saying "OK, who has something important (interesting, exciting, special, etc.) to share?" or simply offering the floor to the person whom the teacher has designated the "special person" (a different child each day).

To get a turn, children raise their hands and wait to be nominated by the teacher, but while another child is sharing, anyone can call out short, topically relevant comments from the rug.

In anticipation of sharing, some of the children bring in objects from home to talk about, ranging from books or toys to a new article of clothing worn by the child. But the children are not required to bring in things to share (as is the case in some classrooms with organized sessions of "show and tell"), and many children simply share about a recent experience.

The only explicit rules for sharing are: 1) no sharing about TV or movies because it takes too long, and 2) no sharing about private family matters, such as quarrels, etc. Very early on, children were urged to tell about events that had already taken place.

When a child is called on, he or she goes to the front of the rug and stands next to the teacher who is seated on a chair. The teacher, whom we will call Mrs. Jones, is actively involved in each turn, holding her arm around each child as he or she talks, holding the floor for the child (e.g., "Excuse me, it's Merle's turn.") and freely interjecting questions or reactions to the child or group at large.

Sharing as a unique speech event

That the children see sharing-time as a completely unique speech event is evidenced by their use of a highly marked intonation contour. This "sharing intonation" is an integral feature of sharing discourse and occurs in no other classroom speech activity (other than role-playing sharing as a part of "playing school"). In this particular classroom, which is half white and half Black children, we have identified two contrasting, but very comparable intonation patterns, both clearly identifying the talk as sharing-talk. The contour used primarily by the white children is a gradually rising contour, stretching over the last word or two of a tone group. The accompanying utterance is often a syntactically complete, independent clause where an adult speaker would often use falling intonation. This particular curve seems to indicate "more to come" and is almost always followed by a significant pause. This perhaps serves to ward off comments from peers or teacher, allowing the child some extra time for planning. For example,

Ahab: I got this Chinese Checker's game ...
for my birthday ... and .....

The second intonation contour is used exclusively by the Black children and very pronouncedly by some of the Black girls. It occurs in exactly the same environments (independent clauses), and can be characterized as a lilting high rise-mid fall contour, also generally followed by a pause. The contours are used primarily at the beginning of a turn (as the child introduces the topic), where perhaps more planning is required, or the talk most ritualized as sharing talk. For some children, especially for those who use the second contour, this sharing prosody involves rather sharp pitch modulations, giving the talk an almost sing-song quality. For example,

Sherry: October my mother gonna have her baby, ...
and I want it to be a girl ...

There is also evidence of the use of a lexical formula. In telling about past events, children very commonly begin by saying:

Yesterday ... or Yesterday ...

depending on which intonation contour they generally use. That this is formulaic (rather than simply a function of the fact that children want to talk about the immediate past) can be seen in the cases where children correct a false start. For example,

Bob: Yesterday ... I mean ... I mean .. when I went to Arkansas [which happened a year earlier].

Deena: Yesterday ... I mean it was last night ...

It turns out that using such a formula serves several discourse purposes. First, it serves to ground the talk temporally, the importance of which is repeatedly emphasized in Mrs. Jones' comments. Secondly, it establishes a frame that helps the child in structuring, and the listeners in interpreting, the discourse as event or person-oriented "accounting".

Sharing -- narratives or not?

There is no clear cut answer to the question of whether sharing is a narrative because sharing discourse evidences certain features that have been considered basic to narrative discourse while systematically lacking others. In the cases where the child does event-oriented accounting (as opposed to object-focused, "show and tell" type discourse), the order of reported events generally conforms to the order (presumably) in which the events occurred. Inasmuch as this is a necessary and overriding characteristic of narrative discourse, we feel inclined to treat this talk as a particular variant of narrative discourse. For example,

1 Martin: Yesterday/
2 ... 'Burt/.. and 'I was at 'Burt's house/
3 and um/.. this dog was 'running across the street/
4 ... and uh/
5 T: What did?
6 Burt: This dog
7 Martin: was 'running across the street/
8 and a car runned him over/
9 and/.. and he/and he fell/.. down
10 and he was screeching/

