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**BERKELEY LINGUISTICS SOCIETY**

February 13-16, 2004

**SPECIAL SESSION**

**on the**

**MORPHOLOGY OF NATIVE AMERICAN LANGUAGES**

**Edited by**

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Berkeley, CA, USA**

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## **Foreword**

We are pleased to present the proceedings of the BLS 30 Special Session, held at UC Berkeley in February 2004. We would like to thank the contributors to this volume and all those who attended and participated in the conference.

Marc Ettlinger, Nicholas Fleisher, and Mischa Park-Doob

Volume editors



# An Automodular Approach to Noun Classifiers in Piratapuya (E. Tukanoan)

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## 0. Background

Piratapuya is a language of the Eastern Tukanoan sub-family spoken in the Vaupés region of Colombia and Brazil. Piratapuya, like other E. Tukanoan languages, has an inanimate classifier system characterized by the use of shape and arrangement classifiers that appear only with inanimate nouns. These are mostly bimoraic morphemes.<sup>1</sup>

- |  |  |   |
|--|--|---|
| (1) /~bisí doto/<br>[misí dohto]<br>vine CL.bundle<br>'a bundle of vine' | (2) /~baá yudi/<br>[mã'á yuri]<br>road CL.curved.<br>'a curved road' | (3) /ohó ~too/<br>[ohó tō'ō]<br>banana CL.bunch<br>'a bunch of bananas' |
|--|--|---|

Piratapuya also shares with other E. Tukanoan languages gender marking on animate nouns with a masculine / feminine distinction in the singular, and not in the plural. This is marked with monomoraic suffixes. The animate (monomoraic) "classifiers" have completely suffixal properties at all levels, and appear to be restricted to a coding function on a closed lexical set of nouns.

- |   |   |  |  |
|---|---|--|--|
| (4) ìmì - nō<br>man - ANIM.<br>'one man'          | íkã - <b>ki</b> - ro<br>one - <b>MASC</b> - ANIM. | (5) numi - nō<br>woman - ANIM.<br>'one woman'          | íkã - <b>ko</b> - ro<br>one - <b>FEM</b> - ANIM. |
| (6) ìmì - ã<br>man - <b>ANIM.PL.</b><br>'two men' | puya - ro<br>two- ANIM.                           | (7) numi - ã<br>woman - <b>ANIM.PL.</b><br>'two women' | puya - ro<br>two -ANIM.                          |

---

<sup>1</sup> Nasalization in Piratapuya is morphemic. The representation of a nasal consonant (e.g., n, m) or a nasalized vowel (e.g., ã, õ) in any word implies the concurrent nasalization of all voiced segments in that word for all examples presented in this paper.



Semantically, the bimoraic inanimate shape classifiers contribute to the basic characterization of referents in combination with different nouns (Gomez-Imbert 1996). The semantic independence of these inanimate shape classifiers is consistent with what Lucy (2000) has identified as classifiers of experience. This paper exclusively deals with the bimoraic inanimate shape classifiers in Piratapuya.

## 1. Problem

There are differing views in the literature on the lexical versus grammatical status of the domain of nominal morphology traditionally called classifiers found in the closely related languages of the E. Tukanoan sub-family. We may characterize these positions as the “all are suffixes” view, the “some are suffixes” view, and the “(almost) none are suffixes” view.

Barnes articulates the “all are suffixes” view:

Classifiers in Tuyuca always occur as suffixes. When a classifier is suffixed to a root or stem, the result is a single phonological word. (The phonological word in Tuyuca is defined as an utterance containing two or more syllables and having one and only one syllable with high pitch.) The classifiers presented in this paper never occur as phonological words: they are always suffixes. (Barnes 1990:273-274)

In relation to Barasana, Gomez-Imbert and Kenstowicz present the “some are suffixes” view:

Nominal words display suffixes traditionally called classifiers, which constitute a concordial system appearing in all nominal constituents. The classifiers lie at the boundary between grammatical and lexical categories: segmental and tonal processes are sensitive to their moraic weight such that the bimoraic ones behave like roots while the monomoraic ones behave like suffixes. (Gomez-Imbert and Kenstowicz 2000)

Ramirez states the “(almost) none are suffixes” view for Tukano:

The morphemes that we call ‘dependent nouns’ have generally been considered – under the name ‘classifiers’ – as nominal suffixes... Like nominal suffixes, the dependent nouns are phonologically atonal and preceded by a noun. However, we argue that there is a fundamental difference between dependent nouns and nominal suffixes. (Ramirez 1997:97-98, 235).

Note that in part at least, the argument of Barnes that the classifiers are suffixes is based on a definition of a phonological word as a tonal unit. Ramirez, on the other hand, while recognizing that the classifiers form a tonal unity with a nominal complement, states that this is not the definition of the phonological word in Tukano. Ramirez instead uses the domain of nasal spreading as the definition of the phonological word. He labels the domain defined by tonal unity the “phonological locution” (Ramirez 1997:107). Ramirez asserts that we need not use tonal unity as a criterion “fallen from heaven” for the phonological word.

What is at stake here? Must these classifiers be categorically defined as either suffixes or words? Can they possibly have properties commonly associated with both categories? What would an analysis that attempts to show this look like?

## **2. Important Points**

In this paper I analyze data from my own fieldwork on Piratapuya. While I state conclusions for Piratapuya only, I assume as a hypothesis here that this problem applies at a basic enough grammatical level to be debatable across the languages of the E. Tukanoan sub-family in general terms. Specific languages can later be compared as to the details.

I argue in the spirit of Autolexical Grammar (Sadock 1991) that there are two foci at extremes of a lexical continuum, one characterized by full and independent lexical words, and the other by totally dependent affixal morphology. Following automodular principles, I invoke several tests of word-hood involving the different “levels” of segmental, nasal, and tonal phonology as well as morphology to show a difference in the domains of prosody and morphophonology (see also Inkelas 1993).

I utilize comparative representations of the constituency of the bimoraic classifiers to show that the shape classifiers in Piratapuya defy categorical definition as either suffixes or independent words and fall somewhere in the middle of the lexical continuum. This is what has led to the confusion in the literature presented above.

## **3. Tests for Word-hood**

The tests I employ are adapted from Ramirez (1997), where he uses them to argue against the suffix status of classifiers in Tukano. Three phonological tests (two suprasegmental, one segmental) and one morphological test are used.

### **3.1. Segmental Phonology**

In Piratapuya /d/ → [r] / word internally. The segments [d] and [r] are in complementary distribution in Piratapuya; [r] occurs word internally, [d] word initially / elsewhere. Flapping applies across morpheme boundaries in suffixation, and flapping does not occur across word boundaries, i.e., [d] is always word initial.

- |  |   |
|--|---|
| (8) /dié-do/<br>[dié-ro]<br>dog-ANIM.<br>'the dog' | (9) dié-ro      wa'i-ré      kaní      yahké-ri<br>dog-ANIM.    fish-OBJ.    yesterday    steal-PERF.3sg.<br>'The dog stole the fish yesterday' |
|--|---|

However, in noun plus classifier combinations, flapping does not apply.<sup>2</sup>

- (10) /~bisí doto/  
 [misí dohto]  
 vine CL.bundle  
 ‘a bundle of vine’

- (11) misí dohto-re dú’u  
 vine CL.bundle-OBJ. buy.PERF.1sg.  
 ‘I bought the bundle of vines’

These examples show that flapping is sensitive to the boundary between nouns and classifiers, while it is not sensitive to the boundary between roots and suffixes.

### 3.2. Nasalization

Nasality is a property of the morpheme in E. Tukanoan languages. The feature [+Nasal] spreads left to right. Most V and N roots are marked as inherently [+/-Nasal]. These are robust in terms of nasality. A subset of morphemes is unspecified for nasality. These are all suffixes (although not all suffixes are unspecified, e.g., Tukano /~aka/, Piratapuya /~ka/ diminutive). Such nasal weaklings are targets of nasal spread (12) (Gomez-Imbert and Kenstowicz 2000). There are two pieces of relevant evidence for classifiers in Piratapuya. First, classifiers are not contaminated by nasalization when adjacent to a [+Nasal] root (13). Second, some classifiers, such as /~too/, are specified as [+Nasal] (14).

In (12) we see that nasality spreads from nasal roots to suffixes, and in (13) we see that classifiers are not contaminated by nasalization when adjacent to a [+Nasal] root.

- |  |   |
|--|---|
| <p>(12) <span style="margin-left: 40px;">[+Nasal]</span></p> <p style="margin-left: 40px;"> </p> <p style="margin-left: 40px;">/~bisí - de/</p> <p style="margin-left: 40px;">[misiné]</p> <p style="margin-left: 40px;">vine - OBJ.</p> <p style="margin-left: 40px;">‘vines’</p> | <p>(13) <span style="margin-left: 40px;">[+Nasal]</span></p> <p style="margin-left: 40px;"> </p> <p style="margin-left: 40px;">/~bisí      beto/</p> <p style="margin-left: 40px;">[misí behto]</p> <p style="margin-left: 40px;">vine CL.coil</p> <p style="margin-left: 40px;">‘coil of vine’</p> |
|--|---|

In (14) we see that the classifier /~too/ ‘bunch’ is specified as [+Nasal] and itself triggers spread to a following suffix.

---

<sup>2</sup> Kristine Stenzel (personal communication) notes that the same pattern holds in Wanano, Piratapuya’s closest relative in E. Tukanoan, and she concludes that “the morphological status of a classifier suffix is different from that of other types of inflectional or derivational suffixes.”

- [+Nasal]
- |      \
- (14) /oho    too - di        pari/  
       [ohó    tō'ō ni        pári]  
       banana CL.bunch-pl. many  
       'many bunches of banana'

These data show that nasal spread is sensitive to the boundary between nouns and classifiers while it is not sensitive to the boundary between stems and suffixes.

### 3.3. Morphology

Morphologically, classifiers take regular nominal suffixes such as augmentative *-doho*, diminutive *-kã*, referential *-de*, plural *-di*, etc. They don't close the word as we might expect gender inflection to do. Classifiers seem to inflect like nouns, and noun plus classifier combinations seem to be made up of a series of morphological words.

Mass nouns as in (15–17) cannot form the plural without a classifier. Mass nouns such as *ohó* 'banana' in combination with a classifier take the plural *-di* (15–17).

- |   |  |
|---|--|
| <p>(15) /ohó ~too -di/<br/>             [ohó tō'ōni]<br/>             banana CL.bunch - pl.<br/>             'bunches of bananas'</p> | <p>(16) *ohó -ri tō'ō<br/>             'a bunch of bananas'<br/>             (17) *ohó -ri tō'ō-ni<br/>             'bunches of bananas'</p> |
|---|--|

Nouns with count semantics may take plural *-di* and in addition a classifier which may then also take *-di*. Examples include plural 'twisty roads' in Piratapuya (18–20). The difference between the acceptability of plural inflection on mass and count nouns is a semantic, not a morphological, constraint on word formation.

- |   |   |  |
|---|---|--|
| <p>(18) /~baá yudi/<br/>             [mã'á yuri]<br/>             road CL.curved<br/>             'a curved road'</p> | <p>(19) /~baá yudi -di/<br/>             [mã'á yuriri]<br/>             road CL.curved-pl.<br/>             'a road with many<br/>             curves' or 'curved<br/>             roads'</p> | <p>(20) /~baá -di yudi - di/<br/>             [mã'áni yuriri]<br/>             road-pl. CL.curved-pl.<br/>             'roads with many<br/>             curves'</p> |
|---|---|--|

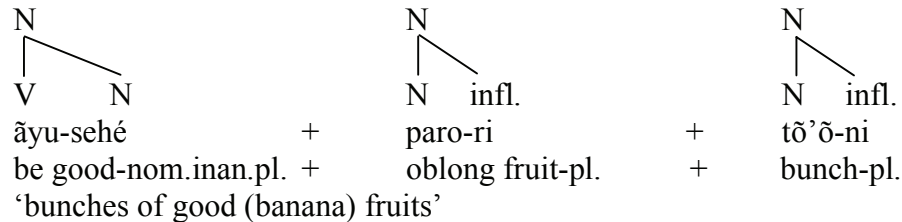
Morphologically, the nominal plus classifier constructions are separable by intervening inflection. The following Tukano example (21a) has a nominalized verb followed by two classifiers (the noun for 'banana' is elided), each with plural inflection. A suffixal analysis would have three plural markers in one

morphological noun in this form. The right morphology should probably be as in (21b) with three morphological nouns.

(21) Tukano (from Ramirez 1997):

- a.      ãyu-sehé                      +      paro-ri                      +      tõ'o-ri  
          be good-nom.inan.pl. +      oblong fruit-pl. +      bunch-pl.  
          'bunches of good (banana) fruits'

b.



These data show that classifiers inflect like nouns, and noun plus classifier combinations seem to be made up of a series of morphological words.

