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PROCEEDINGS OF THE SIXTEENTH ANNUAL MEETING OF THE BERKELEY LINGUISTICS SOCIETY

February 16-19, 1990

SPECIAL SESSION
ON
GENERAL TOPICS
IN
AMERICAN INDIAN
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Berkeley Linguistics Society Berkeley, California, USA



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edited by

David J. Costa

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PREFACE

We hereby present the proceedings of the first annual BLS Special Session on the linguistics of a particular area, this first volume being on General Topics in American Indian Linguistics. We hope to continue this session alongside the BLS General and Parasessions, each year alternating between topics of Indianist, Africanist, and Southeast Asianist interest.

The Special Session was a definite success, and as editor I wish to thank the 1990 BLS Officers for doing most of the hard work. Enjoy.

David J. Costa

SPECIAL SESSION

ON

GENERAL TOPICS

IN

AMERICAN INDIAN

LINGUISTICS



Ergativity and Accusativity in Nisgha Syntax¹ Robert S. Belvin University of Southern California

0. Introduction

In this paper I propose an analysis of the Tsimshian language Nisgha using a variant of the Government and Binding model of grammar (henceforth GB). The basic model is that found in Chomsky (1981), but modifications of that model are drawn from several sources, most importantly Koopman and Sportiche (1988) and Kuroda (1985). I will assume some familiarity with the most basic tenets of the GB framework, but nothing more. Nisgha is spoken in the Nass River area of western British Columbia. It is closely related to Gitksan, and more distantly to Coast Tsimshian and Southern Tsimshian.²

The primary purpose of this paper is to address the question of whether Nisgha is syntactically ergative under a very specific definition of that concept. A second important question which is considered is whether Nisgha should be identified as non-configurational. A larger question which is really the backdrop for this discussion is whether the concepts of the GB framework can provide much explanatory power in the analysis of languages which are typologically very different from those they were formulated to explain. It seems clear that the basic premises of GB have an impressive explanatory value when they are applied, for example, to many Indo-European languages; but can the same premises be applied to so-called exotic languages in a natural way? And if the concepts must be modified, can they be modified in pricipled ways, or must we introduce an arsenal of ad-hoc devices?

The organization of this article is as follows. I first outline some very basic features of Nisgha syntax in pretheoretical terms. In section two I introduce the so-called Ergativity Hypothesis of Marantz (1984), briefly discussing certain features of his model which will be directly relevant for the analysis I develop. In spite of the fact that there are syntactically ergative patterns in the language, I propose a syntactically accusative analysis of Nisgha's deep-structure, employing the theoretical tools of the GB framework to make the case. In section five I consider data which argues against a non-configurational account of Nisgha.

1. Some Basics of Nisgha Syntax

The reader should note that, although I am presenting the following sketch of the syntax as the syntax of NISGHA, most of the features discussed are also found in the other Tsimshian languages.

Word order in Tsimshian is essentially VSO. In independent sentences having no overt tense/mood/aspect marker (henceforth TMA), the order is almost invariant, with one or two exceptions which are of no great consequence to the analysis I propose. In DEPENDENT-ORDER sentences, which include both true dependent sentences and also simple sentences containing a TMA or negative element, we typically find the order TMA-VSO, although if the Subject is pronominal we usually find the order TMA-SVO (as in (6) below),

although the Subject in this case will be a pronominal clitic. The organization of Nisgha syntax is essentially ergative, thus, the labels Agent, Patient and Subject will be used in the sense familiar from studies in ergativity when there is a need to uniquely identify an argument. Examples of the basic sentence types are given below in phonemic transciption (@ = schwa, ? = glottal stop):

Intransitive

- 1 ta:wi-t Mary 'Mary left.'
 leave DM Subject
- 2 ta:wdł ni-y 'I left' leave pron-1s
- 3 yuk^w-1 pax-(t)-s Mary 'Mary is running'
 prog-NC run.s-3,-DC Subject;

Transitive

- 5 yukW-t 10mo:m-(t)-s John-t Mary
 prog 3; help-3;-DC Agent;-DM Patient;
 'John is helping Mary'
- 6 yuk^w m@-lemo:m-y 'You are helping me' prog 2s-help-1s

Possessive

7 nox-ý mother-1s 'My mother'

The morpheme-by-morpheme glosses mean the following: DM = determinate marker, prog = progressive aspect, TR = transitive, 3x = 3rd person agreement marker, DC = determinate case; 1s, 2s, etc. = 1st person singular, 2nd sing, etc.. The DC and DM morphemes are part of a class of morphemes which are traditionally called 'connectives'. They are phonological suffixes, but are semantically and grammatically connected with the following word or phrase.

Notice that, although I have called the order of elements in dependent sentences TMA-VSO, there is a person-marking morpheme between the aspect marker and the verb in transitive sentences. The precise status of this element is not obvious. I propose that when it is third person it is agreement, but when it is first or second person it is actually a pronominal argument. Where an agreement morpheme appears in parentheses, this indicates that it is phonetically null in speech, due to a deletion rule which is strictly phonologically conditioned. This is an important

observation and is due to Tarpent (1988). Tarpent interprets what I am calling agreement as the actual argument, analyzing the lexical NP's as adjuncts. Although I reject this interpretation, the importance of her actual observation should become apparent.

In addition to this 3rd person agreement morpheme, however, there is another type of agreement which which holds between verbs and nominals. This agreement indicates only number, (i.e. singular or plural) and obtains only between the verb and absolutive arguments. The morphology which indicates agreement is either reduplicative or suppletive, and for some words there is no difference in singular and plural forms. Examples follow (ND = Non-determinate):

Intransitive

- 9 \pm a: k'is-k'atsk W -(t)- \pm p@-po:t 'The boats have arrived' ASP RED-arrive-3 $_{i}$ -ND RED-boat $_{i}$

For an account of how this type of agreement can be explained within an Accusative Deep-structure analysis of Nisgha see Walsh (1989).

2. The Problem

As just indicated, the Tsimshian languages are basically VSO. In this respect the Tsimshian languages present the usual problem which other VSO languages present for a GB theory of syntax. That is, the verb is separated from the Object by the Subject, and yet the verb needs to be a sister of the Object at D-structure in order to assign the Object the Objective (Patient) theta-role, assuming there is a configurational D-structure.

The usual solution to this problem in the GB literature is verb-fronting. That is, VSO word order is derived from an underlying SVO or SOV order. The verb moves to sentence-initial position for reasons of Case or theta-role assignment and/or to provide bound inflectional morphemes with a verbal host, thus yielding the surface VSO order (e.g. Koopman (1984), Sproat (1985), Travis (1984), Mohammad (1989) and many others).

The Tsimshian languages present an additional puzzle for standard GB theory though, in that they all display a variety of syntactic ergative phenomena. In fact the Nisgha language has often been cited as a paradigm case of syntactic ergativity. Tarpent, e.g. describes the language as having a 'pure' ergative syntax, while Livingston (1989) states that the language 'exhibits a wholly ergative-absolutive syntax'. Thus, ergative patterns can be seen in the syntax of causative constructions, conjunction reduction, number agreement between the verb and one of its arguments, and even imperative sentences. Tarpent (1982) catalogues a variety of Nisgha constructions (including, but not limited to the above) exhibiting ergative patterns.

The combination of VSO word order and syntactic ergativity led Rigsby (1975) to propose that the underlying structure for Nisgha and Gitksan had a verb phrase which consisted not in the usual verb plus Patient argument, but rather in the verb plus the Agent argument (p.347). That this type of verb phrase should exist as an option in Universal Grammar is argued for in the GB context by Marantz (1984). Marantz proposes that the alignment of theta-roles with grammatical relations is parameterized, such that syntactically accusative language we have the Agent theta-role assigned by predicates and therefore aligned with syntactic Subjects, while the Patient theta-role is assigned by verbs and therefore aligned with syntactic Objects. (So Subject and Object are defined using the notion of internal and external argument.) In a syntactically ergative language, it is the Agent theta-role which is assigned by verbs and therefore associated with the syntactic Object, while the Patient theta-role is assigned by predicates to the syntactic Subject (1984:196).

Note that this parameter is intended to capture the distinction between deep or syntactically ergative languages and syntactically nominative/accusative languages. Morphological ergativity is considered a separate phenomena (following Dixon's original dichotomy), which does not play an important role in Marantz's account. I will henceforth refer to this notion of ergativity (i.e. the notion of Rigsby and Marantz) as S-ERGATIVITY, and the corresponding notion of accusativity as S-ACCUSATIVITY for convenience of reference. I will continue to employ the term SYNTACTIC ERGATIVITY to indicate the more traditional notion of deep ergativity.

There is an assumption which is implicit in this explanation of syntactic ergativity which is that the languages in question have syntactic Subjects or Objects at the point in the derivation where theta-roles are assigned, presumably Deep-structure (henceforth D-structure). Although the existence of assymmetric grammatical functions has been questioned for the Tsimshian languages, and it has been argued that Nisgha is a so-called W*-TYPE non-configurational language, a thorough treatment of this issue would take us beyond the scope of this short essay. I will present some evidence for considering Nisgha configurational, however, it should be considered preliminary rather than conclusive (see section 5).

3. Evidence of S-accusativity in Nisgha

In this section I propose that Nisgha is not, in fact, S-ergative, but S-accusative, in spite of its variety of surface syntactic ergative patterns.

There are a number of diagnostics which Marantz suggests for determining if a language is S-ergative or S-accusative, most of which do not have a clear application to Nisgha. However, there does appear to be at least one test which can be applied, the so-called reflexive-passive ambiguity test. This diagnostic is based on the assumption that lexical reflexives are formed by the addition of a morpheme whose basic function is to disallow a nomally transitive verb from assinging a theta role to its D-structure

Subject or Case to its D-structure Object. Although Marantz does not state categorically that lexical reflexive morphology always functions in this way, he strongly implies this is the unmarked case (1984:159).

In some of these languages, the same morphology is used in other types of intransitive sentences, in particular either passives or sentences with an unspecified Object. If this type of lexical process is found in a language the ergativity hypothesis makes clear predictions, argues Marantz, for both S-ergative and S-accusative languages. Whereas in an S-accusative language the ambiguity is between passive and reflexive, in an S-ergative language we expect to find an ambiguity between a reflexive and an unspecified Object, since there is no external argument theta-role assigned. An example of this type of ambiguity in an S-accusative language can be seen in the following Albanian sentences, which have both a reflexive and a passive interpretation (from Marantz 1984:162):

- I burgosuri lahet dy herë në javë the prisoner wash-REFL-3sg two times in week 'The prisoner washes himself twice a week' 'The prisoner is washed twice a week'
- Prostitutat u veshen perpara darkës
 the prostitutes REFL dress before dinner-the
 'The prostitutes were dressed before dinner'
 'The prostitutes dressed themselves before dinner'

Examples of this type of ambiguity in what are claimed to be Sergative languages are seen in the following sentences, from Dyirbal (12) and Yidin $^{\rm Y}$ (13) $^{\rm 4}$:

12 ngayu pampi:jinyu
 I-ACC cover-APASS-PST
 a. I covered myself.

b. I covered someone/something.

(from Dixon, as in Levin 1983:107)

bayi yara buybayirnu man-ABS hides-REFL

'Man hides himself' or 'Man hides (something)'

(from Dixon, 1972 as in Marantz 1984:212)

The pattern which is found in Nisgha is the S-accusative; that is, the same morphology is employed for both the lexical reflexive and the passive.

One typical way of expressing a reflexive action in Nisgha is to employ an intransitivizing suffix (accompanied usually, but not always, by an adverbial proclitic indicating 'back'). Examples are shown below:

14 kwilks ka?-tkw niy back see.s-MED 1s 'I saw myself' (Tarpent 89:2)

- 15 (l@p)kwilks titalq-s-ł kyat
 (self)back talk.to-MED-NC man
 'The man is talking to himself'
- 16 pc'ay-tk^W 'to comb one's hair' comb.s-MED (Tarpent 89:36)

The morpheme labelled MED (for 'medial' - $[tk^w]/[s]$) is the affix of interest. The labelling I have borrowed Tarpent (1989).⁵

In (14-16) the verb is rendered intransitive by the MED affix. As stated, the proclitic $[g^Wilks]$ indicates the nature of the action, which Tarpent glosses as '(going) back (to where one came from)'. Thus, a very meticulous gloss of the sentence in (14) might be 'I looked back at myself'. 6

The MED morpheme is also found in passive sentences, as illustrated by the following:

- 17 kYa?-tkW-t kYat kY'oc see.s-MED-NC man yesterday 'The man was seen yesterday'

The fact that Nisgha employs this morphology for both reflexive and passive constructions then, provides an indication that at the point in the derivation of a sentence where theta-assignment takes place, we need to characterize Nisgha argument structure as S-accusative, not S-ergative, assuming the correctness of Marantz's explanation of lexical reflexives. For this argument to really be conclusive for Nisgha, we will need evidence that the lexical reflexive indeed operates along the lines stated above (i.e. that the surface Subject has the Objective theta-role but Subjective Case). I do not have this kind of evidence at the present time, so again, this argument should be considered somewhat tentative.

It is not irrelevant to the discussion, I might add, that Nisgha does have other intransitivizing morphology, one which creates a typical Antipassive sentence, and another one which just creates a sentence with an indefinite Object. However, in neither case does any reflexive sentence that I am aware of employ this morphology, such as it does in the case of passives.

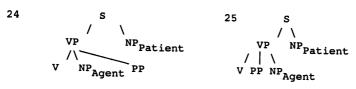
A second reason for claiming Nisgha is not S-ergative has to do with the surface position of prepositional phrases. If we assume Nisgha is S-ergative, then by the Ergativity Hypothesis we would expect the simple transitive sentence to have the D-structure in (19) (which is also Rigsby's (1975) proposal), assuming that Nisgha has standard configurational structure. This seems the most plausible S-ergative D-structure considering Nisgha's surface ordering is Verb-Agent-Patient and in an S-ergative language the Agent is the internal argument while the Patient is the external argument.



When there is a PP or Indirect Object in the sentence, it usually appears sentence-finally; and although there are operations which can position indirect or oblique arguments in S-initial position (though the preposition is absent), the PP can never appear between the verb and either of the other arguments (i.e., one cannot have V-PP-Agt-Pat or V-Agt-PP-Pat). For example:

- 20 nimaxt-@-(t)-s John-l buk lax hani-thoxqw
 put.on-TR-3;-DC Agent;-ND Patient on place-eat
 'John put the book on the table'
- 21 ??nimaxt@s John * buk
 Verb Agent Patient
- 22 *nimaxt@s John lax hanithoxqw buk Verb Agent PP Patient
- 23 *nimaxt@s ?@ł lax hanithoxqW John buk Verb PP Agent Patient

But now note we have a contradiction of structures. If we assume (19), the S-ergative analysis D-structure, a subcategorized PP should appear in that structure as either (24) or perhaps (25):



However, unless the PP were extraposed, the above D-structure would yield Verb-Agent-PP-Patient or Verb-PP-Agent-Patient S-structures. But these are ungrammatical, as shown by (22,23) above. Thus, to maintain D-structure (19) we must maintain that some factor forces PP's always to extrapose. In fact, we would have to show that some factor can force multiple PP extraposition, as seen by the position of the PP's in a sentence like (26) below:

26 kw@n nimaxt-@-(t)-s Donna-\ laqalt@mmacaqale Jussive put-TR-3;-DC Agent;-ND vase

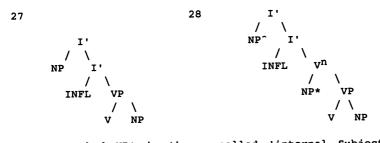
lax hanithoxqW ?@-s Mary
on table prep-DC Agent
'Donna had a vase put on the table by Mary'

There is no obvious factor for explaining the facts in this way that I am aware of, however. Although there is the possibility of arguing the PP's extrapose because of something like Stowell's Case Resistance Principle, I have not explored this possibility for two reasons: first, it would not bear on the other arguments for Saccusativity discussed in this paper. Secondly, there are many examples of phenomena which appear to violate the CRP coming to light in the literature, so I am leary of relying on it heavily.

4. An S-Accusative Account of Nisgha Syntax

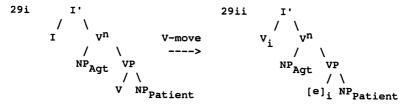
Since there appears to be motivation for rejecting (19), and therefore the S-ergative account of Nisgha, we are led back to the possibility that verb-raising is, after all, perhaps the better solution. In this section I propose that verb-raising from a SVO D-structure is the preferable solution of the two hypotheses. Verb movement, it will be seen, easily explains the reflexive/passive ambiguity and the position of the PP as well.

Koopman and Sportiche (1988) and Sportiche (1988) propose that the underlying structure of sentences in configurational languages is not, as previously supposed, as in (27), but rather is as in (28) (order is variable):



The NP marked NP* is the so-called 'internal Subject' position, while that marked NP is the surface Subject position of the Subject in a language like English. It is argued that Subjects are always generated in the internal Subject positions. The Subject raises from NP* to NP^ because INFL, it is argued, is a raising category in English; NP^, being in the SPEC of IP, agrees with INFL, and it is via this agreement that NP gets its Case. In some languages, however, it is argued that NP* does not raise to NP^. In these languages, if the verb raises to INFL, we get VSO surface order. Koopman and Sprotiche give a variety of arguments for this proposal, based on data from many different languages. Rather than repeat their arguments here, I refer the reader to the work cited. Kuroda also assumes this structure in some recent work, arguing that it is, in fact, the null hypothesis if we assume complete regularity of the X-bar schema (Kuroda 1985).

I will accept this proposal as essentially correct. Verb movement could then be depicted roughly as follows:

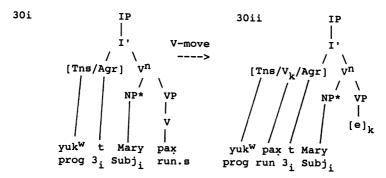


There are essentially two types of explanations currently circulating for why verb raising should be forced to obtain in a given language. One type of explanation has to do with directionality parameters, that is, direction of Case and theta-role assignment (Koopman 1983, Sproat 1985), and direction of predication (Travis 1984), and the interactions of these grammatical subsystems with X-bar theory.

A second type of explanation concerns obligatory movement of verbal elements to positions containing functional inflectional categories (the dismantled INFL positions) such as T(ense), Agr(eement), Neg(ation), and perhaps others, for purposes of supporting bound affixes (Pollock 1989, Chomsky 1988, and the No-Free-Affix Principle of Lasnik (1981)).

Either of these types of explanations could potentially be employed in arguing for verb raising in Nisgha. Since this issue is not the main focus of the paper, I will not attempt to resolve the problem. However, I think it can be shown that if the second kind of explanation is embedded within a rich enough theory of inflectional morphology, it can in some cases obviate the need to employ notions of directionality. For an explanation of Nisgha syntax in these terms, see Belvin (to appear). For the time being, simply note that in most cases the verb must raise either to join with inflectional morphology generated in the I(nflection) position, or else so that the verb can get to a position from which it can assign Case to the Agent NP.

Thus, the derivation of a dependent-order intransitive sentence will be roughly as shown in (30) below:



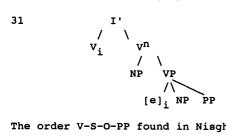
In the above derivation, the verb could be argued to move for two reasons. One is to provide a host for the bound agreement morpheme [t], and the other is to move the verb into a position from which it

can assign Case to the Subject. (The verb cannot assign Case to the Subject from its D-structure position, presumably because it does not c-command the Subject.) Other sentence types will have similar For lack of space I must defer the presentation of derivations. further derivations to work in preparation.

If (29i) is approximately the correct phrase marker for a Nisgha D-structure, then we can account for the reflexive/passive morphology, and the position of PP's straightforwardly. There are a number of other features of Nisgha syntax which can be accounted for in a rather natural way as well; for an account of some of them see Belvin (to appear).

To begin with, consider the 'reflexive/passive ambiguity' (though it is really just shared morphology, and not necessarily ambiguity). If we accept (29i) as the underlying structure for a Nisgha sentence, then following Marantz's definition, Nisgha is Saccusative, (so the syntactic Object will get the Patient thetarole, while the syntactic Subject will get the Agent theta-role). This means that when the verb appears with the intransitivizing $/-tk^W/$ suffix (either the REFL or the passive suffix), the external argument will get the theta-marking normally associated with the internal argument, namely the Patient role. As can be seen from this is correct. (17,18) above, Thus, regarding reflexive/passive morphology, the verb-movement analysis makes the correct predictions.

Next, consider the position of PP's in the language. Again, if we accept the verb movement analysis, the explanation of PP's is The S-structure of a sentence with straightforward. subcategorized PP in Nisgha (which would be the structure after verb movement) would be roughly as follows:



The order V-S-O-PP found in Nisgha is thus accounted for.

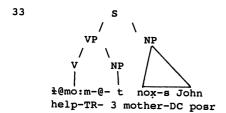
5. A Further Argument for a Configurational Accusative D-structure One further kind of evidence that an S-accusative D-structure is preferable to an S-ergative D-structure is based on Condition C violation facts. Condition C of the binding theory states that a R(eferring)-expression must be free (i.e., it must never be ccommanded by a coreferent element). It is widely assumed in the literature that the reason pronouns can sometimes be coreferent with an R-expression in the same simple sentence, and sometimes cannot be is due to this principle of binding. If the pronoun is in a position to bind the R-expression (i.e. it c-commands it), then they cannot be coreferent, because in that case the R-expression will be bound. This principle is presumed to account for the difference,

for example, in allowable coreference between the English sentences 'He_i loves John's_ $j/\star i$ mother' and 'His_i/j mother loves John_i'. (Because 'He' c-commands 'John' in the former, but 'His' does not c-command 'John' in the latter.)

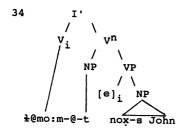
Now, consider the Nisgha equivalent of 'He helped John's mother', noting the fact that 'He' cannot be coreferent with 'John' (the *i reading):

(32) 10mo:m-0-t nox-s John 'He helped John's mother' help-TR-3; mother-DC posr;/*;

Let us assume the ungrammatical reading is due to the same thing as in English, i.e. Condition C. Now, assuming something like the structure in (33) for the S-ergative analysis, notice that we cannot rely on Condition C to explain the ungrammatical reading, because the pronominal element (the /-t/) does not c-command the R-expression.

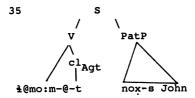


Notice, however, that the pronominal element does c-command the R-expression in (34), the S-accusative D-structure.



Thus, the S-accusative analysis explains the ungrammatical reading while the S-ergative does not.

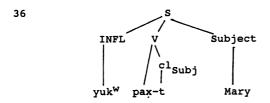
Now consider how a non-configurational structure for (32) would look, assuming the characterization of non-configurationality proposed in Jelinek (1984).



In Jelinek's framework, pronominal clitics comprise the true arguments of a sentence, while any nominal expressions are adjuncts, associated with the true arguments by a linking rule. She has argued Nisgha is non-configurational in this sense (1986), and Tarpent (1989) has accepted this analysis and attempted to extend the argumentation. (Patient Phrase (PatP) and Subject identify nominals in the tree but are not intended to convey any grammatical import.)

In order to explain why no coreference is possible, we could say that the c-command domain of the pronominal clitic Agent is the c-command domain of the verbal host. If we make this assumption, then with the non-configurational account we can still explain the ungrammatical reading as a Condition C violation.

However, if we make this assumption, we also immediately encounter a problem accounting for even the simplest Nisgha sentences. Consider (36), for example, which depicts the non-configurational D-structure for (3) above:



In this sentence, if we assume that the pronominal element /-t/ has as its c-command domain the c-command domain of the verb, then it c-commands Mary. But if it c-commands Mary, it should not be able to be coreferent with Mary. But the /-t/ in this context is always coreferent with a lexical Subject nominal expression. Thus, the assumption that that the /-t/ c-commands whatever the verb c-commands must be incorrect, and this in turn means the non-configurational account cannot rely on the binding theory to explain the ungrammatical reading of (32).

One might argue that the real condition which allows or prohibits coreference is simply that the R-expression must linearly precede the pronominal element. However, this is not the case, as shown by the possibility of sentences like (37):

37 l@p-nox-t ?an-t-lemo:-(t)-s John self-mother; -3; AREL-3; -help-3; -DC Patient; 'It was his; own mother that helped John;'

The S-accusative analysis of Nisgha, one should note, easily circumvents this problem by identifying /-t/ in (32) as a true pronoun, generated in an argument position, but /-t/ in (3) as an agreement suffix, and therefore not a potential binder of the R-expression. It seems unlikely that this option should be open to Jelinek's non-configurational account, which assumes as its defining criterion for non-configurationality that the pronominal clitics on the verb are arguments and the lexical nominals adjuncts.

Therefore, the S-accusative D-structure analysis has a ready explanation for something the non-configurational account of Nisgha does not. Although these facts in themselves do not mean that the non-configurational account is untenable for Nisgha, they do pose a challenge for the W*-type non-configurational analysis.

To conclude then, there is evidence that Nisgha should be analyzed as configurational, and that it should be analyzed as having an S-accusative D-structure. The outstanding question to be answered, if this conclusion is correct, is the following: what is the source of the many syntactic ergative patterns in the language. I think the answer to this question is largely the result of a svstem of Inflection and Case marking Nominative/Accusative languages employ. Perhaps it will turn out that whereas Nominative/Accusative languages rely primarily Spec/Head Agreement for assigning Case to the external argument, Ergative/Absolutive languages rely primarily on structural (direct) Case assignment by a governing verb or inflectional element. Moreover, if there is a different type of agreement morphology in these languages, such that there is a syntactically active Object Agreement morpheme as well as a Subject Agreement morpheme, this could potentially account for certain syntactic ergative patterns in, e.g., deletion under identity. I can only mention these as general approaches to the problem in this paper, but in work in preparation I show how such approaches can account for a variety of ergative patterns.

In concluding that Nisgha is not S-ergative (i.e., is not syntactically ergative as Marantz defines the term), I am not claiming that Nisgha is not syntactically ergative in any sense of the term. This is clearly incorrect, as demonstrated by the long list of constructions that one could compile for the language which show ergative patterns. Rather, I am concluding that the meaning of what it is to be syntactically ergative in the GB framework may be something very different from what Marantz claimed it to be. my perspective Nisgha is syntactically ergative. This is the result of the interaction of several core properties of the grammar of Nisgha, specifically (as just mentioned) the way that Case is assigned to the external argument and the verbal agreement system. Thus, although what Marantz calls 'THE Ergative Parameter' may be a feature we will want to include in our characterization of Universal Grammar, it will at most have the status of 'AN Ergative Parameter', insofar as it may be only one of several options which can result in syntactic ergative patterns.

- I wish to thank all the Nisgha consultants I have had the priveledge of working with, especially Bertha Azak, Harry Nyce, and Sarah Picard. I would like to thank the following people for helpful comments and/or just help in general: Joseph Aoun, Elabbas Benmamoun, Bernard Comrie, Osvaldo Jaeggli, M.Dale Kinkade, Brenda Osborne, Michael Rochemont, Pat Shaw and Linda Walsh. Field work for some of this research was supported by a grant from the Phillips Fund of the American Philosophical Society. Finally, in spite of the fact that we find ourselves on opposite sides of the theoretical fence, I wish to thank Marie-Lucie Tarpent for her tremendous contributions to the availability of a more comprehensive description of Nisgha.
- ² The Nisgha language is encompassed by Rigsby's 'Nass-Gitksan' designation (1975), along with Gitksan. Gitksan and Nisgha for the most part are mutually intelligible. According to Tarpent (1982), Nisgha is the most conservative of the languages, while Coast Tsimshian is the most innovative.
- 3 This idea is almost identical to a proposal by Jelinek (1986:8). She nonetheless concludes that Nisgha is non-configurational.
- ⁴ Note that under the theory as Marantz and also Levin (1983) develop it, the indefinite Object construction is just a passive, in the sense that the syntactic Subject of the sentence receives the semantic role usually associated with the syntactic Object.
- ⁵ The MED morpheme has allomorph /-s/ after velar and uvular stops. Also, the t of the $[tk^W]$ allomorph does not appear in certain (phonologically conditioned) environments, specifically, after non-resonant consonants (following Tarpent 1989:3). Tarpent actually uses the label MED.I, indicating 'indefinite medial', by which I assume she means to indicate that no agent can be expressed in constructions employing this morpheme.
- ⁶ An even more meticulous (although awkward to the point of ungrammatical) gloss of the sentence might be: "The man was looked back at by himself in the mirror".
- ⁷ It should be noted that there may be problems with Marantz's explanation. First of all, there appear to be cases where there are three interpretations of some reflexive/passive morphology rather than two, where the third possibility is indefinite Object (B.Comrie, p.c.). Although I do not know how common this type of ambiguity is, it could potentially seriously undermine Marantz's claim. Secondly, there is, by Marantz's own admission, no reason to exclude in principle a lexical reflexive formed by the addition of an affix which takes away a transitive verb's ability to assign a Patient theta-role to its internal argument, rather than an Agent role to its external argument. If this were the case then we might

expect to find S-ERGATIVE languages in which there was a reflexive/passive ambiguity, in addition to finding the ambiguity in S-accusative languages. Tarpent, in fact, appears to assume this to be the case for Nisgha, insofar as she states that 'morphological similarity of Passives and Reflexives is what is expected under ergative syntax' (1989:16). She does not explicitly state why this is what is expected, but I assume it is for something like the reason just discussed. Marantz deduces, based on the languages for which he has some evidence for deciding between the analyses, that languages always choose the option of forming lexical reflexives by taking away the verb's ability to assign an external theta-role. (This is a simplified (and perhaps somewhat distorted) account of what Marantz calls the 'clitic' versus 'non-clitic analysis' - see Marantz (1984:152-165) for details.)

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Squamish /-m/ Constructions Michael Darnell University of Wisconsin- Milwaukee

1. Introduction

A verbal suffix found throughout the Salish language family, reconstructible as */-m/ in Proto-Salish, has been analyzed in a variety of ways: the Thompson Salish /-m/ as a middle voice marker, that could be an antipassive construction (Thompson, 1985), the Colville /-m/ as a middle voice marker (Mattina, 1973), the Lummi /n/ as passive (Jelinek and Demers, 1983), and the Lushootseed /-b/ as morpheme necessary to clauses with two lexical nominals, but which does not form passives (Hess, 1973). Finally, in Squamish, the construction in question has been analyzed by Kuipers (1967) in his grammar as an intransitivizing suffix that yields a passive when added to a transitive verb. These various analyses could, of course, reflect the fact that this suffix has come to denote different functions in each of these languages. It is, however, possible that /-m/ has a common function in these languages and that previous analyses have each only noted part of the picture, thus the conflicting analyses.

One common factor in all of the above studies is that the analyses are based on elicited sentences. Two problems may occur with this methodology. First, the actual function in context of such constructions may not be clear from the elicitations. Next, the tendency in typological investigations to concentrate on clauses with two lexical nominals may influence speakers to produce sentences not typical of discourse. This study seeks to avoid these problems by focusing on recorded texts for data and employing a methodology which notes not only the surface syntax of clauses, but also the functional aspects of verbal morphology within a given text. In order to accomplish a description of the latter, I use the topicality measures pioneered by Talmy Givon in Topic Continuity in Discourse. Briefly, the topicality of an argument can be determined by noting the frequency of its appearance in a discourse. Arguments which are topical are likely to have appeared more recently, as measured from a particular mention within the discourse (in Givonian terms 'referential distance'). Topical arguments are also more likely to appear in subsequent clauses as measured from a particular mention ('topic persistence'). By employing these measures the topicality of arguments in derived constructions such as passives, antipassives, and inverses can be compared to the topicality of arguments in active constructions. Such comparisons can provide an empirical validation of generalizations made about the topicality of arguments, for example - passives are used when the patient is more salient than the agent in following or preceding discourse.

The results of this study demonstrate that Squamish clauses marked by /-m/ are not best analyzed as middle. Also, considering that /-m/ appears in different types of intransitive constructions, it is not best analyzed as solely passive or antipassive. Rather /-m/ is involved in the demotion of core arguments in order to accommodate a grammatical prohibition in Squamish, first noted by Hess (1973) for Lushootseed, against a clause having two lexical nominals in the unmarked case. While it has been noted by DuBois (1987) that there is a universal constraint in spoken discourse against the appearance of two lexical nominals in a clause, I wish to differentiate this case. The prohibition here is grammatical rather than based on constraints regarding information flow. Note the constructed sentences in examples (1-5)².

- p'i?-t-φ-as grab-tr-3sgO-3sgS He/she grabbed him/her/it.
- (2) p'i?-t-φ-as k*əci sitn grab-tr-3sgO-3sgS art basket He/she grabbed the basket.
- (3) *p'i?-t-\$\phi\$-as k*\text{-aci man? kaci sitn} grab-tr-3sgO-3sgS art child art basket} The child grabbed the basket.
- (4) p'i?-m k*əci mən? t-k*əci sitn grab-intr art child obl-art basket The child grabbed the basket.
- (5) p'i?-t-m t-k*əci mən? k*əci sitn grab-tr-intr obl-art child art basket The basket was grabbed by the child.

While (1) and (2) are acceptable sentences, (3) is not. Examples (4) and (5) are acceptable only due to the fact that /-m/ is suffixed to the verb. The appearance of the intransitive /-m/ demotes one of the core arguments to an oblique case. /-m/ occurs both as the only suffix on a verb, as in (4) and with transitive verbal suffixes, as in (5). Whether the semantic agent or patient is demoted, structurally, is determined by the co-occurrence of /-m/ with other transitivity suffixes. It is claimed here, that what motivates the choice of which argument is to be demoted is a referent's salience to the discourse at hand and that salience is reflected in the topicality measures of the argument.

2. Preliminaries

Several language-specific issues should be clarified before moving on: person/number agreement on the verb, case marking, the valency of verbs and suffixes, and the pro-dropping nature of Squamish.

Kuipers (1967:85) presents paradigms for subject (including both transitive and intransitive subjects) and object affixes. The following pertinent observations are summarized from his detailed analysis. Generally, 1st and 2nd person subject suffixes will combine with the clitic /č/ which is positioned either pre- or post-verbally. While the clitic can be considered a auxiliary diachronically, these clitic-suffix combinations are best viewed now as pronominal elements. The third person subject marker is always suffixed on the verb, as opposed to being attached to the clitic, but only occurs in transitive clauses, never appearing with intransitive verbs.

The case-marking of nominals in Squamish is binary. A nominal is either in the absolutive case (i.e. zero-marked) or the oblique case which is marked by two forms: /t-/ is prefixed to articles which appear only with nominals and /Xa/ occurs with proper names. Kuipers states that both subjects and direct objects will appear in the absolutive; nominals in other grammatical roles appear in the oblique case. The textual evidence concurs with Kuipers' analysis that intransitive subject and direct object nominals do appear in the absolutive case and in some restricted cases (verbs with object complements) transitive subjects may also. However, in the texts, there are no instances of both transitive subject and direct object nominals appearing in the absolutive case in the same clause. One or the other of these nominals always receives an oblique marking.

The semantic valence of verbs can be deduced from the uninflected forms of many verbs, while the syntactic valence can only be determined by the presence of certain verbal suffixes. I use the term verbal suffix here to refer to suffixes commonly noted in the literature as transitive or intransitive. While all of the four following suffixes have been traditionally called transitive, all of them do not appear to be 'transitivizers' in the sense that they change verb's valence.

/-s/ is a causative suffix which is added to intransitive stems to increase both their semantic and syntactic valence to 2.

/-n/ (commonly called a transitivizer) is a suffix that may be added to transitive stems, but does not increase the valence. Rather, it is a 'control suffix', a term employed by Laurence Thompson (Thompson, 1985) to describe a suffix which indicates that the semantic role of the subject argument is agent.

/-nex*/ is a suffix that co-occurs with only transitive stems and does not

increase a stem's semantic valence, but it does indicate that a clause is syntactically transitive. /-nəx*/ denotes limited control, again as used by Thompson (1985).

/-t/ also co-occurs with transitive verbs, but has no effect on the control status of the predicate or the semantic valence. But like /-nəx*/ it denotes a syntactically transitive clause. Crucially, /-s/, /-nəx*/, and /-t/ can be differentiated from other suffixes by the fact that when they occur in transitive clauses the clause is considered syntactically transitive.

Finally, transitive and intransitive clauses can also be distinguished by which grammatical slot is available for third person zero anaphoric reference. If conditions of anaphora are met, then the third person intransitive subject can be rendered as zero. In transitive constructions, the transitive subject is always cross-referenced on the verb, whereas a third person direct object need not be overt.

The following examples exemplify the interaction of verbal valence, verbal suffixes, casemarking, and zero anaphoric reference.

- (6) č-ət mn nam? nəx"?i?ai?u t-k"əci snəx"i cl-1plS cl go aboard obl-art canoe.