11 Martin: 'then he dˇied/
12 Lˌand 'then his mom /Lput him on a ˌboard/
13 and 'then the 'bus ˌcame/
14 and he [and he got
15 Burt: [called, called for help//
16 Martin: called for help//
17 T: I'm sorry. Life isn't all fun and pleasantry is it?
18 Martin: It was a 'lost dˆog//
19 T: That's a very [sad --
20 Burt: [f 'It was a "lost dˆog//
21 Martin: So the gˋuy who ˋowned him/doesn't kˆnow/[he was dˆead//
22 T: [pp Really? Right,
23 that's very sad. That makes me feel very bad. But
24 life's like that. We can't pretend it isn't can we?
25 C's: No.
26 T: 'cause things like that do happen. Sorry.

Martin's discourse, produced collaboratively with Mrs. Jones and Burt, shows a great deal of rhythmic synchronization. The discourse can be analyzed as containing an orientation section (lines 1 and 2), complicating action (lines 3-11), a resolution (lines 12-16), and a coda (lines 18, 20, and 21), which also serve as Martin's evaluation of the discourse. Mrs. Jones provides her own evaluative comments (lines 17, 19, 22-24, and 26), which differ in form from Martin's. Martin's comment "It was a lost dog." (line 18) adds additional information about the dog, which ties lexically back to line 3, where Martin originally mentions "this dog". His comment, then, serves several purposes. It adds new and important information about the dog, brings the narrative to a close (also indicated by pronounced falling intonation), and evaluates the discourse implicitly, as if to say, "It's especially sad because it was a lost dog." Mrs. Jones does not overtly respond to this comment, perhaps because she interprets it merely as additional detail rather than as Martin's evaluation and point in telling the story. The comment is then repeated, more loudly and with emphasis by Burt, and then further elaborated on by Martin (line 21), who again evaluates by means of providing additional information. Mrs. Jones then makes explicit the "point" of Martin's story (lines 22-24). She accomplishes this by referring to the event as a whole, standing outside the actual account, whereas Martin's and Burt's evaluative comments are an integral part of the account, and hence remain indirect.

Labov has noted that a common trait of middle class narrators is that they often use explicit evaluation. That is, they interrupt their narrative midstream, turn to their listener and explicitly state their "point". Mrs. Jones, who uses this strategy in evaluating the children's talk, often fails to see the implicit evaluative force of the children's remarks and even, on occasion, misses their point entirely. In providing explicit evaluative comments (as with Martin) or prodding the children to produce their own (as will be seen later with Walter), she may be providing the children necessary training in making their talk more explicit and hence less dependent on context, shared assumptions, and background knowledge for correct interpretation.

While clearly a narrative-account in structure, this kind of discourse deviates systematically from narratives generated in a normal conversational setting, in the following ways:

1) The floor is held for the child by the teacher, as a rule of sharing etiquette. For example,

> Deena: Today, when I go home um ... and um ... and I see my baby sister ...
>
> Student Teacher: Excuse me. Walter, it's Deena's turn right now. Could you please listen.
>
> Deena: When I go home tod .. today and see my baby sister ...

Once a child has the floor, he or she is allowed to finish (in general), so that "boring the audience" is not an overriding concern of the speaker. It does happen on occasion that when a child is considered too long winded or unfocused, a child on the rug may comment on this (e.g., Walter: How many of them rocks is she going to show us?) or more commonly, Mrs. Jones intervenes and quickly brings the turn to an end.

2) The child is not expected to tie his or her topic to the previous discourse. The relevance constraint requires only that the discourse topic be "appropriate" to sharing, that is, some kind of personal account or description of an object. Thus the constraints on demonstrating relevance and topic tying are far looser than is normally the case in conversationally embedded narratives.