We have seen up to this point that the domains of segmental phonology, nasal phonology, and morphology coincide such that the boundaries between nominal and classifier constructions are the same as the boundaries between independent words and different from the boundaries between roots and suffixes. However, we will see below that the domain of pitch accent draws different boundaries.

### 3.4. Pitch Accent

The Tukanoan languages show some variability in the particulars of tonal phonology. These differences relate to which contours trigger spread, as in e.g. Wanano, Piratapuya, Barasana, and Karapana, where H tone spreads rightward from roots to suffixes, or e.g. Tukano, Desana, Tuyuka, and Bara, where H tones jump or are dislocated rightward (Ramirez 1997). The languages do not seem to differ in the domain of tonal processes. As a model for Piratapuya I follow Gomez-Imbert and Kenstowicz (2000) as regards the basic characterization of the Barasana pitch accent system. On their analysis, the two possible melodies for bimoraic roots are H and HL. Almost all noun and verb roots also have an extrametrical, left-most mora. Thus, in isolation, both underlyingly H and HL marked roots surface with a rising LH contour. Only with the addition of (suffixal, atonal) morphology do the underlying patterns become visible, with underlying H roots contaminating suffixes with their H tone and underlying HL roots not contaminating the suffixal morphology.

For our purposes here, using this as a test of one domain of word-hood, it is enough to note that there is one peak per tonal / accentual word and that stems with underlying H will contaminate following atonal suffixes with H tone. Contamination does not occur with HL root-suffix combinations, nor does H spread to adjacent roots in Piratapuya. Classifiers do not form their own separate

*Noun Classifiers in Piratapuya (E. Tukanoan)*

tonal unit marked by an independent peak when they co-occur with an immediately adjacent nominal. Overall, they are tonally weak. It is important to note that although they do not contribute their own pitch contour / peak to nominal root plus classifier constructions, in my Piratapuya data they appear with low tone after +H roots, making them unlike either suffixes or independent roots.

H tone spreading does not occur with HL root-suffix combinations (23).

- |      |                              |      |   |
|------|------------------------------|------|---|
|      | HL                           |      | HL  |
|      |                              |      |   |
| (22) | /wese/<br>[wesé]<br>'garden' | (23) | /wese - de/<br>[wesére]<br>garden - OBJ.<br>'(to) the garden' |

Stems with underlying H contaminate following atonal suffixes with H tone (25, 28). Classifiers do not accept H tone spread in Piratapuya. They may be marked L, but this is very tentative (26, 29).

- |      |                             |      |  |      |   |   |
|------|-----------------------------|------|--|------|---|---|
|      | H                           |      | H  |      | H   | L |
|      |                             |      |  |      |   |   |
| (24) | /~bisi/<br>[misí]<br>'vine' | (25) | /~bisi - de/<br>[misíné]<br>vine - OBJ.<br>'(to) the vine'   | (26) | /~bisi beto/<br>[misí behto]<br>vine CL.coil<br>'a coiled vine'       |   |
|      |                             |      |  |      |   |   |
|      | H                           |      | H  |      | H   | L |
|      |                             |      |  |      |   |   |
| (27) | /oho/<br>[ohó]<br>'banana'  | (28) | /oho - de/<br>[ohóré]<br>banana - OBJ.<br>'(to) the bananas' | (29) | /oho + ~too/<br>[ohó tō'ō]<br>banana CL.bunch<br>'a bunch of bananas' |   |

These data show that classifiers form a tonal unit marked by an independent peak when they co-occur with an immediately adjacent nominal. This unit we may call the tonal or accentual word.

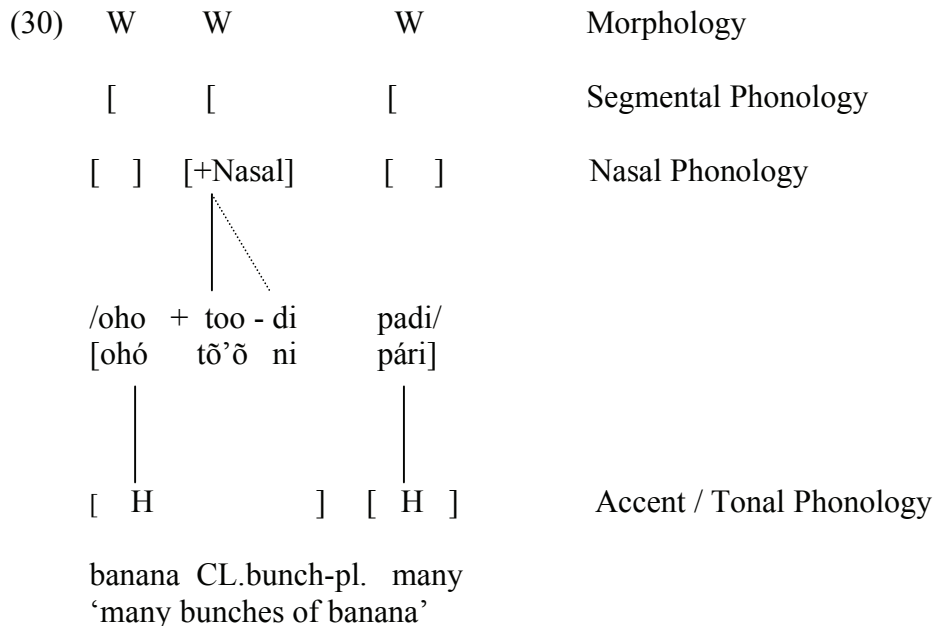
### 3.5. Summary of Tests

We may summarize the results of the tests for word-hood as follows:

Domain	nominal plus suffix	nominal plus classifier
pitch accent	+	+
segmental phonology	+	–
nasalization	+	–
morphology	+	–

### 4. Analysis

I have tried to present a relatively simple account of the phonological and morphological constituencies of Piratapuya inanimate classifiers. The description of noun plus classifier constructions in Piratapuya in terms of constituencies in different domains allows us to see the root of the confusion over the lexical versus grammatical status of these classifiers in the Tukanoan family. In an automodular account of any grammatical phenomenon, there is no problem with the kind of discordant representations we have seen for the classifiers here. In (30) we see that the domains of segmental phonological and nasal processes line up with morphological word-hood, mapping onto three constituents. At the same time, in the domain of accentual / tonal phonology, only two accentual constituents are delimited.



Although the nominal plus classifier combinations do form a tonal unity, they also seem to consist of morphophonological words. We can collapse the results of our inquiry in a representation of a difference between the domain of phonology

that assigns accent and tone and the domain of morphology that builds words and determines certain morphophonological subsystems such as boundaries for segmental and nasal processes.

- (31) morphological (including morphophonological) word
- $$\underbrace{\text{N} - (\text{SUFF}) + \text{CL} - (\text{SUFF})}_{\text{accentual/tonal word}}$$

## 5. Conclusion

I have argued for an automodular analysis of these classifiers, whereby different representations of structure in different domains each contribute simultaneously to insightfully describe the composite nature of these grammatical forms. The comparative representation of the constituency of the bimoraic classifiers in the domains of segmental, nasal, and tonal phonology as well as in morphology allows us to see that the bimoraic classifiers are neither fully suffixal nor fully lexical. The bimoraic classifiers in Piratapuya in fact don't appear to have any of the positive characteristics of the undeniable suffixes, rather they simply form a tonal word with their complement and have some but not all of the characteristics of full lexical words. I suggest in this case that the association of inflectional / classifying function with affixal form is simply unexplanatory. A view to the composite nature of word-hood allows us to see more easily that at least some of the formal / functional concordances we expect in grammar are not one-to-one mappings.

We can insightfully observe that an account of such differences is necessary for an adequate description of the bimoraic classifiers in Piratapuya. In a sense, we have only shown that supporters of both the "all are suffixes" view and the "none are suffixes" view are both right in their analyses, and that there is not only no need to decide between the two, but that any such decision forces us to miss the fundamentally composite nature of the phenomenon.

## 6. Further Research

Larger questions remain regarding the role of syntax, semantics, and discourse in the description of the classifiers. A comparison of these forms with nominal compounds in Piratapuya would be instructive. I have some evidence that the classifiers can occur independently of nominals in certain contexts, but it remains to be seen if this is anomalous, a result of elicitation, or if actually occurring, how it is conditioned by syntactic or discourse factors. Also, it is important to determine what sort of syntactic constituent classifiers form when appended to a nominal. I briefly mentioned the relative semantic robustness of the bimoraic inanimate classifiers. It would be fruitful to more fully investigate the formal properties of the semantics of constructions like those presented in this paper in order to determine relations of dominance and scope. A complete study of the



## Christopher Ball

function of classifiers would require an account of their use in discourse, specifically as regards their role in contributing to textual cohesion and also their potential creativity in characterizing referents in different contexts of use. Lastly, we would need to look at the diachronic situation. It is possible that the classifiers are points on a cline of grammaticalization such that they are developing into suffixes from full words. All of these important lines of investigation are open for future work.

### References

- Barnes, Janet. 1990. Classifiers in Tuyuca. In Doris Payne, ed., *Amazonian Linguistics*. Austin: University of Texas Press.
- Gomez-Imbert, Elsa. 1996. When animals become “rounded” and “feminine”: Conceptual categories and linguistic classification in a multilingual setting. In John Gumperz and Stephen Levinson, eds., *Rethinking Linguistic Relativity*. Cambridge: Cambridge University Press.
- Gomez-Imbert, Elsa, and Michael Kenstowicz. 2000. Barasana tone and accent. *International Journal of American Linguistics* 66(4):419–463.
- Inkelas, Sharon. 1993. Deriving cyclicity. In Sharon Hargus and Ellen M. Kaisse, eds., *Phonetics and Phonology: Studies in Lexical Phonology 4*. New York: Academic Press.
- Lucy, John. 2000. Systems of nominal classification: A concluding discussion. In Gunter Senft, ed., *Systems of Nominal Classification*. Cambridge: Cambridge University Press.
- Ramirez, Henri. 1997. *A Fala Tukano dos Ye'pâ-Masa*. Manaus: Inspetoria Salesiana Missionária da Amazônia.
- Sadock, Jerrold. 1991. *Autolexical Syntax: A Theory of Parallel Grammatical Representations*. Chicago: University of Chicago Press.

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## Possession and Cliticization in Iquito

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### 0. Goals and Language Background

This paper presents some unusual distributional data about the possessive construction in Iquito, together with one analysis that accounts for the data. I argue that possessums in Iquito behave much like clitics. However, I would reject any notion that a morpheme must either be a clitic or a free form, or either a clitic or an affix, as if one had dichotomies to choose from. Instead, I assume that what we actually see in language is a continuum or cline from free form to clitic to affix (Brown 2004a), and I argue that Iquito possessums occupy an intermediate status between a free form and a clitic.

Iquito (Zaparoan) is spoken by about 26 individuals in a small community located in Amazonian Peru. This paper presents data from two summers of my fieldwork with the Iquito people as part of the Iquito Language Documentation and Revitalization Project.<sup>^</sup>

### 1. Basic Iquito Possession

Basic Iquito possession is illustrated in examples (1) and (2). In every example in this paper, the possessor is italicized and the possessum is underlined. As shown in (1) and (2), there is no special morphology to indicate that one has possession. Instead, possession is indicated simply by a sequence of two nouns. Interestingly, the relative order of the possessor and possessum nouns reverses depending on whether a determiner is present in the construction. When a determiner is present, the possessum occurs first, and the possessor second.<sup>1</sup>

- (1) kinikikurahina *iipi* saawirika *ik<sup>w</sup>aniwiya* [DET POSSESSUM POSSESSOR]  
ki- niki -kura -hina iipi saawiri-ka ik<sup>w</sup>ani-wiya  
1S- see -PSR -LES DET.Anim.PL machete-PL man -PL  
'I have seen those men's machetes.'

---

<sup>1</sup> Abbreviations: 1S = 1st person singular; Anim = animate; CMP = completive aspect; COP = copulative; DET = determiner; DLS = locative; INC = incompleted aspect; IRR = irrealis; LES = ?; MOT = in front of; PL = plural; PSR = recent past.

- (2) kimiiyaa *ik<sup>w</sup>ani* saawiri [POSSESSOR POSSESSUM]  
 ki- mii -yaa ik<sup>w</sup>ani saawiri  
 1S- have-INC man machete  
 'I have [a] man's machete.'

In example (1), the possessum is *saawirika*, and it occurs before the possessor, which is *ikwaniwiya*. When the determiner is absent, as in (2), the possessor occurs first, and the possessum occurs second. In (2), the possessor is *ikwani* and occurs before the possessum, which is *saawiri*. One can now make a generalization about possession in Iquito data:

- (3) Generalization #1: The possessum occurs just after the determiner, or, absent a determiner, just after the possessor.