 We went aboard a canoe.
- (7) nam?-s č-x* ?a†i n-mən? go-cs cl-2sgS art-fem 1poss-child You take my daughter.
- (8) na nam? səiq'qs cl go across water He went across the water.
- (9) č-ət mn 4a?-n cl-1plS cl touch-ctl We approached.
- (10a) ?i k* na mn q*a-nəx*-φ-as k*əci sitn cl cl cl cl pierce-lim-3sgO-3sgS art basket Until he pierced the basket.

b. na k'*ac-nəx*-φ-as cl see-lim-3sgO-3sgS Then he saw them. (11a) na c'əm?-t-\(\phi\)-as ta sq\(\text{mai}\)?
cl bit-tr-3sgO-3sgS art dog
He bit the dog.

b. na suk*-t-φ-as
 cl bathe-tr-3sgO-3sgS
 He bathed him.

Comparing (6) and (7), (6) can be analyzed as intransitive since /nam?/'go' is semantically intransitive and the oblique object 'canoe' appears in the oblique case. The transitivity of (7) is demonstrated by the increase of semantic valence (typical of causatives) and the absolutive case marking of the object 'child'. In (8) an example of zero anaphora in the case of an intransitive subject is attested.

Looking at the other examples the same absolutive case marking that appeared with the causative suffix can be seen in the cases of $/-nex^*/$ (in (10)a.) and /-t/ (in (11)a.), as well as the possibility of pro-dropping with these suffixes in (10)b. and (11)b., respectively. In (9) the verb suffixed only with /-n/ does not denote an object.

3.0 /-m/ Constructions in Squamish

In the following sections two very different constructions both involving the suffix /-m/ will be examined. The constructions can be compared in the sense that they both are marked with /-m/, but differentiated by the presence of other verbal suffixes. The first case, verbs suffixed only with /-m/, I will show to be antipassives. The second, those verbs with transitive verbal suffixes (/-s/, /- nəx*/, and /-t/) in addition to /m/, I will show to be passives. Each will be examined in turn and finally a coherent analysis of /-m/ which can account for both cases will be presented.

3.1 /-m/ as Antipassive

/-m/ in Squamish and its cognates in other Salish languages have often been analyzed as a middle voice suffixes due to their intransitivity and sometimes reflexive connotations. In Squamish, /-m/ as the only suffix on a verb does produce an intransitive clause and in some cases a reflexive construction.

(12) nit mat s-s mn cai-aq-m ta X. cl cl cl-cl cl follow-form-intr art X It was then X. (proper name) followed.

(13) suk*-um bathe-intr He bathed (himself).

- (14) na tə?-us-m t-ta ni?č cl look-face-intr obl-art sea He looked up at the sea.
- (15) ?i na k* lix*-ai?4-m cl cl cl put down-child-intr

ta si?am? t-?a4i mən?-s art chief obl-fem child-3poss

Again the chief gave his daughter in marriage.

In examples (12-15), the absolutive case marking of the subject nominals in (12) and (15), and the zero agreement marking on the verbs in all of the examples are both typical of 3rd person intransitive clauses. In (14) and (15) the oblique case marking of additional arguments is also indicative of intransitivity. So it can be concluded that verbs which are suffixed only with /-m/ are indeed intransitive. Furthermore, the clauses have been detransitivized. The semantic transitivity of the verbs in examples (12-15) can be demonstrated by their appearance in the texts in prototypically transitive clauses and/or their co-occurrence with lexical suffixes like /-us/, as in (14), which occur typically with transitive verbs.

Typically, transitive constructions that are detransitivizied, and that denote events where the agent is affected by the action of the verb, have been called middle voice constructions. The detransitivization of these clauses by the addition of /-m/, coupled with the reflexive interpretation of (13), could argue for a middle voice analysis. However, (12), (14), and (15) are best analyzed as active constructions as the subjects in the clauses are not affected by the action. In these cases transitive verbs are reduced in valence by the addition of /-m/, but in the minority of cases are these constructions non-active.

Antipassive constructions, like middle voice constructions, have transitive verbs which are detransitivized. With antipassives, however, the agent is not, generally, affected by the action. Rather, the patient of the semantically transitive clause is demoted to an oblique case or deleted (c.f. Cooreman, 1990). In (14) and (15) the patient arguments have been demoted from direct object status (absolute case marked) to oblique status (marked with the prefix /t-/). In the case of (12) the object, I would argue, has been subsequently deleted.

The surface syntax of these constructions argues for an antipassive analysis. The clauses can be considered intransitive: they do not co-occur with transitive verbal suffixes; subject nominals are in the absolutive case, and exhibit zero verb agreement; and additional arguments are marked with the oblique case marker. Also, they can be shown to be derived constructions as

the semantic valence of the verbs attested is 2.

3.2 /-m/ as Passive

Turning to now to those cases where /-m/ co-occurs with transitive suffixes, I analyze these constructions as passives.

(16) ua ia-n?-t-m ta stau?x**1 cont be careful-ctl-tr-intr art children The children were continually warned.

(17) c'i-c'ic'-an-t-m-uit red-convulse-ctl-tr-intr-3plS They were thrown into convulsions.

(18) s-s mn tic'-it-m X'a T. k*əci sitn cl-cl cl cut-tr-intr obl. T. art basket The basket was cut by T.(proper name).

In examples (16-18) /-m/ has been added to semantically transitive verbs. But unlike the previous cases, these clauses are also marked for syntactic transitivity; in all of the examples the transitive suffix /-t/ appears. In these cases semantically transitive verbs have been detransitivized, but the patient arguments appear in the absolutive and must be considered the grammatical subject of the clauses. While in (16) and (17) only one nominal argument appears, in (18) a semantic agent apppears in the oblique case. constructions appear, structurally, to be passives. Comparing these examples to Shibatani's (1985) prototype definition of passives, constructions with transitive verbal suffixes and /-m/ are good examples of passives. Shibatani claims the following are characteristic of prototypical passives: pragmatically - they defocus the agent; semantically - the inherent valence is two, and the subject is affected; syntactically - the patient is subject, no overt agent appears or it is an oblique, and the valence is reduced; and, finally, morphologically they are marked constructions. Ignoring for the moment the pragmatics, these constructions fit the prototype quite well. Semantically, the verbs have valences of 2, and the subjects are the affected entities. Syntactically, the patients are subjects, the agents are deleted or are in an oblique case, and the syntactic valences have been reduced. The reduction in syntactic valence can be demonstrated by the verbal suffixes. In all three examples the transitive suffix /-t/ appears. As has been noted above the presence of /-t/ indicates a syntactic valence of 2; the addition of /-m/ detransitivizes the clause. Finally, morphologically, the construction is marked (by /-m/) in comparison to typical transitive clauses.

3.3 /-m/ as a Detransitivizing Morpheme

How then are we to characterize /-m/? At first blush it seems quite difficult

to come to a single analysis of a morpheme which is involved in two voice constructions which are very different. Looking at the various voice distinctions that can be made in languages, no two seem more dissimilar than passive and antipassive. However, if we limit our view of /-m/, calling it neither a passive or antipassive marker, but simply noting that it calls for the demotion of an argument, then a coherent analysis of these constructions can be made. Examples (19) and (20) can help clarify this situation. (19) is identical to (15) and is repeated here for convienence.

(19) ?i na k* lix*-ai?\frac{4}{-m} cl cl cl put down-child-intr

ta si?am? t-?a4i mən?-s art chief obl-fem child-3poss Again the chief gave his daughter in marriage.

(20) na lix*-t-m X'a Q. k*əci sitn-s cl put down-tr-intr obl Q. art basket-3p Her basket was put down by Q.

In (19) the semantic agent is in the absolute case and the patient appears in the oblique. In (20) the opposite is true; the agent is oblique, the patient absolutive. The crucial difference between the two clauses is the presence of /- t/ in (20). In the absence of /-t/ (or another transitive suffix), it is the agent which is coded in the absolute. The other core argument is demoted by /-m/. In the presence of /-t/, it is the patient which is coded in the absolute, making the agent the core argument to be demoted. In this sense, the absolutive case is privileged in Squamish. Arguments which appear in the absolute, when not overt, are understood as zero anaphoric arguments, rather than being understood as deletions. This type of zero anaphora has been seen in antipassive cases in (14), and also appears in passives, as in (21) and (22).

(21) s-s mn p'i?-t-m t-k*əci stəlməx*† cl-cl cl grab-tr-intr obl-art Indian It was grabbed by the Indian.

(22) s-s mn cxə-t-m tx*-nu? t-ta ii?u cl cl push-tr-intr loc-in obl-art fire She was pushed into the fire.

In both (21) and (22), the patient subject is understood to be an argument of the predicate, even though it is not overt. In (22), though, the agent is understood to be deleted.

So, in Squamish, /-m/ cannot be analyzed as a marker of any particular voice. Its function, in terms of surface syntax, is to demote one of the core

arguments to an oblique case. Which of the core arguments is available to be deleted, is determined by the presence or absence of transitive suffixes.

4.0 Pragmatics of /-m/ Constructions

In the following sections I will discuss the pragmatics of /-m/ constructions in Squamish. In those clauses where the sole verbal suffix attached to the verb is /-m/, the antipassives, their function correlates with the expectations we would have about antipassives. Antipassives are used when the patient is less topical that the typical patient in a transitive clause. In those clauses where /-m/ co-occurs with transitive suffixes, the passives, their function generally correlates with Shibatani's claim that passives defocus agents.

4.1 Antipassives

Antipassives, being almost the mirror image of passives, we would expect to be employed when the patient, as opposed to the agent, is non-topical. If the topicality measures of direct objects in transitive clauses are compared to those of demoted objects in antipassives, the antipassive objects should be less topical. The first table notes the referential distance and topic persistence figures for clauses without /-m/. Referential distance (RD) was measured by counting the number of clauses since a referent was last mentioned. Topic persistence (TP) was measured by noting the number of consecutive clauses a referent continued to be mentioned in. The measures in the table represent the mean and median in number of clauses (mean/median). The number of examples is expressed as n=x. The difference in the number of examples for transitive subjects and direct objects is due to the appearance of object complements in the data.

Clauses without /-m/

	RD	TP	n=
Intransitive Sub.s	6.0 / 2	1.3 / 1	153
Transitive Sub.s	2.48 / 1	1.34 / 1	138
Direct Obj.s	10.6 / 3	0.4 / 0	103

These figures demonstrate that Squamish follows the pattern found in many other languages (c.f. Givon, 1983 and DuBois, 1987). All subjects are more topical in that they persist longer in the discourse (1.3 subsequent clauses for intransitive subjects and 1.34 for transitive subjects as opposed to less than a clause for direct objects). Subjects of transitive and intransitive clauses differ in the fact that transitive subjects have less referential distance. Whereas intransitives introduce topical arguments, transitive subjects are most likely to be given. Direct objects in general are the least topical of the core arguments. The high degree of topicality represented by the median (RD) measures for direct objects may be due to the fact that the texts concern primarily two characters, which necessarily act upon each other. Notice, however, that the persistence of such arguments is still not high.

If antipassives do indeed code less topical patients, this failure to be topical should be reflected in higher referential distances and lower topic persistence measures. The table entitled 'Antipassives' notes the topicality of arguments in constructions in which /-m/ appears as the only verbal suffix. The difference in the number of examples reflects the fact that in 13 cases no overt oblique object appeared in the clauses.

Antipassives, /-m/ - only clauses

	RD	TP	n=
Subjects	3.2 / 1	1.79 / 1	18
Demoted Patients	20 / 20	0 / 0	5

The topicality of subjects in these clauses is quite comparable to transitive subjects, but the topicality of the objects is effectively nil. In every case the object is a new mention (indicated by a referential distance of 20, c.f. Givon, 1983) and fails to be an argument in following consecutive clauses (indicated by a topic persistence of 0).

4.2 Passives

Recalling Shibatani's prototype definition of passives, the topicality measures of clauses where /-m/ co-occurs with transitive verb morphology should reflect the fact that the patients of such clauses are topical, whereas the agents should be defocused. The topicality of arguments in agentless passives, such as (16) and (17), fit this definition. There are no overt agents in these clauses and the topicality of the patients is similar to those of intransitive subjects, but noticeably different from patients in the direct object slot in transitive clauses.

Passive Subjects vs. Other Grammatical Roles

	RD	TP	n=
Intransitive Sub.s	6 / 2	1.3 / 1	153
Direct Objects	10.6 / 3	0.4 / 0	. 103
Passives Sub.s	8.36 / 2	1.09 / 0	11

However, these constructions are not always agentless. Agentful constructions as in (18) accounted for more than half of these constructions found in the texts. Constructions like (18), while differing from the prototypical passive only in the appearance of an overt agent, behave functionally like inverse constructions (c.f. Chad Thompson, ms) that increase the topicality of the patient, yet do not affect the topicality of the agent as greatly as passives.

Agentful Passives

	RD	TP	n=
Agents	5.15 / 2	1.2 / 1	13
Patients	5.15 / 1	0.69 / 1	13

The patient argument increases in topicality, in comparison to the patients in object roles in prototypically transitive clauses. The agent argument, on the other hand, differs from transitive subjects only clearly in the referential distance. While the syntactic coding of these clauses is clearly passive, the function seems akin to inverse constructions. These agentful passives appear in discourse situations where the agent cannot be unambiguously marked by the 3rd person transitive subject marker. Also in these cases patients have some topical prominence beyond the norm in prototypical transitive events. The clause in (18) is just such a discourse situation. The semantic agent cannot be referenced anaphorically, despite a referential distance of 1, due to potential ambiguity of reference. It must appear as a full nominal. But it also persists for 3 subsequent clauses, a highly topical argument. However, the patient here is an argument that is the center of the action for several clauses (the referent has a TP measure of 3). The topicality of the patient in the discourse rules out the antipassive construction. The topicality of the agent rules out the agentless passive. The syntactic coding of passive allows the recoverability of the oblique marked nominal as agent. Its pragmatic function, however, does not seem to be to defocus agents, but rather to present agents as nominals alongside of nominal patients.

5. Conclusions

/-m/ has been shown to be involved in the demotion of core arguments. Uniquely (in the sense that it is quite productive, and in comparison to non-Salish languages), it signals the possible demotion of either initial subjects or objects in clauses. In the case of antipassives, the lack of verbal suffixes, other than /-m/, places the agent in the privileged grammatical slot, and demands the demotion of the patient. In the case of agentless passives, /-m/ co-occurs with other verbal suffixes. Crucially, the transitive verbal suffixes place the patient in the privileged grammatical slot, while /-m/ then relegates the agent argument to deletable status. Lastly, in agentful passives, agents are roughly equivalent, in topicality, to promoted patients. Thus agentful passives abide by the grammatical constraint of only one lexical argument in the unmarked case, but do not appear to particularly defocus agents. In discourse a single morpheme in Squamish allows speakers to abide by the prohibition against two unmarked nominals in a clause, and other verbal morphology allows them to place the salient argument in the unmarked case.

NOTES

- 1. A full discussion of the underlying tenets of this methodology may be found in Givon (1983), and a complete account of the methodology's application to Squamish is presented in Darnell (1989).
- 2. The following abreviations are used here: sg =singular, pl = plural, S = subject, O = direct object, obl = oblique case marker, fem = feminine article, tr = transitive, intr = intransitive, red = reduplication, ctl = control suffix, lim = limited control suffix, p or poss = possessive, cl = clitic. Squamish has several clitics which can be combined to create various meanings, or express continual action as does /ua/, glossed as 'cont'. In none of the examples here are they involved in subordination and particular combinations have been translated to reflect the sense of the combinations. For example, in (12) the combination 'copular and emphatic' is rendered as 'It was then...'.
- 3. The abbreviation 'form' is used for suffixes assigned no clear meaning by Kuipers.
- 4. For both referential distance and topic persistence, a countable mention of a referent was constituted by its appearance as a semantic argument of a clause, whether it appeared as a nominal, affixal, or zero anaphoric mention.
- 5. The topicality measures used in this paper cannot be directly compared to those used by Chad Thompson. The methodology here is taken directly from Givon (1983). Thompson uses a revised version of this methodology which counts the number of times referent appears in the next ten clauses as the referent's topic persistence. Here, topic persistence measures the number of consecutive clauses in which a referent continues to appear.

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Null Heads and Noun Incorporation in Southern Tiwa

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S. Rosen (1989) proposes a "lexical" account of noun incorporation (NI), concluding that there are two types: compounding NI, which affects the argument structure of the verb, and classifier NI, which does not. With regard to this criterion, Southern Tiwa (ST) is of the latter type. Many classifier NI languages allow "stranded" modifiers, i.e. non-null NPs without an overt Head, with the incorporated noun being understood as the Head. ST is one of these languages; see example (a). Rosen makes the important observation that these same languages also exhibit null Head NPs apart from NI, as in ST example (b). She argues, therefore, that NI and null Head NPs are independent phenomena, and that apparent cases of incorporation of the Head of an NP, as in (a), are the intersection of these phenomena such that a verb with an incorporated noun stem co-occurs with a null Head nominal as argument.

(a) Wisi bi-seuan-mu-ban.

"I saw two men."

two 1s:B-man-see-past

"I saw (the) two (of them)."

(b) Wisi bi-mu-ban. two 1s:B-see-past

Rosen describes her account of NI as "lexical" as opposed to "syntactic". The opposition of the two descriptive terms is appropriate if her account is contrasted with that of Baker (1988), for Baker ascribes all incorporation to movement of the Head of a nominal to the verb. But relational grammar (Frantz 1985a)³ and autolexical syntax (Sadock 1985) accounts of NI in ST, both being non-process descriptions, are not so easily branded "syntactic". In fact, both of these accounts emphasize that ST incorporation, like many other grammatical phenomena, requires constraints that refer to both morphology and syntax. In both accounts, verb stem composition is independent of syntax, but there exist constraints dealing with what syntactic arcs an incorporated noun stem may or must Head (Frantz 1985a, Allen et al 1990), or with the mapping between morphological representation and syntactic representation (Sadock 1985).

Constraints on nominal Heads

Nevertheless, though Rosen only briefly addresses incorporation constraints specific to ST, given her null-Head approach some facts which previous accounts relate directly to NI can be accounted for without such reference; i.e., at least some of the constraints on NI can be stated as constraints on non-null Heads. E.g., rather than requiring incorporation of Heads of inanimate subjects and objects (Allen, Gardiner, and Frantz 1984, pp. 293 and 299) (henceforth AGF) to account for the facts of sentences such as (c)-(f), we can simply require that lexical Heads of subject and object nominals be animate; call this the Lexical Head Animacy Constraint. The lexicon, under such an account, will provide verb stems, with and without incorporated inanimate noun stems, that select inanimate NPs as subject or object. (d) and (f) are bad, then, not because they violate an incorporation constraint, but because they violate the Lexical Head Animacy Constraint.

(c) Seuanide i-mukhin-tuwi-ban. man A:B-hat-buy-past

"The man bought a hat."

(d) * Seuanide i-tuwi-ban mukhin.

man A:B-buy-past hat (e) I-k'uru-k'euwe-m.

"The dipper is old."

B-dipper-old-pres

(f) * K'uru i-k'euwe-m. dipper B-old-pres

This approach is worth pursuing with regard to other incorporation constraints that have been proposed for ST.

More constraints on NP Heads

AGF show that ST requires incorporation of the lexical⁴ Head of a direct object argument if the subject is third person. See (g) and (h). Here we can take the approach we followed with regard to obligatory incorporation of inanimates: a direct object nominal must not have a lexical Head if the subject of the verb is third person. Under this approach, (h) is bad, not because it has an unincorporated Head of the direct object nominal, but because the direct object has a lexical Head.

(g) Musan ibi-khwian-mu-ban.

"The cats saw the dogs."

cats B:B-dog-see-past

(h) * Musan ibi-mu-ban khwianin. cats B:B-see-past dogs

AGF also show that ST requires incorporation of the lexical Head of Absolutive nominals in the presence of certain other nominals: nominals which have put the Absolutive en chomage under AGF's analysis; or indirect objects under a new analysis proposed by Carol Rosen (to appear). Examples (i) and (j) illustrate the necessity of incorporation of the Head of the (initial) Absolutive of a ditransitive verb; (k) and (l) illustrate the necessity of incorporation of the Head of the (initial) Absolutive of a verb of motion; and (m) and (n) illustrate the necessity of incorporation of the Head of the (initial) Absolutive in the presence of a nominal understood as the possessor of that Head. Since incorporation is obligatory in all these cases, under S. Rosen's approach we can again state that lexical Heads of the Absolutives in these cases are ungrammatical.

(i) Ka-'u'u-wia-ban.

"I gave you the baby."

1:2s\A-baby-give-past

(j) * Ka-wia-ban 'u'ude.

1:2s\A-give-past baby

(k) Ka-seuan-wan-ban.

2s\A-man-come-past

"The man came to you."

(1) * Ka-wan-ban seuanide.

2s\A-come-past man (m) In-musa-teurawe-we.

"My cat is running."

1s\A-cat-run-pres

(n) * In-teurawe-we musade.

There are difficulties with these non-lexical Head requirements. First of all, since proper nouns never incorporate, they can serve as nominals in the cases where other nouns are ruled out; this is the main reason why the constraint does not simply require a null Head (as Rosen proposed). But this means that if noun incorporation is independent of syntax, nothing rules out a verb with an incorporated nominal that links to a proper noun as object. We take this problem up below, in conjunction with discussion of "optional incorporation".

Second, most current work within transformational theories of syntax, especially the government-binding approach, allow syntactic rules to "look" at the makeup of NPs only in terms of features which "percolate" to the NP node. Constraints such as those in the last two paragraphs on NPs with lexical Heads call for Heads of NPs to carry a feature specification for whether they are lexical or not, in addition to the more ordinary features such as person, number, gender, etc.

All of the constraints considered so far involve the necessity of incorporation, and do not violate the complete independence of verb stem composition from syntactic constraints on the composition of nominals (other than argument structure requirements and selectional restrictions of the verb, and the proper noun problem which we take up below). To the extent that metatheory values this independence, then this approach is an improvement over the rules which are found in other accounts of incorporation.

Other constraints on incorporation

However, other facts about incorporation still require what Frantz (1985a,b) calls morpho-syntactic constraints, because they refer to both morphology and to syntax. We now consider these.

The animate subject constraint

According to AGF, ST does not allow incorporation of the Head of a subject if it is animate; compare (o) and (p). Given Rosen's approach, we need to block incorporation of an animate noun stem in the lexicon if it is to be "linked semantically" (Rosen p.296) to the subject argument. Such a constraint is almost identical to the "syntactic" rule of AGF or the constraint that would be needed within Sadock's autolexical theory, and is not much different from the constraint which would be needed under Baker's movement analysis, especially if the "movement" is metaphorical; so no clear advantage for this "lexical" approach is found here.

(o) Musan i-k'euwe-m.

"The cats are old."

cats B-old-pres

(p) * I-musa-k'euwe-m.

B-cat-old-pres

Optional incorporation

Next we consider cases where incorporation is "optional". One is seen when (q) is compared with (a).

(q) Wisi seuan-nin bi-mu-ban. two man-pl 1s:B-ee past "I saw two men."

(r) * Ti-t'ayn-mu-ban hliawrade. ("I person-saw the woman".)
1s:A-person-see-past lady

Since there is in such cases no syntactic constraint against lexical Heads of the nominals in question, independence of verb stem composition from syntactic constraints predicts that a verb may have an incorporated noun stem which is linked to an argument with a lexical Head. In fact, there are languages which permit this "doubling", and thus support Rosen's approach. However, ST does not; sentences like (r) are always rejected by ST speakers. Rosen suggests that this may be due to a selectional restriction on the argument to which the incorporated noun stem is linked; a restriction which in effect rules out a lexical Head for that argument.⁵

AGF also show that incorporation of the Head of the initial subject of a passive is optional as well:

(s) Khwianide φ-edeure-ban (yede) kanide-ba.

dog A-kick-past that horse-instr
"The dog was kicked by (that) horse."

(t) Khwianide φ-kan-edeure-ban (yede-ba).

dog A-horse-kick-past that-instr "The dog was kicked by (that) horse."

Observe that for a monostratal account to rule out this doubling in the same way that Rosen proposes to rule out doubling in sentences such as (r), the verb must carry a "selectional restriction" requiring a non-lexical Head for what is a semantic argument. So far as I can determine, such a selectional restriction should be impossible in the government-binding framework.

As mentioned above, since proper nouns cannot be ruled out as objects in the cases where lexical Heads are banned (see (u)), doubling is expected with them as well. Yet as (v) shows, such sentences are bad. So whatever approach is taken to rule out doubling in the "optional incorporation" cases is also needed even in most of the cases where the constraints on non-null Heads seemed to work so well.

(u) Seuanide φ-mu-ban Marie.

"The man saw Marie".

man A:A-see-past Marie

(v) * Seuanide φ-t'ayn-mu-ban Marie. ("The man person-saw Marie".)
man A:A-person-see-past Marie

I submit that here again we are dealing with a morpho-syntactic constraint that is not much different from that which a relational grammar or autolexical approach would require. The obligatory absence of a lexical Head of a nominal just in case the verb stem contains a noun stem that is understood as the Head of that nominal is the quintessential situation that calls for a rule of noun incorporation, whether it be a process rule or a well-formedness constraint.

Two kinds of null Heads

When one considers the null Head phenomenon in a domain larger than the clause, it becomes apparent that there are two kinds:

1. those licensed by discourse context, such that the Head is null because the content of an overt Head would be redundant; example

- (b) would occur in such a context.
- 2. those licensed by presence of the noun stem as part of the verb complex.

In addition to the different distributional requirements of these two types of null Heads, there is another fact which supports such a distinction: null NPs licensed by discourse context can be replaced by an emphatic pronoun (compare (w) and (x)), but null NPs licensed by incorporation never are (see (y)).⁶ This shows that null NPs associated with NI are not simply null; i.e. this is another fact which argues against the complete independence of null NP distribution and NI.⁷

(w) Ti-mu-ban.

"I saw him."

1s:A-see-past

(x) Ti-mu-ban awa.

"I saw him."

(y) Ti-seuan-mu-ban (*ãwa).

"I saw the man."

This fact also complicates the constraints above which ruled out doubling by forbidding lexical Heads of certain nominals, because those same nominals may not have an overt pronoun as Head either. The constraint then seems to require the form of a disjunction: it must require that the Head be null or a proper noun.

Conclusion

While Rosen's proposal is apparently appropriate for NI in some languages, and even permits independent lexical and syntactic constraints to account for a subset of what were previously described as morphosyntactic incorporation constraints in ST, it does not provide the full story; constraints on incorporation are still needed which reference both the morphology and the syntax. So Southern Tiwa⁸ exhibits a third type of noun incorporation.

Notes

¹The term 'classifier' is appropriate only for languages, such as those of the Iroquoian family, in which the incorporated noun can classify a co-occuring nominal with an overt Head. But as we shall see, Southern Tiwa does not allow such "doubling".

²Abbreviations used in glosses include: 1 = first person, 2 = second person, 3 = third person; s = singular, p = plural; A, B, and C are morphological classes determined by combinations of two numbers (s and p) and three grammatical gender categories (i, ii, and iii) as follows: A = is or iis; B = ip or iiis; C = iip or iiip.

³Rosen was apparently unaware of this reference.

⁴Where 'lexical' excludes proper nouns and pronouns; these are never incorporated, and they can serve as free nominals in cases where (other) nouns would have to be incorporated. This latter fact is taken up later.

⁵Here again a feature [-lexical Head] would need to be available to percolate.

⁶I am grateful to Donna Gardiner for checking examples such as (y) for me with ST speakers.

⁷Within a theory of incorporation such as Baker's (1988), these two would differ in that type 2 would be represented as a trace; type 1 could be *pro*, though *pro* normally is an entire NP, not just the Head of an NP.

⁸And probably Eskimo as well; see Sadock 1980.

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PARADIGMATIC RELATIONSHIPS

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Let me begin with an anecdote from my personal experience as a linguistics student. At the Ninth International Congress of Linguists in Cambridge in 1962, after a paper by Paul Postal (1964) on the generative phonology of Mohawk, which I observed from the front row of Kresge Auditorium, a leading member of the Department of Linguistics at MIT went to a blackboard on the stage to present a comment. He wrote up the English sentence Help yourself. and explained that the form of the pronoun yourself showed that there was an underlying second-person subject you that had been deleted by a transformation. As he stepped down off the stage he muttered under his breath, "And if you can't see that you don't deserve to call yourselves linguists." What was and may still be significant about the sentence Help yourself to formalist linguists is that the pronoun you is present in it; but as I listened to the discussion of this sentence it occurred to me that what was significant about it was that the pronoun you was absent. I would like to be able to tell you that in that moment I became a functionalist, but I suppose that the reality was more complex.

Linguists who confine themselves to formal accounts of languages (or, more typically, parts of languages) feel that their job is done when all the pieces have been arranged or derived under labels sanctioned by the chosen framework. At about the point the formalists lose interest, the functionalists' interest begins to perk up. They are not intrigued by a claim that it can be shown that imperatives have second person subjects, but wonder how to account for the fact that, if imperatives and indicatives are differentiated by one having and the other not having a subject pronoun, it is predictably the imperative in which the pronoun is lacking. Functionalists ask an additional set of questions and have different standards of what it means to account for the features of a language. They may also feel that some things that formalists do account for are uninteresting, or marginal, or even unreal. I should say that my use of the term formalist is not intended just as a codeword for any particular individual or group; it encompasses not only generative grammarians, but also American structuralists, who are the proximate source of contemporary anti-functionalism, as well as strict Neogrammarians and others.

One of the things that interests functionalists is what I am calling paradigmatic relationships. Bloomfield's (1926:154) famous first assumption in his "Set of Postulates" was: "Within certain communities successive utterances are alike or partly alike." Paradigmatic relationships are those between partially similar utterances. They may include any link of similarity between coexisting forms, not just those that reflect derivation. The interest arises from the relationships that remain untreated, or incompletely or imperfectly treated, after the utterances have been formally derived and labeled. Typical cases include those in which formal and functional relationships do not coincide, cases in which the choice between two similar utterances has a function that is not accounted for lexically or syntactically, and cases in which multiple relationships cannot be subsumed under a single, internally consistent derivational scheme. The competing models Heath (1987) postulates to account for what he calls ambiguities in phonological structure are instances of paradigmatic relationships. Multiple and mutual relationships are the essence of paradigmaticity.

Let us first look at some kinds of paradigmatic relationships.

- 1. The three forms in (1a-c) form a simple, static paradigm of the familiar sort:³
- (1) Fox independent indicative.
 - a) 1s-2s ke|pye:n|ene 'I brought you (sg.)'
 - b) 1p-2 kelpye-nlene-pena 'we (excl.) brought you (sg., pl.)'

c) 1s-2p kelpye nlene-pwa 'I brought you (pl.)'

The underlined form (1c) is inflected for first person singular subject even though it contains no first person singular morpheme; its inflectional affixes are: ke- (second person involved); -en(e) (second person object); -pwa (second person plural).⁴ That the categorial structure of

this form includes the first person singular is reflected by its use with the first singular emphatic pronoun *nina*:

(2) ayo·h=ni·na kepye·nenepwa 'I brought you (pl.) here.'

This categorial structure is accounted for, not by its ostensible morphological structure, but by its paradigmatic relationships.⁵ The paradigm provides for all possible combinations of subject and object; within it, this is the form used for first singular acting on second plural.

2. The example in (3) is phonological, or close to it:

(3) Oneida utterance-final forms (Lounsbury 1953:33-34, 95-96; Michelson 1983:259-281).

utterance-medial
a) loteswártu loteswáhtu. 'he has been playing'
b) loteswáhtu loteswáhtu. 'he has smelled of it'
c) sátyn sátih. 'sit down'
d) wahátyn? wahátih. 'he sat down'
e) lóhsu? lóhsuh. 'he has finished it'

e) lóhsu? lóhsuh. 'he has finished it'
f) wartú:

awartu. 'it will be possible'
lovotha 'he is working' (a

g) loyo té· loyo hte. 'he is working' (exceptional type)
h) tehotawalyehátye' (older) tehotawalyehátih. 'he was traveling along'
tehotawalyeháti' (more common)

Oneida words typically have different shapes utterance-medially (in the left column) and utterance-finally (right column, written with a following period). It is very nearly possible to derive the utterance-final forms from the utterance-medial forms by strictly phonological sandhi rules, a directionality that is consistent with the fact that some types that are distinct medially fall together finally (3a and b; c and d). Some exceptions, however, complicate the picture (e.g. types f and g, which are distinct finally but not medially). Furthermore, there are many cases of medial forms that are backformed from final forms (such as the second medial form in h, backformed on the model of type e). Descriptively, then, there is a system of conditioned doublets between which speakers can pass bidirectionally. The bidirectional paradigmatic relationship between the two forms accounts for the ability of speakers to create new utterance-medial forms from the final forms, including new forms that are inconsistent with other occurrences of the same morphemes: tehotawslyehátyehse? 'he travels along', etc.

3. Bidirectional paradigmatic relationships are also illustrated by the class of Unami (Delaware) possessed nouns that have irregular stem variation with and without prefixes (4a-c):

(4) Unami possessed-noun stems.

a) kší k an 'knife'
b) tamá k an 'road path trail

b) təmá·k·an 'road, path, trail'

c) sá·p·a·n 'cornmeal mush'

m|paxkší·k·an 'my knife'

na|mat amárkan 'my road, path, trail' n|nas á pan 'my mush' (older form) na|mas á pan 'my mush' (some good speakers)

d) sí·p·u 'creek' n/si·p·ó·yəm 'my creek'

Although this pattern arose historically by the loss from the unpossessed forms of certain word-initial short-vowel syllables, descriptively the directionality goes the other way. The possessed-noun stems are derived by the addition of lexically specified syllables to the unpossessed forms (these added syllables are underlined). This is shown by disagreements over the shape of the added syllable (4c) and by the different treatment in some related verbs (5a, b):

(5) Initial-syllable retention in Unami unprefixed verbs.

a) paxkšəmá:ne 'if I cut it (= string)' (cf. 4a)

b) motome 'he takes the road, path, trail' (cf. 4b)

Note that the innovative form in (4c) is not simply regularized (to match the type in 4d); it retains its lexical mark as a stem that adds a syllable but adopts a more widespread pattern within that class. The paradigmatic relations include those between the possessed and unpossessed stems and those among the members of the irregular class.

4. Paradigmatic relationships do not necessarily run in the putative channels of derivation. Example (6) illustrates the two basic morphological patterns used in Fox to add an initial

(a stem-initial element) to a verb, in this case the addition of ki-š-'finish' to make the corresponding perfective.

(6) Fox simple and compound stems.

a) wi seni/wa Stem: wi seni- 'eat'.
'he eats'

b) <u>ki'ši- 'finish'</u> + derived final -isenye'- 'eat'. 'ki'š- 'finish' + derived final -isenye'- 'eat'.

c) meno/wa Stem meno- 'drink'. 'he drinks'

d) <u>ki ši menoļwa</u> ki š- 'finish' + particle final -i; stem meno- 'drink'.

Some verbs, like 'eat' (6a-b) add the initial to a final (a stem-final element) derived in some way from the independent stem. Other verbs, like 'drink' (6c-d), have no corresponding derived final and add the initial as part of a preverbal particle that forms a compound stem with the simple verb. The resulting forms in (6b) and (6d) are both single syntactic words: word-initial processes, such as prefixation, operate on the first preverb (Goddard 1988; Dahlstrom 1987:65-67). But while (6b) is also a single phonological word, (6d) is two phonological words, between which other, extraneous words may appear. A paradigmatic relationship links these two morphologically disparate but functionally parallel types of stem (6b and 6d). This paradigmatic relationship should lead us to consider the theoretically interesting possibility that the derived expressions in (6b) and (6d) have the same lexical status (Goddard 1988).

5. Another phenomenon that bears on the question of the lexical status of derived stems in Fox is what I have called preverb bumping (Goddard 1990). For example, when the stem for 'walk' (7a) adds the initial meaning 'begin to' (7b) the added initial replaces the existing initial and the dislodged initial forms a preverb:

(7) Fox preverb bumping.

a) <u>pemose |wa pem-</u> 'along' + -ose- 'walk' 'he walks (along)'

c) Template order: pemi we p-

This is the usual treatment: the initial pem- 'along' is always dislodged by wep- 'begin' and is retained as a preverb over 80 percent of the time. There is a paradigmatic relationship between the simple stem in (7a) and the compound stem in (7b) that is not accounted for by the analysis of the morphological structure of the individual words (given at the right). This relationship is mediated by a template that specifies the linear order of initials (7c). Compound stems like (7b) are part of a set that shares this order of elements and has a paradigmatic relationship to the set of simplex verbs like (7a).