3) The child's talk does not have to stand by itself as a fully formed narrative. Rather, as our first example shows, sharing turns are highly collaborative. Mrs. Jones interjects questions, comments, and reactions, often providing slots for orienting or evaluating the discourse, if this information is not explicitly provided by the child spontaneously. For example,

1 Walter: I ˈwent to the --/ˆbeach/

2 ...⌜and I found/⌜ˈthis little ˆthing /⌜in the ˆwater//

3 T: For goodness sake. What is it?

4 Walter: Huh?

5 Doral: [A block,
6 C's: [A block, a block
7 T: A block. W[hen did you go to the beach?
8 Carl: [I--
9 Walter: [I went to--
10 Carl: [I have tons of those blocks[--
11 Walter: [I 'went to--/the 'Santa Cruz beach//
12 T: You did? When? O-Over the weekend?
13 Walter: [Nods]
14 T: Oh wow. I bet it's nice down there. Wasn't it?
15 Walter: Yeah. (breathy)
16 T: Was the water cold?
17 Walter: \Yeah.
18 T: It's always cold down there, thank you.

In this example, Walter holds up a weather-beaten wooden block and says he found it during a trip to the beach. Mrs. Jones then asks a series of questions that structure his presentation for him so that it contains the following pieces of information (and no more):

1. the name of the object found in the water,
2. the name of the beach,
3. when his visit took place,
4. that it was nice there, and
5. that the water was cold.

Walter here begins his account with an orientation that could easily lead into a narrative. The teacher's contributions, however, rather than helping him develop this narrative, serve to turn his performance into a restricted account that contains explicit orientation and evaluation but no complicating action whatsoever. In this respect, it is closer to object-focused, "show and tell" type discourse than to event-oriented or narrative accounting. Furthermore, the teacher's responses seem to throw Walter off balance so that the descriptive information which is part of this limited account ends up being supplied by the teacher. The child does not get the kind of practice that the previous child did.

The teacher's model -- a literate bias

Both these examples demonstrate that the child's discourse cannot be analyzed in isolation. The teacher plays a crucial role in structuring the child's discourse and providing an example of the kind and form of discourse that she considers appropriate. In analyzing Mrs. Jones' comments in response to the children, it becomes evident that she has an underlying model of what constitutes "good" sharing, and that this model has an implicit literate bias.

However, this teacher's model has little direct correspondence with traditional notions of narrative structure, but rather, takes the form of a simple statement and resolution centering on a single topic. Importance is attached, not to content per se, nor to the sequentially ordered structure of an account, but rather, as in simple descriptive prose, to clarity of topic statement and explication. What the teacher seems to be looking for is a decontextualized approach to any topic, whereby:

1) objects are to be named and described, even when in plain sight;
2) talk is to be explicitly grounded temporally and physically;
3) discourse is to be tightly structured so as to highlight one particular topic (which then makes it sound "important");
4) thematic ties need to be lexicalized if topic shifts are to be seen as motivated and relevant.

The teacher's notion of sharing is thus far removed from everyday accounts which depend upon their situated character for much of the detail. In the teacher's model this kind of detail must be fully lexicalized and explicated. The teacher's expectations thus seem to be shaped by adult notions of literate description. It is probable that such a literate bias puts many of the children at a disadvantage, particularly the Black children, who may be, relatively speaking, less familiar with "prose-like" oral style. Moreover, many of these children have a way of doing narrative accounts that does not include the strict temporal and causal chain ordering constraints of literate narrative.

Children's discourse style

We now turn to a more detailed analysis of the discourse style used by the children in doing sharing, in particular as it conforms to, or violates, the teacher's underlying model of what counts as appropriate and adequate sharing.

Just as there is an identifiable difference in sharing intonation used by the Black and white children, we have found corresponding differences in discourse style. The discourse of the white children tends to be tightly organized, centering on a single topic or series of closely related topics, a discourse style we have called "topic-centered". For example,

1 Jenny: Yesterday/
2 my mom/
3 ... and/ .. my whole family/
4 went with me/... um/... to a party/
5 and/... it was a Thanksgiving party/
6 ...[where ... and ... we .. um ..
7 Student Teacher: [mm
8 Jenny: my mom/

9 Jenny: ... we had to/um .. get/.. dress up as Pilgrims/

10 ... and my mom made me this hat/for a Pilgrim//

11 Student Teacher: Oh great.

12 T: Try it on model it for us. Let's see how

13 you'd look as a [Pilgrim.