Notice also that in (1), we have a discontinuous phrase. The determiner is actually modifying the possessor, not the possessum. This is the case for two reasons. First, as one can see from the chart in (4), this form of the determiner is plural and plus animate:

- #### (4) The Iquito Determiners

Iquito Morpheme	Translation	Special Significance
iina	this/these, that/those	
iipi	these, those	+PL, +Animate
iimi	these, those	+PL, –Animate

Thus, this determiner cannot modify an inanimate noun such as ‘machetes’, the possessum. Instead, the plural determiners must agree in animacy with the noun they modify, and the only noun that is animate in this phrase is the possessor. Second, native speaker back translations consistently say the determiner is modifying the possessor, rather than the possessum, as indicated in the glosses. That is, native speakers never say in their back translations something like, “these machetes of the men.” Moreover, attempts to directly modify the possessum with a determiner result in ungrammatical sentences, as seen in (5).

- (5) \*iina káhinani iina misahi maki-i  
DET domesticated.animal DET woman sleep-INC  
'This dog of that woman is sleeping.'

In addition, one can also never directly modify the possessum with its own adjectival modifiers:

- (6) \*ki- niki-ki Juana niyiini suwaani  
1S-see -CMP Juana baby pretty  
'I have seen Juana's beautiful baby.'

The sentence in (6) is bad because the possessum cannot be directly modified with an adjective. Instead, native speakers must employ periphrastic constructions to modify the possessum indirectly, as shown in (7) and (8).

- (7) ki-niki-ki Juana niyiini. Suwaani tii  
1S-see -CMP Juana baby pretty COP  
'I have seen Juana's baby; it is beautiful.'
- (8) ki-niki -ki iina miyaara umaana, iina kájinani amiyakiyaana  
1S-see -CMP DET dog big DET dom. animal hunter  
'I saw this big dog, this hunter's dog.'

In (7) there are two entirely separate sentences. In (8) there is a fragment at the end of the sentence. For comparison, a simple noun phrase without possession could normally have an adjectival modifier either before or after the noun, while the determiner always precedes the noun:

- (9) ki-niki-ki iina (umaana) miyaara (umaana)  
1S-see -CMP DET big dog big  
'I saw this (big) dog.'

In addition to the discontinuity seen in (1), these determiners are also involved in another type of discontinuity, which I believe sheds light on the nature of the possessive construction. In irrealis<sup>2</sup> constructions, there is a position immediately in front of the verb in which the speaker, apparently for discursive reasons, can place various types of material, such as a direct object, a nominal adjunct, or a time adverb. When a speaker chooses to place a direct object in this location, one has a discontinuous phrase if the direct object is modified by a determiner, as in (10), or no discontinuous phrase if the determiner is absent, as in (11).

- (10) a. amikaaka ki iina rikatahuuya-rii iimina minani  
Tomorrow 1S DET fix -IRR canoe black  
'Tomorrow I will fix this black canoe.'
- b. amikaaka ki iimi rikatahuuyar-rii kumi iimina  
Tomorrow 1S DET fix -IRR two canoe  
'Tomorrow I will fix those two canoes.'

---

<sup>2</sup> Irrealis constructions are used for the future, conditionals, hypotheticals, wishes, and infinitival clauses. For a detailed description of the irrealis construction, including the nature of this position in front of the verb and the distribution of various arguments and adjuncts, see Brown (2004b).

- (11) a. amikaaka ki iimina minani mii-rii  
 Tomorrow 1S canoe black make-IRR  
 ‘Tomorrow I will make [a] black canoe.’
- b. amikaaka ki kumi iimina rikatahuuyar-rii  
 Tomorrow 1S two canoe fix -IRR  
 ‘Tomorrow I will fix those two canoes.’

In (10a) and (10b), the determiner occurs to the left of the verb, which is *rikatahuuyarii*, while the noun and all of the noun’s complements occur to the right of the verb. In the case of the direct objects in (11a) and (11b), there is no determiner and now the noun and all of its complements must occur on the left side of the verb. The contrast seen between (10) and (11) may be evidence for a movement analysis of the demonstrative determiner. That is, either a bare NP moves to the new position in the case where there is no determiner, or if there is a determiner, then only the determiner moves to the new position and the NP constituent is left in its base-generated position.

The distribution seen in (10) and (11) is obligatory. For example, sentence (12) is bad because the adjective occurs on the wrong side of the verb:

- (12) \*amikaaka ki iimina mii-rii minani  
 Tomorrow 1S canoe make-IRR black  
 ‘Tomorrow I will make [a] black canoe.’
- (13) \*amikaaka ki iina minani rikatahuuya-rii iimina  
 Tomorrow 1S DET black fix -IRR canoe  
 ‘Tomorrow I will fix this black canoe.’

Similarly, example (13) is bad because the adjective cannot occur on the left side of the verb with the determiner when the noun is on the right side. This data allows one to make a second generalization about the data:

- (14) Generalization #2: In irrealis constructions, a noun and its complements must remain contiguous.

A good question to ask at this point is, what happens when one has a possessive construction in these types of sentences? Where does the possessor or possessum occur in relation to the other noun in its phrase?

- (15) [Adv] [Subj] [Det] [Pm] [Verb] [Pr]  
 amikaaka ki *iipi* nasi aniiruu -rii *ik<sup>w</sup>aniwiya*  
 Tomorrow 1S DET.Pl.Anim garden to.clear-IRR men  
 ‘Tomorrow I will clear these men’s garden.’

- (16) amikaaka ki *iina* iimina rikatahuu-rii *ik<sup>w</sup>ani* (umaana)  
Tomorrow 1S DET canoe fix -IRR man big  
'Tomorrow I will fix this (big) man's canoe.'
- (17) \*amikaaka ki *iina* iimina *ik<sup>w</sup>ani* rikatahuu-rii  
Tomorrow 1S DET canoe man fix -IRR  
'Tomorrow I will fix this man's canoe.'

As one can see in example (15), when the direct object phrase has a determiner, the possessum must occur on the left of the verb. The possessum in this case is *nasi* 'garden', and the possessor is *ikwaniwiya* 'men'. This phrase is discontinuous because the main verb intervenes between the possessum and possessor. The determiner, once more, is modifying the possessor, which is the last word in the sentence, rather than the possessum, which I know because of the animacy agreement and the speaker's back translations. Example (16) shows the same thing as (15). Example (17) is ungrammatical because this discontinuity over the verb is obligatory. The possessor, *ikwani*, cannot occur on the left side of the verb.

## **2. An Analysis Treating the Possessum as a Clitic**

So how does possession work in Iquito? What does this data show us? One of the hallmark signs of a clitic is if one can show that it actually is bound to a phrase. In a well-known example, English possessive 's is bound to the possessor noun phrase. One can make a single accurate and succinct generalization that the English possessive 's must, phonologically, appear at the right edge of the possessor noun phrase, as illustrated by the examples in (18).

- (18) a. (The king's) crown.  
b. (The king of England's) crown.  
c. (The king whom I had tea with's) crown.

Thus, one can correctly predict the location of the English possessive 's with one succinct generalization.

I can make a similarly accurate and succinct generalization for possession in Iquito, which is that the Iquito possessum must occur immediately after the phrasal head. For noun phrases that have a determiner, the phrasal head is the determiner (Abney 1987). For noun phrases that have no determiner present, the bare possessor noun is the phrasal head, following work by Matthewson (1998) and Wiltschko (2003).

- (19) Generalization #3: The possessum in Iquito occurs immediately after the phrasal head.  
- For phrases with a determiner, the determiner is the head. (Abney 1987)

- For phrases without a determiner, there is no null DP, so the bare noun is the head. (Matthewson 1988, Wiltschko 2003)<sup>3</sup>

Generalization #3 accounts for the distribution in (1) and (2). For example, it would not be unusual for a clitic to occur in the middle of a phrase.

It's also important to notice how the determiner is intimately involved in creating these peculiar distributions. For example, in the irrealis constructions, it seems to occur before the verb in lieu of the whole NP occurring in that position. It is almost as if the determiner can represent the entire noun phrase. The data in (10) seems to indicate that a determiner is uniquely capable of being separated from its nominal complement. If my thesis that a possessum is a clitic-like element bound to the phrasal head and the determiner is the head of a noun phrase is correct, then the distribution seen in (15) is what one would expect. The possessum must occur on the left side of the verb with the determiner, because it is bound to the phrasal head, and must occur together with the phrasal head.

Another property common to clitics is some sort of reduced phonological status. For example, a clitic might not be stressable or pronounceable apart from the word it is bound to. Although preliminary stress data does indicate that Iquito possessums are both stressable and independently pronounceable, the ability to receive stress and be pronounced separately may have more to do with the morpheme's size than its word class. For example, Iquito has a number of adpositions which are listed in (20).

(20)

Adposition		Gloss
akuhi		by motive of; in front of
karikuma		underneath
iiku		owing to (involuntary causation)
iikura		owing to (voluntary causation)
iira		benefactive
hata		accompaniment; instrumental
hina		to (destination)
niihina		on top of
sirikumahi		to the side of

<sup>3</sup> This generalization assumes the possessor is the head of the entire possessive construction, rather than the possessum. Other analyses have also argued for an analysis in which the possessor heads the possessum. Other languages have also been argued to have a possessor head the possessive construction, such as Hungarian (Szabolcsi 1994), and others have argued for a functional possessor projection that dominates the possessum, even though the possessum is still the semantic head (Delsing 1998).

These adpositions function to introduce nominal adjuncts into a sentence. Interestingly, these adpositions have exactly the same distribution as the possessum. That is, they occur immediately after the determiner, or if the determiner is absent, immediately after the noun, as shown by (21) and (22):

- (21) k<sup>w</sup> asa-ki iina akuhi ik<sup>w</sup>ani  
1S-eat-CMP Det in.front.of man  
'I ate in front of this man.'
- (22) k<sup>w</sup> asa-ki ik<sup>w</sup>ani akuhi  
1S-eat-CMP man MOT  
'I ate in front of [a] man.'

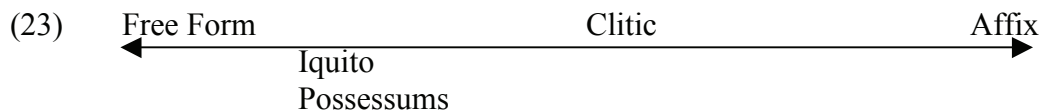
In sentence (21), the adposition is the word *akuhi*, and it occurs just after the determiner. In (22), there is no determiner, and now the adposition must occur just after the noun.

If the adposition is composed of two syllables or less, then preliminary stress data indicates the adposition does not receive independent stress (Michael 2003). In addition, an adposition of two syllables or less is not independently pronounceable from the word on its left. That is, in (21) a two-syllable adposition would not be separately pronounceable from the determiner, while in (22) it would not be independently pronounceable from the noun.

So, in returning to the possessums, the fact that possessums are stressable and independently pronounceable may have more to do with the fact that most nouns in Iquito consist of at least three syllables. The prediction would be that a monosyllabic or disyllabic possessum would behave like the two-syllable adpositions.

Finally, a clitic-like analysis would provide an explanation for why the possessum cannot have its own determiner or be modified by an adjective. As a clitic, the possessum is no longer functioning as a typical NP. In the process of cliticization, its functional capabilities have been reduced, and as such it cannot take complements nor can it serve as a complement to a determiner.

Therefore, my analysis is that the possessum behaves much like a clitic with regard to its position in a possessive construction. In a continuum between free forms, clitics, and affixes, the Iquito possessum would occur somewhere between a free form and a clitic<sup>4</sup>:



<sup>4</sup> One might criticize this hypothesis from the general observation that bound morphemes tend to be closed classes, but the possessum is an open class. There are exceptions to this generalization. Noun incorporation is one well-known example of an open class becoming bound.



### 3. Problematic Analyses

Before reaching the conclusion that the possessum is really a clitic-like element, I first propose and dispense with a number of other possible analyses. In the event that one proposes one of these analyses as an alternative to my hypothesis, I would like to discuss some of the problems I found inherent in these other approaches.

- (24) Flawed analysis #1: Possession in Iquito works by forming noun-noun compounds.

The first flawed analysis that is often suggested is that possession in Iquito works by creating noun-noun compounds. The examples in (1) and (2) showed that the possessive construction has no morphological marking but is just a sequence of two nouns. So, maybe the nouns are actually forming a compound. But this analysis falls apart when one considers the data from the irrealis constructions, in examples (11) and (12), where the verb intervenes between the two nouns. If the two nouns formed a compound, a verb should not be able to intervene between the two nouns.

Also, in a language which allows noun-noun compounds, one can often make a generalization for the language about which of the two nouns is the head. For example, we could say English forms right-headed noun-noun compounds, and that generalization would be true for every noun-noun compound in English. One cannot make such a generalization for Iquito, because the relative order of the two nouns is reversed when a determiner is present, which would mean the generalization would be wrong in half of all possible cases.