- 6. Another type of paradigmatic relationship is found in cases where an entity in part resembles or behaves like another entity from which it is otherwise distinct. For example, in the operation of the complex phonological rules of Menominee, short vowels before? sometimes behave like long vowels, both in conditioning (8a) and in being conditioned (8b).
 - (8) Menominee vowel length.
- a) Long vowel after first cluster is shortened, provided that the preceding vowel is long (or precedes?):

k<u>o'hnε</u>w 'he swallows him' k<u>o'</u>nεw 'he fears him' (cf. p<u>a</u>hnε<u>r</u>w 'he roasts him', na nε<u>r</u>w 'he invites him') b) Long o: (and short o before ?) $\rightarrow u$: (u) if $i(\cdot)$, $u(\cdot)$, Cw, or Cy follows in the word: $p\underline{u}$:setua? 'if they embark' (cf. $p\underline{o}$:set 'if he embarks')

ku?natua? 'if you (sg.) fear them' (cf. ko?nat 'if you fear him')

(cf. ota-hpenatua? 'if you (sg.) pick them up')

Phonetic plausibility is lent to this patterning by the fact that, although long and short vowels are distinct in this environment (9a, b), they are apparently harder to distinguish here than elsewhere (9c, d):

- (9) Menominee vowel-length contrast before?.
 - a) atew 'it is (there)'
 - b) a tew 'it (fire) goes out'
 - c) pε'nan 'it is snowing' (Guile); pε'nan, once pε'nan (Bloomfield 1975:204, 202)
 - d) a resement 'he tempts him' (Guile); a reme w (Bloomfield 1975:26)8

There is not, however, any realistic way to account for this similarity by converting such short vowels to long vowels just long enough for the application of some rules (though it will not surprise you to hear that at least one generative solution has proposed a version of this: $\#(C)V^{\circ}C^{-} \rightarrow \#(C)V^{\circ}VC^{-}$ and subsequent adjustments [Bever 1963:200, 1966:136-146]).

7. A morphological example of a paradigmatic relationship of partial similarity is furnished by the derivation of verbs of possession that are formed from nouns in Menominee. Many verbs of possession incorporate the exact duplicate of the third-person-possessed theme of the possessed-noun paradigm, marked with the third-person prefix o-:

(10) Menominee verbs of possession (I).

a)	su [.] niyan →	<u>o su·niyan-em</u> →	<u>osu·niyanem</u> -e w
	'money'	'his money'	'he has money'
b)	a·seyan →	<u>ot a·seyan</u> →	<u>ota·seyan</u> -e w
	'breechclout'	'his breechclout'	'he has a breechclout'
c)	$ahke \cdot w \rightarrow$	$ot a:hke-m \rightarrow$	<u>ota·hkem</u> -e w
	'land'	'his land'	'he has land'
d)	ohpuakan →	<u>ot u·hpwakan</u> an →	<u>otu:hpwakan</u> -e w
	'pipe'	'his pipe'	'he has a pipe'
e)	ne ta·n,	<u>o ta·n</u> an →	ota·n-e w
-	'my daughter'	'his daughter'	'he has a daughter'

These verbs are made both from ordinary nouns (10a-d) and from dependent nouns, which are always prefixed (10e). If the noun is animate (10d, e) third-person-possessed forms are inflected with the obviative ending -an. If the noun takes the possessed-theme marker -em, this appears in the corresponding verb (10a, c), and the prefix o- has the shape ot- before vowels (10b, c, d), with the insertion of t otherwise found only in the pronominal prefixes. The semantics, also, would obviously fit such a derivational link perfectly. For some nouns, however, the shape of the verb diverges from the third-person-possessed theme of the noun:

(11) Menominee verbs of possession (II).

a) $n e\cdot k$,	$\underline{w e\cdot k} \rightarrow$	<u>o-we·k</u> -e w
'my house'	'his house'	'he has a house'
b) $n o\cdot hn-\varepsilon^{\gamma}$,	<u>Ø o·hn</u> an →	<u>ow-o·hn</u> -e w
'my father'	'his father'	'he has a father'
c) si [.] ?sekwan →	<u>o si·?sekwan-em</u> an →	<u>osi·?sekwan</u> -e w
'rattle'	'his rattle'	'he has a rattle'

In particular, it is systematically the case that nouns in which the third-person prefix is not oon the surface (11a, b) add o- in the derivation of the verb. It is easy enough to derive such verbs from the corresponding third-person-possessed themes by prefixing an element o- (owbefore o-, which there is probably more than one way of getting automatically). The problem is explaining what this o- is. If the o- in these verbs is categorially the third-person prefix, why is the third-person prefix present twice in some of them (11a, b)? If the o- is not the third-person prefix, why does it look and behave so much like it? It appears that the productive form of the third-person prefix (o- rather than w- or \emptyset) is a salient marker of the verbs of possession as a class, even though this is precisely a morphological environment in which it does

not function to mark the third person. The initial o- on verbs of possession is not an inflectional affix but part of the stem; third-person intransitive verbs, which these are, take no prefix. Inflectional prefixes (e.g. ne(t)- 1st pers.) may appear before this derivational o- (\sim -o-):

(12) Menominee verbs of possession (III).

a) net/o tohpwakan-e/m 'I have a pipe' (cf. 10d)

b) net/o·we·k-e/m 'I have a house' (cf. 11a) c) net/o·w-o·hn-e/m 'I have a father' (cf. 11b)

Because the similarity between the inflectional and derivational processes that indicate possession is clearly functionally motivated it cannot be ignored, and yet it cannot be explained simply by formally equating the two. There is a paradigmatic relationship but not a formal identity.

- 8. Another class of cases in which inflectional morphemes are used in derivation is exemplified by the theme signs of Algonquian languages, which are added to transitive stems in Algonquian to indicate some features of the object, or the subject and object. Among the proofs that they are indeed inflectional is the fact that they are used differently in the different orders, which are inflectional classes. The direct theme sign (13a) is incorporated into a nounforming suffix (13b):
 - (13) Menominee theme sign used in inflection and derivation.

a) Menominee nayo'm-'carry (animate) on back':

+ (direct theme sign) -a → (direct theme) nayom-a ·: nayom|a · t 'if he carries him (obv.) on his back'

+ (inverse theme sign) -Ekw- → (inverse theme) nayo·m-Ekw-: nayo·m/ek 'he (obv.) carries him on his back'

b) (direct theme) nayom-a:

+ (noun final) $-kan \rightarrow nayo m - \underline{a} - kan$:

nayo·ma·kan 'saddle'

The inverse theme sign (14a) is incorporated into a suffix that forms verbs with a passive meaning (14b):

(14) Fox theme sign used in inflection and derivation.

a) Fox ina cim- 'speak (thus) of (animate)':

+ (direct theme sign) -a'- → (direct theme) ina'čim-a'-: ina'čim|a'-t-e' if he speaks (thus) of him (oby.)'

+ (inverse theme sign) -ekw- → (inverse theme) ina cim-ekw-: ina cim/ekw-a 'he (obv.) speaks (thus) of him'

b) (inverse theme) ina čim-ekw-:

+ (anim./inan. verb final) -esi-/-at- → ina·čim-eko-si-/ina·čim-ekw-at-:
ina·čimekosi/wa 'he is told about', ina·čimekwat/wi 'it is told about (thus)'

The elements appearing in the derivational endings (13b, 14b) cannot be identified with the theme signs (13a, 14a), since, for one thing, the theme signs are used after every verb of the appropriate category, while the derivational endings are found with only a few stems. Also, the gender-specificity of the inverse theme sign is leached out in the derivational use (14b). At the same time these derivational elements retain morphological features of their inflectional counterparts; for example, the suffixes in (14b) appear only after stems that in their primary use take animate objects, a restriction characteristic of the incorporated inverse theme sign. Although the inflectional and derivational uses of these elements cannot be collapsed together, their similarities are, again, functionally motivated and no accident.

The multiple paradigmatic relationships of a form, or set of forms, can have dynamic effects, either diachronically or on the equilibrium of the synchronic system.

9. The rules that adjust vowel length in Menominee cause complex patterns of alternation in the surface shape of stems (15a; cf. 12), which many have tried to explain by formulating rules of unidirectional phonological derivation:

(15) Menominee vowel-length adjustment (I).

a) |oseta·hkw-| oseta·h 'axe handle' (< PA⁹ *wesita·xkwi):

→ |net|oseta·hkw-| neto:setah 'my axe handle'

Cases of variation (16a) and historically unexpected underlying vowel length (16b, c) show, however, that speakers can extrapolate in both directions:

(16) Unhistorical Menominee vowel-length.

a) |maskihkiwa·poh-| maski·hkiwapoh 'tea' (< PA *maškixkyiw-a·pow-):

→ |ne|maskihkiwa·po-m| nema:skihkiwa·pom 'my tea'

→ nema:ski:hkiwapom ("less urbane" [Bloomfield 1962:121])

b) |atohpo-| 'eat off something' (< PA *atoxpo- \leftarrow *atot-po-):

→ |atohpw-an-| 'table' → |atohpwan-i kw-| atu-hpwani k 'tablecloth':
→ |net|atohpwani kw-| neta tohpwani k 'my tablecloth' (Bloomfield 1928:596)

c) |atotape-| 'sit on something' (< PA *atot-api-):

→ |atotapy-a·kan-| atu tapyakan 'chair': → |net|atotapya·kan-| neta totapiakan 'my chair' (Goddard, 1974 notes)

The full array of occurring forms can only be accounted for by postulating a complex array of multidirectional paradigmatic relationships.

- 10. Morphological splits provide clear cases of multiple paradigmatic relationships. The so-called prohibitive in Fox (Goddard 1985), formed with a modal marker -hk- (17a), is used in three distinct functions (17b):
 - (17) Fox prohibitive.

manteau fusion:

a) Stem + (transitive theme sign +) -hk- + pronominal ending.

Negative imperative Undesirable possibility Desirable future possibility owi wilhkani 'don't forget (sg.)' 'you (sg.) might get cold' 'get married (sg.)'

Sequences of certain theme signs (see §8) and the modal marker occur with or without port-

(18) Themes signs in the Fox prohibitive.

Direct theme sign -a: + -hk- \rightarrow -iye:k- or -a:hk-

Inanimate theme sign -am- + -hk- \rightarrow -ak- or -amo·hk-

There is a functional difference between the forms with fusion (19, left and center columns) and those with agglutinative juxtaposition of these elements (19, right column):¹⁰

(19) Differentiated functions in the Fox prohibitive.

Negative imperative Undesirable possibility Desirable future possibility a) ka ta a čimoh iye kani ketema·kih|iye·kani a·čimoh|a·hkani 'tell them (sg.)' 'don't tell him (sg.)' 'you (sg.) might make them poor' se·kih|<u>iye·k</u>e·ko wi·tamaw|a·hke·ko b) ka ta a nwe htawlive ke ko 'don't disbelieve him (pl.)' 'you (pl.) might 'you (pl.) should tell them' frighten them' a·piškon|iye·kiče pesetaw|a·hkiče c) 'she must have 'she might listen to her' let them loose' a·hkwamat|akani koht|amo:hkani d) ka ta me šen akani 'don't touch it (sg.)' 'you (sg.) might be sick' 'you (sg.) should fear it'

The forms that categorially lack the theme signs that are subject to fusion have the same range of functions but do not show a formal split (17b).

What is interesting about the forms exemplified in (19) is that, not only is there a split between the negative imperative (left column) and the future imperative (right column), there is a third category that has the morphology of the negative imperative but lacks the negative (center column). The function of these forms for undesirable possibility can be understood by looking at their paradigmatic relationships. Far and away the most common use of the prohibitive mode is in the negative imperative construction. There is thus a markedness anomaly, in which the functionally unmarked use is the one that has the more complex form (with the negative particle kata). Functionally the negative imperative is not the negative of

the undesirable-possibility type; the undesirable-possibility type is the non-negative of the

negative imperative. This explains the particular association of form and function illustrated in the center column in (19): the paradigmatic relationships have a functional pattern beyond what can be accounted for by labeling their morphological components. To some extent in such cases, the categorial structure is a function of the way the lexicon is used, since, for example, the same verbs will tend to show up in the negative-imperative and undesirable-possibility sets, while different verbs will tend to be used in the future imperative (though some, of course, will be found in both formations: 19a).¹¹

11. Another case of the multidirectionality of paradigmatic relationships is exemplified by the use of Fox taši. Fox verbs with a locative oblique argument require a locative valence-bearer. Some verbs have this locative valence as an optional lexical feature; not surprisingly these verbs are ones that refer to actions that are inherently localized and durative:

(20) Fox stems with optional locative valence.

Verb alone
a) e'n+wi seniči, e'n+nepa'či.
'He ate, and he slept.'
b) nešekišekišine

Locative oblique + verb
iya'hi e'n+nepa'wa'či.
'They slept over there.'
nekotahi e'n+šekišekišina

ne<u>šekišekišine</u>
'I was lying down'
'they were lying down somewhere'

When other verbs are used with locatives, $ta\dot{s}i$ (or a variant of this)¹² is added to bear the oblique valence:

(21) Fox stems without locative valence.

Verb alone

a) e-h-we-pi <u>kakano neti-</u>či

'he began to converse'

b) ni-h-peseše

'I shall listen'

Locative oblique + taši + verb

sa-kiči e-h-taši <u>kakano neti-</u>wa-či

'they conversed outside'

inah-ne-h-wi-na taši peseše-wa

'he, too, listened there'

In addition, the verbs that require taši with a locative are used with taši and no locative to give the aspectual meaning 'be engaged in':

(22) Fox taši with no locative.

a) a·kwi ... ayi nehka taši kakano neti wa·čini (cf. 21a)
 'they did not continue conversing inattentively'

b) wi·h=taši wi·ke·či <u>peseše·</u>ya·ni (cf. 21b) 'for me to be listening carefully'

This durative aspectual use of $ta\check{s}i$ cannot be explained simply by describing it as a second function of this lexical item. For one thing, such a description would not account for why one set of verbs has $ta\check{s}i$ in both functions (21, 22) and the other set has it in neither function (20). The explanation for this durative aspectual function of $ta\check{s}i$ with no locative oblique lies in the similar aspectual meaning that is inherent in the verbs that do not take $ta\check{s}i$: be lying down (somewhere)' is to 'be lying down' (20b) as 'listen (somewhere)' (21b) is to 'be listening' (22b).

12. Paradigmatic relations are also extensive in the semantic component of language. The descriptive fiction that the meaning of a concatenation of elements is a function of the meanings of the separate elements, though convenient, is inadequate for understanding some typical kinds of meaning relationships in polysynthetic languages. Some semantic sets can only be understood with reference to the inverse relationship, in which the meaning of an element is a function of the set of contexts in which it is used. ¹³ This is particularly evident in cases of semantic generalization in which divergent meanings grow out of a single semantically basic stem inherited in two related languages. For example, Algonquian languages inherit an initial PA *šenk- that appears to be reconstructible in only one stem set:

(23) Proto-Algonquian.

*<u>šenkihšinwa</u> 'he is lying down' (stem = *<u>šenk-</u> '?' + *-ihšin- 'lie down')¹⁴

Ojibwa builds up a set of stems that share the initial element in the meaning 'be spread out, strewn, stretched' (24), while Arapaho builds up a set in which this element means 'flat' (25):

(24) Ojibwa.

```
šinkiššin 'he is lying down' (< PA *šenkihšinwa [23])

→ šink- 'be spread out, strewn, stretched' (McGregor 1988:376)

šinkate·ssin 'it is spread out, stretched out, strewn'

šinka·kama· 'the water (of the lake) extends beyond the shoreline'

(25) Arapaho.

|seºisin-|seºisi' 'he is lying down' (stem < PA *šenkihšinwa [23])
```

| <u>se?isin-| se:?isi</u>? 'he is lying down' (stem < PA *<u>šenkihšinwa</u> [23])

→ <u>se?</u> 'flat'

| <u>se?yo·-| se·?e</u>'? 'it is flat'
| se?t'ċô·ó 'flat pipe' (a straight, tubular pipe) (cf. hî·ċô·ó 'pipe')

se?'τὸ'ο ό 'flat pipe' (a straight, tubular pipe) (cf. hî τὸ ο ' pipe') se?'τὸ ιδινοίθε ' spade' (cf. béi'τὸ iθε' ' metal')

That the stem meaning 'lie down' remains the core member of each of these sets (24, 25), and that the initials in each language are in some sense derived from these core stems, are functionally real facts about these languages that can be expressed as paradigmatic relationships but find no place in any type of unidirectional, piecemeal formal account.

13. Cases of morphological contamination, in which the channel of analogy runs across the direction of the derivation, can be understood as the crossing of paradigmatic relations. For example, Munsee animate intransitive verbs, in the independent order, have -w in the third singular and Ø in the first and second singular after vowel stems, the most common type:

(26) Munsee vowel stem.

stem |pa·-|

1s mpá 'I came'

2s kpá 'you came' 3s péw 'he came'

The only permitted word-final C + w cluster is kw, and consonant-final stems consequently show -kw in the third person of k-stems (27, 'weep') and no -w in stems ending in other consonants (27, 'fare so'). In addition, however, the stems in k have -w in the first and second singular:

(27) Munsee consonant stems.

stem |ont-| stem |lopak-|¹⁵
1s ntônt 'I fare so' lớpak<u>w</u> 'I weep'
2s ktônt 'you fare so' kỗlớpak<u>w</u> 'you weep'
3s ônt 'he fares so' lpák<u>w</u> 'he weeps'

The -w in the first and second person could be described as the variant of the first and second singular ending that is used after consonant stems, surfacing only after k, but this would not explain why it is precisely w that appears here. The operative generalizations are that the sequence kw patterns in part like a single consonant, and that consonant stems have the same word-final shape throughout the singular; hence kw appears word-finally in all the singular forms. The distribution of the morpheme w makes no sense unless interpreted paradigmatically.

A similar case is found in the Massachusett preterite, basically formed with a suffix -p:

(28) Massachusett Conjunct.

Conjunct preterite (Pro + -p PRET) Conjunct subjunctive Intrans. Trans. Intrans. Trans. 1s - ak-ak p (< PA *-ak-epa) $-\tilde{a}\underline{h}p$ (not \dagger - $\tilde{a}p$ < PA *-a-mpa) $-\tilde{a}n$ $-a\underline{h}p \text{ (not } \dagger -ap < PA *-ampa)$ -ahp (< PA *-at-pa)2s - at-an -hp (< PA *-t-pa) $3s - \tilde{a}t$ $-\tilde{a}hp$ (< PA *-a·t-pa)

After h was extended along one paradigmatic channel from the second singular transitive to the second singular intransitive, making these endings identically -ahp, the h was then extended along another channel to the first singular intransitive, where it appears to have no possible phonological or morphological motivation. This reshaping does, however, make sense as the outcome of pattern pressure on the cross-weave of paradigmatic relationships linking first and second singular and preterite and non-preterite. And the innovative forms (with h underlined in 28) can only be understood synchronically in terms of their paradigmatic relationships.

14. The paradigmatic approach is needed, not to make sense out of marginal loose ends, but to reveal core patterns of functional significance in complex morphological subsystems. For example, Fox two-syllable reduplication presents the familiar sorts of ordering problems often found with reduplication. Basically, consonant-intial stems prefix C₁V(·)C₁V and vowelinitial stems prefix V(')C₁Vh; the reduplicated forms denote multiple or extended actions:

(29) Fox two-syllable reduplication (underlined): basic patterns.

a) keteketemino nwa sa 'they would have been blessing you (pl.)' (stem: keteminaw- 'bless')

b) ne:sene:se·hekwiye·kwe 'what cured you (pl.)' (stem: ne:se·h- 'cure')

c) inahi apihapiwaki 'they kept sitting there' (stem: api- 'sit')

The first two syllables are repeated, up through the second vowel (29a), which is always short in the reduplication (29b). Vowel-initial stems insert h (29c). The copying starts with the beginning of the stem, ignoring prefixes and proclitics (set off with =):

(30) Fox two-syllable reduplication: with prefix or proclitic.

a) nekotahi i ya hi netapihapi 'I was sitting over there someplace' (stem: api- [29c]; prefix net-, 1st pers.)

b) wi h=apihapiye kwe 'that you keep sitting' (wi h=: future)

c) e'h=apihapinitehe 'where he (obv.) had been sitting' (e'h=: aorist)

After the reduplication, the core stem appears in its word-initial shape, notably with initial |e| raised to i (31a) by a general rule (31b):

(31) Fox two-syllable reduplication: treatment of core stem.

a) pye či <u>iših</u>išimehki 'what those so far told you (sg.)' (stem: |ešim-| 'tell (thus)')¹⁶

b) $|e^-| \rightarrow i^- / \#^{17}$

Prefixation (32a) and the vowel ablauting process called initial change (32b, c) appear on the reduplicated segment just as they would on the core stem. (Forms with initial change [IC], called "changed" forms, replace the first short vowel of stem [or compound stem] with e^{\cdot} .) 18 The core stem is unaffected and hence may differ in shape from the reduplication:

(32) Fox two-syllable reduplication: divergence from core stem.

a) netešihišimekwa 'he always told me' (stem: |ešim-|; prefix net-)

b) e-<u>šihišimenako-we</u> what I have been telling you (pl.) (stem: |ešim-|; IC |e| $\rightarrow e$)

c) <u>ke na</u>kanawita 'one who gave a speech' (stem: kanawi- 'speak'; IC $|a| \rightarrow e$ ')

If the stem is shorter than two syllables, the target of the reduplication extends into the inflectional suffix complex:

(33) Fox two-syllable reduplication: short stems (in bold).

a) we či ineh inenako we 'why I used to tell you (so)'

(stem |eN-|¹⁹ ~ \emptyset - 'say (thus) to'; suffixes: -enakowe 1s-2p/conjunct) b) exihisiči 'what he used to say to me'

(stem |eN-| $\sim \emptyset$ -; suffixes: -iči 3s - 1s/conjunct)

c) e h=amwahamwaki 'I used to eat them (anim.)'

(stem |amw-| 'eat'; suffixes: -aki 1s-3(p)/conjunct)

d) amohamokoniwahi 'they (further obv.) used to eat them (obv.)' (stem |amw-|; suffixes: -ekoniwahi 3"-3'p/independent; |we| $\rightarrow o$)

With the stem allomorph Ø of the verb 'say (thus) to' (cf. 33a), the reduplication affects only inflectional suffixes:

(34) Fox two-syllable reduplication: Ø stem. a) netekwahikwa 'he used to say to me'

(stem allomorph Ø; prefix net- 1st pers.; sufixes: -ekwa 3s - 1s/independent)

b) e h=ikohikoči 'he (obv.) used to say to him

(stem Ø-; suffixes: -ekoči 3'-3s/conjunct)

With the stems iha - 'go' (35a) and to taw-, to t- 'treat him, it (so)' (35b) and stems containing the initial element tan- '(there); be engaged in' (35c) the reduplicating stems (35, right column) have the shape of the irregular changed forms of these stems with the vowel replacement undone:

(35) Fox two-syllable reduplication: backformation from irregular change. Stem with reduplication

Stem + IC Stem eya--20 ava:a) iha- leha- l'go' e-to-taw-21 b) to taw-, |to taw-|, 'treat him (so)' ito taw-

e·tan-22 itanc) tan- |taN-| '(there); be engaged in'

The stem 'go' generalizes the backformed reduplicating stem from changed forms (36a) to unchanged forms (36b), while the other irregular stems retain their normal stem-initial shape in the reduplication itself (36c, d):

(36) Fox two-syllable reduplication: examples of irregular type.

a) evahaya | ye kwe 'where you (pl.) go (at different times)' (cf. 35a)

b) ka ta peno či ayahaya | hke ko 'don't go far away' (cf. 35a)

c) pye či tohito ta ti |wa či 'the way they have always treated each other' (stem |to ta ti -| 'treat each other (so)' ← |to taw-| + |-eti -| recip.; cf. 35b)

d) netahitanwe kesi 'I was crying' (stem |taNwe kesi-| 'be crying'; cf. 35c)

A stem with both reduplication and initial change (as in 36a) does not have regular reduplication (a derivational process) followed by initial change (an inflectional process); it has a reduplicating segment (here eyah-) based on the form of the stem that has already undergone the inflectional process of initial change (eya-), followed by a core stem with this inflectional process undone (aya-). The reduplicated stem without initial change has the same reduplication as the changed stem (36b).

All of these occurring forms (30-36) can be described as having exactly the shape needed to maximize the surface transparency of three paradigmatic relationships: (1) to other reduplicated forms (the form looks like it has the appropriate kind of reduplication and is consistent for each stem); (2) to other inflected forms (the reduplicating segment undergoes the same word-initial inflectional processes and adjustments that the unreduplicated word would have); and (3) to the stem (the core stem has its word-initial shape, to the extent allowed by the first constraint). The interaction of these sets of paradigmatic relationships determines the shape of the reduplicated form.

15. The linguist must be able to recognize what needs to be explained and must be willing to risk explanations that go beyond simply illustrating what a given framework can handle. What is actually going on in the examples reviewed in this paper would be hard to explain by purely formal accounts operating under the usual constraints of economy. The essential coherence of the disparate facts in each case can be understood only by reference to the paradigmatic relationships. Paradigmatic relationships map the terrain on which languages must perforce be studied, and probably also language learnability and language learning. They are not marginal curiosities but rather reveal important aspects of how language actually works on the leading edge of its productive mechanisms. And language, after all, is a dynamic process, not a static configuration. In fact, we must ask whether analytical relationships that do not mirror active paradigmatic relationships can, in principle, have descriptive validity. Language is a mass of partial similarities, and there seems little reason to assume a priori that it would be possible to account for these similarities using abstract expressions of identity as the only formal representation.

Nothing I have said should be taken as reflecting a lack of appreciation for the utilitarian contribution formal accounts often have. From a functional perspective, however, a formal account merely provides the basis for asking the really interesting questions of how and why. American Indian languages have a lot of morphology, and relational-morphology languages (negatively characterized as non-configurational languages) especially provide a great deal of paradigmatic material for analysis. The opportunities await you. Of course, it is possible to do some useful linguistic work without caring about such questions, but such an attitude (to quote another linguist on another topic) "just seems to me to indicate a certain lack of curiosity as to why things are the way they are" (N. Chomsky, cited in Botha 1989:5).

ENDNOTES

¹ The style of the oral presentation of this paper is here retained.

² Bybee (1988) sketches a formal representation for her ostensibly similar concept of lexical connections.

³ Vertical bars (|, italic /) divide stems from prefixes and suffix complexes; other mor-

pheme boundaries are indicated by hyphens. Vertical bars also bracket underlying forms.

⁴ Cf. ne/wi·seni 'I ate', ke/wi·seni 'you (sg.) ate', ne/wi·seni/pena 'we (excl.) ate', ke|wi seni|pena 'we (incl.) ate', ke|wi seni|pwa 'you (pl.) ate'. (1a-c) comprise all the independent indicative forms with the theme sign -en(e); in other orders it is used with third-person and indefinite subjects.

⁵ Anderson (1986) accounts for such cases, in which a form contains the morpheme marking one of its inflectional categories to the exclusion of the morpheme marking another of its inflectional categories, by disjunctively ordering the rules that select the morphemes (cf. Goddard 1979:84, 111, 136-137). From a functional perspective, however, generating the morphology is only part of what has to be accounted for.

Non-proclitic preverbs, like Fox ki ši (6d), pemi (7b), taši (21, 22), we pi (21a), and pye či (31a, 36a), are followed by word boundaries in spite of being parts of compound stems; Algonquianist convention is to link the parts of compound stems with hyphens, but in this paper spaces have been substituted to more clearly indicate that word boundaries are involved.

⁷ This fixed order was described by the Sauk and Fox linguist William Jones in his 1904

Ph.D. dissertation (Jones 1904:386, 1911:763).

⁸ I am indebted to Tim Guile (personal communications, 1986) for the corrections in (9c) and (9d), which correspond to the forms expected on comparative evidence.

⁹ PA = Proto-Algonquian.

¹⁰ In -amo·hk-, -amo·- is a variant of -am- used before certain morphemes.

¹¹ The lexical distribution of inflectional categories is a significant descriptive fact about them. A major deficit of formal grammars of all theoretical persuasions is typically their failure to discuss or characterize the lexical range of use of inflectional forms, as by giving extensive representative examples or (in the case of small corpora) exhaustive listings of the attestations. It may be quite significant for an understanding of, say, the morphology or history of a locative formation to know what nouns are attested in the locative and which locatives are especially common.

12 To simplify the discussion the examplies are all verbs that take the preverb taši (cf. 6a-

b, n. 6); the same pattern of usage is found with stems that have the corresponding initial |taN-| $tan \sim tas$ - (cf. 6c-d; Goddard 1988:64, ex. 35; 66, ex. 40). (N represents an n that undergoes

mutation to š before i [Goddard 1977].)

¹³ Actually, this is also characteristic of other types of languages. An English example is the morpheme grizzle, originally meaning 'partly gray'. On the basis of its occurrence in a grizzled old man and grizzly bear many speakers have apparently assigned it the meaning 'having stubbly hair (on face, body)'.

¹⁴ The other stems with this initial are the corresponding inanimate and transitives.

15 For the stem |lopak-|, cf. the subjunctive forms lpaká ně 'if I weep', lpákaně 'if you weep', lpákkĕ 'if he weeps'.

pye či is the cislocative preverb (see note 6).

17 Cf. išim/enokwe'ni 'he probably told you'; e'h=išim/eči 'he was told'; ket/ešim/eko'pwa 'you (pl.) were told'.

 $\stackrel{1}{18}$ É.g.: e- $\stackrel{.}{s}$ im/ $\stackrel{.}{i}$ ici 'what he told me': stem |e $\stackrel{.}{s}$ im-| $\stackrel{.}{i}$ sim- + IC |e| $\rightarrow e$.

¹⁹ For |N|, see n. 12.

20 Cf.: eya |ya·ni iha·|hka·ha 'where-I'm-going I-would-go' (suffixes: -ya·ni 1s/conjunct; -hka·ha 1s/potential).

21 As if underlying |eto taw-|; cf. e to taw|aki 'how I treated him' (suffixes: -aki

1s-3/conjunct).

²² As if underlying |etaN-|; cf. iya·hi e·tanakihto·|ye·kwini 'those that you (pl.) lost over there' (-akiht- 'lose'; suffixes: -o ye kwini 2p-INAN/inan. pl. participle (Goddard 1987).

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SONG METRICS

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INTRO

In this paper I will compare metrics in language and in music, and then go on to define the nature of metrics in song -- which contains both language and music, and therefore should display some interesting interactions of the two types of metrical behavior. I will illustrate my points about song metrics with a Havasupai narrative song.

METRICS IN MUSIC

Linguistic and musical meter are the same in the sense that they both have timing units and a hierarchy of S and W positions. Music is divisible into equally spaced beats, and there is a hierarchy to these beats, with multiple levels. Thus in a 4/4 time signature, the first beat is strongest, 3d beat second-strongest, and 2nd and 4th beat weak. This can be represented by dots on a metrical grid, or by a tree, as seen in figure 1.

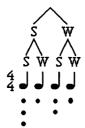


Figure 1. 4/4 musical meter, diagrammed in grid and tree form

The most celebrated work to date that applies a linguistic model to musical analysis is Lerdahl and Jackendoff's book A Generative Theory of Tonal Music, 1983 (henceforth, GTTM). I will be using that work as a jumping off point for the study of song. Meter is viewed there, and here, as a cognitive phenomenon; to quote GTTM, "We take the goal of a theory of music to be a formal description of the musical intuitions of a listener who is experienced in a musical idiom " (p. 1). The model proceeds from the point of view that a listener sets up a metrical model in his/her head that s/he derives from clues in the music, and then hears the rest of the piece with respect to that model. The clues that lead a listener to develop a certain metrical model are stated in GTTM as "preference rules", involving an interplay between such phenomena as parallelism in rhythm or melodic movement, accent, and length of a pitch event. The attack points of pitch events are preferred to be analyzed as strong positions, and positions occupied by rests or continuations are preferably interpreted as weak. Most importantly, once a metric pattern is set up, preference is for following pitch events to be interpreted as having the same pattern. (These are called "preference rules" because they don't have to be weak positions; that is the definition of <u>syncopation</u>.)

The GTTM model has two types of rules for meter: one is the preference rules referred to above, and the other is "metrical well-formedness rules", which specify the possible structural descriptions for meter. A statement of these rules is shown below:

MWFR 1 Every attack point must be associated with a beat at the smallest metrical level present at that point in the piece.

MWFR 2 Every beat at a given level must also be a beat at all smaller levels present at that point in the piece.

MWFR 3 At each metrical level, strong beats are spaced either two or three beats apart.

MWFR 4 The tactus and immediately larger metrical levels must consist of beats equally spaced throughout the piece.

Musical pieces also have a <u>grouping structure</u>, or phrase structure of the pitch events, which may or may not be the same as the metrical structure. Figure 2 shows a grouping structure that is in phase with the meter, while Figure 3 shows a grouping structure that is out of phase with the metrical structure.

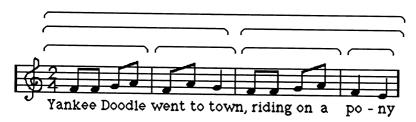


Figure 2. Grouping structure of first line of Yankee Doodle.



Figure 3. Opening theme of Mozart's G-minor symphony (adapted from GTTM).

LINGUISTIC METER

In linguistics, like music, meter involves a hierarchical structure of strong and weak positions. Comparing Figure 4 (below) with Figure 1, it is obvious

that the same kinds of visual formalism can be used to represent both musical and linguistic meter.

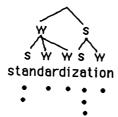


Figure 4. Metrical structure of a word, shown in tree and grid notation.

In fact, the visual representation of musical meter in Figure 1 is actually the application of linguistic conventions to the musical medium. Furthermore, there are obvious parallels between music and language in the phonology of metrical structure. As Jackendoff (1989) points out, "metrical weight in music is strongly dependent on stress (or accent) and on length, two of the most important factors involved in metrical weight in language as well."

But despite the easy transfer of representational conventions from linguistic to musical data, to what extent can we say that linguistic meter and musical meter are really the "same" phenomenon? Musicologists have often warned against the facile application of linguistic models to music (e.g., Feld, 1974), which can result in fallaciously forcing the analysis of music into a foriegn, inappropriate and possibly uninsightful mold. Are the metrics of language and of music really two different sorts of metrical behavior, for which separate theories must be maintained? There is certainly no doubt that there are many differences between them. GTTM points out, for example, that there is nothing analogous to metrical preference rules in language.

Surprisingly, song has not normally been considered in the study of metrics. Even linguists studying music almost invariably study only instrumental music. Certainly some greater insight into the question can be gained through the study of song, where both linguistic and musical metrical systems are presumably present.

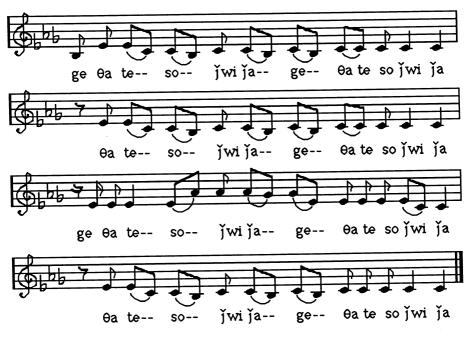
The particular question to be asked here is whether linguistic metrics and musical metrics are separate systems or a single system in song. I will show that not only must linguistic and musical metrics be viewed as a single system in the Havasupai song tradition, but that in fact cues from linguistic metrics may be the only way to determine the musical metrics. I would suggest that this is true in a large portion of song traditions throughout the world, especially in language-dominant musical genres, such as ballads.1

SWEATHOUSE ORIGIN SONG

The Sweathouse Origin song is a member of a genre of narrative songs that used to be very prevalent among the Havasupais. A portion of the text from this long song is shown in the appendix (reprinted from Hinton, 1985). This song, as is the case with all Havasupai narrative songs, is partially improvised. That is, the text of each performance, even by the same singer, will be quite different, much as the text of a spoken story differs from performance to performance. For this and other reasons, my goal in the development of a musical theory differs slightly from GTTM in that I am interested in a description of the musical intuitions used by a performer in the production of music. Hopefully, the cognitive models of a performer and an "ideal" listener would overlap a good deal -- I emphasize GTTM's word "ideal" because otherwise the performer's model must be considerably more precise and detailed than the listener, who can of course be inattentive, or can listen with only partial understanding of the structure of a piece. (It might be noted that GTTM's goal of describing the musical intuitions of an experienced listener is itself a product of the particular nature of our consumer-oriented musical culture, where most members are listeners and few are musicians. In many other cultures, including the Havasupais, there is not such a distinction between listeners and performers; in the old days, especially, most Havasupai people sang and composed songs. The role opposition of "audience" vs. "performer" was not a well-defined concept. And even now, while traditional music is in the process of being supplanted, I would not say that there is any such thing as an "experienced listener" who does not himself also sing.)

The Sweathouse Origin song is in verse form. A transcription of the melody for the verse is shown below.

Sweathouse Origin Song (Middle C = A220; J = 104)



In Figure 5, below, the durational values of the repeating metrical unit (one line of the song as transcribed) are diagrammed. The musical study of meter for this song turns out to be problematic. MWFR 4 in GTTM suggests that the metrical structure shown below is not well-formed, because the beats at the second level are not equally spaced:

• • • • • • • •

Since the first beat of the metrical line is sometimes a rest, we place the first strong position on the second beat, thus defining the first position as an upbeat. But beyond that, if we try to form a metrical structure for the Sweathouse Origin Song that has equally spaced beats at all levels, we get a structure as shown in the grid below the diagram in Figure 5.