14 Jenny: [I don't want to//

In contrast to a topic-centered style, the Black children are far more likely to use a "topic chaining" style; that is, loosely structured talk which moves fluidly from topic to topic. This style resembles that found by Scarborough in Black children's stories (personal communication). For example,

1 Sherry: Yesterday/

2 ... I went/... yesterday/

3 ... yesterday when I came home from school

4 my grandmother was over there/.. and my auntie/

5 ...[and/... my grandmother/

6 ... we goin'/to stay down/at ... her house

7 when my mother have her baby//

8 Student Teacher: [Oh.

9 Sherry: [And um my other cousin/... and my/um/... uncle/

10 he gon' to pick up his/... son/

11 a .. and/[we goin' trick 'r treatin'//

12 Student Teacher: Oh that sounds like fun. [OK, thank you.

13 Celena: [Uh, we gon' go

14 trick 'r treatin' [too.

15 Student Teacher: [OK Peter.

In this example, we see shifts both in topic and temporal orientation in lines 1-7, moving from the past (who was at Sherry's house when she got home from school) to the future (associating her grandmother with the time in the near future when she would be staying at her grandmother's house). At the point of the topic change, there is a 1.5 second pause (after the word "auntie") and a high, level pitch on "and", features which for some children regularly accompany a topic shift. While there are no explicit

lexical or syntactic markers to indicate a topic shift or to relate the two topics, the repetition of "my grandmother" is intonationally marked, indicating the semantic association across topics. However, a literate adult, telling a similar story, might indicate the shift to the new but related topic lexically, by saying, "And speaking of my grandmother, ..." The further shift in perspective that occurs in line 9 (the shift in focus away from her grandmother to other relatives) is not marked overtly in any way. The juxtaposition of the two pieces of information (staying at her grandmother's and going trick or treating) and the use of the same tense indicator ("goin' to") forces one to infer that the two activities are related temporally. This relationship might be marked lexically by an adult as "And while we're at my grandmother's, my uncle is ..."

We now look at another sharing turn where trouble arises, due to the mismatch between the child's style and the teacher's implicit model. In this case, Deena moves fluidly from topic to topic without making explicit the thematic ties connecting (or separating) the various topics. Deena is known for producing this kind of loosely structured discourse and some of her longer turns have jokingly been referred to as "filibusters" by Mrs. Jones.

1 Deena: Um ... I ˈwent to the bēach/.. ⌜Sûnday/
2 ānd/ˈto MacDônalds/
3 and ˌto the pârk/
4 ... and/.. I ˈgot this for my/.. bîrthday//
5 ... My ˈmother bought it fôr me/
6 .. and um/... I hād/.. um/.. two ˈdollars ˈfor my ˈbirthday
acc.
7 and I ˈput it ˈin hére/
8 .. and I ˈwent to ˈwhere my frîe-nd/
9 .. ˌnamed Gî Gi/
10 ... ˈI went ˌover to my ˌgrandmother's ˈhouse with her/
acc.
11 ... and um/..... she was on my bāck/
12 and ˈI/.. and ˈwe was ˌwalkin' around/
13 ... by my house/
14 .. and um/... ˈshe was hea--vy/
15 She ⌈was in the ˈsixth or ˈseventh grade//
16 T: ⌊OK I'm going to stop you. I want you to talk
17 about things that are really really very important.
18 That's important to you but tell us things that are
19 sort of different. Can you do that? And tell us what

20 T: beach you went to over the weekend.

21 Deena: I went to um ... um .....

22 T: Alameda Beach?

23 Deena: Yeah.

24 T: That's [nice there huh?

25 Deena: [I went there two times

26 T: That's very nice. I like it there. Thank you Deena.

Deena here begins with explicit temporal and physical grounding, by telling without much specificity what she did on Sunday. She then shifts gears radically to object-focused discourse about a small purse she had brought from home, embedding it in person-oriented talk that shifts focus away from her birthday present to an activity related only temporally (if at all) to her birthday (playing with a girlfriend). She begins to tell about her activities with her friend but is stopped just before she gets to what on the basis of her prosody appears to be the "point" of her discourse, the fact that she was able to carry her friend, fully twice her age, around on her back (and Deena is a tiny six year-old). The lack of any lexicalized markers other than "and" between topics makes the discourse difficult to follow thematically for those who, like the teacher, expect the narrative to focus on a single topic. It gives the impression of having no beginning, middle, or end, and hence no point at all. Perhaps for this reason, Mrs. Jones (in line 16) interrupts Deena and explains what she considers to be appropriate topics for sharing: events that are "really, really very important ... and sort of different", that is, topics that would be of general interest.