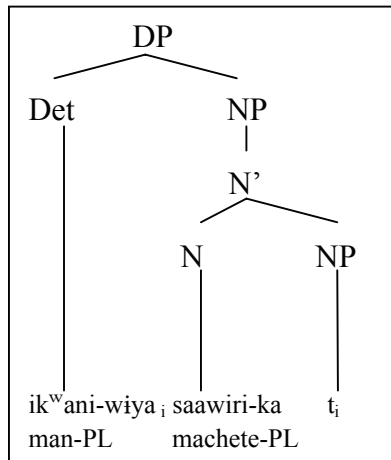
- (25) Flawed analysis #2: Why can't analyzing the determiner as a clitic account for the distributions in the data?

I am actually agnostic as to whether the determiner itself should be analyzed as a clitic. The determiner does play a crucial role in every instance of nominal discontinuity, and the properties and behavior of the determiner should be the subject of another paper. Nevertheless, even if the determiner were a clitic, that fact alone would not explain why the order of the possessor and possessum reverses when the determiner is present. That is, clitics are often capable of occurring in various locations in a sentence or phrase. This is one of the hallmark characteristics of a clitic. But clitics are not known for affecting the location of some other constituent in a sentence and forcing it to change its location. So, analyzing the determiner as a clitic would not account for the possessive construction.

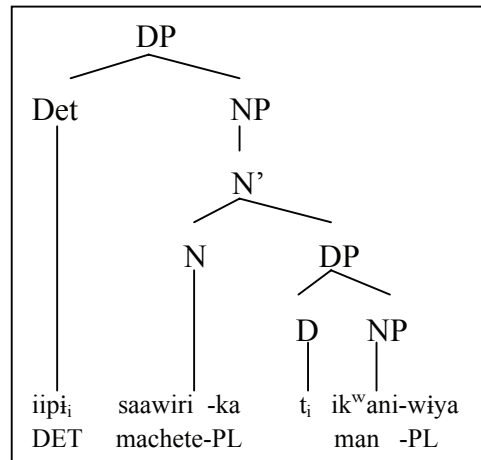
- (26) Flawed analysis #3: Why can't a movement analysis of the possessor noun account for the data?

Based on the contrast seen between (10) and (11), one may conclude that the determiner can move to a new position in place of the entire NP, and that perhaps one could then extend this kind of movement to explain the distribution of the NPs in a possessive construction. In this analysis, one would argue that perhaps in one case the determiner is moving to the left of the possessum, and when the determiner is not there, the possessor moves instead, as illustrated in the two tree diagrams below:

(27) Possession without a determiner



(28) Possession with a determiner



This movement now models the peculiar distribution of the NPs. A movement analysis of the possessor faces a number of important challenges. First, this analysis would need to show that a null DP exists in the case where there is no determiner. One needs the null DP so that the possessor has a place to go, so a movement analysis would have to show that a null functional head exists, and one should not get away with just making this an assumption. Second, an analysis of possession should also account for the distribution seen in adpositions. That is, given that adpositions and possessums have such similar distributions, any hypothesis of possession should either account for the distributions as well, or explain why the distribution of the adpositions should be treated differently. Under my analysis, both possessums and adpositions are argued to be clitic-like elements. Third, a movement hypothesis is not compatible with Generalization #2. In looking at the irrealis constructions, when there was no possession involved, it was observed that the noun and its complements must remain together.<sup>5</sup> Either the noun and all of its complements occurred to the right of the verb, or the noun and all of its complements occurred together to the left of the verb. The problem with a movement analysis and the manner in which X-bar theory works is that one of the two nouns must head the other. Either the

<sup>5</sup> The determiner, as the head of the noun phrase, is not a complement of the noun. Rather, the noun is a complement of the determiner.

possessor heads the possessum, making the possessum a type of complement, or else the possessum heads the possessor, making the possessor a complement. Either way, a movement analysis would have to contradict the empirical observation set forth in Generalization #2.

On the other hand, if the possessum were a clitic-like element attaching to the phrasal head, it would avoid these problems altogether and provide a more natural explanation for why the possessum seems to flaunt Generalization #2. That is, phrasal contiguity is important when one is just making a syntactic analysis. Contiguity of a syntactic phrase is less important when one is essentially making a phonological analysis.

- (29) Flawed Analysis #4: Why can't analyzing the determiner as an anaphor coindexed with the possessor account for this data?

There are cases in which the demonstrative determiner can occur alone, without an NP complement, or it occurs in a typical NP argument position, but the constituent of the NP occurs extraposed at the end of the sentence. Some examples of this phenomenon are given below:

- (30) iina maki -i  
Det sleep-INC  
'That (one) is sleeping.'
- (31) iina maki -i amaka-hina ik<sup>w</sup>ani  
Det sleep-INC road -DLS man  
'That man is sleeping on the road.'

In (30), the determiner has no NP complement. In (31), the NP complement occurs extraposed at the end of the sentence. One could argue that in (31) the determiner is really functioning as a full NP anaphor and the noun *ik<sup>w</sup>ani* is coindexed with the anaphor, thus explaining the nominal discontinuity without resorting to any movement. So, could one also argue that possession works by a similar sort of coindexation? Probably not. The nominal discontinuity seen above has two distinguishing properties: 1) the NP always occurs at the end of the clause, and 2) this kind of discontinuity is always defeasible. Thus, the sentence in (31) has a minimal pair (32) which is not discontinuous:

- (32) iina ik<sup>w</sup>ani maki-i amaka-hina  
Det man sleep-INC road-DLS  
'That man is sleeping on the road.'

The discontinuity seen in possession is never defeasible; it is always obligatory. In addition, the possessor is not extraposed at the end of the clause; it is just at the end of the phrase.

#### 4. Conclusion

In conclusion, the possessum in Iquito should be analyzed as a type of clitic intermediate between an ideal free form and an ideal clitic. I make this argument because 1) it allows for a very concise generalization (#1) to accurately describe where the possessum must occur, 2) its distribution shows it can select several different hosts which is a behavior consistent with clitics, 3) its distribution is identical to the distribution of adpositions, which are more clearly clitics themselves since adpositions of two syllables or less are unstressable and not independently pronounceable, 4) it would explain why the possessum cannot be modified since it is no longer fully a noun itself, and 5) obvious alternative analyses are all fundamentally flawed.<sup>6</sup>

#### References

- Abney, Steven. 1987. The English noun phrase in its sentential aspect. Ph.D. diss., MIT.
- Brown, Mark C. 2004a. Cliticization in Iquito. Presentation at the 9th Workshop on Structure and Constituency in the Languages of the Americas.
- Brown, Mark C. 2004b. Topics in Iquito syntax: Word order, possession, and nominal discontinuity. M.A. thesis, University of Texas at Austin.
- Delsing, Lars-Olaf. 1998. Possession in Germanic. In Artemis Alexiadou and Chris Wilder, eds., *Possessors, Predicates and Movement in the Determiner Phrase*. Amsterdam: John Benjamins.
- Matthewson, Lisa. 1998. *Determiner Systems and Quantificational Strategies: Evidence from Salish*. The Hague: Holland Academic Graphics.
- Michael, Lev. 2003. La fusión fonológica en iquito. Proceedings of the 1st Conference on the Indigenous Languages of Latin America.
- Szabolcsi, Anna. 1994. The noun phrase. In *The Syntactic Structure of Hungarian*. Syntax and Semantics, vol. 27. San Diego: Academic Press.
- Wiltschko, Martina. 2003. On the interpretability of tense on D and its consequences for case theory. *Lingua* 113:659–696.
- Zwicky, Arnold M., and Geoffrey K. Pullum. 1983. Cliticization vs. inflection: English *n't*. *Language* 59:502–513.

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## Classifiers in Yurok, Wiyot, and Algonquian

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### 0. Introduction and the Typology of Nominal Classification

Wiyot and Yurok, Algonquian languages of northwestern California, have a complex system of classifiers in which a classificatory morpheme delimits the properties (primarily shape) of arguments of numerals and verbs.<sup>1</sup> These morphemes also show up in nominal morphology, on nouns with verbal roots. The classificatory system of Yurok has been described in Robins' (1958) grammar and in Haas' (1967) article "Language and taxonomy in northwestern California." Wiyot classifiers are described in Reichard's (1925) grammar, and to a lesser extent in Teeter's (1964) grammar. Teeter worked with the last native speaker of Wiyot, who did not use many of the classifiers. In this paper I expand on these descriptions and compare the classifiers of Wiyot and Yurok to each other and to those of Algonquian languages. Classifiers in Wiyot and Yurok are clearly comparable to Algonquian classificatory medials. I also discuss how the Algonquian classifiers fit into the typology of classifiers proposed by Aikhenvald (2000).

I hope to clarify and correct some statements that have been made about Yurok and Wiyot in the literature on classifiers by showing that these classifiers occur on verbs other than numerals, that is, they are not only *numeral classifiers*, and that Wiyot has as extensive a system of classifiers as Yurok does.

In (1) I give some basic data that illustrate the phenomenon of classifiers. The data show the verb roots 'to be big' in Wiyot and 'to be black' Yurok, with different classificatory suffixes that indicate the shape or animacy of the subject of the verb. As is usual with classificatory morphemes, they classify the subject of intransitive verbs, and the object of transitive verbs.

(1)	WIYOT	(T&N 1993) <sup>2</sup>	YUROK	(R 1958, lexicon)
	dotapł	'be a big <b>hairlike object</b> '	lo'oge'ron-	'be a black <b>straight object</b> '
	dotatk	'be a big <b>round object</b> '	lr'rgrh	'be a black <b>round object</b> '
	dotok	'be a big <b>long object</b> '	lr'rgry-	'be a black <b>animal or bird</b> '

<sup>1</sup> Note that numerals are morphologically verbs.

<sup>2</sup> Abbreviations of data sources are as follows: S/B = Berman, ed.; P = Proulx; H = Haas; S = Sapir; K = Kroeber; T = Teeter; R = Reichard; T&N = Teeter and Nichols.

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In (2) I give some relevant information from Aikhenvald's recent typology of noun categorization. Classifiers associated with numerals are usually referred to as *numeral classifiers*, and Aikhenvald considers the classifiers of Yurok and Wiyot to fall into this category (2000:123), as does Mithun (1999).

(2) *Aikhenvald's (2000) typology of Noun Categorization Devices*

"Numeral classifiers...are realized outside the noun in a numeral NP, and/or in expressions of quantity. Numeral classifiers can be free forms, or affixes, typically to the numeral or quantifier. They refer to the noun in terms of its inherent properties" (Aikhenvald 2000:17).

Verbal classifiers "appear on the verb, categorizing the referent of its argument in terms of its shape, consistency, size, structure, position, and animacy" (Aikhenvald 2000:149).

Labeling these classifiers *numeral classifiers*, however, ignores their productive and prevalent usage on verbs. Aikhenvald has a separate category of verbal classifiers, which includes all classification strategies associated with verbs. She names three sub-types of verbal classifiers: classificatory noun incorporation, classificatory verbal affixes, and suppletive classificatory verbs.

When explaining the different morphological types of verbal classifiers, Aikhenvald cites data from the Algonquian language Ojibwe as an example of classificatory verbs. The data cited in Aikhenvald (2000) is reproduced in (3).

(3) *Ojibwe classifiers*

sak-tk-inān	'to hold on to something sheet-like'
sakit-āpī-ssin	'be sticking out (string-like object)'
kotako-minak-ipitōn	'to roll over something round-like'
kotako-minak-issē	'something round-like rolls over'

(Denny 1979:107, as cited in Aikhenvald 2000:155)

As in the California Algic languages, classifiers in Ojibwe and other Algonquian languages are distinct morphemes that appear on numerals and verbs (data from numerals is not shown here). The affixes in (3) classify the intransitive subject and transitive object as 'sheet-like', 'string-like', or 'round'. Due to their distribution on numerals and verbs, these classifiers are better termed simply *classificatory affixes*.

Compare the Ojibwe data in (3) to the suppletive verbs in Mescalero Apache (Athapaskan), shown in (4). In Mescalero Apache, there are sets of suppletive verbs that classify their S or O argument. There are categories for round objects, long flexible objects and long rigid objects.