Figure 5. First hypothesis: extreme syncopation.

If the reader attempts to sing the song clapping hands at the strong beats as hypothesized in Figure 5, it will not sound at all right. Any alternative way of dividing the line into equal beats at this level will also result in a counterintuitive meter. In this Havasupai song, the only way to achieve a model of equally spaced beats at any level other than the smallest, creates extreme syncopation, where a good half of the attack points are off the beat. Havasupai songs in general don't exhibit this sort of extreme syncopation; any songs that have an accompaniment of a rattle or drum to show the beat don't exhibit this kind of syncopation. In general, musical traditions that have extreme syncopation have some sort of base line (such as a drum beat or a piano base) that keeps track of the meter while some other voice synchopates. It seems reasonable to try to find some other way of analyzing the meter of this song.

Despite GTTM's postulation of this well-formedness rule, the authors point out that in many musical cultures in the world, such as in Eastern Europe, metrical patterning consists of alternating lengths between beats at some levels, and that there are even some rare instances of this in the Western tonal music that forms their corpus of study. It might have been better for them to have postulated this as a preference rule. In any case, there is much precedence in the music of the world for seeking a solution that has varying distance between beats at some levels.

In figure 6, below, the second level of beats simply marks the attack of each pitch event; note that there is a pattern of alternating groups of long and short pitch events. Perhaps we cannot go any further than that in the metrical

analysis, other than to note that this pattern of longs and shorts is repeated. But to say this is to give up on another claimed universal of metricality, which is that humans group sequences of beats into higher-level sequences, always in groups of 2 or 3 (GTTM well-formedness rule 3). But how might we group these? There are various possibilities. Despite the possible abondonment of MFWR 4, we might still try to salvage regularity as much as possible. The third row of dots shows the hypothesis which leads us to the greatest regularity: three 6/8 measures, where the first and third measures would consist of Sww Sww (with the upbeat repeating as the last position in the third measure), and the second would consist of SwSwSw.



Figure 6. Second hypothesis: 6/8 measures, |SwwSww|SwSwSw|SwwSww|

Another possibility would be to utilize the preference rule cited by L and J that long pitch events are preferably perceived as strong positions, and short pitch events as weak. Since there are three groups of two long notes in the line, we might divide up the meter as shown in Figure 7. This gives us three measures of 5/8, 7/8 and 6/8. We sacrifice the notion of regular metrical units at the highest level, but it still has potential merit.



Figure 7. Third hypothesis: long notes strong.

But in general, it is next to impossible to come up with a satisfying analysis in the manner we have tried so far; and especially since this is a foriegn genre, heard with Western ears, we must feel that we simply do not have enough information to decide on a good metrical analysis.

But what can we learn by looking at linguistic metrics in this song?

First of all, the words show us an important fact about <u>grouping</u> -- looking at patterns of syntactic form and line repetition, we find that the main break in the line is nowhere that our metrical hypotheses have led us so far -- the grouping breaks the line into two 9/8 phrases, as shown in the first line of the song, in Figure 10.



Figure 10. Text grouping.

All the lines of text in the song are divisible in the same way. Based on the text divisions, we can say that the melody of the verse is divisible into 9/8 phrases -a, b, c, and d as shown in Figure 11. The phrases a and b are grouped into a higher level A, and c and d are similarly grouped together as B, as shown in the tree structure of Figure 12. The entire song structure is at the bottom of Figure 12: it begins with AARA, and then, for this performance, 39 repetitions of ARA.





Song structure: AABA [ABA]39

Figure 12. Song structure.

Now, let us look at the linguistic metrical pattern. First of all, an obvious truism: each attack point corresponds to a syllable of text. A consonant or consonant cluster is a break in continuency, and therefore by definition a new

pitch event begins with each syllable.

A summary of the important aspects of stress patterning in the song is shown in Figure 13. The musical notation is a repetition of the diagram showing the durational values of the metrical unit. Above the notes, I have placed numbers (1-12) for easy reference. Below the durational values I have written sample lines of the song. These AND ALL OTHER LINES of the

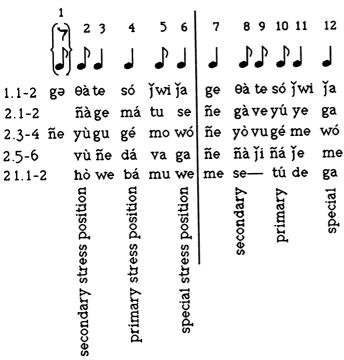


Figure 13. Stress positions of song text.

song have a highly constrained stress pattern. Positions 4 and 10 always have primary stress, that is, those positions are always occupied by a stressed root vowel (Havasupai always places word stress on the last vowel of the root of a word). Below the lines of text, I have written vertically that these are called the "primary stress position".

Positions 2 and 8 are what I call secondary stress position; these positions may carry a stressed root vowel or an unstressed prefix. Given that positions 1-6 are a phrase, phrasal stress also plays a role here: in Havasupai, the last stressed root vowel of a phrase carries primary stress, and any previous

stressed root is secondary.

Finally, positions 6 and 12 are what I have labelled the special stress position, because while most of the time the vowel belongs to an unstressed suffix, there are a few stressed suffixes in Havasupai, and such a suffix will always fall in that position. This is also the most common position for the placement of vocables.

It is interesting to note that this song, as is true of all narrative songs, is partially improvised -- that is, every performance will differ in the details of word choice, just as is the case with story telling. Yet the good singer never varies from the linguistic metrical pattern outlined here. The singer uses various devices to maintain this unvarying pattern of placement of stressed syllables. He uses a very constrained set of syntactic structures, and places inserted vowels and vocables in strategic positions.

METRICAL SOLUTION

Now that we understand the linguistic metrics of the song, let us return to our discussion of the overall metrical structure of the song.

In Figure 14, I have once again diagrammed the durational values of the song, and as before, under it is the smallest level of beat, and the next row of dots is the attack points, or syllables. The third row of dots shows

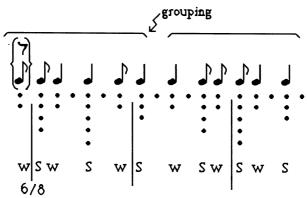


Figure 14. Metrical solution based on linguistic stress patterns.

the stressed positions that we arrived at in our analysis of linguistic metrics; that represents the highest level for the special stress position; the secondary stress position gets one extra dot, and the primary stress position gets one more. Below that, I have translated the dots into indications of Weak and Strong positions. It becomes clear, then, that the text consists of alternating strong and weak positions of one syllable each. Following the convention for musical metrics of taking a strong position to be the beginning of a metrical unit, we see that the hypothesis we developed earlier about analyzing the meter as three 6/8 measures is in fact the best solution, based on linguistic metrics. Notice also that the stresses neatly line up so that each type of stress gets its turn at the head of the measure: first secondary, then special, and finally primary. It is a sophisticated, yet very neat, sort of Round Robin meter.

In the final analysis, then, this song -- and, I guarantee, many other songs form cultures all over the world -- require knowledge of the linguistic metrics of the text in order to understand the musical meter. Thus to the metrical preference rules of Lerdahl and Jackendoff must be added another rule

referring to the text of songs: Prefer a metrical structure that fits the linguistic metrical structure of the song text.

Footnotes

1. It must be noted, however, that in many musical traditions, aspects of linguistic metrics may be suspended in song. For example, vowel length, which is distinctive in Havasupai spoken language, is neutralized in song. Navajo tone is lost in the melodic contour of song; and in Spanish, stressed syllables frequently fall on metrically weak positions (Janda and Morgan, 1988).

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Tzeltal Maya affect verbs: Psychological salience and expressive functions of language*

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This paper presents the initial results of an ongoing field investigation of so-called affect verbs in the Tenejapa dialect of Tzeltal, a Mayan language of Highland Chiapas, Mexico. A semantic description of these verbs is outlined, the first attempt at a detailed analysis of this class of words in Tzeltal. Affect verbs are then examined in their relation to the notion of psychological salience and to the expressive functions of language. Finally, their structural and semantic affinity with ideophones (as found in African and Southeast Asian languages) is suggested.

Affect verbs are a special class of verb stems¹ found in Tzeltal as well as other Mayan languages. They were so termed by Kaufman, who first recognized their existence and briefly described them in his study of Aguacatenango Tzeltal morphology (Kaufman 1961a, b, 1971). For Tenejapa Tzeltal, data on affect verbs are found in Berlin (1962, 1963) and Stross (1974), for Oxchuc Tzeltal in Slocum (1948). Few descriptions of other Mayan languages include mention of affect verbs, and mostly in the context of general morphological and syntactic analyses. To my knowledge, the only work specifically devoted to the analysis of affect verbs in a Mayan language is Ringe (1981) on Tzotzil, based exclusively on secondary sources (Laughlin 1975, 1977).

Structurally, Tzeltal affect verbs are distinct from both transitive and intransitive verb stems, although they bear numerous resemblances to intransitives. The main structural difference vis-à-vis the other verb stem classes is that affect verb forms are always derived, i.e., there are no radical affect verb stems. Furthermore, they are derived by means of a unique set of eight desinences. These desinences are reported here with their meanings, as given in Kaufman (1971: 60-62). They correspond to those described by Berlin (1962: 8, 83-90), who does not provide glosses.

- -et 'one object, one well-performed occurrence'
- -VC2et 'one object, one extended occurrence'4
- -Clun 'one object, several repetitions'
- -Vnaj 'one object, several intense occurrences'5
- -Hawet 'one object, several very intense occurrences'
- -lajet 'several objects, several repetitions'
- -lajan 'several objects, several repetitions'
- -kVnaj 'walking imperfectly'

These desinences are suffixed directly to roots of most classes (verb, noun, adjective, onomatopoeic, and 'unique constituent'6). The mechanism is highly productive, and affect verbs constitute an open class. An estimate based on my own corpus would put their number in the thousands, without taking into account that, apparently, they can also be coined on the spur of the moment. Affect verbs are inflected in a manner similar but not identical to intransitive verbs. Like intransitives, they are prefixed by the incompletive aspect marker x- (or its allomorph s-7), and suffixed by a set of absolutive personal pronouns. Unlike intransitives, they are not marked for tense, and always occur in the incompletive aspect. As for their syntax, affect verbs can occur both as main verbs in independent clauses, and in complex verb phrases directly before the main verb of a clause, in a modifying function. In the latter case, the main verb is often a verb of motion, or of sensory experience (seeing, feeling, hearing, and so forth).

Affect verbs are also peculiar semantically. They refer typically to phenomena of sound, light, color, smell, shape, size, motion, posture or other physical and behavioral characteristics of the body, facial expressions, sensations (both physical and emotional), as well as whole complex events involving more than one sensory modality. The states of affairs in question are characteristically marked as noticeable, salient for a variety of reasons. A noise must be loud,

sudden, or repeated; a movement must be unexpected, exaggerated, or periodic; a feeling of pain, hunger, worry, must be acute, persistent, or recurrent; and so forth. Overall, affect verbs seem to convey connotations of intensity, duration, repetition, or other characteristics of an event that attract the speaker's attention as being deviant with respect to some implicit norm or expectation. At the same time, affect verbs also convey emotional, affective connotations, i.e. the speaker's psychological reaction (of surprise, amusement, puzzlement, and the like) to the unexpected, deviant-from-the-norm, character of a given event. In this sense, they can be seen to serve expressive functions.

Consider the following complete set of affect verb forms derived from the root t'im (found in the tv t'im 'to stretch (cable, rope, etc.) tautly'. The 3rd person singular is used as citation form.

xt'imet 'to be tautly fastened (e.g. rope, cable)'
xt'imimet 'to be very tautly fastened (e.g. rope, cable)'
xt'imt'un 'to vibrate repeatedly (e.g. taut wire, string of guitar)'
xt'imunaj 'to oscillate (e.g. fastened rope, wire)'
xt'imawet 'to wriggle (fastened animal)'
xt'imlajet 'to become stretched (woman's skirt upon her stepping on its end)'
xt'imlajan(ik)⁸ 'to become stretched (women's skirts upon their stepping on them)'
xt'imkunaj 'to walk around stepping on the end of one's skirt (woman)'

Perhaps the best way to approach the analysis of affect verbs, and in particular the meaning of the desinences, is to first consider the nature of the phenomenon as a whole, as a specific mechanism of the Tzeltal language. An intuitive but effective characterization might be provided by means of the following metaphor. Imagine being submitted to a peculiar experiment. You are made to sit in a projection room, and are shown a movie. What you see for some time is a series of fairly common, nondescript events of everyday life. You watch passively, without specifically concentrating on what is going on on the screen. Suddenly, a light flashes, an electronic device beeps, and you are irresistibly led to focus on a specific frame in the movie. What you see at once, in a global, gestalt-type perception, is an event, or state of affairs, that suddenly stands out from the nondescript background of events that had previously been unfolding before your eyes. It represents a change from an expected sequence of events, or perhaps your only now realizing that there was something peculiar in what you were seeing. This event, and your psychological reaction to it, might be described by a Tzeltal speaker by means of an affect verb in -et. Should the frame stand out with particular intensity, or persist on the screen longer than normal, the event might be described by a verb in -VC2et. Should the frame be repeated several times in a tight, or otherwise uninterrupted, sequence, an affect verb in -C1un might be used. Should motion within the frame be cyclical, or periodic, or pendular, or should the frame reoccur cyclically at longer intervals, a verb in -Vnaj or -Hawet might be appropriate. (I will consider the differences between these two desinences shortly.) Should what is remarkable in the frame be a number of actors all doing the same thing, or patients being affected by the same condition, verbs in -lajet or -lajan would come handy as descriptors. (Problems with -lajan and -lajet will also be considered shortly.) Finally, if what you see in the frame is someone with a walking impediment, or handicap, a verb in -kVnaj would do the job.

Metaphorically so characterized, this seems to be the basic nature of the affect verb mechanism, and the role that the various desinences play in it. A more detailed analysis of each desinence follows. Due to space constraints, only the more clearcut cases are presented. Cases of apparent free alternance of some pairs or triplets of desinences are also not discussed here, with the exception of -Vnaj and -Hawet on the one hand, and -lajan and -lajat on the other.

Consider the following examples of affect, verbs in -et, with my Tzeltal collaborators' comments (affect verbs underlined). Their reference to instantaneous events, or the sudden inception of events, or yet the sudden awareness of an event that may have been going on for some time beforehand, should be readily apparent, along with the speakers' reactions to the events themselves.

xbalet te alale 'at once the child [throws himself down and] rolls over'

Comment: 'It is when he begins to be angry.'

xmasetix jsit 'my eyes have already started closing'

Comment: 'I am beginning to feel sleepy.'

xnujet sok yijkatz te antze 'the woman was well doubled over with her load' Comment: 'She was visibly carrying a heavy load.'

xchajet ik' 'the wind has started blowing'

Comment: 'One hears it arrive all of a sudden.'

xbik'et k'oel yu'un srepresko te winike 'the man swallowed at once because of [i.e. in ingesting] his soft drink'

Comment: 'He drank it quickly, in just one swallow.'

The intensification of states of affairs that might otherwise be described by affect verbs in -et is found in the following examples of verbs in -VC2et.

sbotz'otz'et tal yu'un te te'e 'the pole popped out [of the ground] quickly at once' stz'apapet ta ti'aw te kee 'all day my teeth are stabbing [me] with pain [i.e., I am having a terrible toothachel

xlit'it'et yakan te antze 'the woman is standing on tiptoe for some time' [e.g., she can't manage to reach something overhead]

stzuket sit ta ilimba te winike 'the man is constantly frowning from anger'

Repetition of an event in a tight, or uninterrupted, sequence is implied in the following examples of affect verbs in -C1un.

sutsun k'inal la ka'y 'I felt dizzy repeatedly'

xch'ijch'un ta te' te winike 'the man is giving blows with a stick in a quick sequence' xmachmun ta beel te ach'ixe 'the girl is moving rhythmically in walking with head and shoulders drooping' [because she is tired]

xmelmun ta julel te antze 'the woman is visiting from house to house over and over again'

The desinences -Vnaj and -Hawet appear to be considerably close in meaning, in agreement with Kaufman's glosses ('several intense occurrences' and 'several very intense occurrences' respectively). However, my data suggest a more specific meaning than implied in these glosses. Both -Vnaj and -Hawet seem to convey notions of cyclicity, periodicity or pendularity of motion, as well as of cyclicity in time, i.e. of recurrence of events in cycles rather than sequences as implied in -Clun. While a difference in intensity or degree may indeed be involved in some cases, forms in -Vnaj and -Hawet are often said by my collaborators to alternate

xbujtawet/xbujtinaj ta swe'el te chitame 'the pig is making alternate upwards and downwards motions with its head in eating'

x'i'awet/x'i'unaj te jch'ujte 'my stomach is growling every now and then'

xpurawet/xpurinaj ta tzakel te x'ube 'the quail is flapping its wings every little while because of being caught' [i.e. in trying to set itself free]

xtujchawet/xtuchinaj te jyakubele 'the drunk is staggering while standing'

It also appears, however, that in some cases the two desinences might be distinguished from each other, rather than along a parameter of intensity, along one of animateness, literal or metaphoric. In other words, in such cases the choice between a form in -Hawet and the corresponding form in -Vnaj would seem to be respectively determined by whether or not the state of affairs in question is caused by an animated being, or other entity (e.g. the natural elements) that can be conceived of as animated, or more specifically, unconstrained in its movements. That something along these lines is implied is made explicit a number of times by my Tzeltal

collaborators themselves. In their own words, the point is whether the 'things' involved have or do not have vida, or alma (in Tzeltal ch'ulel). Compare the following pairs of examples:

xchajawet ta koxtal te ch'oe 'the rat is periodically making noise in the sack [of beans, as it eats them]'

xchajunaj te chenek'e 'the beans are making noise every now and then [as their dried husks crack]'

Comment: 'One could not say *xchajawet* in the latter case, it would be as if the beans had a life of their own.'

xbalawet ta ajch'al te chitame 'the pig is rolling back and forth, back and forth in the mud' xbalunaj ta sba karro te p'ejie'e 'the piece of wood is rolling back and forth, back and forth on the deck of the truck'

Comment: 'In the first case, it can only be people or animals, who have life, a soul.'

xnujawet ta a'tel te winike 'the man is rhythmically bending over and straightening up in working'

xnujinaj te bojche 'the gourd is alternately moving face down, face up'

Comment: 'In the latter case, it is understood that someone is moving it that way. One could not say *xnujawet*, because it would be as if the gourd were moving by itself.'

At the present stage, I have no explanation for this specific distinction between two otherwise very similar desinences. I can only speculate that, in those cases in which an animateness parameter appears to be involved in the meanings of -Hawet and -Vnaj, there might be some connection between the implication of relative freedom of movement and Kaufman's feature of relative intensity.

As for the desinences -lajet and -lajan, again in agreement with Kaufman's glosses ('several objects, several repetitions' in both cases), it appears that these two desinences are very closely related to each other in meaning, if not almost identical. Overall, though, the picture afforded by my data on both sets of forms is less clearcut than in any other case. In some, but not all, instances, a component of plurality of the actors or patients involved seems indeed to be implied, although it is not clear whether a notion of repetition is also always necessarily at play. When plurality is present in the meaning of verbs in -lajan or -lajet, sometimes it appears to be the only one of the two features to be present. At least in some cases, plurality of actors or patients involved in a given state of affairs would appear to be a sufficiently salient feature in itself. Some examples are:

xbik'lajetik/xbik'lajanik ta yixim te mutetike 'the chickens are repeatedly pecking at the corn' xjajlajetik ta tze'ene te ach'ixetike 'the girls are bursting into laughing every little while' ya yutyut sbaik te antzetike, buen xch'awlajetik 'the women are fighting, they are shouting all right'

xkailajanik ta sba ja' te pech'etike 'the ducks are floating on the surface of the water'.

It is worth stressing that, while the morpheme *laj* found in both desinences carries a feature of plurality, this morpheme does not represent the normal way of marking plurality on verbs. All verb stems, including affect verb stems, can optionally be made plural by means of a specific set of affixes. As the examples above have shown, the same forms in *-lajet* and *-lajan* may be so marked. In this case, therefore, there seems to be a measure of redundance involved in the meaning of these two desinences. Here again, one should keep in mind the proposed role of salience in the affect verb mechanism. It would appear that, when plurality as such is not in the foreground, only the normal way of marking number is employed, if at all. When plurality in itself is the relevant, salient, feature, one or other of the two above desinences may be used, in some cases even with the redundant addition of the normal markers of number.

In other instances, however, plurality may not be involved in verbs in *-lajan* and *-lajet*. Unfortunately, what may be involved instead is not entirely clear. In some cases, my collaborators seemed to find no particular differences vis-à-vis forms in *-et*; in others, a notion of repetition, or the like, might be at play, as in the following:

xbutlajet ta beel te mamalale 'the old man is constantly walking bent over'
xlutlajet ta skoral te chitame 'the pig is trying to get out of the yard [passing through an opening in the fence]'
xmaxlajet ya xben te winike 'the man is going about grasping for some time'.

Given the above, one might suggest the hypothesis that plurality and repetition may not necessarily be present at the same time in the meaning of these desinences.

The last desinence, -kVnaj, is more straightforward. In every instance, it exclusively conveys the meaning of 'walking imperfectly'. The impediment may be either a permanent one (a handicap, or difficulty in walking due to age or illness), or a temporary one (e.g., in the case of an animal, having one's legs tied up), as the following examples demonstrate:

<u>xijkunaj</u> ya xben te winike 'the man is walking with one leg rigid' [he can't bend it] <u>xbutkinaj</u> ya xben te me'tike 'the old woman is walking helping herself with a stick' <u>stz'otkinaj</u> ya xben the jyakubele 'the drunk is staggering along' <u>xlut'kinaj</u> ta tajimal te alale 'the child is jumping with joined feet in playing'.

It is apparent that this desinence has a very specific meaning. Correspondingly, it is highly restricted in occurrence. One might wonder what may have led the Tzeltal to focus on so specific a class of events as is referred to by the verbs in -kVnaj. At present, I could only offer ad hoc speculations on this topic. Comparative evidence from other Tzeltal dialects would be especially useful here.

Turning to the meaning of the whole affect verb forms, if one looks at verbs as categories (of actions, events, states), and perhaps as cognitively associated with frames, or scripts (Fillmore 1975, 1982, 1985, Schank and Abelson 1977), one is led to conclude that the frames or scripts evoked by affect verbs must be particularly rich. Often, my collaborators would come up with whole 'mini stories' about them. One such example of 'mini story' follows, in free English translation. Only the utterance containing the affect verb form is given in Tzeltal with gloss.

'A woman gets angry at her husband, and runs away crying a lot. She begins to collect her personal belongings to take them with her. This is when her husband begins to worry and says: "naklan tz'ini kala me', banti ya xbat ch'etetel sok te a'k'u' a'pak'e?" ('Please, sit down, mamacita, where are you going so loaded with your clothes piled up in your arms?'). At this point they both calm down and start weeping, and the fight ends.'

I have previously mentioned the overall sensory type of reference of affect verbs (visual, auditory, tactile, and so forth). Borrowing the terminology introduced by Lenneberg and Roberts (1956), one might also suggest that these words are part of the 'language of experience' of Tzeltal. In some cases just one sensory modality seems to be involved, in others, more than one at the same time, suggesting synaesthetic characteristics. I have also suggested that what all affect verbs have in common, in referring to phenomena of this nature, is their pinpointing them as noticeable, remarkable for a variety of reasons. Assuming implicit, and not necessarily strictly defined, cognitive canons of normalcy for the various kinds of phenomena in the minds of the speakers, whatever is 'normal' in the environment will not evoke the use of an affect verb; unmarked (transitive or intransitive) verb forms will be used to describe the situation or event. Phenomena must become salient, suddenly standing out in the foreground against a (comparatively) undifferentiated background of sensory inputs, for a speaker to feel like referring to them by means of an affect verb. Compare the following pairs of examples:

la <u>stzin</u> te kampana ta ch'ulnae 'someone rang the bell at the church' [I am telling you that this is the case]

stzininet te kampana ta ch'ulnae 'the bell at the church rang loud' [Hey, did you hear that?]

ya <u>smutz'</u> sit te antze 'the woman closes her eyes' [I am describing the scene to you] <u>smutz'inaj</u> sit te antze 'the woman's eyes are closing every little while' [Hey, is she falling asleep?]

ya sk'an swe'el te alale 'the child wants food' [I am letting you know]
xk'anawet ta swe'el te alale 'the child is asking for food every other moment' [What's the matter with him?].

From this point of view, the study of affect verbs appears to be related to research in cognitive anthropology and psychology on salience in natural categories (Berlin and Kay 1969, Berlin, Breedlove and Raven 1973, 1974, Berlin 1976, 1978, in press, Berlin, Boster and O'Neill 1981, Heider [Rosch] 1972, Rosch 1973, 1975, 1977, 1978, 1983, Mervis and Rosch 1981). However, the notion of salience in the kinds of actions, events, or states referred to by affect verbs may be partly different from that implied in the latter type of categories. One obvious difference is the intrinsic expressive component of salience in affect verbs. While referential, denotative meaning is unquestionably present in these words, they are used to serve a purpose that is not purely referential, but also expressive: to both describe a state of affairs and comment upon it, conveying one's psychological reaction to it. That this is the case is made clear in a number of instances by my collaborators themselves. For example:

xwolwun yit te antze 'the woman's buttocks are bouncing up and down as she walks'

Comment: 'She has large round buttocks, men like that a lot.'

xkototet te wakaxe 'the bull keeps walking around'

Comment: 'It is doing nothing [i.e., it is not grazing]; it is nervous, perhaps it wants to mate.'

xbalawet ta yakubel te winike 'the man goes rolling on the floor every little while out of drunkenness'

Comment: 'It is understood that he is a real drunk.'

xlijt'awet ta stz'akel tal k'oel si' te antze 'every other moment the woman is standing on tiptoe to get the firewood down [from above storage]'

Comment: 'She never tires.'

In this connection, one might suggest another comparison between the notion of salience implied in affect verbs and that implied in e.g. color, or ethnobiological, categories. In the latter case, at the basic level, the salience of the objects or phenomena involved may well remain totally unconscious, and the factors and criteria involved may be very difficult to verbalize. In the case of affect verbs, instead, the salience of phenomena seems, so to speak, to reach beyond the limits of the unconscious. What may be unconscious is the norm or expectation, not necessarily the deviation from them and one's reaction to that deviation. Overall, as indicated above, speakers seem to be quite capable of verbalizing what is salient in affect verb categories, and why. It even appears that affect verbs may be consciously used, in conversation or narrative, for rhetorical purposes. Numerous examples in my corpus clearly carry connotations of gossiping, teasing, scolding, and other socioculturally marked speech acts. In some cases, my collaborators explicitly said of one or other expression containing an affect verb: 'Es una burla' ('It is a joke'). A few such examples are given below.

staset sne ya xben te winike 'the man is walking with his tail dragging' [i.e., his chamarra is not well fastened at the waist, and hangs down too low]

xaxaxet sjol te mamalale 'the old man's head swishes [as one goes with one's hand over it quickly]' [i.e., he is bald]

banti ya xbat batzbunel? 'where are you going moving about with your heavy load [i.e. big belly]?'

For this reason, affect verb categories do not seem to share in the nature of basic categories, but rather in that of secondary, or nonbasic, categories, which are discriminated by means of fairly specific, and generally verbalizable, features. It is worth pointing out that a notion of salience is implied at both the basic and the secondary levels. This should not lead to the conclusion that this notion is used too pervasively for it to maintain analytical validity. Rather, what seems to be involved is a cognitive play of alternative backgrounding and foregrounding of relevant information. Depending on the circumstances, what is foregrounded is either the general, the widespread, the 'normal', or the specific, the uncommon, the exceptional. Affect verb categories focus on the latter.

However, the specificity in reference of affect verbs should not be taken to imply that they only relate to culture-specific phenomena. Instead, many of the phenomena involved appear to be fairly universal, as well as constant through time--as Laughlin (1988: 133) puts it, 'as permanent as the natural world to which they belong'. As far as Tzotzil goes (but one might well expect the same to be the case for Tzeltal and other Mayan languages), this author states: 'These associations of shapes, colors, and values presumably have remained fairly constant over time, for many can be found in the seventeenth- or possibly sixteenth-century Diccionario en lengua sotzil' (ibid.). To a large extent, it would seem that the semantics of affect verbs shares in the nature of universal semantic primitives, or semantic types, such as those proposed by Dixon (e.g. MOTION, AFFECT, CORPOREAL, DIMENSION, GIVING, COLOR; Dixon 1976), although such primitives are, so to speak, cognitively and expressively elaborated upon in the meaning of affect verbs. But even such elaborations seem to follow fairly universal patterns (intensification, repetition, augmentation, and the like), and the related expressive connotations appear to be quite generally predictable, so that, in most cases, these words turn out to make sense as immediately for the alien investigator as they seem to do for native speakers. Consider the following examples:

x'ajajet ta chamel te antze 'the woman keeps moaning from sickness' [Boy, she must be real sick!1

xiipunaj te alchaxe 'the oranges are swinging back and forth as they hang [from the branches]' [It's windy!]

xpulawet ta k'ajk'el te nae 'the house flares up every little while because of the fire' [This fire won't quit!1

xk'anetix te k'altike 'the cornfield has turned yellow all right' [Doesn't it look good?]

sbatzbun ta skuchel yijkatz te kereme 'the boy is plodding along carrying a heavy bundle' [Gee, look how loaded he is!]

xte'kunai ya xben te mamalale 'the old man is walking stiff-legged' [Doesn't it make you want to smile?1.

Numerous other affect verbs, however, indeed seem to be related to more culture-specific phenomena, and in particular to involve reference to, and expressive comment on, culturally bound aspects of behavior, attire, posture, and other value-laden aspects of the sociocultural environment (cf. Laughlin 1988: 138). For instance:

xk'ajk'et te winike 'the man is displaying the behavior typical of the "hot man" '[A personality type evaluated ambivalently by the Tzeltal. It implies bravery that may turn into defiance and lead to suspicions of witchcraft.]

stz'itz'un ta sbojchil smatz' te antze 'the woman wipes repeatedly the inside of the pozol gourd with her finger [to gather and ingest what is left of the corn gruel after her husband drank his good share]'. [A familiar gesture for a Tzeltal woman, but commented upon with amusement by a male as slightly childish.]

xbech'unaj ta schukel sch'ujt te ach'ixe 'every little while the girl is making folds [of cloth] in fastening [her skirt around] her waist '[This is considered to be a rather futile act, or a sign that the girl doesn't know how to fasten her skirt properly, and therefore is ridiculed.]

Among affect verbs of this latter type, there also appear to be ways of speaking, as indicated by Stross (1974), who lists a number of Tzeltal affect verbs used to refer to, and evaluate, people's speech, e.g.:

xwulwun 'the sound of incessant talking (without content), a rumbling or buzzing in the ears of the listener'

xpa'pun' the sound of stuttering accompanying speech' xk'anet 'talking with a nice, mellow, singing voice' xtz'ulet 'falsetto voice (the respect voice of women)'

(Modified from Stross 1974: 221-222.)

Nevertheless, even these more culture-specific affect verbs seem not to escape the requirement of salience: to be worth being talked about by means of affect verbs, the phenomena involved must in turn be noticeable, in the sense that they must equally violate some norm or expectation--in this case, sociocultural norms or expectations rather than assumptions about states of affairs in the natural environment. In the domain of affect verbs, the notion of salience appears to provide a strong link between the natural and the sociocultural worlds, and between the universal and the culture-relative dimensions. Both worlds and both dimensions, so to speak, happily coexist in the same class of expressive words. It also appears that the basic kind of emotional connotation involved in the use of affect verbs is purely one of surprise, puzzlement, amusement, and so forth, vis-à-vis a given event, and that this kind of emotional state in itself is a sufficient stimulus for communication, without any socioculturally marked speech act being necessarily implied. In other words, it seems that what is involved in the production of affect verbs in the first place is a cognitive mechanism that might informally be dubbed the 'surprise effect', an impulse to comment on the unexpected that might well be part of the baggage of basic human psychological reactions.

These considerations notwithstanding, there is no doubt that the investigation of affect verbs promises to be particularly rich in an ethnographic perspective. It is apparent that a wide range of salient aspects of the natural and social environments can be brought into focus by means of affect verbs. If one looks at the 'mini stories', or scripts, that my two collaborators attached to them, and at the comments they provided, one finds large chunks of the Tzeltal natural and social worlds, and a wealth of information on what is salient in them, so to speak, from the affect verb point of view. As my examples show, the human actors (or patients) are men, women, youths, children, and drunks (the latter are mentioned so frequently in relation to the events described by affect verbs, to deserve being placed in a category of their own). Animals, domestic and wild, are also very frequently involved, as are plants, the natural elements (water, fire, wind, earth, etc.), and objects pertaining to material culture. What emerges through the study of affect verbs is an especially lively picture of Tzeltal everyday life.

Finally, the preceding should have made the affinities of affect verbs with ideophones evident to anyone familiar with studies of the latter class of words, in particular in African and Southeast Asian languages. In Doke's original definition (he coined the term for a class of words in Zulu), an ideophone is a 'word, often onomatopoeic, which describes a predicate, qualificative, or adverb in respect to manner, colour, sound, smell, action, state or intensity' (Doke 1935: 118). An examination of existing surveys of ideophones (cf. Samarin 1978, or, for a checklist of the main features, Hsu 1989) strongly confirms the similarities, both structurally and semantically, as well as from the cognitive and expressive points of view. To my knowledge, this connection is suggested here for the first time. Closer comparative scrutiny may well show that affect verbs in Tzeltal (and other Mayan languages) also present structural differences vis-à-vis ideophones, in particular in terms of word formation. However, this may not be crucial as far as the affinity between affect verbs and ideophones is concerned: as Samarin suggests, 'one of the characteristics

of the expressive use of language is the utilization of a set of words different in each language but manifesting in all languages certain phonologic and semantic similarities' (1978: 313). And the latter clearly appears to be the case with affect verbs compared to ideophones. Rather than being a peculiarity of Mayan languages, affect verbs might be seen as the specific manifestation in these languages of a more general phenomenon present in similar forms in many languages of the world --a possibility that would place the study of affect verbs in a much broader comparative perspective.

FOOTNOTES

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- 1 Kaufman (1971: 31) defines a stem as 'anything that may occur with the inflectional affixes of a single stem class', and as consisting 'minimally of a root and maximally of a root plus several derivational affixes'.
- According to Kaufman (1971: 33), desinences are 'affixes or combinations of affixes which function as units in stem and word formation. In the case of stem formation, the affixation of a derivational desinence to a root or stem always yields a stem, i.e., something to which inflectional affixes can be added'.
 - ³ The inventory of Tzeltal phonemes is as follows:

/p t ts ch k ⁹ p' t' ts' ch' k' b' s sh h m n l r w y/

Vowels

/ieaou/

Tzeltal examples in the text, however, are transcribed according to the Mayanist writing system, whose most recent version is currently being used as script for Tzeltal and Tzotzil. The following equivalences apply: /ts/ = tz; /sh/ = x; /h/ = j. The same orthographic symbol, ', is used as marker of glottalized consonants and for the glottal stop $/^{n}/$.

- 4 In -VC2et and -C1un, the presence of reduplication is apparent. From this point of view, affect verbs partake in a more general morphological process of Tzeltal, the semantics of which is described in Berlin (1963).
- ⁵ In Kaufman's notation, the symbol V in -Vnaj stands for the morphophoneme |V| realized as /i/ if the immediately preceding vowel is lo ul, as /o/ if the preceding vowel is la e il and the following consonant is |w|, and as /u/ if the preceding vowel is la e il and the following consonant is not |w|. The symbol H in -Hawet is the morphophoneme |H|, realized as /C/ when C = |P| b's sh h m n l w yl, and as /hC/ when C = |P| t ts ch k p' t'ts' ch' k'| (Kaufman: 1971: 20, 23).
- ⁶ A unique constituent is 'a radical which does not occur as a freely inflectible stem and does not occur with enough derivational desinences to establish its class, and often not in enough constructions to establish its meaning' (Kaufman 1971: 42).
- 7 The incompletive aspect marker is normally realized as s- when the root syllable contains any of the following phonemes: /s ts ts'/, as x- in all other cases. However, there is both

inter- and intraspeaker variation in the use of the allomorph s-, which often alternates with x- in the mentioned environments. Assimilation of x- and s- occurs when the root syllable begins with the same consonant respectively.

- 8 The morpheme -ik given in parentheses is the nonobligatory marker of 3rd person plural. Marking of plurality on verbs is often omitted, when clearly inferrable from other crossreferencing elements in the clause. The desinences -lajet and -lajan seem to carry reference to plural subjects in many but not all instances. This latter aspect is dealt with more extensively in the text.
- ⁹ In this example, the form *ch'etetel* is a verbal noun derived from the affect verb stem *ch'etet* by suffixation of the morpheme -Vl.