In spite of Mrs. Jones' insistence on "importance", all the children have some degree of difficulty understanding what is meant by important. For example, early on in the year a child raised his hand to share and when Mrs. Jones asked, "Is this very, very important because we don't have much time this morning," the child replied, "I don't know if it is or not but I want to say it." It must be noted, however, that the white children have far less difficulty with this notion than the Black children.

The Black children in the class (especially some of the girls) tend to use a topic-chaining discourse strategy, stringing together with "and" a long series of loosely structured topics. The result is that they may seem to "ramble on" about a series of commonplace occurrences. However, if we take a closer look at many of these turns, we see that it is not the topics of discourse that are inherently trivial or uninteresting, but rather that the rhetorical style used makes it seem as if there is no topic whatsoever. Taken by themselves, each separate topic discussed by Deena above would have counted as highly appropriate: activities on a Sunday, a birthday present, and acrobatics with a friend.

The problem with Deena's presentation is more one of discourse form than of content. In asking the children to tell about "important things", the teacher is tacitly assuming that the children understand how to do the actual telling in a literate style--that is, telling about one thing only and in such a way that it sounds important. Simply reminding the children to talk about important events does not provide them with the criteria for either topic selection or discourse form centered around a single topic.

For the white children in this class, who already have more elements of the schema for topic-centered style, the teacher is better able to collaborate with them and so build on their narrative intentions. With the Black children, on the other hand, the teacher's questions lack rhythmic synchrony and therefore must often be seen by the children as interruptions. Most importantly, the teacher's comments do not build on what the child already knows and so provide the necessary guidance and synchronized collaboration that would lead to the acquisition of an expanded, lexicalized, topic-centered style.

It is important to note that, in this classroom, a child's general discourse style does not reflect or predict reading ability. Among the children in this class, Deena, who has consistent problems doing appropriate sharing, is one of the very best readers. Furthermore, while Deena's reading, math, and spelling skills have all shown marked improvement over the course of the school year, her sharing discourse style has remained unchanged. And so, while sharing can be seen as an oral preparation for literacy, this has, as yet, had no influence on her progress in reading. However, Deena's topic-chaining oral discourse style may, in time, greatly interfere with her ability to produce literate-sounding descriptive prose. Just what effect Deena's non-prose-like oral style will have on her participation in school activities such as sharing or creative writing, and correspondingly on the teacher's evaluation of her performance in class, remains to be seen from what she does in the second and third grade, where discourse style and ability to write cohesive prose assume increasing importance.

Footnote

[1]Prosodic and paralinguistic cues are transcribed using a simplified form of a system developed by John Gumperz and his collaborators, based on Trim's work. In this system, speech sequences are first divided into tone groups or intonational phrases. A phrase can be marked by a minor, non final boundary "/" or a major or final boundary "//". Within a tone group we indicate: 1) location of the nuclei: (i.e., the syllable or syllables marked by change in pitch) "\" low fall, "\`" high fall, "/" low rise, "/´" high rise; 2) other accented syllables in the tone group, "´" high, "`" low; 3) paralinguistic features

such as a) shift to high pitch register "⌜" or shift to low pitch register "⌞" (both applying to the entire tone group), b) pausing ".." indicating a break in timing and "..." indicating a measurable pause, c) speech rate: "acc." indicating accelerating tempo and "ret." indicating slowing down, d) loudness over an entire tone group is indicated by "p" (soft) or "f" (loud). Doubling of one of the above symbols indicates extra emphasis.

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