- (4) *Classificatory verbs meaning 'to be located' in Mescalero Apache (Athapaskan)*
- |          |  |
|----------|--|
| -ʔa      | 'single, solid, round inanimate object'                                    |
| -tj      | 'single animate object'  |
| -la      | 'dual objects of any kind; a rope-like object'                             |
| -tə      | 'elongated, rigid object; a stick-like object'                             |
| -t-tsuus | 'flexible object; a cloth-like object'                                     |
| -ka      | 'a rigid container with its contents'                                      |
| -jaash   | 'plural objects of any kind; uncontained dry and loose granular substance' |
| -tfe     | 'uncontained wet or damp mass'   |
| -t-tə    | 'flexible container with its contents'                                     |
| -ʔa      | 'indefinitely shaped single solid object'                                  |
- (Rushforth 1991:253, as cited in Aikhenvald 2000:155)

Categorizing Ojibwe and Mescalero Apache together as *classificatory verbs* both obscures the similarity of Algonquian verbal and numeral classifiers, and obscures the difference between the morphology of verbal affixation in Algonquian and suppletion in Athapaskan. In Aikhenvald's typology, both the California Algic languages and Algonquian languages were categorized in a way that obscures the similarity of their classificatory systems.

The classifiers of Yurok and Wiyot have properties both of prototypical numeral classifiers and of prototypical verbal classifiers. This should not be surprising, considering that numerals in these languages are morphologically verbs (Robins 1985), but it creates a classifier system that is not easily categorized in a typology that relies on distinguishing nouns, numerals, and verbs.

The remainder of this paper is structured as follows. In §1 I describe the attested classifiers in Wiyot and Yurok; in §2 I discuss their distribution on numerals, verbs, and nouns derived from verbal roots; and in §3 I very briefly compare the morphology and semantics of these classifiers to those in Algonquian languages.

## 1. Classifiers in Wiyot and Yurok

In (5) and (6) are lists of Wiyot and Yurok classifiers, though this is surely still a partial list. There are about 25 classifiers in each language, although a few of them are sound symbolic variants of the same morpheme.

*Classifiers in Yurok, Wiyot, and Algonquian*

(5) *Wiyot classifiers*<sup>3</sup>

ditad	‘two (generic count)’	(K ms., R 1925, T 1964)
ditatk	‘two spherical things’	(R 1925, T 1964)
dicaek	‘two small spherical things’	(R 1925)
ditok	‘two long things’	(T ms.)
ditetk	‘two round, flat things’	(R 1925)
dote’l	‘be large (flat thing)’	(R 1925)
kucapł	‘one hairlike object’	(T 1964)
lun	‘weave (long flexible thing)’	(T&N 1993)
ditbeskid	‘two pieces’	(T ms.)
ditakd	‘two strips’	(T ms.)
ditabotad	‘two strings of dentalia’	(R 1925, T ms.)
ditbesupo’w	‘two measures of dentalia’	(R 1925, T ms.)
kucebo’n	‘one fathom’	(K ms., T&N 1993)
kucawe’n	‘one day’	(T ms.)
ditbe	‘two days’	(R 1925)
ditabok	‘two days’	(R 1925, T&N 1993)
ditatkatolakw	‘two months’	(T ms.)
kuceyutoyagadak	‘one year’	(T ms., K ms.)
ditbegalabagadak	‘two years’	(R 1925)
ditbelufe’l	‘two years (of sea-lions)’	(R 1925)
ditoki’war	‘two salmon, sturgeon’	(T ms.)
ditawokwł	‘two salmon’	(T&N 1993)
ditbisetk	‘two blankets’	(R 1925)
kucakołil	‘one tooth’	(T ms.)
kutkošil	‘one head’	(T ms.)
ditbalagata’l	‘two deer in a herd’	(R 1925)
ditkle’l	‘two deer lying’	(R 1925)
ditawakwłe’l	‘two deerskins’	(R 1925)
dotbal	‘be large (buildings)’	(R 1925, T 1964)

(6) *Yurok classifiers*

na’a’(n)	‘two (default count)’	(S ms., R 1958, H ms.)
nr’r’r’y	‘two animals, birds’	(K 1911, S ms., R 1958, H ms.)
ni’iyehl	‘two human beings’	(K 1911, S ms., R 1958)
na’a’r	‘two straight things’	(R 1958, H ms.)
na’ak’	‘two long flexible things’	(S ms., R 1958, H ms.)
chprnrnyk-	‘be long (a stream)’	(R 1958)
na’ak’wo’n	‘two bushy things’	(R 1958)
no’oh	‘two round things’	(S ms., K 1911, R 1958, H ms.)
no’ok’s	‘two flat things’	(R 1958)
nr’rpi’	‘two pointed objects’	(K 1911, H ms., R 1958)
kohchekin	‘one strand’	(H ms.)
kohtep’	‘one tree’	(R 1958, H ms.)
kaamop	‘be rough (water)’	(R 1958)

<sup>3</sup> Note that the orthographic representation of some of these forms is questionable, since (a) some of them are attested only once, and may have been mistranscribed, and (b) some of these forms are attested only in Reichard’s material, which makes the transliteration of vowels in her (non-phonemic) orthography potentially problematic.



*Yurok classifiers cont.*

na'mi	'two times'	(K 1911, R 1958)
na'ay(tani)	'two strings of dentalia'	(K 1911, S ms.)
na'amoy	'two fathoms'	(K 1911)
na'amoyhl	'two nights'	(K 1911, S/B)
na'eyn	'two days'	(K 1911, S ms.)
na'apir	'two finger joints' <sup>4</sup>	(K 1911, R 1958)
na'amrysh	'two arm's lengths'	(R 1958)
nrhksryhl	'three white deerskins'	(K 1911)
nr'r'ryihl	'two deerskins'	(H ms.)
na'ey(teli)	'two boats'	(K 1911, R 1958, H ms.)
na'a'li	'two houses'	(R 1958, H ms.)
nr'rh(kr')	'two woodpecker scalps'	(K 1911, H ms.)

Starting with Wiyot, the most commonly encountered classifiers designate shape, such as 'spherical thing' and 'round flat thing' and 'long thing'. Textual examples are given in (7).

- (7) a. buphal              kucok              bałwi'mar  
redwood.log      one.LONG      it.floats.downriver  
'One redwood log floated downriver.' (Wiyot: T&N, text 20:5)
- b. to              kwis              kowa              paragapt              čukičack  
DURATIVE      suddenly      INCHOATIVE      fall.HAIRLIKE      seagull  
'Then suddenly the seagulls start to drop down.' (Wiyot: T&N, text 49:4)

There are also classifiers that indicate units, including units of measure and of time. In Wiyot there are classifiers for 'pieces', 'strips', 'fathoms', 'days', 'months', and 'years'. See (8) for an example of this type of classifier.

- (8) we'sog      halabok  
five      be.so.many.days  
'It was five days' (Wiyot: T&N, text 75:5)

There are also more idiosyncratic categories that refer specifically to, for example, 'deerskins', 'teeth', and 'salmon', as in (9).

- (9) to              kwis              dikwhokwł              bołak  
DURATIVE      suddenly      three.SALMON      salmon  
'There may be three salmon.' (Wiyot: T&N, text 45:6)

The Yurok categories look largely similar. There are shape-based classes such as 'long slender thing', 'flat thing', and 'round thing', as in (10).

<sup>4</sup> Length measurement for dentalium shells.

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- (10)    nahksoh      ha'aag  
          three.ROUND rock  
          'three rocks' (Yurok: R 1958:86)

There are classes of units such as 'fathoms', 'nights', 'arm's lengths', and 'finger joints'. A textual example is shown in (11).

- (11)    kwusi'   'o      na'amo'yhl   nohl      'r'grrch      ni   'ok'w   segep  
          then   LOC   two.NIGHTS   so.long   sweathouse   LOC he.is   coyote  
          'Then Coyote stayed in the sweathouse for two days.' (Yurok: S/B:1020)

As in Wiyot, there are also more idiosyncratic categories in Yurok such as 'woodpecker scalp', 'strings of dentalia', and 'white deerskins'. In addition to these, Yurok distinguishes two classes of animacy: *-r'r'y* for 'animals and 'birds,' and *-eyt* for 'human beings' (see (12) for a textual example of the latter).

- (12)    koohchi   'o   'oole'm   'uukwsoh   segep   wehlowoyhl   k'i   'uukwsoh  
          once   LOC be.PL   his.children   coyote   ten.HUMANS   DET his.children  
          'One time coyote had ten children.' (Yurok: S/B:1022)

Yurok also has categories of substance, such as 'wood' and 'water'. This type of classifier is seen in (13a), in the adverb *woop* 'in the middle of the river', and in verbs with the medial *-op* pertaining to water (13b).

- (13)    a.    **woop**                      niki laaychkenek'w   so   pulekw  
          middle.of.river   then they.float.along   to   downstream  
          '...they were floating along downstream in the middle of the river.' (Yurok: S/B:1020)
- b.    kaam-   'be bad'      kaam**op**      'be rough (**water**)'  
          skew-   'be good'      skew**op**      'be calm (**water**)'  
          pel-      'be big'      plo**hp**      'to flood' (Yurok: R 1958, lexicon)

In both Wiyot and Yurok, the classifier system is quite elaborate. This contradicts a statement made in passing in Mithun (1999:105) that the "counting system" in Yurok is more elaborate than that in Wiyot. This impression was likely based on the fact that Yurok numerals are more well-attested in published literature than Wiyot ones, not on any difference in elaboration between the classifier systems of the two languages. The elaboration of these classes in Yurok and Wiyot is similar to that found in many languages of the Pacific Northwest, for example Athapaskan and Wakashan languages (see Mithun 1999 for a discussion of classificatory systems in languages of North America).

Both Wiyot and Yurok have a generic or default category that can be used for unclassified objects, or optionally used with objects that otherwise do have a classification. In Wiyot human beings and animals are included in the default category, while in Yurok there is a separate classification for each of these. In Wiyot available sources are in agreement that the generic classifier is *-ad*, and this is the

classifier used in an abstract count. For Yurok there are several different attested ways of counting in the abstract. Kroeber (1911) stated that the ‘human being’ class was also the abstract class. Sapir (ms.) found that the *-e’n* class was used in abstract counting. This class is labeled ‘body parts, streams, utensils and clothes’ in Robins (1958:88) and ‘amorphous objects’ in Haas (1967:359). In Haas’ field notes, a third variant is attested, *-e’*, which may be a variant of *-e’n*. These three variants are shown in (14).

(14) *Yurok generic count numerals from three sources*

	(K 1911:423)	(S ms.)	(H ms. [1950])
1	koorew	koora’	ko’r
2	ni’ihl	na’a’n	na’a’
3	nahkseyl	nahkse’n	nahkse’
4	choonehl	choone’n	cho’one’

In Wiyot and Yurok, as is common cross-linguistically, the use of classifiers is not obligatory on numerals (see (15)), and one can find examples where the default category is used where one might expect a classifier.

(15)

na’a’n	or	na’amoyhl	‘two days’	(R 1958:89)
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It is also possible to find instances of the same noun being used with different classifiers, to impose different meanings, as in (16).

(16)

a.	koht- <b>ek’wo’n</b>	chiishep	b.	koht- <b>oh</b>	we-chiishep
	one-BUSHY	flower		one-ROUND	3-flower
	‘one flower bush’			‘one flower’	

(Yurok: H 1967)

While the classes distinguished by Wiyot and Yurok are similar in many respects, they also have differences in their semantics, and some of these differences are shown in (17).

(17)

	‘rope’	‘snake’	‘stripe’	‘hair’	‘feathers’	‘fur’
Yurok	-ek’		-ekin			
Wiyot	-un	-ok		-apt		

Both Wiyot and Yurok have ‘long flexible object’ classes that include rope and string, *-ek’* in Yurok and *-un* in Wiyot. In Yurok, snakes are generally included in this category, while in Wiyot, snakes are considered ‘long objects’, classified with *-ok*, which does not make reference to flexibility. (The classifier *-ok* is used for long rigid things and long flexible things.) In Wiyot, there is a ‘hairlike’ class (*-apt*) that includes hair, seaweed, feathers, and fur. Yurok has a ‘strand’ class (*-ekin*) that includes strands of hair, lines, and stripes, but not feathery or furry things.

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The classes of animacy also differ. Wiyot does not have any classes that specifically refer to animacy, while Yurok has two classes: one for humans and one for animals and birds, shown in (18).

(18)

	‘humans’	‘animals’	‘generic count’
Yurok	-ihl, -eyhl	-r’r’γ	-e’n
Wiyot	-ad		

In both Yurok and Wiyot, the classifier that is used for human beings derives from third person verbal inflectional morphology. For Yurok, this was pointed out in Robins (1985) and more details can be found in that article. For Wiyot, the third person suffix is the ‘definite subject’ marker for stative verbs. Consider the data in (19) and (20), which compares the numerals used when counting humans or counting generically to third person inflected verbs.

- (19)    kor-    ‘one person’    ma’epet-    ‘3 (sing.) ties it up’  
           ni’iy-**ehl** ‘two people’    ma’epet-**ehl** ‘3 (pl.) tie it up’    (Yurok: R 1958:33, 87)

- (20)    kuc-**ad**    ‘one (generic count)’    la’g-**ad**    ‘3(sing. or pl.) is heavy’  
           rit-**ad**    ‘two (generic count)’    (Wiyot: T 1964:76, 92)

These classifiers differ from the others in that they are derived from inflectional morphemes, and therefore do not enter into verbal or nominal derivational morphology. If Kroeber’s observation that this class is the generic one for Yurok is correct (at least for some speakers), then in both Wiyot and Yurok, there is the possibility of using numeral roots inflected for third person as a default non-classificatory numeral.