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THE ONEIDA LEXICON Karin Michelson SUNY Buffalo

1. INTRODUCTION. A basic issue in morphology is to what extent the morpheme or the word is the basic lexical Related to this issue is the extent to which predictable and regular properties of words are expressed redundancy rules, which are explicit lexical statements about relationships between words, or by wordformation rules, which derive words from morphemes. the one hand, properties of words cannot always be predicted from the properties of morphemes, e.g., (1) non-compositional meaning; (2) irregular morphosyntactic phonological behaviour; and (3) degrees of productivity exhibited by word-formation morphophonological rules (e.g. Aronoff 1976, Bochner 1986, Bybee 1988, Jackendoff 1975). On the other hand, semantic, syntactic, and phonological phenomena sometimes can be transparently identified with constituents smaller than words, namely morphemes. A theory of morphology must be able to account for such generalizations as well. Also relevant for the language I will be discussing is a third type of morphological constituent, the stem, or the part of a word that remains when inflectional material is stripped away.

This paper addresses the status of stem, word, and morpheme in Oneida, an Iroquoian language I have worked on since 1979. The focus of the paper will be discussion of several constructions, inflectional as well derivational, with respect to semantic compositionality, morphosyntactic phonological orregularity and irregularity, and productivity. result of this survey is that internally-complex forms reflect degrees of lexicalization, by which I mean a continuum of awareness on the part of speakers of the existence of internal structure. This idea is very loosely based on a redefinition of psychological reality by Wilbur and Menn (1975).

I wish to express my debt to Michael Foster and Hanni Woodbury. This paper owes much to our collaborative work on the goals and organization of Iroquoian dictionaries. Our efforts have been directed towards developing a "base" dictionary, in which constituents larger than morphemes are given as heads of main entries. The Oneida data in this paper are from Mercy Doxtator and Norma Sickles, to whom I extend my thanks.

2. STEMS. Perhaps the least controversial morphological constituent in Oneida is the stem. In the verbs given in (1) through (4) the stems are composed of a verb

root with an incorporated noun. All four examples are semantically non-compositional. However, consultants freely provided literal glosses for (1) and (2). When questioned, they identified a semantic element 'eye' in (3), but did not offer any analysis of (4). (y represents a mid central nasalized vowel, 'represents a glottal stop.)

- (1) tehohnakwalaténi', He changed the tire. te-ho-HNAKWAL-a-TÉNI-' He changed the rubber. dualic-masc.sg.patient-RUBBER-epen-CHANGE-stative
- (2) vtkatwvnátane' I will telephone.
 v-t-k-at-WVN-á-TA-ne' I'll put my voice into it.
 future.mode-cislocative-lsg.agent-semi.reflexive VOICE-epen-PUT.IN-punctual
- (3) wa'thokahlayv'táne', He focused, his eye fell. wa'-t-ho-KAHL-a-YV'TÁ-ne' factual.mode-dualic-masc.sg.patient-EYE-epen-RECEIVE-punctual
- (4) teklihwákhwa' I sing. te-k-LIHW-á-KHW-a' dualic-1sg.agent-MATTER-epen-LIFT.UP-habitual

In many cases, stems contain elements other than verb roots and incorporated noun roots. For example, verbs may require a PREpronominal prefix, in which case the stem is realized discontinuously. The cislocative prepronominal \underline{t} -, is required of the verb root in (5) $\underline{-atahsaw}$ - while the dualic \underline{te} - is required of the root $\underline{-yv}$ - in (6) and (7) in the meaning 'gamble'. The dualic is also obligatory in (1) and (4).

- (5) takatáhsawv' I began, started it.
 T-a-k-ATÁHSAW-v'
 CISLOCATIVE-factual.mode-1sg.agent-BEGIN-punctual
- (6) tekhyatúhslayvhe' I play cards.
 TE-k-hyatú-hsl-a-YV-he'
 DUALIC-1sg.agent-write-nominalizer-epen-PUThabitual
- (7) tékyvhe' I gamble. TÉ-k-YV-he' DUALIC-1sg.agent-PUT-habitual
 - cf. ikyvs I put. i-k-YV-s epen-1sg.agent-PUT-habitual

Phenomena that indicate that speakers treat some stems as non-derived units are the following. First, stems may undergo phonological fusion. In (8) and (9), for example, the epenthetic joiner vowel <u>a</u>, which regularly intervenes between a consonant-final noun root and a following consonant-initial verb root, is lacking, and the final <u>l</u> of the noun root has been lost. Fusion is a sporadic phenomenon; so (3), which also contains <u>-kahl-</u>, does not show fusion.¹

- (8) wa'tkatkáhkweke' I closed my eyes.
 *wa'-t-k-at-KÁHL-a-KWEK-e'
 factual.mode-dualic-1sg.agent-semi.reflexive-EYE epen-SHUT-punctual
- (9) tekkahkwekú I'm blind.
 *te-k-KAHL-a-KWEK-ú
 dualic-1sg.agent-EYE-epen-SHUT-stative

Second, speakers sometimes misanalyze constituents when consulted about the literal meaning of a stem. A good example of this is from Mohawk, a language closely related to Oneida. The form in (10) means 'Stay up there!' An excellent Mohawk speaker analyzed this as being composed of a noun root $\underline{-rat-}$ 'heel' incorporated by the verb root $\underline{-k-}$ 'eat', i.e. 'Eat your heel!'

Finally, relevant to the lexicalization of stems is an observation by Hopkins (1988) about forms exhibiting two "layers" of noun incorporation. She notes that only lexicalized stems can participate in a second layer of incorporation, and thus in a sense there can be only a single transparent or accessible incorporation per word. I distinguish two types: whether the incorporating verb or the incorporated noun is lexicalized. In both types a complex stem is argued to behave as a unit, equivalent to a morpheme. The incorporating verb is a lexicalized noun-verb combination in (11), (12), and (13). The verb root -1:1-/ -e:1- occurs only with the incorporated noun roots -hnek- 'liquid' and -nu't- 'milk', with irregular phonological adjustment in the latter case. lexicalized stem -hnekí·l- means 'drink' while -nu'ké·lmeans 'suck'. -hneki:1- can further incorporate another noun, e.g. -nu't- 'milk', as in (13), with the resultant transparent meaning 'drink milk'.

The incorporated noun consists of a lexicalized noun-verb stem in (14) and (15). In this case, either the nominalizer or the instrumental morpheme is suffixed to the stem as a prerequisite to incorporation. (14) contains an incorporated stem -anitskwahlá·tsl-'chair'. (15) from Mohawk contains the lexicalized stem -'sereht-'vehicle', which is built on the root that is also the incorporating root. The lexicalized stems are enclosed in square brackets.

- (14) lotanitskwahlá tslote' He has a chair standing.
 lo-t-[an-itskw-a-hl-á-tsl]-ot-e'
 masc.sg.patient-semi.reflexive-[semi.reflexivethigh-epen-place.upon-epen-nominalizer]-standpunctual

In summary, semantic non-compositionality, misanalyses by speakers, phonological fusion, and two layers of incorporation are evidence that some internally complex stems are not derived from morphemes.

3. WORDS. The discussion of stems has involved what would be classified as derivation to the extent that a distinction between derivation and inflection exists. In this section, inflectional as well as derivational categories play a role.

A formal category of nouns exists in Oneida, but the majority of functional nominals are verbal derivatives or forms which are structurally indistinguishable from verb forms. In this paper it is impossible to give any sense of completeness to the description of deverbal nouns, so I will give examples of just three constructions, arguing that in at least some cases they provide evidence for the listing of complete words in the lexicon.

- 3.1. HABITUAL ASPECT. The forms in (16) and (17) represent the habitual aspect of verbs that describe actions that may be construed as occupations as well as serial actions. These forms are used both nominally and verbally depending on the larger context. Varying the pronominal prefix of the stems does not have any effect on the dual function of these forms, as the glosses of (16) and (17) indicate (cf. Mithun 1979). However, the habitual aspect may become lexicalized with a particular prefix, as has happened in (18). With patient prefixes, the root - sle- means 'drive', as in the first word in (18); with an agent prefix and the semi-reflexive it means 'crawl', as in (19); and with the neuter agent prefix and the semi-reflexive it means 'sleigh', as in the second word in (18). In the meaning 'sleigh' the neuter form is "frozen", so that varying the prefix results only in the literal meaning 'crawl'. Some habitual forms are used almost exclusively as nominals, e.g. (20).
- (16) la'swátha' He extinguishes; fireman.
 la-'swát-ha'
 masc.sg.agent-extinguish-habitual
- (17) lu'swátha' They extinguish; firemen.
 lu-'swát-ha'
 masc.pl.agent-extinguish-habitual
- (18) losle' wateslehse'. He drives a sleigh.
 losle-' # w-ate-sle-hse'
 masc.sg.patient-drag-stative # neut.agentsemi.reflexive-drag-habitual
- (19) luté slehse' They crawl. lu-té-sle-hse' masc.pl.agent-semi.reflexive-drag-habitual
- (20) watahsatálha' T.V., movies.
 w-at-ahsat-á-l-ha'
 neut.agent-semi.reflexive-shadows-epen-be.in-hab
- 3.2. INSTRUMENTALS. A second type of deverbal nominal is formed by affixing the instrumental morpheme htt-/-tt-/-tt/-st-/-hkw-/-khw- to a stem and inflecting it with either the feminine-indefinite or feminine-zoic pronominal prefix. This construction retains verbal properties as well as taking on nominal properties. For example, (21) has the literal meaning 'they use it to write with' and the lexicalized meaning 'pencil'. Affixing a different verbal pronominal prefix, as in (22), results in the literal meaning 'use it to write

with' while affixing a nominal possessive prefix, as in (23), results in the meaning 'possessor-pencil'.

- (21) yehyatúkhwa' She/people use it to
 ye-hyatú-KHW-a' write with; pencil.
 fem.indef.agent-write-INST-habitual
 - cf. yehya túhe' She writes. ye-hya tú-he' fem.indef.agent-write-habitual
- (22) lahyatúkhwa' He uses it to write with. la-hyatú-KHW-a' masc.sg.agent-write-INST-habitual
- (23) laohyatúkhwa' His pencil. lao-hyatú-KHW-a' masc.sg.possess.-write-INST-habitual

Idiosyncratic properties of these two constructions, then, are the effect of varying the pronominal prefix and the nominal meaning. Further, it is clear that at least the instrumental nominals are not fully productive. The nominal in (24)--also an implement, the same general semantic class as 'pencil'--has no instrumental morpheme and is a reduced form of the verb in (25) in that it has undergone deletion of a word-initial underlying glide. The forms in (26) and (27) do appear to contain an instrumental <u>-st-</u>, but again the nominal in (26) is reduced. In addition, the verb forms in (25) and (27) require the dualic prefix while the nominals occur without it.

- (24) ata'shali sás scissors
 (w)-at-a'shal-i sá-s
 neut.agent-semi.reflexive-knife-??-habitual
- (25) teyuta'shali sás She's using the scissors.
 te-yu-t-a'shal-i sá-s
 dualic-fem.indef.agent-semi.reflex-knife-??-hab
- (26) ata'khétsta' skates
 (w)-ata'khétST-a'
 neut.agent-skate-habitual
- (27) tehuta'khétsta' They're skating.
 te-hu-ta'khétST-a'
 dualic-masc.pl.agent-skate-habitual

That the verb and the related nominal differ in their selection of other morphemes is not infrequent.

The verb <u>-uhew-</u> 'sweep' in (28) optionally occurs with the semi-reflexive, and the instrumental verb in (29) apparently requires it, but the nominals in (30) and (31) never have it.

- (28) yakuhe wás / yutuhe wás She sweeps.
 yak-uhe w-ás / yu-t-uhe w-ás
 fem.indef.agent-(semi.reflexive)-sweep-habitual
- (29) yutuhewa tha 'She sweeps with it.
 yu-t-uhew-a-t-ha'
 fem.indef.agent-semi.reflexive-sweep-epen-insthabitual
- (30) yakuhewá·tha' broom yak-uhew-á-·t-ha' fem.indef.agent-sweep-epen-inst-habitual
- (31) akuhewá·tha' my broom
 ak-uhew-á-·t-ha'
 1sg.possess-sweep-epen-inst-habitual
- 3.3. REPETITIVE PREPRONOMINAL PLUS INVARIANT PRONOMINAL. The third type of deverbal nominal has the repetitive prepronominal prefix in its function as 'characterizer' (Lounsbury 1953:49) and an invariant pronominal prefix. These nominals are semantically opaque, although speakers provide literal meanings for some of them, but not all. I have found that speakers hesitate to provide a literal meaning for (32), for example. Attempts to vary the pronominal prefix are unsuccessful. For example, (32) is reluctantly glossed as 'Your rag is bad'.
- (32) skvhnáksv' fox, it of the bad skin s-k-vhn-áksv-' repetitive-fem.zoic.sg.agent-skin-be.bad-stative
- (33) shá·yese' thimbleberry, long berry s-h-á·y-ese' repetitive-masc.sg.agent-berry-be.long.stative

In addition to opaque semantics, these nominals exhibit two other properties that support their lexical status as words. First, the pronominal prefix category is not predictable—cf. the prefixes in (32) and (33). Second, a verb form that has such a nominal as subject or object does not necessarily agree with the nominal in gender. This is because the pronominal prefix of the nominal, e.g. the feminine—zoic in (32), is "frozen". In the excerpt from Michelson (1981) in (34) the actions of

the fox, skvhnáksv', are described with the masculine pronominal, but this does not affect the gender of the pronominal in the form for 'fox'.

(34) Nók tsi' elakwí né na'kawhyuháti' But where on the other side a side of the river

nukwá <u>lo</u>tukhohtuháti' skvhnáksv. the.side.where he.is.going.along the.bad-skinned.one

'Only the fox was on the other side of the river. It was walking along.'

I have tried to show that the properties of stems and words cannot in all cases be derived from the properties of smaller components. This is not to say, though, that speakers cannot identify some of them as internally complex structures. I turn now to cases of more productive morphology, which entail greater semantic, morphosyntactic and phonological regularity.

- 4. MORPHEMES. As mentioned in the introduction, undeniably in many cases semantic, morphosyntactic, and phonological regularities can be attributed to constituents smaller than the stem or word. Further, there exist constructions which are completely, or nearly completely, productive. This section of the paper is devoted to three constructions—noun incorporation, benefactives, and non-occurring stems—which provide some evidence for the salience of the morpheme in Oneida. However, some problems with the formal status of morphemes are also identified.
- 4.1. NOUN INCORPORATION. The stems in (35) are all taken from a story about how the bear lost his tail (Michelson 1981). The incorporated noun root -itahs-/-vtahs- 'tail' occurs in each of these examples. Body part incorporation is transparent semantically and morphosyntactically and perhaps the most productive verbal construction.
- (35) ya'kanitáhsyhte' I immersed my tail.
 ya'-k-an-ITÁHS-vht-e'
 translocative.factual-1sg.agent-semi.reflexiveTAIL-drop-punctual

tahanitahso'kó' He pulled his tail out ta-h-an-ITAHS-o'kó' of the water. cislocative-factual.mode-masc.sg.agent-semi.reflexive-TAIL-pull.out.of.water.punctual

vshanitahsóthsi' He will pull his tail v-s-h-an-ITAHS-ót-hsi-' out.

future.mode-repetitive-masc.sg.agent-semi.reflexive-TAIL-stand-reversive-punctual

thvtahsó·lu His tail is stuck. t-h-VTAHS-ó·lu cislocative-masc.sg.agent-TAIL-be.stuck.stative

yah te'shvtáhsute' He has no tail attached. yah te'-s-h-VTÁHS-ut-e' NEG neg-repetitive-masc.sg.agent-TAIL-attach-stative

The passage from Michelson (1981:13) in (36) shows that incorporation of other roots can also be quite productive; it contains several instances of the noun root $\underline{-ks-}$ 'dishes' although the normal noun for dishes is built on a different root, $\underline{-atsyv-}$.

(36) Tayukwa<u>ks</u>aló·loke', tsyeyá·tat kvs We gathered up the dishes one person

taye<u>ks</u>ohaléni', oyá né n taye<u>ks</u>okewánih, someone washed dishes, the other someone wiped dishes

khále' oyá né né n sayuteyv'túni' atsyv'shúha...
and the other someone put them away again

The examples in (37) through (41) are all the result of incorporating English nouns into Oneida verbs. Note that the nominalizer morpheme is required of all English nominalizations. Once my Oneida acquaintances realized how much I enjoyed this type of example, they constantly produced them. Some came up in other contexts: (37) is used regularly in recipes, and 'tea' in (39) is quite productively incorporated.

- (37) tekakhásplake two cups te-ka-cup-sl-ake dualic-neut.agent-cup-nominalizer-numerator
- (38) wahajabsli sáke' He's looking for work. wa-ha-job-sl-i sák-e' factual.mode-masc.sg.agent-job-nominalizer-search.for-punctual
- (39) stitslahnekí·la Drink a cup of tea! s-ti-tsl-a-hnekí·l-a 2sg.agent-tea-nominalizer-epen-drink-imperative

- (40) katswetetslu níhe' I'm making myself a sweater.
 k-at-swetet-sl-u ní-he'
 lsg.agent-semi.reflexive-sweater-nominalizer-makehabitual
- 4.2. BENEFACTIVES. The benefactive morpheme regularly adds an argument to the verb with the resultant meaning 'do something for the benefit of someone'.
- (42) wahotvna'tslúni' She made lunch for him.
 wa-ho-tvhna'tsl-úny-V-' [-únyv' --> -úni']
 factual.mode-she.him-lunch-make-BEN-punctual
- (43) wa'kuyatvnvtshakétskwahse' I raised my
 wa'-kuy-atv-nvtsh-a-kétskw-a-HS-e' arm for you.
 factual.mode-1.you-semi.reflexive-arm-epen-raise epen-BEN-punctual
 - cf. wa'katvnvtshakétsko' I raised my arm.
 wa'-k-atv-nvtsh-a-kétsko-'
 factual.mode-1sg.agent-semi.reflexive-arm epen-raise-punctual

The benefactive has different alternants in the different aspects, a point I will return to below. Which alternant occurs is generally predictable from phonological properties of the stem. The alternants that occur in the punctual aspect are outlined in (44). Vowels in parentheses indicate epenthetic vowels.

Thus benefactive stems are generally regular semantically, morphosyntactically, and phonologically. Benefactives nevertheless pose a problem in that they do not permit a simple "layered" theory of the morphological component, whereby words are built up layer-by-layer. As mentioned above, the benefactive has several series of alternants, and which series occurs correlates with the phonological shape of the base to which the benefactive attaches. But which alternant in each series occurs depends on which aspect suffix follows the benefactive. This has been called a "look-ahead" construction by Simpson and Withgott (1984) in their

discussion of "layered" versus "template" languages. For example, the alternant $\underline{-v \cdot n1}$ — occurs before the habitual—he' in (45), while $\underline{-\cdot s-}$ occurs before the punctual $\underline{-e'}$ in (46).

- (45) liy-attok-v·ní-he' I notice something about him. I.him-notice-ben-habitual
- (46) wa-hiy-atto k-á-s-e' I noticed.... factual.mode-I.him-notice-epen-ben-punctual

The benefactive may become lexicalized and even inseparable from the stem. E.g., the meaning of the stem -nuhwaktani-/-nuhwakty- 'be sick' is not obviously derivable from -nuhwakt- 'to hurt, pain' plus benefactive. The benefactive cannot be stripped from -u'weskwani-/-u'weskwy- 'enjoy', since *-u'wesk- does not exist. Lastly, the benefactive does not always transparently add the meaning 'for someone', if the verb has been lexicalized. Thus the benefactive of 'telephone' -atwvnata'- simply adds an argument, as in wa'shakotwvnátahse' 'He telephones someone' (wa'-shakotwvnátahse' factual.mode-he.her-semi.reflexive-voice-epen-put.into-benefactive-punctual); cf. (2).

- 4.3. NON-OCCURRING STEMS (cf. Aronoff 1976). As linguists, we frequently isolate elements by virtue of their participation in larger constructions, even if the element does not occur independently as an inflectable unit. Evidence that such elements are sometimes analyzed by speakers are expressions like the one in (47), which I have heard on more than one occasion. —tok— does not occur as a stem, i.e., it cannot directly be inflected with pronominal prefixes and aspect suffixes. Outside of the expression in (47), —tok— occurs only as part of the stem —attok— 'notice, perceive', which would otherwise be analyzed as composed of the semi-reflexive plus —tok—. However, at the same time as speakers apparently analyze —attok— as internally complex, they also must "know" that —tok— does not occur as a stem.
- (47) He's got no tok, i.e. He's got no smarts.
 cf. -attok- 'perceive, notice' (?-at-tok-,
 semi.reflexive-be.smart/notice)
- 5. SUMMARY AND DISCUSSION. The Oneida lexicon is characterized by extensive lexicalization as evidenced by semantic opacity, by "frozen" prefixes and other morphemes, and sporadic fusion. Stems and words have properties that cannot be described as the result of simply concatenating morphemes, suggesting that the

Oneida lexicon is extremely rich, and the role of the morpheme, as conceived of in many current theories of the morphological component, is relatively small. This conclusion does not deny that there exists a continuum of accessibility to speakers of aspects of complex constructions. Rather it suggests that lexical redundancy rules play a more significant role than wordformation rules.

NOTES

- ¹ Michelson (1988:168, n.4.) gives additional examples.
- ² I thank G. Michelson for pointing out this example.
- 3 -tok- does occur as a stem in related languages, such as Seneca, where it means 'see' (Chafe 1967:84).

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Animacy and the passive voice in Kanjobal Birch Moonwomon University of California, Berkeley

Kanjobal, also called Acatec, (Kaufman, 1986), a Western Mayan language spoken in the Huehuetenango area of Guatemala, shows a great deal of variation in word order. The language, having 15,000 speakers in the towns of San Miguel Acatan and San Rafael La Independencia, is closely related to Jacaltec. This paper is based on work with one young, male informant, Rafael, from San Rafael La Independencia. The work was done

entirely away from the speech community.

This paper argues three things: that there are several equally basic word orders for Kanjobal sentences; that it is sensible to regard more than one order as basic in languages in which discourse factors strongly influence word order choice; and that it is not universally true that the order of predicate and arguments in active, transitive sentences is a basic order. Greenberg's (1966) and Comrie's (1981) claims about word order universals are based on observations of the positions in sentences of the grammatical elements of subject and object. It is clear in Kanjobal that thematic roles, and the relative animacy ranks of prononimal or lexical NPs in the roles, are more important determinants of word order than grammatical functions. Animacy status, grammaticalized in Kanjobal, is a discourse and pragmatic phenomenon. In this language an animacy hierarchy for NPs produces variation in word order largely through the choice of grammatical voice. The use of topicalization increases the variation.

The notion that Comrie (esp. pp. 178-193) labels 'animacy', which operates in many languages to constrain the syntax in various ways, might better be called 'intentional agentivity.' Universally, a number of factors having to do with the pragmatics and semantics of pronouns and nouns, and with discourse, seem to be involved, including person, number and definiteness of the nominal, whether it is a pronoun or a noun, whether the referent is human, animal, plant, or inanimate, and, if human, whether the referent is female or male, adult or juvenile. There is a tendency across languages for a sentence having both agent and patient NPs to show a flow of transitivity from an argument whose referent is higher in animacy (or ability for intentional agentivity) to one that is lower. That is, the more animate NP occurs first; it comes to the attention of the hearer first. Comrie (p.187) suggests the hierarchical continuum given as follows:

1/2 person pronouns > human NPs > animal NPs > inanimate NPs

An animacy hierarchy influences morphology and syntax in Kanjobal in a number of ways besides the choice of voice. For instance, nouns referring to humans and animals are marked with classifiers; but nouns whose referents are inanimate objects do not regularly get classifiers (with the exception of natural forces). Also, Kanjobal marks possession by prefixing ergative markers to the possessed noun; possessor nouns whose referents are low on the animacy scale often do not trigger the use of the marking—instead apposition is used—while possessor nouns whose referents are high on the scale always do.

(1a)	Ergative markers						
	1s	jin/w-	-an	1p	co	-on	
	2s	ja (w-))	2p	jee (w	-)	
	3s	s-/y-	naj/ix	3p	s-/y-		
(1b)	Absolutive markers				-	-	
	1s	jin	-an	1p	co	-on	
	2s	jach		2p	jex		
	3s	-	naj/ix	3p	-	jeb	
Table	1. Kai	njobal pro	onominal morpholog	y		-	

The animacy hierarchy can be observed in Kanjobal especially in the morphology of pronominals and the syntax of sentences in which they appear. The language has a complex pronominal system involving pronouns, their phrasal clitics, classifiers, and ergative verbal prefixes. The ergative and absolutive sets of pronominals are given in Table

(1a) shows that first person ergative forms, which are short forms corresponding to long forms not shown here, include the clitics -an and -on. Short form second person ergative pronouns and third person classifiers are accompanied by ergative prefixes; w- and y- are used if the verb is vowel-initial. (1b) shows that absolutive markers differ from ergative ones by having distinct second person forms and by not associating with verbal prefixes. Note that only first persons, highest in animacy, are partially cliticized; and that use of the ergative prefix is optional when the agent is the second person, for which there are separate ergative and absolutive forms; and that only the ergative third person, for which noun classifiers take the place of distinct pronoun forms, requires a verbal prefix. This last morphological fact may reflect the discourse truth that a third person NP is less likely to be an agent than a second or first person NP. The ergative prefix on the verb serves to indicate that a third person is the agent in the sentence. The third person pronominal, that is, a classifier, may be omitted. A default interpretation of a sentence with omitted pronoun classifier is that the agent and subject of the sentence is singular, human, and male. The third person ergative marker, then, serves to put an expression of third person agency in front of the verb stem.

In terms of agent and patient roles of 1, 2, and 3 person NPs, regular word orders in Kanjobal sentences make the pattern shown in Table 2. Modification of these orders is permissible. Across construction types (active (a,b,c), passive (a,b,c)) the order VPA is favored, giving SVO, OVS, and VOS structures for active sentences and VSOblique and SVOblique structures for passive sentences. The structural preference for VPA is due in large part to the fact that in passive sentences agents are categorically oblique, clause final NPs with adpositions; when the agent is first or second person the agentive marker follows the pronoun. In active constructions in which the agent is third person, but the patient is first or second, one regularly finds the order PVA, that is, an OVS structure. Altogether, this means that in all but active sentences with first or second person agents, the patient precedes the agent.

(a) ag 1 or 2 pat 2 or 3	active Ss	passive Ss
(b) ag 3 pat 1 or 2	AVP (SVO)	VPA (VSObliq)
(c) ag 3 pat 3	PVA (OVS)	PVA (SVObliq)
Table 2. Sentence word orders	VPA (VOS)	VPA (VSObliq)

Example sentences of each type are given in (1-6).

- (1) jin tec' jachan I kick you-CLIT I kick you.
- (2) jach slactoj txutx you ERG-carry-DR mother POSS/CL^m His mother carried you.
- (3) smak' ix naj ERG-hit CLf CLm He hit her.

- (4) tec'bi'il jin ja wuan kick-PPART me you ERG-by-CLIT I was kicked by you.
- (5) tec'b'il jach yu naj kick-PASS you ERG-by CL^m You were kicked by him.
- (6) laclitoj jun nene yu txutx carry-PASS-DR CL baby ERG-by mother The mother carried the baby.

Passive verbs have the suffixes b'il, li-, or-cha, among which there are functional differences. Dakin (1976:155) regards b'il as a perfect passive participle, and I have glossed it as such here. When only short form pronouns and clitics appear as arguments (that is, when the agent and patient are first and second persons,) only b'il will do as a passivizer. When the agent is third person and the patient is first or second person, the pronoun patient often appears before verb. The passive suffix -li is commonly used on the verb, although b'il is permissible also. Craig (1977:81-83) observes a parallel constraint on passive marking in Jacaltec.

Word order reflects animacy status in Kanjobal. Also, voice interacts with animacy to effect a regular variation in word order. First and second persons tend to be in front of the verb, as agents or patients. There is a preference for placing first person before second person, and first or second person before third in the linear order. The hearer finds out about the first person before the second and about the first or second before the third, regardless of thematic or grammatical role. The working of the animacy hierarchy determines the word order, giving the various structures shown in Table 2, in which, on the one hand, a PA order is favored, but, on the other hand, three different sequences for verb, patient, and agent are found across active and passive sentences. Further, active sentences are SVO, OVS, or VOS. The variety of structures is motivated by the language's preference for placing an NP of higher animacy forward in the sentence.

Although few VOS languages are known (Comrie 1981), Kaufman claims (1986:45) that basic word order in Mayan languages in general is predicate-initial; and that sentences are either VSO or VOS when the arguments are lexical NPs. These are, of course, third person nominals. One of the orders most frequently found in elicited Kanjobal sentences is VOS. When the arguments in transitive sentences are lexical NPs, VOS order is found, as indicated in (c) of Table 2. The VOS order corresponds to a verb-predicate-agent order. Narratives contain a very high percentage of sentences with third person arguments. Presumably, in discourse the same structure is used for any sentence which is a report, observation, or speculation about any people or events outside of the

speaker and hearer.

While the simple majority of elicited active, transitive sentences with lexical NP or pronoun classifier arguments are VOS, the VOS order is sometimes abandoned or modified. Deviation from the basic word order in active sentences with third person arguments is possible through the use of VSO order or through topicalization of patient or agent. Of these two options topicalization is by far the more popular. When VSO order is found it has often, but not always, been elicited as a variation of the VOS order for the same sentence. Topicalization focuses attention on the argument whose role the speaker wants to emphasize. Heavy subject NPs are sometimes placed in front of the verb. Fronting a subject to focus position can serve to separate two arguments of equal animacy. Both VSO order and topicalization are shown in (7-9).

- (7) smak' naj x"unic mex"a
 ERG-hit CL^m Juan table
 Juan hit the table.
- (8) naj peel ix malin yiitoj jep xuwi bey txomb'al Clm Pedro CLf Maria ERG-carry-DR CL POSS-bag to market. Pedro and Maria carried bags to market.
- (9) naj antonio smak' naj x"unic CL^m Tony ERG-hit CL^m Juan Tony hit Juan.

When both NPs, lexical or pronominal, are third person, person itself cannot determine a difference in animacy rank between their referents. The use of topicalization does not correspond to a reversed animacy relation between arguments. P>A (patient is greater in animacy than agent) in very few active transitive sentences whatever word order is employed. Violation of the animacy hierarchy, that is, deviation from the expectation that A>P in animacy, occurs most frequently in active sentences when a woman is the agent and a man the patient of the action. There is some, but very little, evidence that gender difference is important in the Kanjobal animacy hierarchy. An example is given in (10).

(10) smak' naj ix ERG-hit CL^m CL^f She hit him.

If word order variation is not used to bring to the hearer's attention the fact that regular expectations about agency are not being met in a sentence, what device is used? The other route that is open is voice variation, and this is the one Kanjobal employs. The Kanjobal antipassive voice, which demotes the patient argument and focuses attention on the agent by means of modified word order, is found in sentences both in which the agent is of greater animacy than the patient and in which the patient is of greater animacy than the agent.

(11) jun winaj manon jun chee CL man buy-ANTIP CL horse The man bought the horse.

The most common devise for expressing transitive action in which the animacy of the patient is higher than that of the agent is the use of the passive voice with suffixes -li and -cha. The great majority of elicited passive sentences have patients whose animacy rank is higher than or equal to that of the agents. Many passive sentences provided by the informant are direct correspondences to active sentences provided by investigators. That is, the informant made active Spanish sentences into passive Kanjobal sentences when he felt it was appropriate to do so.

The order of the thematic roles of the NPs is the same as in active transitive sentences that have basic word order. The demoted agent in the oblique phrase follows the sentence's only argument since adpositional phrases regularly follow the arguments in Kanjobal. Topicalization of the agent or patient is possible in passive sentences; however, little use is made of it. When it is, topicalized elements are agent nouns whose referents are animals. Also, some of the fronted agents are heavy NPs, and this may be a factor. Examples are given in (12-16).

- (12) mak'li jun nene yu jun noes hit-PASS CL baby ERG-by CL nut The nut hit the baby.
- (13) tec'li jun winaj yu jun chee kick-PASS CL man ERG-by CL horse The horse kicks the man.
- (14) mak'li cam naj yu no' lion hit-PASS dead CL^m ERG-by CL lion The lion kills the man.
- (15) walcha naj yu jun cheen hit-PASS CL^m ERG-by CL rock A rock hit him.
- (16) no' smis ix ana chiili kawan yune ix malin CL_a ERG-cat CL^f Ana bite-PASS two-PL POSS-child CL^f Maria yu no' ERG-by CL_a Anna's cat bit Maria's two sons.

Of the passive sentences where A>P, a pattern one expects for active sentences, the semantics of the verb are significant. More than half these sentences have verbs that gloss 'pick up', 'carry', as in sentences (17-18).

- (17) laclitoj yunin ix jin txutx yu sno carry-PASS-DR POSS-child CLf POSS mother ERG-by POSS-sister My mother's sister carried her baby.
- (18) oc' jun unin tu' catut b'et yiili yu yanap cry CL child that then ? ERG-pick up-PASS ERG-by POSS-sibling The child cried and his sister picked him up.

A baby or small child is being carried by an older sibling or adult. Tony Moy suggests (personal communication) that the passive is used here in order to demote the agent and put a natural focus on the child; that is, the agent may be demoted not because it is unusual for older humans to carry children but precisely because it is usual, and the patient of the action is the NP to focus on.

The animacy hierarchy's importance shows up as preference for, rather than categorical selection of, one voice or the other depending on the relative animacy of the nominals; and other factors include the semantics of the verb, the passive suffix used, and the options of changing word order of the agent and patient or topicalizing an argument in order to disambiguate or focus on the role of an NP. This last option is of particular interest since variation in word order is possible in the language. A speaker could choose to use word order modification rather than a switch of voice to call attention to the fact that the patient of the action is of higher rank in the animacy hierarchy than the agent. Instead, most commonly a voice change is effected. There are three basic word orders for active transitive sentences, depending on the persons of the agent and patient.

First and second person agents in passive sentences do not occupy the focus position. They are objects of adpositions. This linear order makes passive sentences with first and second person agents look like passive sentences with third person agents (except

that the pronouns appear in front of the adpositions), and both of these look like active sentences with third person agents and patients in that the NP thematic roles occur in the order: PA. The order PA may then be taken as the unmarked order overall. This is reflected, in terms of grammatical function, as three different basic orders for active transitive sentences: SVO, OVS, or VOS. There seems no good syntactic or discourse reason to take the third of these, VOS (in which both arguments are third person,) as more basic than the other two. Further, given the regular, although variable rather than categorical, use of the passive instead of the active voice when the patient is higher in animacy thatn the agent, there seems no good language-internal reason to regard the patterns for active sentences as more basic than passive ones.

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Direct Quotation and Switch Reference in Zuni

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This paper will discuss the interaction between switch reference (hereafter SR) and direct quotation in Zuni, spoken in New Mexico. SR is marked fairly regularly in Zuni except in sentences containing direct quotation. The analysis of SR marking in relation to direct quotation in Zuni will provide evidence bearing on the question of whether direct quotation is syntactically integrated into its matrix sentence. Furthermore, it will be shown that traditional representations of structure are not adequate to express the relationship of direct quotation to its matrix sentence in Zuni.

Switch reference refers to the marking of clauses as to whether (the referent of) the subject of the following clause is the same or different from the subject of the preceding clause. Zuni uses two SR markers, -nanna (common variants -n, -nan) and -ppa (common variant -p). -nanna marks the subjects of two adjacent clauses as the same; -ppa markes the subjects as different. The SR marker is suffixed to the verb, and word order is SOV.

Following is an example of a Zuni sentence containing SR marking (Zuni data from Bunzel(1933)).

(1) an lelonal-kwin θ_i te'ci-nan his box-at arrive-SS

lelo-nan \mathcal{B}_i kwato-p box-inside enter-DS

\mathfrak{\mathfrak{H}}{\mathfrak{H}} an-a\text{it-u-nan} indirective-be closed-causative-SS

iteh-k'aia-kae.
throw-river-past

He_i came to where the box was lying; he_i entered the box and he_j (the other) closed it for him_i and threw it into the river.

Note then the following sentences, in which the SR markers do not seem to properly index same or different subject reference. In (2), -nan appears although the adjacent subjects are different. -p appears in (3) although (the referents of) the adjacent subjects are the same.

(2) \mathcal{O}_i u:-kwato-nan hom a:taču hom a:cita hom čawe pl.subj.-enter-SS my father my mother my children

ko'na t'on_j t'ewanan a:-tea-iye? how you(pl.subj) daily intrans.pl.subj-live-past

As they_i entered (they said), "My fathers, my mothers, my children, how have you_i lived these days?"