### 2.    **Distribution on Numerals and Verbs**

Most of the classifiers in (5) and (6) are attested on numerals, and many of them are also attested on verbs. The most common type of intransitive verb that classifiers appear on is attributive, and would be translated as an adjective in English. The examples in (1) illustrated this. Some additional intransitive verbs with classifiers are listed in (21) and (22).

- (21)    *Yurok intransitive verbs*
- |         |             |              |   |
|---------|-------------|--------------|---|
| pel-    | ‘be big’    | ple’loy-     | ‘be big ( <b>houses</b> )’                  |
| cheyk-  | ‘be small’  | cheykek’won- | ‘be small ( <b>bushy things</b> )’          |
| che’l-  | ‘be dry’    | che’loyk     | ‘to be dry ( <b>long, slender things</b> )’ |
| me’wom- | ‘come from’ | mr’wrmryk-   | ‘to come from ( <b>river</b> )’             |
- (Yurok: R 1958, lexicon)

(22) *Wiyot intransitive verbs*

pal-	‘be flat’	pareck-	‘be little and flat ( <b>round thing</b> )’	(T&N text 65:10)
dot-	‘be big’	dotbal-	‘be big ( <b>building</b> )’	(R 1925:84)
baluyab-	‘be white’	baluyabapt	‘( <b>hairlike thing</b> ) is white’	(R 1925:84)
parag-	‘fall’	paragapt	‘( <b>hairlike thing</b> ) falls’	(T&N text 49:4)

Classifiers also appear on transitive verbs, and in this case they classify the object of the verb. The transitive verbs with classifiers all seem to have to do with handling or manipulation, which is typical of verbal classifiers (Davidson, Elford, and Hoijer 1963). Not all verbs of handling take classifiers, and many common ones do not. Transitive verbs with classifiers are shown in (23) and (24).

(23) *Wiyot transitive verbs*

todítoksuy	‘one uses two (sticks)’	(T&N text 53:3)
laphapłoyar	‘one bundles (redwood splinters)’	(T&N text 47:4)
dicapłatikwa’n	‘one breaks off two pieces (of grass)’	(T&N text 28:5)
haphatk-	‘to wrap up’	(T 1964:52)
haphapł-	‘to tie in a bunch’	(T 1964:52)

(24) *Yurok transitive verbs*

knoyket-	‘put flexible item(s) down gently’ <sup>5</sup>	
menoyket-	‘pull something (e.g. rope)’	
kwomhla’ret-	‘put wood (e.g. gate) up as barrier’	
toora’ret-	‘put a stick up as a barrier’	(P 1985)

Classifiers also appear on nouns derived from verbal roots. In (25) and (26) are some Wiyot and Yurok nouns with classifiers.

(25) *Wiyot nouns*

hiwečk	‘money’	(T&N text 40:8)
łbatkani’	‘button’	(T 1964:64)
pitawodagatkani’	‘doorknob’	(T 1964:64)

(26) *Yurok nouns*

smota’r	‘bow’	
laayekin	‘line, stripe’	
knewolek	‘sea serpent’	(R 1958, lexicon)

The Wiyot word *hiwečk* ‘money’ contains the verbal root *hiw-* ‘to be round’; *łbatkani* ‘button’ is derived from a transitive verb meaning ‘to pull a round thing through’; and *pitawodagatkani* ‘doorknob’ is derived from a transitive verb meaning ‘to twist a round thing by hand’. In Yurok, the noun *smota’r* ‘bow’ has the classifier for ‘straight things’, and *laayekin* is composed of an initial *laay*, meaning ‘to pass’, and the classifier for ‘strands, lines’.

<sup>5</sup> This is also glossed as ‘leave behind more than one thing’ (Berman 1982:202).

### 3. Algonquian

An Algonquianist will notice the similarity between Wiyot classifiers and a set of Algonquian morphemes called *classificatory medials*, some of which have been reconstructed to Proto-Algonquian. J. Hewson, in his 1974 article on Proto-Algonquian medials, remarks that some medials “appear to be remnants of an ancient system of classifiers, elements of which can still be glimpsed in the daughter languages.” Many Algonquian languages have a simple numeral classifier system, in which medials attach to numeral roots and specify the shape or substance of the object being counted. As far as I know, none of the Algonquian languages has as robust a system of classifiers as Yurok and Wiyot. These classifiers also appear on verbs in Algonquian languages. Like the California Algic languages, these morphemes classify intransitive subjects and transitive objects. When the form and function of classifiers in verbal derivational morphology is compared, they look quite similar. Some data from Algonquian languages illustrate the similarity. In Wolfart’s (1973) sketch of Cree, he describes these morphemes as follows:

[M]any of these [classificatory] medials denote not a specific object but a class of objects, or indeed, the characteristic features of this class... The superficial resemblance to a system of classificatory markers deserves detailed investigation. (Wolfart 1973:67)

The data in (27-29) from Algonquian languages show that these morphemes appear on attributive verbs, just as in Wiyot and Yurok.

- (27) a. -a·pi·k ‘string, row’ e.g., ni·šwa·**pi·k** ‘two **strings or rows**’  
-a·pikk ‘dollar’ e.g., ni·šwa·**pikk** ‘two **dollars**’  
b. -e·wa·n ‘set, pair’ e.g., ni·šwe·**wa·n** ‘two **sets**, two **pairs**’  
-ikon ‘day’ e.g., ni·wukon ‘four **days**’  
(Ojibwe: Bloomfield 1958:110-111)

- (28) kinwa·skosi·w ‘he is long (**stringlike animate object** such as snake)’  
kinwa·**piskisi**·w ‘he is long (as **metal or stone**)’  
kinwe·kan ‘he is long (as **cloth**)’  
(Cree: Bloomfield ms., cited in Hewson 1974:309)

- (29) a. -a:shku ‘made of wood’ e.g., shi:pekua·**shkuan** ‘(the **ski**) is green’  
-pishk ‘mineral’ e.g., shi:pekua·**pishkan** ‘(the **tin cup**) is green’  
-apek- ‘thread-like’ e.g., shi:pekua·**pekan** ‘(the **shoe string**) is green’  
-ek ‘lying’ e.g., shi:pekuekan ‘(the **lawn**) is green’  
-ikam ‘liquid’  
b. napuekaim ‘s/he folds in two **something flat**’  
napuei**apets**henam ‘s/he folds in two **something thread-like**’  
(Montagnais: Cyr 1996:181)

The classifiers specify the shape of substance of the internal argument of the verb. They occur on both transitive and intransitive verbs, and at least in Montagnais and Nishnaabemwin (Ojibwe) can classify an instrumental in addition to a subject

or object (Cyr 1996:181, Valentine 2001). According to Aikhenvald's (2000) survey, this is unusual, since classifiers usually have scope over the direct object of a transitive verb.

#### 4. Conclusion

Given the similarities between the California Algic languages and the Algonquian languages, it seems justifiable to propose that their classificatory systems are indeed cognate, and that some sort of noun classification system existed in Proto-Algic. Classifiers are not restricted to a particular word class, and occur on numerals, verbs, and nouns. The differences between the California Algic languages and Algonquian languages are mainly in terms of the number of classifiers and their elaboration on numerals. One puzzle we are left with is why, despite the structural similarity between Wiyot and Yurok, it is so difficult to come up with cognates among the actual classifier morphemes.

#### References

- Aikhenvald, Alexandra. 2000. *Classifiers: A Typology of Noun Categorization Devices*. New York: Oxford University Press.
- Berman, Howard. 1982. A supplement to Robins' Yurok-English Lexicon. *International Journal of American Linguistics* 48:197-241.
- Berman, Howard, ed. 2001. Yurok texts. In V. Golla and S. O'Neill, eds., *The Collected Works of Edward Sapir XIV: Northwest California Linguistics*, 1015-1038. Berlin: Mouton de Gruyter.
- Bloomfield, Leonard. 1958. *Eastern Ojibwa: Grammatical Sketch, Texts and Word List*. Ann Arbor: University of Michigan Press.
- Cyr, Danielle. 1996. Montagnais: An ethnogrammatical description. In J. Maurais, ed., *Quebec's Aboriginal Languages: History, Planning, and Development*, 174-203. Toronto: Multilingual Matters Ltd.
- Davidson, William, L. W. Elford, and Harry Hoijer. 1963. Athapaskan classificatory verbs. *Studies in the Athapaskan languages. University of California Publications in Linguistics* 29:30-41. Berkeley: University of California Press.
- Denny, J. P. 1979. The "Extendedness" variable in classifier semantics: Universal semantic features and cultural variation. In M. Mathiot, ed., *Ethnolinguistics: Boas, Sapir and Whorf Revisited*, 97-119. The Hague: Mouton.
- Haas, Mary. ms. Yurok field notes (dated 1950, 1966) in the collection of the Survey of California and Other Indian Languages, University of California, Berkeley.
- Haas, Mary. 1967. Language and taxonomy in Northwestern California. *American Anthropologist* 69:358-362.
- Hewson, John. 1974. Proto-Algonquian medials. *International Journal of American Linguistics* 40:308-316.

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- Kroeber, A. L. 1911. The languages of California north of San Francisco. *University of California Publications in American Archaeology and Ethnology* 9: 414-426. Berkeley: University of California Press.
- Kroeber, A. L. ms. *A. L. Kroeber Papers, 1869-1972*. Located in the archives of the Bancroft Library, University of California, Berkeley.
- Mithun, Marianne. 1999. *The Languages of Native North America*. Cambridge: Cambridge University Press.
- Proulx, Paul. 1985. Notes on Yurok derivation. *Kansas Working Papers in Linguistics* 10(2):101-143.
- Reichard, Gladys. 1925. Wiyot Grammar and Texts. *University of California Publications in American Archaeology and Ethnology* 22, 1. Berkeley: University of California Press.
- Robins, R. H. 1958. The Yurok language: Grammar, texts, lexicon. *University of California Publications in Linguistics* 15. Berkeley: University of California Press.
- Robins, R. H. 1985. Numerals as underlying verbs: The case of Yurok. In U. Pieper and G. Stickel, eds., *Studia linguistica diachronica et synchronica Werner Winter sexagenario anno MCMLXXXIII*, 723-734. Berlin: Mouton de Gruyter.
- Rushforth, S. 1991. Uses of Bearlake and Mescalero (Athapaskan) classificatory verbs. *International Journal of American Linguistics* 57:251-266.
- Sapir, Edward. ms. Yurok field notes (dated 1927) in the collection of the Survey of California and Other Indian Languages, University of California, Berkeley.
- Teeter, Karl. 1964. The Wiyot language. *University of California Publications in Linguistics* 37. Berkeley: University of California Press.
- Teeter, Karl, and John Nichols. 1993. *Wiyot Handbook* (two volumes). Memoirs no. 10-11. Winnipeg: Algonquian and Iroquoian Linguistics.
- Valentine, J. Randolph. 2001. *Nishnaabemwin Reference Grammar*. Toronto: University of Toronto Press.
- Wolfart, H. Christoph. 1973. Plains Cree: A grammatical study. *Transactions of the American Philosophy Society* 63(5):1-90.

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# Nominal Constructions and Split Ergativity in Chol (Mayan)\*

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## 0. Introduction

In this paper I will make three claims about Chol: first, that imperfective verb stems in Chol are formally nominal; second, that roots in Chol are underspecified with respect to semantic and grammatical features; and finally, that a correlation may be drawn between the nominality of imperfectives and Chol's aspect-based ergative split.

I begin here with an examination of the ergative split. In Chol there are two possibilities, by all accounts semantically equal, for expressing an intransitive construction in the imperfective aspect. These are shown in examples (1) and (2) below.<sup>1</sup> In the first, which I will call the *muk'* form, person is marked on the auxiliary, *muk'*, and verbal information appears in a subordinated nominal form, *wäyel*. In the second, or *mi*, construction, aspect is expressed as a proclitic and person is marked directly on the verb stem. When we contrast these two forms with the transitive construction in (3), we see evidence of Chol's ergative split.

- (1)    *muk'-oñ*    *tyi*    *wäy-el*  
      IMPF-1ABS PREP sleep-NOM  
      'I sleep.'

- (2)    *mi*    *k-wäy-el*  
      IMPF 1ERG-sleep-NOM  
      'I sleep.'