(3) hom luk auwa-ka \mathscr{O}_i le'-kwa-p hayi ho'na:wan E_i 'le_i me this find-past thus-say-DS our child

kwa la:k'i-ma t'o'_i a:-šukwa le'-an-kae neg. today-excl. you go-neg.nonpast condit. thus-indir-say

"This one found me," hei said. "Haiyi! Our childi. This very day youi may not go," they said to himi.

Note that these examples contain directly quoted speech. It is the combination of SR marking and direct quotation that is responsible for these seemingly deviant uses of SR. To see this, the structure of direct quotation in Zuni must be analyzed.

Directly quoted speech occurs in Zuni preceded and followed by the verb *ikwa* 'say' plus the markers *les*- or *le'*-: *lesikwa* 'this (the following) X says', *le'ikwa* 'thus (the preceding) X says'. This pattern, shown in (4), is referred to by Kendall(1975) as a frame.

(4) isk'on piłaciwan:i_i les-kwa-n kwa t'on_j ak:ae near there bow priest this-say-SS neg you(subj) neg

Yu:wa kolehol ce'm-Yukwa someone something think-neg.nonpast conditional

le'-an-ak'ae-n:a thus-indirective-say-nonpast conditional

So the bow priest; would say,"Therefore let none of you, think anything of it, "he; would say.

Although direct quotation may be framed in this way, it is not obligatory that both verbs of the frame appear overtly. As the following examples show, the frame verb ikwa 'say' may be deleted following the quote (5), preceding the quote (6), or deleted both preceding and following the quote (7). Although not marked by frame verbs, (7) is undoubtedly direct quotation as well, as shown by transparent pronoun reference and tense. The verbs ikwa 'say' that precede and follow a quote will be referred to as frame verbs. ikwa preceding the quote is the frame-initial verb, ikwa following the quote is the frame-final verb.

(5) lat θ_i les-a:wan-ikwa-nan kwap t'o'j a:wan ξ_a 'le? then this-indirective-say-SS what you(subj) whose child

Then hei said to them, "Whose child are youi?"

(6) t'om ho' isana'-kae hom cita le'-an-ikwa-kae you(obj) I carry-past my mother thus-indirective-say-past

[&]quot;I was carrying you at the time," my mother said to me.

(7) a:wokae hom ai-yałenap-kae. kwa ho' women me indirect.-ask-past neg. I

aiyu'ya:-nam:e-a. yam ho' cita ai-yala-kae know-neg-pres own I mother indirect.-ask-past

The women asked me. "I don't know anything about it." So I asked my mother.

A similar pattern of 'say' behavior is attested for Gahuku, a language of New Guinea (Deibler(1971)), as well as for many American Indian languages.

One may ask whether ikwa is actually present at some level of deep structure and then deleted, or whether the occurrence of ikwa in one or both positions is simply optional. It will be argued here that the former is the case: that the complete lesikwa---le'ikwa frame occurs at some level of deep structure and one or both occurrences is deleted. Furthermore, it will be argued that SR marking occurs before any of the frame verbs are deleted. This conclusion will have direct bearing on the interpretation of the behavior of SR in (2) and (3). To the extent that frame deletion is able to account for the seemingly deviant behavior of SR, its accurateness as an analysis will be substantiated.

It is a fact of Zuni grammar that 1st person, 2nd person and 3rd person dual subjects are marked with pronouns, while a 3rd person subject other than dual is marked by the lack of any pronoun, i.e. a verb alone signals 3rd person. Consequently, deletion of a 3rd person frame verb ikwa 'say' is deletion of a 3rd person subject as well. When frame verb deletion is referred to, it should be understood that deletion of a 3rd person subject is directly implied; recall that it is subjects that are relevant to the discussion of SR.

The cases of SR that seem deviant always concern verbs that immediately precede a direct quote. The following discussion will show that such verbs can be divided into two categories: frame-initial ikwa a 'say' vs. all other verbs. This distinction is necessary since the unexpected SR markings for the two types of verbs have different causes.

Non-frame verbs will be dealt with first. SR appears to be incorrectly marked in view of the subjects that are adjacent in surface structure. In (2), repeated here, Same Subject (SS) is marked with -nan although the adjacent subjects are different: they, / my fathers, etc.

(2) \mathcal{B}_i u:-kwato-nan hom a:taču hom a:cita hom čawe pl.subj.-enter-SS my father my mother my children

ko'na t'on_j t'ewanan a:-tea-iye? how you(pl.subj) daily intrans.pl.subj-live-past

As they, entered (they said), "My fathers, my mothers, my children, how have you, lived these days?"

- In (3), also repeated here, Different Subject(DS) is marked with -p although (the referents of) the adjacent subjects are the same: he_i / our $child_i$.

kwa la:k'i-ma t'o'_i a:-šukwa le'-an-kae neg. today-excl. you go-neg.nonpast condit. thus-indir-say

"This one found me," he_i said. "Haiyi! Our child_i. This very day you_i may not go," they said to him_i.

In both (2) and (3) a verb precedes the quote that is not a frame initial *ikwa* 'say' (i.e., *lesikwa* 'this-say'). Consider the proposal, then, that at some level the structure of these sentenses is as in (2') and (3') below, based on sentences like (4): (4) suggests that the quote's frame should appear complete at some level of structure for all direct quotation. These representations explain the behavior of the SR markers in (2) and (3). In (2'), when SR is marked the subjects that are referred to are the subject of *u:-kwato* 'plural subject-enter' and the subject of the immediately following verb [*lesanikwa*] 'this-plural subject-say'. Hence Same Subject marking on *kwatonan*. In (3'), the subjects referred to when SR is marked are the subject of *le'kwa* 'thus-say' (=he) and the subject of [*lesanikwa*] 'plural subject-this-say' (=they). Therefore *le'kwap* is marked for different subject.

(2') θ_i u:kwato-nan [θ_i lesanikwanan] hom a:taču hom a:cita hom they enter-SS [this-pl.subj.-say-SS]

As they_i entered [they_i said], "My fathers, my mothers, my children, how have you_i lived these days?" [they said].

(3') hom luk auwaka \mathcal{O}_i le'kwa-p [\mathcal{O}_j lesanikwanan] hayi ho'na:wan thus-say-DS [this-plur.subj-say-SS]

ča'le_i kwa la:k'ima t'o' a:šukwa le'anakae

thus-plur.subj.-say-past

"This one found me," hei said. [They said] "Hayi! Our childi, this very day you may not go," they said to him.

Since frame-initial [lesikwan] and [lesanikwanan] are then deleted and do not appear in the surface structure (shown by (2) and (3)), SR marking is opaque.

In addition to the distribution possibilities of *ikwa* 'say', which provides motivation for positing an underlying frame-initial verb ((5)-

(7)), SR marking in cases like (2) and (3) also provides evidence for that frame-inital verb.

In sentences where a frame-inital ikwa 'say' is present, SR again appears to be marked incorrectly in view of adjacent subjects in surface structure. In (4) and (5), repeated here, Same Subject is marked with nan although the adjacent subjects are different: bow priest_i / you_j, and θ_i (he_i) / you_j.

(4) isk'on piłaciwan:ii les-kwa-n kwa t'onj ak:ae near there bow priest this-say-SS neg you(subj) neg

Eu:wa kolehol ce'm-sukwa someone something think-neg.nonpast conditional

le'-an-ak'ae-n:a thus-indirective-say-nonpast conditional

So the bow priest_i would say,"Therefore let none of you_j think anything of it,"he_i would say.

(5) la sum (5) la sum

Then hei said to them, "Whose child are youi?"

According to the analysis being presented, the structure of (5) is as in (5') at some level of structure.

(5')la H_i lesa: wanikwanan kwap t'o_j a: wan E'a'le [H_i le'a: wanikwa]. this-indir-say-SS [thus-indirective-say]

Then he; said to them, "Whose child are you;?" [he; said]

The SR mechanism is not referencing adjacent subjects in (4) and (5'). SR marking of the frame verb ikwa 'say' preceding the quote skips over the quoted material and references the subject of the frame verb that follows the quote. Note that since the subjects of the two frame verbs will always be the same, a frame-initial ikwa 'say' appearing in surface structure will always bear Same Subject marking. This prediction is borne out by the data. As in (5), a frame-final ikwa 'say' may be deleted after SR is marked. There are two factors, then, that are responsible for the opacity of SR marking on frame-initial ikwa: subjects contained in a quote are ignored for purposes of SR marking, and the frame verb that follows the quote may be deleted after SR marking.

Example (8) shows that Same Subject marking is indeed referencing a deleted frame verb's subject and not the next subject that follows the quote. The subjects that are available for SR marking in the surface structure of (8) are different, papa_i/suwe_j, yet *ikwa* receives Same Subject marking.

(8) papa_i les-kwa-nan si koci le:wi suwe_j elder brother this-say-SS excl. all younger brother

leskwanan wan afna-te this-say-SS soon more-still

The elder brother; said, "Ouch! That's enough!" The younger brother; said, "Wait! once more."

That the interaction of SR and quotation is unusual in some languages has been noted by Kendall (1975). Kendall's data for Yavapai shows that $-k(Same\ Subject)$, never $-m(Different\ Subject)$, always precedes quotation. Note that in (9) the adjacent subjects are different: $Savakyuva_i$ / $Tokatoka_i$.

(9) savakyuva-č i-k tokatoka-č kyu:1-kem i-kiñ Savakyuva-subj say-SS Tokatoka-subj long-incompl say-compl

Savakyuva said, "Tokatoka is tall."

Kendall accounts for this atypical SR marking by appealing to a special semantic category of non-factive verbs. All non-factive verbs, those which do not presuppose the truth of their complement, are marked with the -k suffix. Verbs that introduce quotation (say, ask, tell) are considered to be non-factive verbs. In the case of direct quotation, the person saying the quote is responsible for its truth value, hence the Same Subject marking. Kendall thus accounts for SR marking preceding quotation through the semantics of SR rather than its syntax.

Adopting the analysis that quoted material is ignored by SR marking may explain the irregularities of SR marking noted by Kendall. The data she cites, including the following

(10) 'ña-č Θala '-cikwikwi-k 'iñek i'i o-m-cikyat-o
1-subj Thala 1-ask-SS 1-conj wood 10bj-2subj-chop-benefactive

'-i-kiñ 1-say-compl

I asked Thala to cut wood for me.

(11) ma:-č n-kinav-k hma:n-nu 2-subj [2subj1obj]-tell-SS children-those

pa:-m-ma:-o m-i-kifí
pl.obj-2-eat-applicative 2-say-compl

You told me to feed the children.

shows that Yavapai quotes, like those in Zuni, are preceded as well as followed by a frame verb.

Although the category of non-factive verbs may be needed elsewhere in Yavapai to explain - k marking, I propose that at least direct quotation marking with -k not be attributed to the non-factive verb. Kendall's non-factive category covers perhaps too wide a range of phenomena, and the above evidence shows that verbs that frame quotation do not need non-factiveness to account for their behavior. I do concede, however, that the Yavapai case may differ from that of Zuni since sentences such as (12), where the last verb in the quote is SR-marked, never occur in Zuni (see below for more discussion on this point).

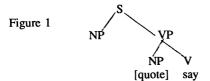
(12) kopica-č i-k iñek Θala-č i-k iňek 'na '-hme-m Gopicha-subj say-SS conj Thala-subj say-SS conj 1 1-son-assoc

hwak-k kwe-ne:h-a i-k i-kiñ two-SS thing-hunt-tns say-SS say-sompl

Gopicha said that Thala said that she would take my son hunting.

It is not clear from the translation given by Kendall whether (12) is indirect or direct quotation, and this may have some bearing on the analysis to be preferred. Judging from pronoun opacity, (12) seems to be indirect quotation.² I see no reason to treat indirect and direct quotation as the same phenomenon, especially since Yavapai sentences containing direct quotation conform to the analysis of direct quotation suggested here for Zuni.³

Partee (1973) and Munro (1982) raise the question of the syntactic relationship of quotation to its matrix sentence. A common assumption prior to their analyses was that a quoted segment bore the grammatical relation of direct object of the verb 'say' (Rosenbaum (1967), Munro (1978)).



Munro (1982) presents data from a number of languages to suggest, however, that 'say' has intransitive properties in these languages. For such languages an alternative to the treatment of quotation as a direct object must be found. Partee suggests an analysis for English quotation, furthermore, in which quoted speech is not syntactically or semantically integrated into its matrix sentence.

The preceding discussion on SR and direct quotation reveals the degree to which quotation is syntactically integrated into its matrix sentence in Zuni. The Zuni evidence supports Partee's analysis since SR marking on a frame-inititial 'say' ignores the quoted material and references the subject of the frame verb 'say' that follows the quote. There is additional evidence of this sort, involving the general pattern of SR marking. Within an utterance every verb but the final one bears SR marking. However, no verb that is the final verb of quoted material ever bears SR marking even though directly followed by another clause. Note that in (3), (4) and (6) that although the quote-final verbs a:sukwa, ce'msukwa, and isana'kae are all followed by another subject and verb, none bears SR marking.

The evidence suggests that quoted material is ignored in two ways:
i) Subjects within a quote are overlooked when SR is marked on the verb preceding the quote.

ii) The final verb within a quote is ignored when verbs receive SR marking; the final verb within a quote is treated as sentence-final.

Since SR marking shows syntactic interrelation, the evidence points to the conclusion that direct quotation is not syntactically integrated into the sentence that contains it.

Quotation must be integrated to some degree, however, since sentences where the quote is left out are ungrammatical.

(13) * piłaciwan:i lesikwan le'ikwa. bow priest this-say-SS thus-say

Similarly, English sentences with the verb 'say' are somewhat strange if the intended quoted speech is left out.

??(14) Frances said. (excluding emphatic interpretation) *(15) Sam said and then walked away.

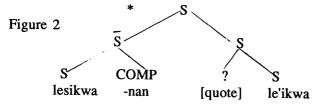
Partee (1973) points out that a gesture may take the place of directly quoted speech:

(16) He went like this: (gesture)

Note that (16) too is odd if the gesture is left out.

??(17) He went like this.

Traditional representations of structure are not adequate to express this relationship since hierarchical assumptions like subordinacy must be made in order to explain why SR ignores quoted material. For example, one claim is that SR is marked according to constituent structure. Quoted material would be ignored by SR if the quote were to make up a constituent with le'ikwa, le'ikwa being the head of that constituent and the quote playing a subordinate role (Figure 2).



As was mentioned earlier, however, le'ikwa may be deleted. It seems odd that a sentence would be grammatical when the head of a constituent is deleted but ungrammatical when a non-head of the same constituent is deleted, as in (13). It is equally odd to say that the quote is the head, not only because the phrasal category of the quote is uncertain, but also because quoted material may consist of an exclamation, an incomplete utterance or even nonsense.

Figure 3 is based on suggestions in McCawley (1989) for parenthetical material.

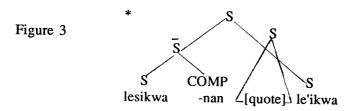


Figure 3 is adequate to represent only a sentence containing parenthetical material, however, since it does not capture the crucial difference between quoted material and parenthetical material: unlike quoted material, a sentence is still grammatical if parenthetical material is left out, as in (18).

(18) Frances went [I believe] to the Carribean.

A representation would be preferred in which the minimal integration of quoted material can be accounted for, while avoiding the assumptions about SR marking that arise from hierarchical structure. In fact, since Zuni SR marking seems to be sensitive to different types of discourse, that which originates with the speaker and that which does not (direct quotation), we may have to describe the relation of a quote to its matrix sentence in terms of well-formed discourse structure, rather than in terms of well-formed syntactic structure.

NOTES

1 Lindenfeld (1973) posits a transformation for Yaqui resembling frame deletion in which the matrix (=frame) verb 'say' is optionally deleted.

- Interestingly enough, no examples of indirect quotation can be found among the Zuni data. When the speech of another person is referred to, he or she is directly quoted.
- Munro (1982) accounts for 'deviant' SR marking in Mojave through The -k (SS) that marks the following quote homophony.

m-isay-k '-i'ii-m vou-fat-K I-say-tense

is homophonous with -k, a case marker that was grammaticalized as a topic marker and extended to cases involving direct quotation. concession to Munro's view I suggest the possibility that SR marking might come to be grammaticalized as a marker of quotation. Munro (1978) for more discussion on this point.

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Obviation, Inversion, and Topic Rank in Ojibwa

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One of the most salient features of Algonquian syntax is a phenomenon called OBVIATION that marks disjoint reference in third persons. Non-Algonquianists often find this phenomenon hard to understand, in part because as linguists we are more used to thinking in terms of coreference than disjoint reference and in part because morphological idiosyncrasies in the marking of obviation somewhat obscure the relatively straightforward syntactic patterns that determine when nominals are obviative. Add to this the fact that Algonquian languages are PRO-drop (however one chooses to analyze that phenomenon) so that the presence of an obviative referent may only be reflected in verb inflection, and you have the formula for a phenomenon non-specialists find difficult to understand. The point of this paper is to show that there is an insightful analysis of obviation in syntactic terms (contra Wolfart (1973), Goddard (1984), Dahlstrom (1987), among others) in spite of the fact that previous proposals for syntactic analyses (Delisle (1973), Dunnigan, O'Malley, and Schwartz (1978), Grafstein (1981)) were unsatisfactory because they failed to recognize that discourse level factors interact with syntactic factors to produce the distribution of obviatives actually found in text. The discussion here will, of necessity, only outline this approach and will be limited to an examination of obviation in Ojibwa, and for the most part to obviation in the Ottawa dialect. While it is not feasible to give an exhaustive study of obviation in even a single language in a paper of this length, the viability of a syntactic approach and its advantages, at least in the case of Ojibwa, should be obvious by the time we are finished.

Let me begin the discussion by proposing some terminology. For convenience sake I will use the term NOMINAL to refer to whatever morphological means is used for explicit reference in any particular phrase, clause, or sentence—be it a true nominal expression or simply a verbal inflection. Since there are always two nominals involved in obviation, let me call the one which induces the obviation the CONTROLLER and the the one which gets obviated the VICTIM. The next set of terms we will need are traditional among Algonquianists. Nominals which are the victims of obviation are are OBVIATIVE, those which are not are PROXIMATE.

Given this terminology and the fact that Algonquian nominals may be of two genders, animate and inanimate, we can make our first generalizations about obviation, both of which depend on animacy.

- (1) All controllers are of animate gender.
- (2) Only animate obviatives bear obviative marking.¹

One implication of (2) is that there are nominals which are obviative but which bear no overt indication of their obviative status. This fact causes much confusion about obviation, because many Algonquianists do not understand it. We will have more to say about this below.

There are several different basic configurations in which nominals can control obviation in potential victims. These are listed in (3) in order of increasing extent of control:

(3) (a) Within phrases, possessors control obviation in their possessees.

- (3) (b) Within clauses, control of obviation follows the relational hierarchy: subjects control obviation in objects and obliques, direct objects control obviation in secondary objects and obliques, etc.
 - (c) Within sentences, subjects of matrix clauses can control the obviation of:
 - the subjects of adverbial adjunct clauses, and
 - the subjects of non-quote complements.

There is one further configuration of close-knit sentences in which obviation is at work, but we will delay discussion of that case until we have covered those in (3).

Let us consider each of the types of obviation in (3) in turn. The first is the obviation of possessees under control by their possessors. We will refer to this as possessor obviation. It is always obligatory. Examples are given in (4).

- (4) (a) maaba mdimooyenh wgwisan 'this old woman's son(s)'
 maaba midimooyenh o gwis an
 this old woman 3POSS son OBV
 - (b) niw wdayan 'his dog(s)'
 o day an
 3POSS pet OBV
- but (c) ngwis(ag) 'my son(s)' ni gwis (ag)3POSS son (PL)

Note that the overt mark of obviation, -an, is mutually exclusive with the plural, -ag. Thus in Ottawa obviatives are ambiguous with respect to number.³ The victims of possessor obviation differ from other obviatives in at least two respects. First they regularly have proximate appositives as in (5a) in contrast to other types of obviation which require obviative appositives, as for example the subject controlled obviation example in (5b).

(5) (a) Mdimooyenh sa go naa gii-naanniwan niwi wgwisan, shkinwensag, shkinweg.

'There was an old woman with five sons, boys and teenagers.'
(R1 2:2 p. 116)⁴

midimooyenh sa go naa gii-naanani-w-an old woman EMPH PAST-be five-3-OBV

niwi o-gwis-an oshkinawens-ag oshkinawe-ag that/those-OBV 3POSS-son-OBV boy-PL adolescent-PL

(b) Mii gii-waabmaad ninwan, man'soonyan.

'Then she saw some men, spooky fellows.' (R1 2:4 p. 116)

mii gii-waabam-aa-d aniniw-an amanisoony-an

EMPH PAST-see-3AN OBJ-3SUBJ man-OBV spook-OBV

Second, possessor obviatives trigger obviative agreement only when they are the subjects of verbs,⁵ and in contemporary Ottawa, possessor obviatives trigger obviative agreement only when they are the subjects of intransitive verbs.⁶ In (6) the possessee is subject. In (7a) and (7b) the possessee is object. (7b) shows that the verb agreement reflects the notional plurality of the obviative object, while the marking of obviation on the nominal surpresses any indication of plurality.

(6) Wdaan' san da-zhichgewan wegdogwen enaagwen.

'His daughter will do whatever he tells her.' (B S672 p. 171)

o-daanis-an da-izhichige-w-an 3POSS-daughter-OBV PAST-do-3-OBV

wegVdogwen CHANGE-in-aa-gwen whatever COMP-tell-3AN OBJ-3 DUB

(7) (a) Nwaabmaa wgwiiwzensmiwaan.

'I see their boy.' (B S226 p. 155)

ni-waabam-aa o-gwiiwVzens-im-iwaa-an 1SUBJ-see-3AN OBJ 3POSS-boy-POSS-3PL-OBV

(b) Ngii-bshkobnaag wmiignan aw zhiishiibenh.
 ⁷
 ¹ I plucked the duck's feathers.
 ⁸ (B S288 p. 155)

ni-gii-bashkobin-aa-ag o-miigon-an aw zhiishibenh 1SUBJ-PAST-pluck-3AN OBJ-3PL 3POSS-feather-OBV that duck

When the possessee is of inanimate gender the nominal itself is unmarked, but it triggers obviative subject agreement.

(8) Aw maa gaazhgens waawyeyaani ge wii wmakdewshkiinzhgwaan.

'The pupil of a cat's eye is round.' (B T27:3 p. 208)

aw maa gaazhagens waawVyeyaa-ini-w that EMPH cat round-**OBV**-3

> ge wii o-makadewishkiinzhigwaan EMPH 3POSS-pupil of the eye

The second type of obviation is clause bounded. We will call it *clausemate obviation*. Control in clausemate obviation is determined by the relational hierarchy: subjects control obviation in objects and objects control obviation in obliques. Clausemate obviation, like possessor obviation, is always obligatory, with one minor exception which we will discuss below.

(9) Within a clause an animate nominal governs obviation in nominals of lower rank on the relational hierarchy.

This generalization is also true with respect to the two kinds of objects in Ojibwa-

traditionally called primary objects and secondary objects. As shown in Rhodes (to appear) primary objects are direct objects and secondary objects are syntactic (but not notional) indirect objects. Primary objects always control the obviation of secondary objects. Examples of clausemate obviation are given in (10). In (10a) the subject controls the obviation of a primary object. In (10b) the subject controls the obviation of an oblique, in this case an instrumental. This example is taken from Southwestern Ojibwa, because Ottawa no longer allows simple obliques. Finally (10d) illustrates a primary object controlling the obviation of a secondary object.

(10) (a) subject controller, primary object victim

Wgii-ggwejmaan dash niw ngitziiman maaba Gchi-mookmaan. 'Then this white man asked my parents.' (B T8.4 p.185)

o-gii-gagwejim-aa-an dash niw ni-gitiziw-im-an 3-PAST-ask-3-OBV emph that/those-OBV my-parent-POSS-OBV

maaba Gichi-mookomaan this white man

(b) subject controller, secondary object victim ('duck')

Wgii-boodaakwenan zhiishiibenyan.

'She put the duck in the kettle.' (B S190 p. 152)

o-gii-boodaakwe-n-an zhiishiibeny-an 1SUBJ-put in kettle-AN OBJ-OBV duck-OBV

(c) subject controller, oblique victim ('potatoes')

Gaawiin giiwenh awiiya daa-bakitehwaasiin iniw bagwaji-opiniin.

'No one should be hit by wild potatoes.'9

gaawiin giiwenh awiiya NEG so they say someone

daa-bakitehw-aa-siin-w iniw bagwaji-opini-an MODAL-strike-PASS-NEG-3SUBJ that/those-OBV wild-potato-OBV

(d) primary object controller ('him'), secondary object victim ('tobacco')

Nbiidwaa semaan. 'I'm bringing him tobacco.' (B S272 p. 155)
ni-biidaw-aa asemaa-an
1SUBJ-bring to-3AN OBJ tobacco-OBV

In contrast to possessor obviation, animate objects obviated by clausemate obviation trigger obviative verb agreement as shown in (10a) and (10b) above and they require obviative appositives, as exemplified in (5b) above. The agreement conditions of clausemate obviation take precedence over those of possessor obviation, so an animate nominal that is both possessed and the object of a transitive clause shows obviative object agreement, as in (11).

(11) Wzeghaan wgitziiman.

'He frightened his parents.' (B S294 p. 156)

o-zeegih-aa-an o-gitiziim-an 3SUBJ-frighten-3AN OBJ-OBV 3POSS-parent-OBV

Subjects can also control obviation in inanimate clausemate objects. However, since inanimate nominals are not overtly marked for obviation, the obviative status of such nominals can only be seen through obviative agreement in relative clauses modifying them, as in (12).

(12) (a) object victim

(i) ... gye gii-biiskang bekaandinigin niw sa gwiwnan.
 'and [right away] he put on different clothes.' (B T21:15 p. 201-2)

gye gii-biisik-am-g and PAST-put on-3INAN OBJ-3SUBJ

CHANGE-bakaanad-ini-g-in niw sa agwiwin-an REL-different-OBV-3SUBJ-PL those EMPH clothing-PL

(ii) ... gye go wgii-gkendaanaawaa sa waa-bi-dgoshnoomgadnig niigaan.

'and they knew what would come along in the future.'
(B T23:23 p. 204)

gye go o-gii-gikend-am-naa-waa and 3SUBJ-PAST-know-3INAN OBJ-N-NON-1 PL

sa CHANGE-wii-bi-dagoshinoo-magad-ini-g niigaan EMPH REL-FUT-coming-arrive-INAN-OBV-3SUBJ future

(b) oblique victim

... gye go miinwaa wgii-wiiwkwejiinaan iw nembiiwegdinig bbagwayaanenh.

'and she wrapped it up with a damp cloth.' (B T26:11 p. 208)

gye go miinVwaa o-gii-wiiwikwejiin-am-n and and 3SUBJ-PAST-wrap-3INAN OBJ-N

iw CHANGE-nimbiiwegad-ini-g babagowayaanenh that REL-damp-OBV-3SUBJ cloth

Examples such as those in (12) are problematic for analysts like Dunnigan, O'Malley, and Schwartz (1978) who want to claim that obviation is primarily functional. While there is no question that Ojibwa speakers use obviation to track reference, the fact that inanimates are obviative has no simple functional explanation and the fact that they arise in the same syntactic configurations that yield animate obviatives strongly supports the view that obviation is primarily syntactic.

There is one class of clausemate obviation cases that appears problematic for the generalization in (9). In these cases the notional object controls the obviation of the notional subject, as exemplified in (13).

(13) Wgii-noondaagoon wwiidgamaagnan.

'His wife (obv) heard him (prox).' (B S360 p. 158)

o-gii-noondaw-igo-an o-wiidigemaagan-an 3SUBJ-PAST-hear-INVERSE-OBV 3POSS-spouse-OBV

In all such clauses the verb contains the inverse morpheme, -igo-. In Perlmutter and Rhodes (forthcoming) it is extensively argued that the final grammatical relations of clauses containing inverse verbs are reversed from the notional relations. Under the Perlmutter and Rhodes analysis the generalization in (9) is also true for clauses containing inverse verbs provided we add the stipulation that it is determined on final relations.

(9') Within a clause an animate nominal governs obviation in nominals of lower rank on the relational hierarchy in final relations.

The third type of obviation is *crossclausal obviation*. In crossclausal obviation an argument in a matrix clause controls the obviation of an argument in an embedded clause. In Ottawa the controllers and the victims are limited to subjects. There are two general subclasses of crossclausal obviation. In the first, the obviation of the subject of adverbial adjunct clauses can be controlled by the subject of the matrix clause.

(14) (a) temporal clause

... degwaagnigin zgaknamwaad iw mnoomin bboonnig waa-maamiijwaad '... every fall they store wild rice which they eat in the winter.' (B T6:10 p. 184)

CHANGE-dVgwaagi-ini-g-in zagakin-am-waa-d COMP-be fall-OBV-3SUBJ-ITERATIVE store-3INAN OBJ-3PL-3SUBJ

iw mVnoomin that rice

bVboon-ini-g
be winter-OBV-3SUBJ

CHANGE-wii-RED-miij-i-waa-d REL-FUT-repeatedly-eat-3INAN OBJ-3PL-3SUBJ

(b) locative clause

Gii-boonii dash maa ddibew mtigoonskaanig.

'Then she landed on the shore where there were bushes.' (B T35.21 p. 220)

gii-boonii-w dash maa dVdibew mitigoonsikaa-ini-g PAST-land-3SUBJ EMPH there shore be bushes-OBV-3SUBJ

In the second type of crossclausal obviation, the obviation of the subject of all types of complement clauses can be controlled by the subject of the matrix clause.

(15) (a) Maaba dash shkinwe wgii-bwaadaan wii-bi-yaanid myaginishnaaben waa-bi-nsigwaajin.

'Then this young man dreamed that foreigners (*obv*) would come to kill them.' (B T31.19)

maaba dash oshkinawe o-gii-bawaad-am-n this EMPH young man 3SUBJ-PAST-dream-3INAN OBJ-N

wii-bi-ayaa-ini-d mayagi-nishanaabe-an FUT-coming-be at-OBV-3SUBJ foreign-people-OBV

CHANGE-wii-bi-nis-igo-waa-d-in REL-FUT-coming-kill-INVERSE-3SUBJ-OBV

(b) Gaa wii go wgii-kenmaasiin iidig Nimkiiwnid niwi.

'He must not have known that they (*obv*) were Thunderers.' (R1 4:56 p. 126)

gaa wii go o-gii-gikenim-aa-sii-an not EMPH 3SUBJ-PAST-know-3AN OBJ-NEG-OBV

iidig animikiiwi-ini-d niwi
DUB be a Thunderer-OBV-3SUBJ that/those-OBV

- (c) Gye go wgii-ggiikmaan maaba aw e-bgidenmaad nonda sa noosan gii-wiindmawaad gaa wiin da-aabnaabsinig gaa-biwnjibaanid, ...
- 'And that one who buried my father_i (*obv*) preached to him_i (*obv*) that he_i (*obv*) should not look back to where he_i (*obv*) had come from, ...' (B T24:7 p. 206)

gye go o-gii-gagiikim-aa-an maaba aw and 3SUBJ-PAST-preach-3AN OBJ-OBV this that

CHANGE-bagidenim-aa-d nonda sa n-oos-an REL-hold funeral for-3AN OBJ-3SUBJ this-OBV EMPH 1POSS-father-OBV

gii-wiindamaw-aa-d gaa wiin da-aabVnaabi-ini-d PAST-tell-3AN OBJ-3SUBJ not MODAL-look back-OBV-3SUBJ

> CHANGE-gii-onjibaa-ini-d REL-PAST-come from-OBV-3SUBJ

In the case of crossclausal obviation, there is more flexibility than with the other two types of obviation. Control of obviation into adverbial adjunct clauses is optional, as is control of obviation into certain types of complements. Examples of potential victims of crossclausal obviation remaining proximate are given in (16).

(16) (a) locative clause

... gye go gii-dbaajmod gaa-dgoshing widi endaawaad. (cf. (14b)) '... and she told the story as soon as she got to where they (prox) lived.'
(B T31:10 p. 203)

gye go gii-dibaajimo-d CHANGE-gii-dagoshin-g and PAST-tell-3SUBJ COMP-PAST-arrive-3SUBJ

widi CHANGE-daa-waa-d there REL-live-NON1-PL-3SUBJ

(b) complement clause

Gaa wii wgii-kenmaasiin manj ge-kidgwen aw noos. (cf. (15b)) 'She didn't know what my father (prox) would say.'
(B T31:10 p. 203)

gaa wii o-gii-gikenim-aa-sii-an manj not 3SUBJ-PAST-knew-3AN OBJ-NEG-OBV however

CHANGE-ga-ikido-w-g-en aw n-oos COMP-MODAL-say-IRR-3SUBJ-DUB that 1SUBJ-father

The explanation for when potential victims remain proximate has to do with information flow. We will discuss that in some detail below. But note again that in many cases crossclausal obviation affects inanimates, and frequently the subjects of impersonal verbs. This is a significant problem for anyone espousing a view that theraison d'être of obviation is to help track reference. Even if the such a functional explanation accounts for some of the cases, the obviation of inanimates shows that obviation has a syntactic life of its own.

Now let us turn to an examination of the fourth case of control of obviation—that which crosses sentence boundaries. Ojibwa has a class of constructions which consist of two or more adjacent sentences forming a single syntactic unit. I will refer to such units as sentence clusters. Sentences clusters have very tight syntactic constraints and encode a few very specific semantic relationships, viz. temporal proximity, immediate cause-effect, paraphrase, and a few others. One type of sentence cluster has the first clause realizing background information in relation to a following event clause. Such sentence clusters frequently occur at the beginning of paragraphs. In this type of sentence cluster control of obviation can extend from the subject of the event sentence to the subject of the background sentence, as exemplified in (17).

- (17) (a) Jina dash eta gii-teni maa shkodeng, miinwaa gii-gweksidood. '[When] it (obv) has been in the fire for a short time, she (prox) flips it over." (B T26:6 p. 207)
 - (b) Jina dash eta gii-teni. Mii dash gii-gwaawebhang.
 '[When] it (obv) has been there for a short time [longer], she (prox) flips it out of the fire." (B T26:8-9 p. 207)

(17) (c) Niw dash mtigoon gii-gziibweshkaawan megwaa yaazwaakshinnijin. "Nga-wa-kawe-niisaakbinaa," gii-nendam.

'Then a tree (obv) [started] rubbing in the middle where one part leans against another, and he (prox) thought, "I'll interrupt [my eating] and pull that tree down." (B T36:29-30 p. 223)

In Ottawa the victims of this type of obviation are largely limited to logical inanimates. I would like to claim about this case that it is a syntactic "idiom." In spite of the fact that more than one sentence is generally involved, the syntactic and semantic conditions are very restricted suggesting that a syntactic analysis is not only possible but is perhaps the most reasonable way to account for the facts.

Now let us turn to the question of optionality in the control of obviation. I will argue that where there is syntactic choice, the realization of obviation depends on the role the referents involved play in the text as a whole. The general view I will espouse is based on the fact that nominal referents in a text can be ranked by a notion of topicality similar to the one used by Givón in his studies on topic continuity (1983). The highest ranked nominals refer to the entity the text is most about or which are most important in the world of the text. The lowest ranked nominals refer to those entities the text is least about or are least important in the world of the text. Given the notion of topic rank the following generalizations obtain:

- (18) Where obviation is optional,
 - Nominals representing topics of higher rank are more potent controllers and more resistant victims, but
 - Nominals representing topics of lower rank are less potent controllers and less resistant victims.

Unfortunately the determination of rank can only be made by looking at texts as a whole and the limits of a paper such as this require that examples be succinct, so for this paper I will simply assert the rank of nominals in the following examples and give the reference so the rankings can be independently verified. In (19) the contrast between high and low ranking nominals as potential controllers of obviation in adverbial clauses is exemplified. In (19a) the high ranking 'she' (= Partridge, the antagonist) controls the obviation of the subject of the locative clause. In (19b) the low ranking 'she' (= wife of the protagonist) does not control obviation in the locative clause.

- (19) (a) Gii-boonii dash maa ddibew mtigoonskaanig. (=(14b))
 'Then she landed on the shore where it (obv) was bushy.'
 (B T35.21 p. 220)
 - (b) ... gye go gii-dbaajmod gaa-dgoshing widi endaawaad. (= (16a)) '... and she told the story as soon as she got to where they (prox) lived.'
 (B T31:10 p. 203)

In (20) the contrast between high and low ranking nominals as potential victims of obviation is exemplified. In (20a) the high ranking 'my father' (= important person from the knower's point of view) resists the obviation. In (20b) the low ranking 'they' (= uncertain referent from the knower's point of view) appears as obviative.

- (20) (a) Gaa wii wgii-kenmaasiin manj ge-kidgwen aw noos. (= (16b)) 'She didn't know what my father (prox) would say.'