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<sup>1</sup> *ä* = [i]; *j* = [h]; *y* = [j]; *ty* = [tʃ]; *ch* = [tʃ]; *x* = [ʃ]; *ñ* = [nʲ]; ' = [ʔ]; *k'* = ejective *k*, etc.; all other symbols represent their standard IPA values. 1 = speaker; 2 = addressee; 3 = non-local person; ABS = absolutive; DET = determiner; EPN = epenthetic insertion; ERG = ergative; EXT = existential; IMPF = imperfective; NC = numeral classifier; NOM = nominal suffix; PASS = passive; PERF = perfective; PREP = preposition; PROG = progressive; VI = intransitive verb; VT = transitive verb.

- (3)    **mi    k-mek'-ety**  
          IMPF 1ERG-hug-2ABS  
          'I hug you.'

The source of this split in Chol, I argue, stems from the fact that the “verb” in the construction in example (2), like the subordinated form in (1), is formally nominal (i.e., has the same distributional properties as nouns). The nominal nature of non-perfectives has been previously argued for nearby members of the Yucatecan sub-family by Victoria Bricker (1981). Her claims have since been dismissed by Lois and Vapnarsky (2003) based partially on faulty or insufficient information about Chol, which this paper intends to remedy.

In Section 1 I begin with a brief overview of Chol morphosyntax, where we will see that a distinction must be drawn between predicative verb and noun stems based on whether or not they mark for aspect. Aspect is outlined in Section 2, where I argue for a division between aspect-carrying verbal auxiliaries and aspectual clitics, previously analyzed as allomorphs of the same form. The argument for the formal nominality of non-perfective constructions is presented in Section 3. Next, in Section 4 I propose that the simplest account of roots in Chol is to claim that they are underspecified with respect to semantic as well as morphosyntactic features. Here I follow the general framework of Distributed Morphology, which I outline briefly before moving on to Section 5, where I discuss Chol stem formation. Finally, I examine a similar argument for nominality put forth for languages of the Yucatan in Section 6, concluding that the relationship between nominality and split ergativity deserves further exploration.

## 1.    **About Chol**

Chol is a Mayan language spoken in the lowlands of the Mexican state of Chiapas by between one hundred and two hundred thousand people. The basic ordering of constituents in Chol is VOS for transitive clauses and VS for intransitives. Overt subject and object pronouns, however, are used only for emphasis.

Like other members of the Mayan family, Chol uses a predominantly ergative-absolutive agreement system to head-mark grammatical relations. As seen in examples (1)–(3) above, ergative markers appear as prefixes while absolutive is marked with suffixes. These are listed in the table in (4).

- (4)    Ergative and absolutive agreement affixes

	Ergative	Absolutive
1 <sup>st</sup> person	<i>k-</i>	<i>-oñ</i>
2 <sup>nd</sup> person	<i>a-</i>	<i>-ety</i>
3 <sup>rd</sup> person	<i>i-</i>	<i>-Ø</i>

In a transitive clause, an ergative prefix marks the subject, while an absolutive suffix marks the object, as shown in (5).

- (5) **mi i-jats'-oñ**  
 IMPF 3ERG-hit-1ABS  
 'She hits me.'

Intransitive constructions in the perfective aspect mark their single argument with the absolutive suffix, as shown in example (6). As we saw above, imperfective intransitives have recourse to two different constructions.

- (6) **tyi jul-i-y-oñ**  
 PERF arrive-VI-EPN-1ABS  
 'I arrived.'

The same agreement affixes that cross-reference the arguments of verbs are also used to mark relationships between nouns. A noun's possessor is marked with an ergative prefix on the head noun, as shown in (7), while an absolutive suffix marks the argument of a predicate nominal construction, as in (8).

- (7) **k-otyoty**  
 1ERG-house  
 'my house'

- (8) **wiñik-oñ**  
 man-1ABS  
 'I am a man.'

Both ergative and absolutive morphology may appear on the same noun stem, as shown by the sentence in example (9), where the ergative prefix *a-* cross-references the noun's possessor and the absolutive suffix *-oñ* marks the theme of the predicate nominal.

- (9) **a-chich-oñ**  
 2ERG-big.sister-1ABS  
 'I'm your big sister.'

Note that the only formal difference between the noun construction in example (9) and the verb construction in example (5) is the aspect marker: predicative nouns are unable to mark for aspect while verbs do so obligatorily.

## 2. Aspect

Aspect in Chol is marked via pre-verbal auxiliaries. For the purpose of this paper, I will focus only on the distinction between the perfective and imperfective aspects, though progressive exists as well. In the Tila dialect, on which I conducted fieldwork, perfective is marked with *tyi* and *ta'* and imperfective is marked with *mi* and *muk'*. Previous authors (cf. Vázquez Alvarez 2002) have

treated these auxiliaries as allomorphs of the same two morphemes: *tyi* and *mi* are considered the underlying forms and *ta'* and *muk'* are said to be used when any morphology is attached. For example, Chol possesses a number of second-position modal enclitics which often appear affixed to the first-position aspect marker. When the clitics are present the *ta'* and *muk'* forms are used, as shown in (10). The same constructions with the *tyi* and *mi* forms are ungrammatical, as shown in example (11).

- (10) **ta'-bi**      lok'-i-y-ety  
      PERF-REP go.out-VI-EPN-2ABS  
      'They say you went out.'

- (11) \***tyi-bi**      lok'-i-y-ety  
      PERF-REP go.out-VI-EPN-2ABS  
      'They say you went out.'

Considering the *ta'* and *muk'* forms as allomorphs of *mi* and *tyi*, governed simply by the presence or absence of additional morphology, ignores the structural differences found between *muk'* and *mi* constructions. I argue that *tyi* and *mi* are in fact clitics and their so-called allomorphs should be considered different, full root auxiliaries. The claim that *mi* and *tyi* are clitics is supported first by the fact that they themselves may *not* take clitics, as we saw in (11) above. Second, they are of the form CV rather than the CVC shape associated with full root forms in the Mayan language family. And finally, it is often unclear where to draw the word boundary between these aspect markers and the verb stem, both to myself and to native speakers. This suggests that the clitic-stem complex is in fact a single phonological word. The distribution of these forms will be discussed in the following section.

### 3. Non-Perfective Constructions as Nominal

Returning now to the two types of intransitive imperfectives given above in examples (1) and (2), I will analyze each in turn and argue that the stems in both of these constructions are in fact nominal; one is subordinated and one is marked directly for person. In the *muk'* type of imperfective, another example of which is shown in (12), *muk'* is marked for person and the root '*uk*' 'cry' appears with a nominal *-el* suffix subordinated to Chol's all-purpose preposition, *tyi*. The nominality of these forms is evidenced in Chol by the fact that *-el* forms occur only in NP positions, as I will demonstrate below.

- (12) muk'-ety tyi 'uk'-el  
      IMPF-2ABS PREP cry-NOM  
      'You cry.'

First, like other nominals, when not serving as the argument of a verb, as in (13), these forms must be licensed by the preposition *tyi*, as in (14). In (13) the stem *wäyel* acts as the direct object of the transitive stem *amulañ* and thus requires no preposition. In (14) no argument slot is available to the *-el* form, which must receive case from the preposition *tyi*.

- (13) *mi a-mulañ-Ø<sub>i</sub> wäy-el<sub>i</sub>?*  
 IMPF 2ERG-like-3ABS sleep-NOM  
 ‘Do you like sleeping?’
- (14) *tyi majl-i-Ø<sub>i</sub> tyi wäy-el jiñi wiñik<sub>i</sub>*  
 PERF go-VI-3ABS PREP sleep-NOM DET man  
 ‘The man went to sleep.’

Additionally, compare the *muk’* construction in (15) with the locative construction in (16) which uses the existential auxiliary, *’añ*. Formally, these two constructions are identical, and there is no question as to the grammatical category of *’otyoty* ‘house’, which fulfills all the requirements of a typical noun.

- (15) *muk’-oñ tyi wäy-el*  
 IMPF-1ABS PREP sleep-NOM  
 ‘I sleep.’
- (16) *’añ-oñ tyi k-otyoty*  
 EXT-1ABS PREP 1ERG-house  
 ‘I’m in my house.’

Furthermore, we see in example (17) that some *-el* forms, like nouns, may take determiners and serve as the subject of a sentence.<sup>2</sup>

- (17) *jiñi ’uch’-el mach sumuk*  
 DET eat-NOM NEG tasty  
 ‘This food isn’t tasty.’

Our next piece of evidence comes from constructions involving one of a set of what have been called “nominal verbs.” These are in fact simply nouns used to express what English speakers might consider to be verbal information. In (18), for example, the equivalent of the English *I sing* is conveyed in Chol using the inflected aspectual auxiliary and the noun *k’ay* ‘song’.

- (18) *muk’-oñ tyi k’ay*  
 IMPF-1ABS PREP song  
 ‘I sing.’

<sup>2</sup> This type of construction, however, is marginal in Chol and not entirely productive.

In (19) the nominal form *k'ay* appears as an argument of the verb, preceded by the determiner *jiñi*; inflecting *k'ay* as a regular intransitive verb results in ungrammaticality, as shown in (20).

- (19)    *mi*    *k-mulañ-Ø*        *jiñi k'ay*  
          IMPF 1ERG-like-3ABS DET song  
          'I like that song.'

- (20) \**mi*    *a-k'ay-el*  
          IMPF 2ERG-song-NOM  
          'You sing.'

We thus have three types of words that may appear immediately after the preposition *tyi*: what have been called “nominal verbs” like *k'ay* ‘song’ and *soñ* ‘dance’, uncontroversial nouns like *'otyoty* ‘house’ and *ja* ‘water’, and finally, *-el* forms like *wäyel* ‘sleep’ and *julel* ‘arrive’. Since in all other cases these *-el* forms behave like nouns (i.e., by taking determiners, serving as subjects, and appearing as verbal arguments) there is no good reason to treat them as anything but nominal. Finally, suffixes of the shape *-l* are found on noun stems throughout the Mayan family, making these stems nominal in both form and distribution.

Let’s now return to the second type of imperfective construction involving the clitic *mi*, repeated here in example (21).

- (21)    *mi*    *k-jul-el*  
          IMPF 1ERG-arrive-NOM  
          'I arrive.'

In this form, the stem *julel* takes an ergative prefix to mark person, rather than the absolutive expected for intransitives in ergative-absolutive languages. This form seems to represent an innovation in Chol. For example, Chol’s nearby cousin Tzeltal, which shows no ergative split, uses constructions similar to our *muk'* forms to express intransitives in the progressive aspect. *Mi*-type constructions, however, are not available (Kirill Shklovsky, p.c.). Because of the nominality of *-el* forms, if they are to serve as the main (rather than subordinated) verb of the sentence, they must mark aspect with the clitic *mi*.

Note that there is nothing inherently inconsistent with the claim that a nominal verb stem may mark for aspect. Above I distinguished noun stems, which may not take aspect, from verb stems, which require it. I made, however, no claim as to the formal grammatical status of imperfective verb stems, which we have now seen to be nominal. Further support for the nominality of these forms may be found in the nature of roots and stem formation in Chol, which I will discuss in the following sections.

#### 4. Mayan Roots

The classification of Mayan roots has received a great deal of attention in recent literature, partially due to the fact that these roots seem to defy attempts at a neat classification. In example (22) the root *wäy* ‘sleep’ appears in an intransitive verbal construction with the meaning ‘I slept’. In (23), however, the same root surfaces as a noun, the word for the spirit animal of shamans that comes out at night to cause trouble.

- (22) tyi **wäy**-i-y-oñ  
 PERF sleep-VI-EPN-1ABS  
 ‘I slept.’

- (23) tyi a-k’el-e-Ø juñ-tyikil **wäy?**  
 PERF 2ERG-see-VT-3ABS one-NC.PEOPLE *wäy*  
 ‘Have you seen a (person’s) *wäy*?’

Additionally, while many roots appear (underived) only in verb stems, such as *mek* ‘hug’, some of these may show up in either transitive or intransitive constructions, with no additional valence-changing morphology. One example is the root *lok*, shown in examples (24) and (25).

- (24) tyi **lok**’-i-y-ety  
 PERF go.out-VI-EPN-2ABS  
 ‘I went out.’
- (25) tyi k-**lok**’-o-y-ety  
 PERF 1ERG-take.out-VT-EPN-2ABS  
 ‘I took you out.’

Countless other examples of category overlap exist, where a semantic relationship may be drawn between the various stems created from a single root. Although *wäy* appears in different stems above (the meanings of which are unpredictable from one another), the two bear a clear semantic relationship. Haviland (1994:716) calls such roots “semantic portmanteaus” because they contain “several interrelated notions bundled up inside.”