 (B T31:10 p. 203)
 - (b) Gaa wii go wgii-kenmaasiin iidig Nimkiiwnid niwi. (= (15b)) 'He must not have known that they (obv) were Thunderers.' (R1 4:56 p. 126)

The sentence in (20a) is especially interesting. Like most such Ottawa sentences containing gkendang 'know,' it has copy raising to object, so it literally means: 'She didn't know him [= my father] what my father might say.' Leaving aside all the questions such a sentence might raise for non-Algonquianists regarding constraints on pronominalization, the agreement with nominal referring to the father in the matrix clause is obviative, as required by clausemate obviation, but in the complement clause the correferential nominal is proximate. Any theory of obviation that claims that it is a purely textual device without significant non-textual syntactic component founders on this sentence. Any hope of dismissing this sentence is also lost. Bloomfield collected three versions of the text in which this sentence appears. In each version the sentence is slightly different but all have copy raising with identical obviation facts. Bloomfield, himself, seems to have recognized the significance of this sentence because he also elicited a version (S665 p.171), but because of the verb form in that version, it is morphologically ambiguous on the question of obviation in the 'know' clause.

There are even some cases in which clausemate obviation fails. In such cases the potential victim is of high topic rank but is grammatically inanimate. A contrasting pair of sentences is given in (21). In (21a) the object is a low ranking nominal 'clothing,' an incidental prop. It can be seen to be obviative by the obviative agreement it triggers in the modifying participle, nyaangnin' gin 'those (obv) which are light'. In (21b), from a text about making bread, the object of the purpose clause is 'bread,' a high ranking nominal, which fails undergo obviation, even though there is a potential clausemate controller. Again this is seen in the proximate agreement of the modifying participle, menpogok 'that which is good tasting.'

- (21) (a) Mii dash gii-biiskang nyaangnin' gin gwiwnan. (not nyaangngin) 'Then he put on some light clothes (obv).' (B T19.13 p. 200)
 - (b) Miinwaa mtigoons wgii-nokaason gii-bshanzhehang iw

bkwezhgan menpogok. (not menpogdinig)

'And she used a stick to knock the ashes off that tasty bread (prox).'

(B T26:9 p. 203)

An extension of discourse level constraints on obviation into stricter syntactic domains, like that shown in (21b) make sense in morphological terms. Surpressing obviation in grammatical inanimates is morphologically subtle; i.e. unlike grammatical animates grammatical inanimates never bear any overt mark of obviation. The obviative status of a grammatical inanimate can only be seen if there is an intransitive relative clause modifying it.

In at least one syntactic configuration discourse level topic ranking can block clausemate obviation in grammatical animates. When there is a fronted NP that is being brought up as a new high ranking topic, control of obviation is

blocked, as in (22).10

- (22) (a) Bezhig dash go wesiinh sa wgii-zhiingwenmaawaan sa giw getzijik ji-zhwenmaanid niw sa wdooshkniigiimwaan.
 'As for one creature (prox), parents hate to have him (obv) bless their young folks (obv).' (B T23:10 p. 203)
 - (b) Mii dash gaa-naad aw getzid gaa wiin aw mandaagnini dadaapnaasig sa sha waa-wiindmaagod.
 'The parent told [the child] that as for the fancy man (prox) they (prox) should not accept what he tells them. (B T23.12 p. 203-4)

The explanations that I given so far account for most of the obviative phenomena seen in Ottawa. However, there remains the matter of two-obviative sentences and the relation between obviation and verb forms containing the inverse marker. In Algonquianist terminology verbs containing an inverse marker, in our examples-igo-, are called INVERSE, those that do not contain an inverse marker are called DIRECT. Most Algonquianists point to facts like those in (23) to argue that obviation determines the distribution of inverse verb forms.

(23) (a) Wgii-noondawaan wwiidgemaagnan.

'He heard his wife (obv).'

*'His wife (obv) heard him.'

o-gii-noondaw-aa-an o-wiidgemaagan-an 3SUBJ-PAST-hear-3AN OBJ-OBV 3POSS-spouse-OBV

(b) Wgii-noondaagoon wwiigdemaagnan.

*'He heard his wife (obv).'

'His wife (obv) heard him.' (B S360 p. 158)

o-gii-noondaw-igo-an o-wiidgemaagan-an 3SUBJ-PAST-hear-INVERSE-OBV 3POSS-spouse-OBV

The standard conclusion is that verb morphology follows from obviation, via a principle like (24).

(24) The inverse is used if and only if both the subject and object of a clause are third person animate and the (notional) subject is (possessor) obviative.

(24) will account for the distribution verb forms with respect to possible readings. However, it has gone largely unnoticed that there are many readily available examples of clauses which directly violate the conditions of (24): both arguments are third person animate and the notional subject is possessor obviative, but a non-inverse verb form is used, and vice versa. Some examples are given in (25).

(25) (a) direct verb with obviative (notional) subject

Wgii-gnahmawaan niw wgwisan gaa wii nkwetwaasig niw bi-ggwejmigod mandaagninwan iw ji-zhwenmigod.

'He_i (prox) warned_{DIRECT} his_i son_j (obv) not to answer_{DIRECT} the fancy man_k (obv) when he_k (obv) asks_{INVERSE} to bless_{INVERSE} him_i (obv).' (B T31:6 p. 213)

(b) inverse verb with obviative (notional) object

Wiijkiwenhen wgii-dkamgoon niw gnebgoon..

'The snake; (obv) bit INVERSE his; friend; (obv).' (B S359 p. 158)

The relationship between obviatives and inverses in clauses like those in (23) is mediated through a constraint like that in (26).

(26) Possessor Clausemate Constraint. No clause is grammatical in which two clausemate nominals are in a configuration such that one is coreferent with the possessor of the other and the possessee would control obviation of the coreferent of the possessor in final relations.

The Possessor Clausemate Constraint also accounts for grammaticality facts like those in (27).

(27) Ngii-mkamwaa kiwenziinh niw wgwisan.

'I found the old mani's sonj for himi.'

*'I found the old man; for his; son;.'

ni-gii-mak-amaw-aa akiwenziinh 1SUBJ-PAST-find-BEN-3AN OBJ old man

niw o-gwis-an that/those-OBV 3POSS-son-OBV

As discussed in Rhodes (to appear) Ojibwa ditransitive clauses always have the recipient, beneficiary, etc. as the final primary object and the patient as the final secondary object. Furthermore as discussed above in connection with example (10d), primary objects outrank secondary objects with respect to the relational hierarchy and control of obviation. Thus the reading in which the possessee, 'son' is secondary object is possible, but the reading in which the possessor, 'old man' is secondary object is impossible. This exactly parallels the facts of (23). Therefore we claim that the distribution of obviation and the distribution of inverse verb forms are independent up to the point that other constraints come into play. For example, the ungrammatical readings of (27), and therefore the apparent limitations on mutual distribution, follow from the Possessor Clausemate Constraint (26).

In conclusion there is one final matter that needs to be discussed. We are proposing a system in which most of the facts of the distribution of obviatives follow from syntactic constraints, adjusted by discourse level constraints. However, a proponent of the primacy of discourse constraints will point to passages like that in (28) in support of a functional view of obviation.

(28) Ge wii maaba shkiniikwe gii-ni-giiwe widi endzhi-nokiid. Wgii-ggwejmigoon niw mshkikiiwninwan endgwen gaa-waabmaagwen niw shkinwen.

"Ngii-waabmaa," wgii-naan.

'Then the woman; (prox) went back to where she; (prox) worked.

'The doctor_j (obv) [she worked for] asked_{INVERSE} her_i (prox) if she_i (prox) had seen_{DIRECT} the young man_k (obv).'

"I saw him," she; (prox) told_{DIRECT} him; (obv).' (B T30:32-34 p. 211)

In our account a discourse pattern of this sort, which is very common in Ojibwa, reflects a communication strategy in which final grammatical relations in a clause are aligned according to topic rank unless other constraints contravene. This means that if the notional subject bears a higher topic rank than the notional object, then a simple transitive clause is used since the final relations match the initial relations. But if the notional subject bears a lower topic rank than the notional object, then the final grammatical relations of the clause are reversed and the verb is marked inverse. In either case the obviation facts follow from the final grammatical relations. The passage in (28) has topics ranked as in (29).

(29) woman > doctor > young man

In this analysis the clauses that have the woman as notional subject are a simple transitives, the notional subject is the final subject, and the clauses have direct verb forms. But in the first clause of the second sentence the doctor is the notional subject, the woman is the notional object, and the clause is reversed—the woman is the final subject and the verb form is inverse. Anther example that works the same way can be seen in (25). The topic hierarchy for (25a) is:

(30) old man (= he_i) > son > fancy man

In summary this paper has surveyed the high points of a syntax oriented analysis of obviation in the Ojibwa dialect of Ottawa. I hope to have shown that there are data which are difficult to explain for those who claim that obviation is primarily a discourse phenomenon or who want to propose strictly functional analyses. On the other hand we have also seen that without taking into consideration the topic structure of the context in which a sentence occurs no syntactic account can work either.

NOTES

¹In some dialects of Cree and Ojibwa inanimates can also be marked as obviative under certain circumstances, but that is beyond the scope of this paper.

²This characterization assumes the analysis of clauses containing inverse verb forms argued for in Perlmutter and Rhodes (fothcoming).

³Some of the western dialects of Ojibwa have a plural obviative suffix, -ah and thus show a number contrast in the obviative.

⁴The apparatus for citing examples from published sources is as follows: The sources are: R1 = Kaye and Piggot (1971), R2 = Piggot and Kaye (1973), B = Bloomfield (1958). B contains both texts and sentences these are distinguished by T vs. S. The next number is the number of the text or example sentence. If the ci-

tation is from a text the number of the sentence following the punctuation of the published version is given preceded by a colon and the page number is given. In the case of R1 and R2, I have listened to the original tapes from which the texts were transcribed and restored the taped version if there is a difference.

⁵Some Ojibwa dialects have special verb forms used for a possessor obviated animate object with a non-third subject and possessor ascension with third person

subject. Some also have obviative agreement in the former cases.

⁶There are citations of the appropriate transitive verb forms in the literature. Except for conjunct TAs, such verb forms are totally rejected by modern speakers.

7In Bloomfield this is wrongly transcribed without the possessive prefix on

wmiignan. Informants all interpret this sentence as it is given here.

8The variety of Ottawa recorded in Bloomfield (1958) allowed instruments, e.g. S407 p. 159. Contemporary Walpole Island speakers reject such sentences.

9This example is from Kegg (1983), text 24, sentence 10, page 85.

¹⁰This paper does not exhaust the details of obviation in Ottawa. There are pairs of sentences which are structurally identical but differ in obviation. E.g.

- (31) (a) ... gye go wgii-kendaanaawaa sa waa-bi-dgoshnoomgadnig niigaan. '... and they knew what (obv) was going to come in the future.' (B T23:10 p. 203)
 - (b) Aanii-sh mii sa go gii-kendmowaad iidig gaa-zhiwebak.

'Well, they must have known what (prox) had happened.' (R1 2.41 p. 117)

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Reflexive Agreement Binding

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- O. What I want to do in this paper is provide an analysis of Dogrib reflexives. As we will see, reflexives in Dogrib are identifiable through a reflexive prefix ede-. In contexts of emphasis, overt pronouns may co-occur with the reflexive prefix. It is these contexts which permit me to choose among a number of possible analyses of the construction. Having done this, I will also be able to suggest a response to possible concerns some might have about the relation of 'agreement' to full NPs, and I will make a few remarks about pronouns.
- I. Dogrib and other members of its family are pro-drop or null argument languages, a fact evident from the sentences in the examples below.
- (1) Ts'isìihwho. 'She woke me up'
 (2) <u>Gi</u>ts'àit'à. 'Let's visit them'
 (3) <u>Edeeh</u>ts'ò. 'I scratched myself'

Free pronouns are typically not used, since affixes on the predicates in clauses (underlined above) signal the features of their arguments. For emphasis or contrast, and in conjunctions, lexical pronoun forms are available. In fact, they will play an important role as we work through this paper.

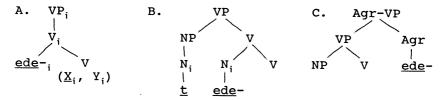
Turning to the reflexive example seen in (3), the invariant reflexive prefix ede- occurs in the slot in the verb for object inflection, identical to the position of the first person object inflection sV- in (1). The reflexive morpheme acts in interestingly similar and different ways in different languages, a topic which has been explored in some detail in the work of Chad Thompson. Considering the whole family, and focusing particularly on semantic and morphological facts, Thompson suggests broadly that reflexives in Athapaskan--in fact in the whole NaDene family--are intransitives. Others working on individual languages have made similar suggestions (for example, Rice 1989:462), and Willie (1989), writing on Navajo, provides (4), which supports this idea.

- (4) 'ashkii 'ábi 'adiiltsá.
 boy self:EMPH REFLEX:3sS:saw
 'The boy himself saw himself' (Willie 1989:422)
- (4) contains the emphatic pronoun <u>'ábi</u>, which I understand functions very much like the adjunct reflexive form <u>himself</u> italicized in the English gloss. In a Navajo reflexive

sentence, 'ábi can only be construed with the subject in the sentence, pretty good evidence that some process of detransitivization is associated with the reflexive morpheme in this language. I will be arguing that no such detransitivization takes place in Dogrib. Initial evidence for this position comes from the Dogrib (5), which also contains an emphatically interpreted pronoun but which contrasts with Navajo (4) in the readings available to it.

- (5) Ededj zo edek'eedì only Refl.3.PF.save Evid
- 'Only <u>he</u> saved himself evidently' 'He saved only <u>himself</u> evidently'
- b.

I will therefore be arguing against either one structures A or B below for Dogrib reflexives, and arguing for a structure resembling C.



It is a straightforward argument: two interpretations for reflexive sentences like (5) suggest two NP positions, and therefore a transitive structure.

Structure A represents a lexical reflexive. the reflexive morpheme binds the verb's two arguments X and Y together, and it also satisfies the verb's internal theta role, with the result being an intransitive verb. Grimshaw (1982) gives an analysis just like this for Romance reflexives, and di Sciullo and Williams (1987:40) propose this structure for the English prefix self- as in self-educated. This structure could very well be what is needed for the Navajo reflexive in (4). Structure B represents noun incorporation in the sense of Baker 1988, or, if it were somewhat altered, the incorporation of inflection as in Anderson's (1982) treatment of Breton. The idea here is that the prefix is moved from a syntactic position to a morphological one, the \underline{t} in the structure representing the trace of the movement. Structure B parallels suggestions by Hale 1987 and Speas 1988 for the treatment of certain other Athapaskan inflectional affixes, the Dogrib disjoint anaphor \underline{ye}^- and the third person prefix bi- in Navajo. What A and B have in common is no available position in syntax for a phrase corresponding to the

reflexive affix. Structure C in contrast has such a position; it recalls the model of Pollock 1989 for describing various facts of French and English syntax. In it, person/number inflections stand as agreement between a predicate and a NP governed by that predicate.

The two interpretations available for (5), in particular, the availability of the reading in (5b), would seem to rule out the analysis A. Analysis A, an intransitive structure, would also be ruled out by any simple reflexive clause containing two NPs. Such sentences do exist, as we see from (6)-(8).

- (6) Amìi iwha at'i-le sìi ededi edeghà?edi ha. who timely 3.be-Neg Foc 3 Refl.3.IMP.serve Fut 'Whoever doesn't come on time has to serve himself'
- (7) Sechi <u>ededi</u> edets'ò zo soòmba k'eihwho. 1s.yr brother 3 Refl.to only money 3.Pf.spend 'My younger brother spent money only on <u>himself</u>'
- (8) Setà <u>ededi</u> edets'o che nìihchi ha. 1s.father 3 Refl.from check 3.IMP.put down Fut 'My dad is going to cash his own check'

Examples like these are allowed by both of the other analyses. According to structure B, the 'emphatic'pronoun ededi in (6) would be an adjunct, like a topic, associated with the NP argument position occupied by the trace in B; according to structure C, the pronoun would simply be the argument of the verb.

To decide between these two possibilities we need to make a digression into Dogrib phrase structure. First I will show that emphatic pronouns in Dogrib occupy either topic positions outside the clause, or ordinary NP positions within the clause. Then I will allude to an argument I have made for Slave, the language most closely related to Dogrib (with which it is mutually intelligible) to support the view that the pronouns in (6)-(8) are not adjuncts, but occupy argument positions like the NP position shown in structure C.

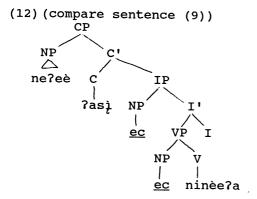
III. Dogrib is an SOV, head-final language. There are some deviations from this strict form: to give one example, the complementizer ?asi, used in yes-no questions and seen in (9) and in the corresponding tree in (12) on the following page, precedes its sister IP, unlike other complementizers.

(9) Ne?eè ?asì ninèe?a ?
2s.coat Q 2s.PF.pick up
'Have you picked it up, your coat?'

The clause-initial position under CP, filled in (9) by ne?ee 'your jacket', is available for fronted topics and question phrases, as the examples (10) and (11) further show.

- (10) Dàht'e ninde kò gohtsi ha?
 when 2s.o-bro house 3.IMP.build Fut
 When is your older brother going to build the house?'
- (11) Si sli ?ehtsi senèhsho.
 1s Foc granny 1s.3.PF.raise
 'Granny raised me'

From (11) we see that lexical pronouns can also occur here, as suggested by the quite marked OSV word order. The pronoun $\underline{s}_{\underline{i}}$ 'I' in this sentence has one of the typical interpretations for lexical pronouns in Dogrib: it is focussed, as the speaker contrasts herself with others. For present purposes what examples like (11) are useful for showing is that pronouns, like other NPs, may occur in non-argument, adjunct positions.



Examples (13) and (14) in contrast show that pronouns need not occur in these kinds of positions; they are not limited to topic structures.

(13) ?asi ni xàrè nekwighà k'eneet'a?
Q 2s EMPH 2s.hair 2s.PF.cut
'Did you yourself cut your hair?'

(14) ?asì nàìdi k'èèzho <u>ni</u> xàrè nets'ò goinde? Q doctor 2s EMPH 2s.to 3.PF.speak 'Did the doctor speak to you personally?'

The position of the pronoun ni 'you' to the right of the complementizer in these sentences shows that it is within the simple clause, IP in our tree. NPs which have a thematic relation to the verb act differently than adverbs and phrases which are not arguments of the verb. I have argued this point for Slave, the language neighbouring Dogrib. The crucial contrast in Slave centres on pairs like those in (12) and (13). Long distance questions are possible in some cases, as in (15), and impossible in others, as in (16).

- (16)*?ode netá [t nimbáa enáih?á] kenéhdzáh ?
 where 2s.father tent 3.PF.pitch 3.PF.try
 (Where did your dad try to pitch the tent?)

The generalization which can be made about this contrast is that arguments can be connected with their former positions at a distance, but adjuncts cannot. The existence of a distinction between argument and adjunct positions within the simple sentence therefore seems justified in Slave. I assume the same for Dogrib, given their very close relationship of mutual intelligibility. Since the pronoun ni 'you' in (13) and (14) enters a thematic relation with the verb in each sentence, and since the position of ni with respect to the complementizer ?asi shows that they are inside the same simple clause, I am led to the conclusion that pronouns may occur in argument positions in Dogrib. Pronouns then don't differ from other NPs in their gross distribution. They can be topics, or not.

IV. We are interested in the question of whether ededj
in (6) and parallel examples is argument or adjunct. From its interpretation, it is obviously associated thematically with the verb. The pronoun corresponds to the goal argument of the verb, and is also linked to the reflexive affix. The other NP in (6) is the agent of the verb. It is the subject of the sentence, and antecedent of the pronoun. In (6), and also (7) and (8), the subjects receive the non-topic, non-focussed interpretations. I assume therefore that they are not topics and in fact occur

in the canonical subject position. The pronoun in each of (6)-(8) must then be occurring within the simple clause IP also, from simple word-order facts. From these observations, it follows that structure B is not suitable as an analysis of reflexives in Dogrib, because it can't accommodate the type of 'doubling' seen in this language.

The same phenomenon is seen in examples (17) and (18) with non-third persons. The context given makes it clear that the non-subject argument of each is being contrasted, and that therefore the lexical pronoun ni 'you' which occurs is linked with the reflexive affix.

(17) Dàtlo geret'è netà. <u>Ni</u> chi <u>ede</u>xè how-many 3p.IMP.be 2s.IMP.count 2s too Refl.with

?ità wenawindi-le sò.
U.2s.IMP.count 3.2s.OPT.forget-Neg Prohib

'Count how many there are. Don't forget to count in $\underline{yourself}$ too'

(18) Mbò įhchih, nemo chi gha, nemba chi gha. meat 2s.IMP.take 2s.mother too for 2s.sister too for

Ni edegha chi mbò ihchih.
2s Refl.for too meat 2s.IMP.take

'Take meat, for your mother and for your sister. Take meat for $\underline{yourself}$ too'

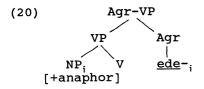
We are left then with structure C. In it the affix <u>ede</u>is agreement, which cooccurs with a pronoun in an argument position. That pronoun, as usual, may be empty, as in (3), or overt, as in (6).

V. Though this issue may be considered to be settled, there is another problem to solve. Lexical pronouns may occur linked with the reflexive affix; however, the pronouns themselves are invariant and overtly marked only with features of person and number. The problem now is what to do about their binding properties, relationships of coreference with clausemate NPs. In the ordinary instance, as in (14), the pronoun, linked to a pronominal affix, must be free in its governing category, the NP or sentence which contains it. When the pronoun is linked with the reflexive affix, it must be bound in its governing category. Of course agreement in Dogrib plays the crucial role in determining when the pronoun is an anaphor and when it is a pronominal. I propose to follow the lead of Borer (1984), and also Roberge (1986), in formalizing this suggestion. Treating the Romance reflexive clitic

 \underline{se} , Borer and Roberge both argue (contrary to Grimshaw 1982) that there is an empty pronoun associated with the clitic, as in the structure shown in (19).

(19)
$$\begin{bmatrix} se \\ i \\ \theta \end{bmatrix}$$
 NP_i (Borer 1984:122; also Roberge 1986:250)

They assume that the relation between reflexive clitic and empty pronoun results in the assignment of the feature [+anaphor] to the empty pronoun, a fact of course which ultimately leads to reflexive interpretations. They assume, in other words, that the clitic identifies the empty pronoun as an anaphor. Identification in Dogrib, I would propose, is accomplished by the affix ede-, and it likewise results in the NP of the structure having the features of a reflexive. I further propose that this process in Dogrib is not limited to empty categories like those seen in (3), but affects any NPs with only pronominal features, that is, empty and overt pronouns. If we assume that overt pronouns in Dogrib have person and number features, but are otherwise featurally unelaborated, agreement will provide their other feature values. This feature specification can be effected as is shown in (20).



Once the pronouns in (6)-(8) are identified as anaphors, the binding facts follow.

VI. The preceding discussion raises a couple of more general issues which we can take some time to examine. The first concerns what we might call 'unmarked reflexives'--about this I have just thoughts on some interesting questions for further study; the second concerns some broader questions of agreement.

Dogrib is of course not the only language in which overt pronominals and anaphors are not distinguished in form. Faltz (1986) discusses 'unmarked reflexives' in Old English; these are also found in a number of other languages. Among the languages of this set besides Dogrib which I have very briefly looked at--Old English, Chamorro, Niuean, Samoan, and Pirahā besides Dogrib, only Dogrib has agreement which identifies the pronoun as a reflexive. Most have optionally occurring morphemes, like <u>self</u> in Old English, which can be used to pretty unambiguously mark

the pronouns as reflexives. In other cases, however, a completely unmarked reflexive may occur. In such case, it seems worth asking how these forms are treated by the binding theory.

One possibility is that the single forms which exist in these languages are neither non-reflexive nor reflexive, therefore completely unrestricted in their distribution. Enç 1989 suggests that one of the pronouns in Turkish, kendisi, has this character.

Alternatively, and adopting some terminology from government-binding theory, maybe the Binding Theory in these languages reverses its usual filtering role and produces a type of 'functional determination' of the unmarked pronouns: pronouns which are bound in their governing category are defined as anaphors, and those which are free are defined as pronominals. Chung 1989 suggests this for the unmarked system of pronouns in Chamorro.

Or, perhaps some principle or condition peculiar to the grammar of a particular language makes anaphors functionally expendable. Such an analysis is given of Piraha pronouns by Everett. Similar considerations might explain the lack of possessive reflexives of the self-

type in modern English.

Attempting to stand back from particular analyses of these phenomena, it is interesting to observe in Niuean and Chamorro, as Seiter (1980) and Chung (1989) do, that despite the lack of formal differences between anaphors and pronominals in these languages, various principles of grammar do seem to refer crucially to the contrast. The kinds of principles which I am referring to are exemplified in (21).

(21) Niuean (Seiter 1980)

Deletion rules, such as Relative Deletion and Equi NP Deletion, which are in general obligatory, apply only optionally to subjects which bind clausemate anaphors.

Chamorro (Chung 1989)

The filter *{ V [+Nom] [+Obj] }, where [+Nom] is third person plural, is inoperative if [+0bi] contains an anaphor.

facts suggest that the notions 'anaphor' 'pronominal' are indispensible in these languages, despite the lack of formal marking of the distinction. It seems therefore that pronouns like Turkish kendisi, for which the Binding Theory is irrelevant, are not the usual stock found in the languages under consideration. I am not aware of whether there are studies of, for instance, Old English which might bear on this observation, but the question might be worth investigating.

There was another issue I wanted to comment on briefly: configurationality. From the earliest discussions of this topic through all of its various incarnations, Athapaskan languages have been at the centre of the issue, especially Navajo. A number of people, including Willie 1989 and Sandoval and Jelinek 1989, have considered Navajo and its sister language Apache to be 'pronominal argument languages', in which the argument structures of predicates are always satisfied by inflectional affixes. The lexical NPs in these languages are claimed to be adjuncts, simply providing further specification of the 'real' arguments, the pronominal affixes. An important argument for this view, and against the tack I have been taking, comes from the kinds of facts shown in the Dogrib sentences (22) and (23) below. (These examples are very representative of patterns widespread in Athapaskan.) The argument goes how could the underlined affixes follows: 'agreement'? They don't 'agree' with the lexical NP at all. On the surface, there is a lot of truth to this. The sentences in (22), for instance, both have dual number suject inflection on the verb, but subject NPs which consist of a single and sometimes apparently emphatically singular NP with a conjunction attached.

- (22) a. Sedè zhi indà wezha wit'i ha.
 1s.y-sis Conj south 3.son 1d.IMP.see Fut
 'My younger sister and I are going to visit her
 son in the south'
 - b. <u>Johnny chi</u> shè<u>ge</u>atį. Conj 3d.PF.eat 'He and Johnny have eaten'

In the sentences of (23) we see plural object inflection matched with apparently singular NPs like edemo 'his mother'.

- (23) a. 7amba <u>edetì</u> <u>go</u>įts'ì. o-sis Refl.daughter 3p.3.PF.kiss 'Older Sister kissed her daughters'
 - b. John wechi <u>edemo</u> <u>gogha li nilwa.</u> 3.y-bro Refl.mother 3p.for fish 3.PF.take 'John's younger brother took fish for "his mother and them"'

It is natural to ask how these facts square with any conception of 'agreement'. Well, if 'agreement' is conceived in terms of identification, as I suggested here was desirable for handling reflexives in Dogrib, and if it is acknowledged furthermore that overt NPs too may be

'identified' by having feature values supplied by their relation to inflection, then clearly the phenomena in (22) and (23) fall into the same category of things as the reflexives.

McCloskey and Hale (1984) and McCloskey (1986) have discussed structures in Irish and Old Irish similar to those in (22). (Since the conjunctions in these sentences are not also adpositions, I believe that Aissen's (1989) recent account of somewhat similar structures in Tzotzil is not appropriate for Dogrib.) I propose, following McCloskey and Hale, that each of the underlined subjects in (22) is a conjunction, of which one conjunct is an empty pronominal. This empty pronoun is identified through agreement. This identification seems to take place as follows: Agreement identifies the whole conjoined NP with features of person and number. Resolution rules of the type mentioned by McCloskey (1986) ensure that features of the whole NP are compatible with the constituent conjuncts. In cases where there is an empty conjunct, as in the examples in (22), the empty pronoun will match the larger NP in person features. This follows from the fact that the pronoun which is omitted in this construction seems always to be higher on the person hierarchy (1<2<3)than the NP which occurs overtly in the conjunction. Since in a conjunction the NP which is higher on this hierarchy determines the person of the larger NP (a fact discussed, for example, by Aissen 1989), we always find the matching mentioned above.

A similar treatment suggests itself for the examples in (23). Nouns in Dogrib are not marked for number. The plural agreement on the predicates governing the NPs serves therefore to identify their number. Looking at (22) and (23) in this way, it seems unnecessary to accept these facts as arguments for Dogrib's being a pronominal argument language or being nonconfigurational. Taking seriously the idea of agreement as identification, no such conclusion is forced. I am suggesting, then, a view of agreement which seems to me to be similar in spirit to the proposals of Steele (1989) in her recent paper on 'subject values' in Luiseño.

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NOUN AND VERB MORPHOLOGY IN MICMAC HIEROGLYPHIC TEXTS DAVID LORENZO SCHMIDT, LOUISE H. HOPE, AND MARTHA J. MACRI University of California, Davis

1. HISTORY. Micmac, an Algonquian language of the Canadian Maritime Provinces, was recorded in a hieroglyphic script from at least the seventeenth century. The script has been presumed to be pictographic, with little or no morphology evident (Shea 1861, Daniels 1980, Hewson 1982). There are, however, reasons to question this presumption. The script had never been subjected to rigorous structural analysis, and even a cursory examination reveals a disproportionate level of complexity between signs for nouns and signs for verbs. Most nouns are unitary signs, while verbs are complex sign clusters which share a number of recurring markings. Some of these markings represent grammatical

It is believed that the signs were created by the French Recollect priest Chrestien LeClercq in the late seventeenth century. LeClercq writes that he took advantage of the Micmacs' propensity for scratching out marks on pieces of birch bark, marks claimed by the French to be understandable only to the individual who made them, by inventing a regularized system that all could read (LeClercq 1910 [1691]). Unfortunately, no texts from this early period are known to exist.

morphemes. To date we have identified signs for person, number, negation, and a

locative marker.

Abbé Pierre Maillard, who worked among the Micmacs forty-five years after LeClercq, also claimed invention of the hieroglyphic system. Since an engraving from the LeClercq period shows equivalent signs seen in later manuscripts, it seems that Maillard modified signs which the Micmacs continued to use after LeClercq returned to France in 1687.

Maillard's sign system is the basis for what remains today. He wrote a number of documents in the Micmac script, most notably a 1740 text in which he labeled each sign with a Micmac word using French orthography. A collection of Micmac documents was compiled by Father Christian Kauder in 1859, and published in 1866 (Lenhart 1921:ix). The hieroglyphic system appears to have fallen into disuse during the 1930's.

Thus French missionaries have been credited with the script's development and dissemination, while the Micmacs themselves have been credited with only minor stylistic influences. However, the lack of graphic elaboration of the pictographs for European-derived ecclesiastical terms such as 'Holy Ghost' and 'Christ', contrasted with the composite nature of the majority of the signs, suggests the possibility of multiple sources for the signs, one of which may have been indigenous. The artistic tradition of the Micmacs, seen in petroglyphs, embroidery, and quill work, is consistent with the design motifs present in the

hieroglyphs. The investigation of a possible indigenous origin for the writing system will be an area for future research.

2. DECIPHERMENT. The first step in this investigation has been to create an extensive word and morpheme list from texts in Kauder (1921 [1866]). At this stage our work has concentrated on assigning English glosses to signs, rather than on producing precise translations into Micmac. A large portion of the Kauder text consists of Catholic prayers and Biblical readings labeled in English, French, or Latin. We compared these passages with Latin and English versions in a modern Catholic missal (Lefebvre 1962), beginning with prayers such as the Sanctus and the Agnus Dei (Figure 1) in which repeated patterns of words and phrases are matched with repeated patterns of signs. Using this method, individual signs, for example 'holy' repeated three times at the beginning of the Sanctus, can be identified. Often, however, only an approximate matching of phrases is possible. Some decipherments have been confirmed by referring to the phonetic glosses in the Maillard manuscript (1740). These, in turn, were checked against a nineteenth century Micmac grammar (A. Maillard 1970 [1864]), as well as a modern Micmac dictionary (DeBlois & Metallic 1984).

LeClercq tells us that he instructed the Micmacs to write horizontally from left to right. Interestingly, person markers on verbs appear in the prefix position (to the left of sign roots) in spite of the fact that Micmac expresses person and number by suffixing. One explanation is that an earlier, indigenous system may have been written in some other direction or combination of directions; alternately, reading order within a sign cluster may reflect the vestiges of an older ordering tradition.

Analysis of the Kauder text is hampered by a variety of problems. First, and most obviously, the text itself is extremely corrupt. Not only was it developed from manuscripts copied by hand over several generations, but the last two stages—the master copy commissioned by Kauder, and the type design and setting—were almost certainly carried out without any knowledge of either spoken or written Micmac. Throughout Kauder there are variations and apparent inconsistencies. Some can be explained as copyists' overdifferentiations between forms that were in fact variants of the same sign. From one page—even one line—to the next, Maillard (1740) himself seems to be inconsistent. He offers the transliteration eik 'is', for three different sign clusters which have identical sign roots, but differ in affixes (Figure 2a). In some cases, it is not clear whether a variation is random or significant, as in Figure 2b, where Maillard has glossed one sign 'forever' and a slightly different sign 'eternal', and has provided three variations of a sign for the emphatic particle eta.

It is difficult to know to what extent Maillard's script records spoken Micmac. In the seventeenth and eighteenth centuries, the Catholic Church was still largely a Latin church. Only a few common prayers were said in the vernacular, and the linguistic training of the missionaries was rooted in Latin

grammar (Hanzeli 1969: 32ff). Intentionally or not, Maillard may have imposed French and/or Latin syntax on the texts.

3. SIGN ANALYSIS. Signs fall into two main groups: main signs and affixes. Main signs represent whole words or free morphemes, and appear alone or as roots in combination with affixes. Nouns show little or no affixing but do use duplication to represent plural (Figure 3a). Other non-affixed signs include particles and conjunctions, and some particles also appear as verb prefixes, possibly aspect markers. Verb roots can carry both prefixes and suffixes. Person marker prefixes seem limited to first and third person, singular and plural; the second person 'thou' is indicated by an independent sign (Figure 3b).

A few of the signs are clearly iconic, for example, a five-pointed star is used for 'heaven', a hand for 'hand', and a tipi for the verb 'dwell'. Other signs are based on European symbols: a triangle for God (the Holy Trinity?), the letter A for 'and' (Micmac ak), and the letter J embellished with a cross for the name 'Jesus Christ' (Figure 2c). The majority of the signs, however, are abstract with no obvious referent.

- **4.** POSSIBLE EVIDENCE FOR PHONETICISM. The Micmac script appears to be logographic; we have found only tentative evidence for the phonetic use of signs. A *v-shaped* marking is used in a horizontal position as a third person ending *-k*, and doubled for the third person plural ending *-kik* (as in the first and second signs of Figure 3b). This in itself is not necessarily indicative of phoneticism since other signs are also duplicated to indicate plural. However, two of the same *v-shaped* signs are used in a vertically-oriented diamond pattern as a locative ending following place names (Figure 3c). The locative suffix in Micmac is *-k*. This suggests that in spite of positional rotation, the *v-shaped* signs may have signified the sound /k/ independent of semantic distinctions.
- 5. TEXT ANALYSIS. A sample analysis of a specific passage illustrates the value of matching repeated patterns of signs with phrases repeated in the Latin version of the text (our methods here follow Fell 1976--our conclusions do not). Figure 4a shows three verses from Psalm 115 (113b) captioned *In Exitu Israel* in Kauder (1866:280). In Figure 4b the six parallel phrases are separated into their component parts. The passage refers to the idols of the heathen, who have "...mouths but do not speak, they have eyes but do not see, ears but do not hear, noses but do not smell, hands but do not touch, feet but do not walk." This text is especially valuable because it contains six variations of a single phrase, and because within each there is a corresponding noun/verb pair (mouths/speak, eyes/see, etc.). Organizing the passage in table form allows separation and identification of individual graphemes, and further, has the advantage of demonstrating that slight variations in size and shape do occur in equivalent signs, as with the third person marker which may be quite small as in the third phrase, or larger and more flared as in other examples.

There are eight positions in each phrase, each position corresponding to a word class, although no phrase has every position filled. All but the first phrase begins with the doubled *v-shaped* sign which we have identified above as the third person plural. All of the phrases also have a noun, a negative marker, and a phrase-final verb. A sign cluster in position two, appearing only in the second phrase of the passage, may be related to the verb 'have' which is a component in the Latin version but has no corresponding sign in the hieroglyphic text. Notably, a conjunction, whose identification is confirmed in Maillard (1740) as 'while' or 'but', occurs in position four in all but the second phrase. The design resemblance between the possible verb signs in phrase two and the conjunctions suggests some degree of substitutability between them.

The negative marker is an example of the range of sign variation that occurs, even within a single passage. Whether the graphic representations of the Micmac negative mu in the fourth and fifth phrases reflect differences in speech is doubtful, but cannot be ruled out. Similarly, the pattern of co-occurrence of the signs in positions six and seven may reflect absence of these morphemes, or simply graphic variation.

6. SUMMARY. The discovery that the Micmac script is not simply a mnemonic prompt, but, in fact, reflects grammatical features of spoken Micmac, provides linguists with a new source of diachronic data. As a non-alphabetic writing system, the deciphered script can contribute to understanding the cognitive and cultural processes involved in the visual representation of language.

For future research there remain large portions of the Kauder text to be systematically studied in order to expand the hieroglyphic lexicon. Other extant documents must be located and deciphered. Further research must be conducted in the light of a more complete knowledge of the Micmac language. Ethnohistorical and archaeological research may offer further evidence for a possible indigenous origin of the script.

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Sanctus



Hosanna in the highest!

Agnus Dei

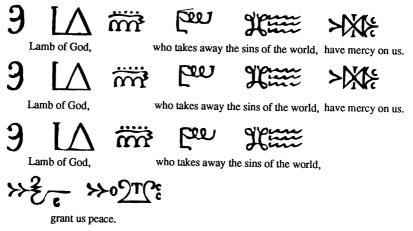


Figure 1. Fitting patterns of known prayers to hieroglyphic signs.

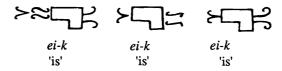


Figure 2a. Three versions of 'is'.

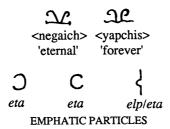


Figure 2b. Sign variation.

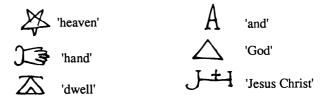


Figure 2c. Iconic and abstract signs.

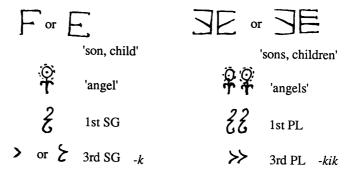


Figure 3a. Plural indicated by duplication.

Figure 3b. Verbs with affixes, and 'thou'.

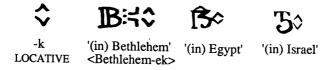


Figure 3c. Locatives.

Figure 4a.

6. >>

Figure 4b. Psalm 115 (113b):5-7.

'feet'

Fo co ⇒ > NO

Unordered Morphology: The Problem of Axininca Reduplication* Cari Spring University of Arizona

This paper is primarily concerned with the implications of reduplication in Axininca Campa² for the question of how morphology is organized. The Axininca data show that unordered morphology, for example as assumed in the theory of Lexical Phonology & Morphology (Kiparsky, 1982, 1985; Halle and Mohanan, 1985; Mohanan, 1986), can account for the behavior of the prefix and the verbal stem in reduplication, but cannot explain 'augmentation' in reduplication (or other Axininca morphology). Reduplication is not simply affixation of a constituent (to a base) plus copy and association as is assumed by many researchers since Marantz (1982; eg. Levin, 1983; Broselow and McCarthy, 1984; McCarthy and Prince, 1986, 1989; for alternative views see Clements, 1985; and Steriade, 1988). Reduplication appears to apply cyclically (like phonology), but is morphologically interpreted. This behavioral similarity between phonology and morphology suggests that these two components are not necessarily partitioned in the lexicon.

Section 1 provides preliminary facts about Axininca and 2 gives the reduplication facts in two dialects of Axininca. Section 3 reviews the assumptions of one robust model of morphology, Lexical Morphology and Phonology, and 4 demonstrates the problem of Axininca reduplication for this unordered, partitioned view of morphology. However, it is shown that use of extraprosodicity (Ito, 1986; McCarthy and Prince, 1986, 1989) can resolve the ordering problems in Axininca morphology. Section 5 provides data from augmentation' in reduplication and modal morphology, and 6 shows these data are hopelessly problematic to an unordered, partitioned view of morphology. It is concluded that a processual model (eg. Anderson, 1989) provides a theory of morphology in which the Axininca data might be explained.

1. Preliminaries

The syllable template of Axininca is basically CV(V)(N). Onsets are required in all but word initial position; the optional nasal coda surfaces only if a stop or affricate follows, and takes its place of articulation from the following segment.

(1) Axininca syllable structure: CV(V)(N)

CV sito `monkey' V opaayaa `beach' CVV taanica `I don't know' VV aariiti 'black bird' tairi `flowering tree' CVN 'dumb' mason¢i VN inkiti CVVN & iriin& 'palm'

Some person prefixes are given in (2); as shown, the realization of a prefix is dependent upon the initial segment of a following morpheme, and the 3 singular masculine may be realized with no overt marker.

Two dialects of Axininca are to be considered here. Data from the first dialect, Axininca 1, is from the published work of Payne (1981). Data from the second dialect, Axininca 2, is from the unpublished fieldnotes of Payne and Spring (1989).

2. Axininca Reduplication

Payne (1981) provides data on Axininca 1 reduplication in the 1 singular future continuative (and the 3 singular masculine, v. section 5); reduplication is glossed as in (3):

(3) Reduplication gloss

Some forms cited by Payne are given in (4):3

(4) Axininca 1 reduplication (Payne, 1981:144)

	verb	reduplicated forms	gloss
a.	koma	no-N-koma-koma-wai-ti	paddle
b.	kintha	no-N-kintha-kintha-wai-t-i	tell
c.	th aaŋk i	no-N-th aank i-th aank i-wai-t-	i hurry
d.	kaawosi	no-N-kaawosi-kaawosi-wai-Ca	
e.	naa	nonaa-nonaa-wai-t-i	chew
f.	na	nona-nona-wai-t-i	carry
g.	tho	nontho-nontho-wai-t-i	kiss
ĥ.	asi	nasi-nasi-wai-t-i	cover
i.	aasi	naasi-nasii-wai-t-i	meet
j.	apii	napii-napii-wai-t-i	repeat

The reduplication template in Axininca 1 is assumed to be the Prosodic Word (Spring, to appear, in progress; for discussion of 'Prosodic Morphology', see McCarthy and Prince, 1986, 1989).

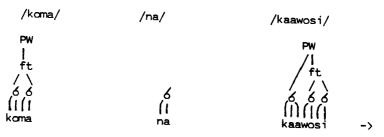
(5) The Prosodic Word Reduplication Template in Axininca



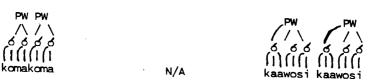
The Prosodic Word (hereafter PW) is assumed to be the template in Axininca reduplication as two or three syllables can reduplicate; cf. (4a-c) with (4d). The PW has a minimal realization, a disyllabic foot, 66, i.e. the minimal prosodic word is 66, demonstrated by the fact that at least two syllables must reduplicate (all forms). Finally, the person prefix reduplicates only if the stem cannot fulfill a CVCV, that is a 66, template; compare (4a-d) with (4e-j). The problem is to explain reduplication of the person prefix: since three syllables can reduplicate, (4d), and since the person prefix can reduplicate, (4e-j), why doesn't a form like /koma/ reduplicate as *[nokoma-nokoma-waitaki]?

To account for the behavior of the prefix in Axininca 1, reduplication must precede person prefixation, (4a-d) and must also follow prefixation (4e-j)--in that order. As demonstrated in (6), a stem in step 1 undergoes syllabification, footing, and PW construction (/na/, center column, cannot supply a PW). Reduplication in step 2 applies before person prefixation in step 3, thus explaining the failure of the prefix reduplicating in forms where the verb alone can supply the PW base of reduplication (left and right columns):

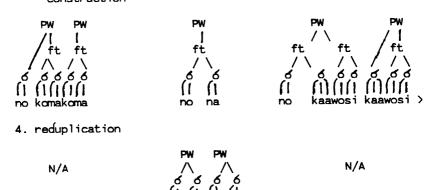
(6) Reduplication in Axininca 11. stems-- syllabification, footing, PW construction



2. reduplication



3. person prefixation, syllabification, footing, PW construction



5. [nokomakoma] [nonanona] [nokaawosikaawosi]

To account for prefix reduplication with a form like /na/, which applies only if the stem alone is not 66 or bigger, reduplication (step 4) must follow person prefixation (step 3).

In sum, in Axininca 1, reduplication must first precede reduplication (to explain the failure of the prefix to reduplicate) then must follow prefixation (to explain the reduplication of the person prefix). In other words, reduplication applies as soon as possible, to the stem domain first, and then to the domain consisting of the prefix and stem.

Reduplication in Payne's corpus consists of some twenty verbs with two different subject markings, the 1st person, marked by /no-/, and the third person masculine, marked with a null prefix (Payne, 1981:145).4 Reduplication data from Axininca 2 is available in the context of several subject markers (Payne and Spring, 1989).

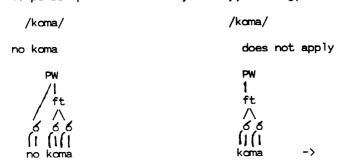
(7) exemplifies reduplication data from Axininca 2; as shown, several surface forms can occur for a single reduplication context. We see that two syllables must always reduplicate (all forms) and if a stem cannot supply two syllables the prefix must reduplicate (7d). Elsewhere, the prefix may or may not reduplicate (7a, b, e, g-i).

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(7) Axininca 2 (Payne and Spring, 1989)
                                           .more and more"
 a. koma
    i. nokomakomawai¢i
                                  I continue to paddle...
    ii. nokomanokomawai¢i
 b. kis
    i. nokisakisawai¢iro
                                  I continue to be angry at her
   ii. nokisanokisawai¢iri
                                  I continue to be angry at him
 c. aasi
       haasihaasiwai¢i
                                  He continues to meet
       naasinaasiwai¢i
                                  I continue to meet
 d. tho
       nothonothowai¢iri
                                  I continue to kiss him
 e. osampi
   i. hosampisampiwai¢iri
                                  He continues to ask him
   ii. hosa(m) hosampiwai¢iri
   iii.hosampihosampiwai¢iri
   iv. nosampinosampiwai¢iri
                                  I continue to ask him
   v. osampi osampiwa ići
                                  He continues to ask
   vi. osampisampiwai¢i
 f. sirik
       asirikasirikatiro
                                 We (incl) will sew it
 g. kaawosi
   i. ikaawosiwosiwaica
                                 He continues to bathe
   ii. ika(a) ikaawosiwaica
   iii.ikaawosi ikaawosiwaica
                                            ••
   iv. ikaawosikaawosiwaica
 h. tasonk
   i.
      itasoŋkasoŋka¢iro
                                 He continues to fan her
   ii. itasonka itasonkawaikiro
 i. kinkitha
   i. ikinjkitha ikinjkithawai¢i He continues to tell (it)
   ii. nokinkithanokinkithawai¢i I continue to tell (it)
   iii.nokinkithakinkithawai¢i
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Formalization of reduplication in Axininca 2 follows in (8); I assume that the PW is the template specified by the reduplication operation. The same stem, /koma/ `paddle', is reduplicated with and without the prefix; the left column assumes a scenario in which the morphological process of person prefixation applies before reduplication, and the right column assumes a scenario where prefixation follows reduplication.

(8) Reduplication in Axininca 2

1. person prefixation -- syllabify, footing, PW constructed



2. reduplicate



3. prefix -- syllabification, footing, PW constructed



4. [nokomanokoma] [nokomakoma]

In step 1 we see that the prefix may or may not concatenate with the stem before reduplication. If the prefix does concatenate, syllabification and PW construction appends the prefix into the PW (left column) and reduplication in step 2 copies the PW, a constituent dominating prefix and stem (left column). If person prefixation does not operate on the stem in step 1 (right column), then after syllabification the PW dominates only the stem; reduplication in step 2 copies the PW, in this case the stem alone (right column). In step 3 the prefix concatenates with the stem after reduplication (right column) and reduplication of the stem alone results in step 2. As person prefixation may optionally precede or follow reduplication in Axininca 2, the variable reduplication of the prefix is explained.

In Axininca 2 a stem like $/t^ho/$ cannot reduplicate until a prefix is appended to the stem as the requirements on the base, a PW, are not met until after prefixation. In case the stem cannot supply a PW base, reduplication must follow person prefixation.

Essentially in Axininca 2 reduplication precedes or follows person prefixation; no obligatory ordering between reduplication and person prefixation occurs. In other words, reduplication does not apply as soon as possible. (9) contrasts Axininca 1 and 2:

(9) Axininca Dialects

a. Axininca 1

1st: stem -> reduplicate
2nd: prefix + stem -> reduplicate

b. Axininca 2

(stem, prefix + stem) -> reduplicate

On the phonological side, we see that two syllables must reduplicate and three syllables may reduplicate in both Axininca dialects; on the morphological side, in Axininca 1 the prefix does not reduplicate except to fill the minimal requirement, 66. In Axininca 2 the prefix optionally reduplicates independently of phonological requirements.

In sum, the reduplication template for Axininca 2, like Axininca 1, is a PW; the phonology of reduplication in these two dialects is identical. The point of departure between Axininca 1 and 2 is the ordering of person prefixation and reduplication in the dialects.

3. Unordered Morphology

The theory of Lexical Phonology and Morphology (hereafter LPM; Kiparsky 1982, 1985; Halle and Mohanan, 1985; Mohanan, 1986) holds that the morphology and phonology of a language are arranged into a series of strata, denoted as s1, s2, and sn in (10).

(10) Lexical Phonology and Morphology

,	morphology	and the photogy	phonology
s1	m1 m2 m3	->	p1
s2	m4 m5 m6	->	p2 p3
: sn			:

The number of strata in a language is determined by the interaction of phonology and morphology in that language: when a subset of morphological forms undergoes a subset of phonological rules, those morphological operations are members of a single

stratum (in (10) m1, m2, m3, etc. stand for morphological operations, p1, p2, etc. for phonological operations).

Kiparsky (1982, 1985) assumes that all lexical cyclic, that is phonology applies after each morphological operation. Other researchers however, have argued that lexical strata are divided into cyclic and non-cyclic strata (that is where phonological operations in non-cyclic lexical strata apply after all morphology has applied; eg. Halle and Mohanan, 1985; Mohanan, 1986). The question of cyclic and noncyclic strata is not here at issue; what is important is that all accounts of LPM assume that morphology within a stratum (cyclic or noncylic) is unordered. Given m1, m2, m3, where m2 is a stem, and m1 and m3 are morphological operations, m1 can apply to m2 before m3, (11a), or m3 can apply to m2 before m1, (11b):

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(11) Unordered Morphology
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- a. $m1 + m2 \rightarrow (m1 + m2) + m3$
- b. $m2 + m3 \rightarrow m1 + (m2 + m3)$

Essentially then. LPM assumes that ordering is acheived by stratal organization, not by ordering within strata.

4. Unordered morphology and Axininca reduplication

The interaction of reduplication with person prefixation in is fully compatible with unordered morphology, Axininca 2 exemplified by LPM. In particular, the variable ordering of reduplication and person prefixation in Axininca 2 is consistent with the LPM view of morphology as shown in (12).

(12) Axininca 2 model of the lexicon under LPM morphology

phono logy

stem, prefix, reduplication

p.rules -> <-

If reduplication applies to the stem before person prefixation, as shown in (13.1), the stem alone reduplicates. But if person prefixation applies to the stem before reduplication, the prefix, being syllabified and then appended into the PW, reduplicates along with the stem, (13.2).

(13) Reduplication and person prefixation

- 1. a. koma + reduplication -> komakoma -> p. rules
- b. prefix -> nokomakoma **(-**
- 2. a. prefix + koma -> nokoma -> p. rules <-
 - -> nokomanokoma b. reduplication

If we assume that morphology is organized into strata as proposed in LPM, reduplication and person prefixation are in the same stratum since the prefix can (and at times, must) reduplicate. The behavior of person prefixation and reduplication in Axininca 2 is unproblematic for, and in fact supports, a view of morphology where morphological processes (within a single stratum) are unordered.⁵

However Axininca 1 is problematic to any theory which assumes that morphology is unordered, as reduplication applies as soon as possible with respect to person prefixation. Assume that Axininca 1 has person prefixation and reduplication in a single stratum (as the prefix reduplicates if the stem alone is not a PW), illustrated in (12). If reduplication applies before person prefixation, the correct forms result, (14.1); but if prefixation applies before reduplication, (14.2), incorrect forms result:

(14) Reduplication and person prefixation in Axininca 1

- - b. reduplication -> nokoma -> p. rules

Essentially, the problem is that reduplication appears to apply cyclically in Axininca 1, in the same way that phonological rules apply cyclically: an operation applies whenever its condition is met, i.e. "as soon as posssible". Reduplication in Axininca 1 includes the prefix only when the stem alone cannot supply a PW.

Despite this apparent problem, if we wish to maintain the view that morphology is unordered there is a solution: we can assume that the prefix in Axininca 1 is extraprosodic (on morpheme extrametricality, v. for example, Hayes, 1980, 1981; Archangeli, 1984; Everett, 1988).6

(15) Prefix extraprosodicity in Axininca 1

morphology		phono logy
[prefix], stem, reduplication	-> <-	p. rules

Because the prefix in Axininca 1 is extraprosodic it is not copied in the process of reduplication, as demonstrated in (16).

(16) Prefix extrametricality and LMP in Axininca 1

- 1. a. koma + reduplication -> komakoma -> p. rules
 b. prefixation -> [no]komakoma <-
- 2. a. prefix + koma -> [no]koma -> p. rules
 b. reduplication -> [no]komakoma <-

In (16.1), the stem reduplicates and then undergoes person prefixation, resulting in the correct forms. In (16.2), the stem first undergoes person prefixation in (16.2a); since the prefix is extraprosodic it is invisible to syllabification and PW construction. In (16.2b) reduplication applies, copying the stem alone. I assume that prefix extraprosodicity is lost postlexically.

Note that when a stem is smaller than the requisite base of reduplication, i.e. is smaller than a PW, the prefix reduplicates, (4e-j). A form like /na/ cannot fill a PW; when such a form is prefixed then, prefix extraprosodicity must fail, as prefix extraprosodicity would result in a 'subminimal' domain for the purposes of reduplication. In other words, if extraprosodicity would result in the absence of a requisite domain for reduplication, minimally a 66 constituent, extraprosodicity fails. This assumption parallels the behavior of extrametricality found in the literature: when a domain is needed in stress phenomena, extrametricality normally operative in a language fails. For example, in languages with final syllable extrametricality, one syllable words are not extrametrical (v. Hayes, 1980, 1981).

In sum, we have seen that Axininca 1 and 2 each reduplicates a PW, but a difference in morphological ordering between person prefixation and reduplication appears to differentiate the two dialects. While reduplication is unordered with respect to person prefixation in Axininca 2, Axininca 1 appears to have reduplication ordered first before person prefixation then after person prefixation.

This apparent problem for unordered morphology however is resolved by calling upon prefix extraprosodicity in Axininca 1. Essentially, the prefix does not reduplicate in Axininca 1 because it is invisible to the prosodic processes of syllabification, footing and PW construction, and therefore does not copy in reduplication. Extraprosodicity fails if the domain required by reduplication, 66, cannot be met unless the prefix is included as the base of reduplication.

It should be noted that the use of extraprosodicity in Axininca 1 has been invoked in an unconstrained fashion. In the literature 'extrametricality' is used to designate an edge constituent which is invisible to a metrical process (and when morpheme extrametricality is cited elsewhere in the literature, the morpheme

is invisible to a metrical process; v. Archangeli, 1984, and Everett 1988). The notion of `extraprosodicity' in Ito (1986) is developed to mark an edge segment invisible to the process of syllabification; extraprosodicity is phonologically motivated (see Ito, 1986). The use of extraprosodicity in Axininca 1 targets not a segment, rather a morphological constituent, causing morpheme (prefix) invisibility in a morphological operation (reduplication); no phonological property sanctions this use of extraprosodicity. Essentially then, extraprosodicity in Axininca 1 follows from no principled phenomenon, rather is stipulated to explain ordering within a single stratum. The alternative then is to assume that Axininca prefixation and reduplication morphology is extrinsically ordered within the same stratum.

5. Augmentation in Axininca Morphology

Data from unprefixed monomoraic or non-moraic stems, C, CV and V stems, with no overt subject prefix shows that extraprosodicity cannot solve the problem of morphological ordering in Axininca.

Monomoraic or non-moraic stems are stems which are not composed of a minimal word. As we have seen, when such forms are adjoined by a subject prefix, the prefix reduplicates to fill in the PW base requirement on reduplication; this phenomenon is explained in Axininca 1 by assuming that extraprosodicity fails if the domain of reduplication, a PW, cannot otherwise be supplied. However, overt prefixes are optional in Axininca. The 3 singular masculine, for example, can be realized with a null prefix; additionally, all verbs can have subject marking via a suffix, in which case the prefix is absent.

Payne's (1981) corpus of unprefixed monomoraic or non-moraic stems in Axininca 1 includes CVV, VCV and CV stems (17.1), while Payne and Spring provide V and C stems as well, (17.1) and (17.2):

(17) Monomoraic or non-moraic stems in Axininca

He has continued to __ (it) more and more

		ca i anu z	
a.	naa	naanaawaitaki	chew
ь.	apii	api apiiwaitaki	repeat
	aasi	aasi aasiwaitaki	meet
	asi	asi asiwaitaki	cover
c.	na	na <u>ta</u> na <u>ta</u> wa itak i	carry (it)

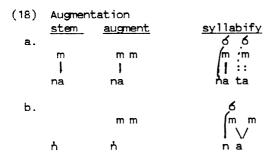
2. Axininca 2

1 Avinince 1 and 2

đ	٦	i <u>ta</u> i <u>ta</u> waitaki	precede
e.	'n	haahaawaitaki	talk/see/sing
	L	,	ou my secy s mg

c c<u>aacaa</u>waitaki enter p<u>aapaa</u>waitaki give

The point of interest is that in (17.1c) and (17.2d, e), where the stem is less than two moras, Augmentation supplies the base with a [ta] or [aa] sequence; when a base is two moras or bigger, (17.1a-b) Augmentation does not apply. Augmentation is formalized in (18) as a process of mora insertion until the bimoraic base is realized (and as we will see below, Augmentation occurs in a number of morphological processes, showing that this phonological rule is independent of the morphological process of reduplication). In (18a), a monomoraic stem is augmented by one mora to fulfill the bimoraic base; syllabification inserts an onset (the redundant consonant, [t], is regularly inserted when two vowels come together in the course of a morphological derivation; see Payne, 1981:55, for arguments that [t] and [a] are the epenthetic in Axininca).



In (18b), a stem lacking any moras receives two moras to fill out the bimoraic base; I assume that these two moras are segmentally filled by the redundant vowel [a] with a full geminate resulting. In the course of syllabification, the stem consonant and two augmented vowels are associated into a single syllable.

Though Augmentation data on unprefixed C and V stems from Axininca 1 is not available, we can deduce from the more detailed Axininca 2 data that in Axininca (both dialects) Augmentation operates on bases smaller than a bimoraic base to supply as output a bimoraic base. This bimoraic base will be disyllabic if the input is a syllabified CV stem, eg. $/na/ \rightarrow [nata...]$, because [t] epenthesis applies between the syllabified vowel of the stem and the unsyllabified, augmented mora. But if the input to Augmentation is a C stem, the output will be a bimoraic, monosyllabic base, eg. $/h/ \rightarrow [haa...]$.

What then is the hierarchy of operations used to fulfill the PW base so that reduplication can occur? Person prefixation always precedes Augmentation, as there are no cases of prefixed, augmented forms, *[no-nata-nata...]; augentation is used as the default process to provide a PW base so that reduplication can apply in the event that neither the stem nor the stem+prefix supplies a PW base. In both dialects of Axininca then, person prefixation and reduplication must apply before Augmentation and reduplication:

(19) The ordering of Augmentation in reduplication

person prefixation, reduplication (unordered if prefix Ex in Axininca 1)

reduplication Augmentation reduplication

Before showing the problem of the Augmentation and reduplication data to models where morphology is unordered, it is interesting to examine the base requirements on other Axininca morphology, as we see that the bimoraic prosodic base is not found solely in the morphological process of reduplication. For example, two cases of `modal' morphology, /-piro/ `veracity' and /-wai/ `continuative' require a bimoraic base.

The base requirement on verbs suffixed with /-piro/, 'veracity', is exemplified in (20). In the left column of (20a) we see that monomoraic or non-moraic stems suffixed with the infinitive do not undergo Augmentation (data are taken from Payne, 1981 and Payne and Spring, 1989; data from C and V stems is taken from Payne and Spring). But in the right column of (20a) we see that when /-piro/ is suffixed to the stem, Augmentation operates to fill out a bimoraic base (and this stem can subsequently undergo infinitive suffixation). (20c) shows that stems with two moras do not undergo Augmentation when the 'veracity' operation applies; and (20b) shows that prefixed monomoraic stems also do not undergo Augmentation; rather the prefix + stem satisfies the bimoraic requirement on the verb stem.

(20) Piro 'veracity' suffixation, class: manner modal

a.	na-t-aan¢h i	na <u>ta</u> -piro-t-aan¢hi	to (really) carry
	i-t-aan¢h i	i <u>ta</u> -piro-t-aan¢h i	to (really) precede
	h-aan¢h i	h <u>aa</u> -piro-t-aan¢h i	to (really) see/talk
Ь.	no-na-piro-t-i/	*no-na <u>ta</u> -piro-t-i	I will carry it well
c.	ii-t-aan¢hi	ii-piro-t-aan¢hi	to (really) name
	koma-t-aan¢h i	koma-piro-t-aan¢h i	to (really) paddle

Augmentation of the base in some modal morphology then is behaviorally identical to reduplication: bases with fewer than two moras undergo Augmentation, but if an overt prefix is available to fill the moraic requirement of the base, it does; thus person prefixation must precede Augmentation. In the absence of a person prefix, monomoraic or nonmoraic bases undergo Augmentation.

6. The problem of unordered morphology and Augmentation

What do we know about Axininca morphology and Augmentation? We know that 1) in a stratal view of morphology, reduplication is in

the same stratum as person prefixation since the prefix can reduplicate; 2) assuming an unordered view of morphology requires that the prefix in Axininca 1 be marked as extraprosodic; 3) reduplication must precede the operation of [piro] and [wai] affixation since these modal suffixes never reduplicate, eg. 4) morphological processes, *[komapirokomapiro]: several and 'continuative', require a bimoraic reduplication, 'veracity' base; 5) in each morphological operation requiring the bimoraic base, person prefixation operates (thus fulfilling the bimoraic base) before Augmentation applies, as we do not get forms such as *[no-nata-nata...] in reduplication, nor such forms as *[no-natapiro...] in modal affixation; and 6) not all morphology undergoes Augmentation; for example, we do not find Augmentation of the base in simple infinitive forms, e.g *[nata-t-aan#i].

With this summary of the morphological facts complete, we can now consider what properties an unordered model of morphology must have to account for the Axininca data; I continue to assume the LPM view in examining the data. First, shown in (21), as reduplication of the prefix can occur, reduplication and person prefixation are in the same stratum (assume the prefix is extraprosodic in Axininca 1). The veracity and continuative operations are in stratum 2, as these two processes never reduplicate: in LPM since morphological ordering exists only to the extent that some morphology occurs in an earlier stratum than other morphology, veracity and continuative are in a stratum following reduplication:

- (21) Axininca 1 and 2 morphology ([prefix] Ex in Axininca 1)
 - s1 prefixation, reduplication
 - s2 piro (veracity), wai (continuative)

A stem enters stratum 1 on the morphology side and undergoes person prefixation and reduplication in either order. After undergoing the phonology of stratum 1, these forms pass to stratum 2 where the morphological operations of veracity and continuative can apply. But note the problem for LPM: stratum 2 is motivated not because there is a set of phonological rules operating on the subset of morphological operations in stratum 2; rather stratum 2 is a "diacritic" use of strata to avoid ordering morphology within a stratum: reduplication must precede modal morphology.

We might resolve this problem by assuming that stratum 2 does undergo distinct phonology; we have seen a phonological process that targets the veracity and continuative, Augmentation. However, reduplication also undergoes Augmentation; therefore if Augmentation is the phonological motivation for stratum 2, then reduplication must be in stratum 2, shown in (22).

(22) Axininca 1 and 2 morphology, revised

morphology

phono logy

- s! prefixation, reduplication
- s2 piro, wai, reduplication

Augmentation

Note that reduplication continues to be in stratum 1, along with person prefixation, thus explaining why a stem with a prefix never undergoes Augmentation in either reduplication or modal morphology: the prefix has attached to the stem before reaching stratum 2. The model continues to explain the potential reduplication of the prefix since prefixation and reduplication are in the same stratum.

(22) suggests that stratum 2 is motivated by the phonological process of Augmentation which operates on a subset of the morphology. But note that in this model, reduplication in stratum 2 still must precede the /piro/ and /wai/ operations, else these modal morphemes would falsely be expected to optionally reduplicate. We might order reduplication with Augmentation in stratum 2 and veracity and continuative with Augmentation in a 3rd stratum. The problem of morphological ordering then continues: strata are motivated by the requisite morphological ordering, rather than by any necessary phonology/morphology interaction.

A second problem for the unordered view of morphology arises when we consider the fact that not all morphology undergoes Augmentation; as we will see, strata must be optional in this view because 1) Augmentation is structure building; and 2) not all stems undergo Augmentation.

Veracity suffixation is to the immediate right of the stem; the infinitive then attaches to the veracity marker, eg. [koma-piro-t-aanchi]. Thus the infinitive operation applies after modal morphology. However, a stem may be marked for the infinitive without undergoing modal morphology, eg. [koma-t-aanchi]. If a monomoraic stem undergoes the simple infinitive, Augmentation does not apply: [na-t-aanchi]. But if suffixed by a veracity or continuative modal it does undergo Augmentation: eg. [nata-wai-t-aanchi]. All these facts converge on a model where the infinitive operation follows the continuative and veracity operations:

- (23) Axininca 1 and 2 morphology including infinitive data
 - s1 prefixation, reduplication
 - s2 reduplication Augmentation
 - s3 piro, wai Augmentation
 - s4 infinitive

In (23) the infinitive is motivated in stratum 4 as the infinitive 1) follows veracity and continuative affixation; and 2) does not undergo Augmentation. But note the consequences of this model: because Augmentation is a structure building, rather than a structure changing phonological rule (on the application of structure building phonological rules to underived stems see Kiparsky, 1982 and 1985), if a bare stem enters stratum 2 and does not undergo any morphology the stem is still expected to undergo Augmentation. The false prediction then is that all `subminimal' stems entering levels 2-3 will undergo Augmentation, whether these stems actually undergo the morphology of levels 2-3 or not. The result will be that all stems will falsely consist of at least a bimoraic base when exiting levels 2-3. Thus stems marked for the infinitive will be predicted to be (mm): eg. *[nata-t-aan¢hi].

In order to side-step the overgeneration of augmented stems, we must assume that levels 2-3 are optional levels which are entered just in case the morphology in strata 2-3 is to apply to a stem:

(24) Axininca 1 and 2 morphology including infinitive data, revised

morphology phonology

s1 prefixation, reduplication

s2 reduplication Augmentation

s3 piro, wai Augmentation

s4 infinitive

In this account, the process of Axininca morphology is transderivational (in the sense of Chung, 1983) to the extent that a stem must `know' whether it is to undergo the morphology of strata 2-3; if not, it must skip strata 2-3. We might formalize stratum skipping via extension of the loop used in some accounts of LPM (Halle and Mohanan, 1985; Mohanan, 1986), that is where to account for certain extrinsic morphological ordering, a loop is available to return morphological constituents to earlier morphological strata. In Axininca, to account for Augmentation, the loop might allow us to skip strata altogether. It is surely obvious that this extension of the loop, motivated by transderivational considerations of the non-application of Augmentation in some morphological processes, constitutes a formal mechanism with far more power than a useful theory should have. We could continue on with suggestions to overcome the ordering problems in Axininca 1 and 2 ad infinitum. Such an enterprise would however distract from the simple conclusion that the problem of Axininca morphology, and the phonological process of Augmentation, which occurs to some

morphological forms and not to others, is not resolvable within an unordered view of morphology as that proposed by LPM.

In sum then, Axininca is problematic to unordered accounts of morphology. The first clue that Axininca data are problematic for unordered views of morphology comes when reduplication and person prefixation in Axininca 1 are examined. However, by pushing the conventions of phonological theory, that is by assuming prefix extraprosodicity in Axininca 1, we evade the problem of ordered morphology. But when the Augmentation facts in reduplication and modal morphology are seriously considered, the ordering problems compound. First, strata are motivated to explain ordering between reduplication and modal morphology, even though these processes share the same phonology, Augmentation. This ordering problem might be solved by building yet more strata in Axininca, a solution which reduces to an unsolved problem: strata are used to order morphology.

The second problem is that as Augmentation is structure building, we predict that bare stems undergo Augmentation. To account for the fact that not all stems undergo Augmentation, strata must be skipped unless the morphology of these Augmentation, strata is to apply to a stem. However the power of a LPM theory incorporating the loop to account for stratum skipping, is out of control: an overpowerful model results as we might expect stratum skipping to occur anywhere. As far as I know, Axininca is the only data reported which requires this formalism.

We have seen that Axininca reduplication is problematic for models of morphology which are basically formalized to account for the behavior of affixational morphology. The problem is that reduplication does not act like an affixational process. Rather it has cycylic properties (as it applies first to the stem, then to the prefix and stem, and failing a prefix, it undergoes Augmentation) like a phonological rule, but is morphologically interpreted (cf. Schlindwein, 1989, for arguments that Javanese reduplication must be in the phonological side of a LPM model of the lexicon).

Recent `processual' accounts of phonology and morphology (eg. Anderson, 1989) may provide a step in the right direction toward explaining such phenomena like Axininca reduplication, as such models are powerful enough to formalize processual, in addition to affixational morphology. However, as such models maintain the distinction between the morphological and phonological subcomponents of grammar (see especially Anderson, 1989, who claims a behavioral distinction between phonology and morphology), they must move toward explaining the behavioral similarity between cyclic morphology, exemplified by Axininca reduplication, and the cyclic application of phonological rules in language.

Footnotes

- *. Thanks to Diana Archangeli and Mike Hammond for discussion of this work.
- 2. Axininca is a Campa language; Campa is of the Arawakan genetic classification (Payne, 1981) and is spoken on the Apurucayali river in the Amazon jungle of Peru.
- 3. Spring (to appear, in progress) demonstrates that the surface realization of Axininca reduplication is a complex interaction of phononological and morphological phenomena. Due to space limitations, many of the phonological aspects of reduplication cannot be discussed; rather the focus is upon the morphological properties of reduplication. The reader is referred to Payne (1981), Spring (to appear, in progress) for complete paradigms.
- 4. While Payne does not discuss the null marked 3 singular masculine, we see its occurence on such forms as [aatai] 'he will go back' from /aa-t-ag-i/ glossed: return-epen-resolved-future (Payne 1981:46). Payne and Spring 1989 also elicited a number of reduplication forms where neither an overt prefix nor suffix was given; these forms are glossed as the 3 singular masculine.
- 5. Reduplication in Yidiny (Dixon, 1977) is like that in Axininca 2 in that verbal conjugation markers and some few inflectional markers can optionally reduplicate with the verb stem (1977:156; 254). For example we find both absolutive reduplicating (i), and not reduplicating (ii) in Dixon's corpus (vowel lengthening is a regular phonological process in ii):
 - i. nala-l 'big-absolutive' -> nalalnalal]
 ii. dambu-l 'two-absolutive' -> [dambudambu:l
- These data suggest that reduplication and conjugational affixation are unordered with respect to each other, like the Axininca 2 verbal stem and prefix are unordered in reduplication.
- 6. Thanks to Diana Archangeli for suggesting this solution.
- 7. Should more cases of morpheme invisibility in morphological prosesses surface, we might have evidence for the notion of 'extramorphological' constituents, that is constituents invisible to morphological operations.
- 8. An immediate problem for the analysis of reduplication is presented by the augmentation data: I have assumed that the reduplication template is a prosodic word, with a minimal word requirement of oo. Yet the unprefixed stems suggest that mm is the

minimal reduplication. This problem is treated in Spring 1990.

9. Payne (1981, 1982) assumes that all consonant initial suffixes require the bimoraic base; he cites two examples, /-piro/ and /-wai/ in two morphological forms in support of this claim (Payne, 145). The two forms cited are, like reduplication, 'modals'. Examination of the Axininca texts in Payne's work reveals only prefixed 'subminimal' stems, i.e. there is no data to check the claim that all consonant initial suffixes trigger augmentation of monomoraic or smaller bases. I assume that some subset of modals, including reduplication, veracity, and continuative, require thie bimoraic base. Of these modals, two are consonant initial while reduplication can be vowel or consonant initial.

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