Traditionally, two theories have been used to account for single roots which produce different classes of stems: a root is either argued to have separate (homophonous) lexical entries for each type of stem it forms (cf. Laughlin 1975), or a root is thought to create different stems through derivation, often using zero morphemes (cf. Stefflre 1972). One obvious drawback to the first proposal is that it fails to capture the semantic similarities between *lok* ‘go out’ and *lok* ‘take out’, for example, and also leaves us with an unnecessarily large lexicon. On the other hand, Lois and Vapnarsky (2003:16) criticize accounts that rely on zero derivational morphology to produce different stems from the same CVC root. The

use of zero derivational morphology, they argue, is not independently justified. Additionally, we are left with the problematic decision of which grammatical category the underlying root belongs to.

Due to this ambivalent nature of roots, it has been recently argued that it is simply not possible to distinguish completely between nouns and verbs (and classes of verbs) at the root level (Lois and Vapnarsky 2003). To address this problem, Lois and Vapnarsky (2003:23) propose new broader root classes: verbo-nominal roots and nominal roots. The former category may or may not be associated with TAM (tense-aspect-mode) particles and the latter cannot. By insisting on retaining the idea of root classes, however, their account loses explanatory power. In Chol, for example, there are a number of roots which (in underived stem forms) *must* take aspect, a number which may not, and a number for which either option is available. This first possibility is not recognized by either of their proposed classes.

A more powerful account, I propose, is to abandon root classes altogether, and conclude that roots in Chol and other Mayan languages are not entirely specified for grammatical category (Coon 2004). In making this claim I adopt the framework of Distributed Morphology (DM) (Halle and Marantz 1993, Marantz 1997), which rejects the Lexicalist assumption that “words” are created in the lexicon through the combination of completely specified roots and morphemes, and then enter the syntax as fully formed units (cf. Lieber 1992). Instead of splitting the generative power of language between the syntax and the lexicon, DM takes a “single engine” approach to word and phrase formation: “grammar constructs all words in the syntax by the same general mechanisms...that it constructs phrases” (Marantz 1997).

In Chol, for instance, the root *wäy* may appear in noun stems, verb stems, and what Mayanists call “positional” stems. Rather than assigning the root to one of these three categories (or to all of them), we instead consider it to be a bundle of semantic and morphosyntactic information, without a category feature. These root bundles, however, are not entirely *unspecified*. Few (if any) roots may appear in all stem forms, and in spite of the morphological similarities between predicative nouns and verbs in Chol, a distinction must be made between stems which may not take aspect (nouns) and stems which require aspect (verbs). That is, a root contains features which select which types of stems it will form.

In order to form these stems, the underspecified root merges with a head *x* under a locality domain. Under this domain the root fixes its grammatical category as well as its meaning. Subsequent applications of merge, however, which now combine with a word or stem of a specific grammatical category, no longer have access to the flexibility of the root; they cannot “see” through the structure (cf. Marantz 1997). Special meanings of words and phrases, previously acquired in the lexicon, are achieved under this locality domain. Details of this analysis are spelled out in more detail in Coon (2004). Important here is my proposal that under this account it is no longer necessary to force Mayan roots into rigid categories. Instead, we can account for the semantic and grammatical



multiplicity of roots through underspecification at the root level and merge under a locality domain.

## 5. Chol Stem Formation

Above we saw that intransitive verb stems in the imperfective aspect require a nominal *-el* suffix to form a stem. Imperfective transitives, like nouns, require no suffix in order to predicate, as shown in example (26).

- (26) mi i-mek'-oñ  
 IMPF 3ERG-hug-1ABS  
 'She hugs me.'

*Perfective* verb stems, on the other hand, must first acquire a *-V* suffix before they may inflect for person and number: *-i* for intransitives and a harmonic *-V* for transitives, as shown in (27) and (28) below.

- (27) tyi jul-i-y-ety  
 PERF arrive-VI-EPN-2ABS  
 'You arrived.'
- (28) tyi a-mek'-e-y-oñ  
 PERF 2ERG-hug-VT-EPN-1ABS  
 'You hugged me.'

These suffixes and others like them have previously been labeled “thematic vowels” or “status suffixes” (Vázquez Alvarez 2002), though no attempt has been made to explain their presence. I argue that these suffixes are best described as “specificational” suffixes, used to fix the meaning, grammatical category, and argument structure of a previously underspecified root (cf. Coon 2004). Note that I am purposefully avoiding the problematic term “derivational,” which typically describes the process of changing from one grammatical category to another. Instead, by “specificational,” I wish to convey the notion that these roots do not *have* a grammatical category prior to entry into the syntax, and thus cannot be said to be *derived* in the traditional sense of the word.

This proposal also provides a unified account of other suffixes in Chol found immediately post-root. The suffix *-le*, for example, has been labeled both a passive suffix in cases like example (29), as well as a positional “status suffix,” as in example (30) (Vázquez Alvarez 2002).

- (29) tyi k'ux-le-y-oñ  
 PERF bite-'PASS'-EPN-1ABS  
 'I was bitten.'

- (30) tyi buch-**le**-y-oñ  
PERF sit-‘POS’-EPN-1ABS  
‘I was sitting.’

In both cases the CVC root receives the suffix *-le*. Both forms also contain a single argument with a similar thematic role: theme. Why should we call one suffix a “passivizer” and the other a “status suffix” when their uses are so clearly related? Instead, I claim that this suffix, and others like it, take the underspecified root and assign it an argument structure and thematic grid.

One question remains, however: why should active *imperfective* stems require no such suffix? These nominal stems, like nouns and adjectives, do not require a “thematic vowel” or a “status suffix” to inflect.<sup>3</sup> Since underspecified roots, like many nominal stems, also do not have an argument structure, nominal may be considered the *default* form into which roots may enter. In the sections that follow I will return to the proposed correlation between these nominal verb stems and split ergativity.

## 6. Nominality and Split Ergativity

Victoria Bricker (1981) is the first Mayanist to have argued for the nominality of specifically non-perfective constructions. She argues that the *-l* suffix found on Yucatecan intransitives looks “suspiciously like a nominal suffix” (Bricker 1981:87). She writes that:

Nouns take ergative pronouns as possessors. If intransitive complements also take nominal suffixes, then the fact that they take ergative pronouns as subjects suggests that they are being inflected like nouns, without relinquishing their syntactic function as verbs. (Bricker 1981:87)

Though I would argue that by inflecting and behaving formally as nominals, these forms do indeed relinquish their syntactic function as verbs, Bricker’s observations for Yucatec seem to parallel the facts for Chol. Bricker ultimately does not find sufficient support for the ergative split corollary, and her claims have been recently dismissed by Lois and Vapnarsky (2003) in their work on “polyvalence” of root classes. They write that “in Chol, a language close to the Yucatecan branch, split ergativity exists without there being any overt sign of nominalization” (Lois and Vapnarsky 2003:110).

I hope to have demonstrated above that imperfective constructions in Chol *are* formally nominal. The ergative split in Chol, I argue, may be explained based on the nominality of *-el* forms. Because stems like *julel* in example (31) below are nominal they may, like other nouns, be marked for person or possession using one of the ergative prefixes. Perhaps a more literal translation of the sentence in (31) would then be something like ‘do my arriving’.

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<sup>3</sup> *-el* should not be considered a “status suffix.” In addition to being found on other noun stems, *-el* is of the form -VC rather than the -CV or -CVC shape of the other suffixes in this category.

- (31) *mi k-jul-el*  
 IMPF 1ERG-arrive-NOM  
 ‘I arrive.’

This is further supported by the fact that some *-el* forms have taken on non-eventive meanings. The intransitive stem *kuch’el*, for example, can mean not just ‘I eat’ when coupled with the aspectual clitic *mi*, but may also stand on its own to mean ‘my food’, as illustrated in (32).

- (32) *jiñi k-uch’-el mach sumuk*  
 DET 1ERG-eat-NOM NEG tasty  
 ‘This food isn’t tasty.’

Furthermore, in nearby languages like Tzeltal, which exhibit no ergative split, this nominality does not appear to be present (Kirill Shklovsky, p.c.). The correlation between nominality and split ergativity warrants further investigation.

## 7. Conclusions

In this paper I began with a discussion of the two types of imperfective intransitive constructions present in Chol. The first type discussed, the *muk’* form, conforms to the standard ergative-absolutive pattern of marking agreement, and analogous constructions are found in nearby languages like Tzeltal. The nominative-accusative *mi* construction, on the other hand, seems to represent an innovation in Chol. This ergative split may be explained, I argued, based on the nominality of the imperfective verb stems. Since imperfective intransitive stems like *julel* are nominal they may, like other nominals, be “possessed” using one of the ergative prefixes. This nominal verb stem then, must mark aspect using the imperfective clitic *mi*, rather than the verbal auxiliary *muk’*.

Further motivation for the nominality of imperfectives was presented in the sections that followed. Previous attempts to classify Mayan roots have encountered problems by making the assumption that all roots must be stored in the lexicon fully specified for grammatical features. Instead, following the framework of Distributed Morphology, I propose that roots should be considered underspecified with respect to semantic and grammatical features. The underspecified root fixes its meaning and forms a stem of a particular grammatical category by merging with a category head under a locality domain. In Chol, evidence for this merge is found in one of the set of immediately post-root suffixes, previously labeled alternately as “thematic vowels,” “status suffixes,” and “voice morphology.” These suffixes should all be unified under the label “specificational” suffixes, used to specify the meaning and grammatical features of the previously underspecified root.

Nominal intransitive stems take a different type of suffix, a *-l* suffix found also on noun stems in Chol and other Mayan languages, while imperfective transitives take no suffix at all. Since roots, like many other nominals, do not have

an argument structure, the default form into which they may enter is nominal. This account provides a more satisfactory explanation of the source of Chol's ergative split, the nature of Chol roots, and the discrepancies in stem formation between perfective and non-perfective stems.

## References

- Aulie, Wilbur, and Evelin Aulie. 1978. *Diccionario Ch'ol-Español, Español-Ch'ol*. Mexico: Summer Institute of Linguistics.
- Bricker, Victoria. 1981. The source of the ergative split in Yukatek Maya. *Journal of Mayan Linguistics* 2(2):83-127.
- Coon, Jessica. 2004. Roots and words in Chol (Mayan): A Distributed Morphology approach. Unpublished B.A. thesis, Reed College.
- Halle, Morris, and Alec Marantz. 1993. Distributed Morphology and the pieces of inflection. In K. Hale and S. J. Keyser, eds., *The View from Building 20*, 111-176. Cambridge, MA: MIT Press.
- Haviland, John. 1994. "Ta xa setel xulem" [The buzzards were circling]: Categories of verbal roots in (Zinacantec) Tzotzil. *Linguistics* 32:691-741.
- Laughlin, Robert. 1975. *The Great Tzotzil Dictionary of San Lorenzo Zinacantán*. Washington, D.C.: Smithsonian Institution Press.
- Lieber, Rochelle. 1992. *Deconstructing Morphology*. Chicago: University of Chicago Press.
- Lois, Ximena, and Valentina Vapnarsky. 2003. *Polyvalence and Flexibility of Root Classes in Yukatekan Mayan Languages*. Munich: Lincom Europa.
- Marantz, Alec. 1997. No escape from syntax: Don't try morphological analysis in the privacy of your own lexicon. In A. Dimitriadis, L. Siegel, C. Surek-Clark, and A. Williams, eds., *UPenn Working Papers in Linguistics, vol. 4.2, Proceedings of the 21st Annual Penn Linguistics Colloquium*, 201-225. Philadelphia: Penn Linguistics Club.
- Stefflre, Marlys McClaran. 1972. Lexical and syntactic structures in Yucatec Maya. Ph.D. diss., Harvard University.
- Vázquez Alvarez, Juan Jesús. 2002. Morfología del verbo de la lengua Chol de Tila Chiapas. Maestría de Lingüística Indoamericana, CIESAS-DF.

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# The Evolution of Algic Verbal Stem Structure: New Evidence from Yurok

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## 0. Introduction

The Algic language family consists of the Algonquian language family and its relatives Wiyot and Yurok, two native languages of northwestern California.<sup>1</sup> In this paper, I will use internal reconstruction to propose an account of the evolution of verbal stem structure in the early prehistory of Yurok; the earliest stages in this development probably occurred in Proto-Algic. Thus, while the evidence adduced here is exclusively from Yurok, I will suggest that the account has ramifications for our understanding of the Algonquian languages (and Wiyot).

## 1. Algonquian and Yurok Word Structure

Algonquian words contain “initials” (roots) as well as “medial” and “final” suffixes, described as follows by Bloomfield (1946:104): “*Final* suffixes appear at the end of the stem;...we can distinguish between *abstract* finals, which merely determine the form-class..., and *concrete* finals, which add some more palpable meaning... [T]he final suffix is often preceded by a *medial* suffix...Medial suffixes have concrete meaning.” Given in (1) is the scheme of Nishnaabemwin word structure, along the same lines, presented by Valentine (2001:333).

(1)	<u>INITIAL (ROOT)</u>	<u>MEDIAL</u>	<u>FINAL</u>
	Primary	Nominal	Part of Speech Category / Verbal Meanings
	• adjectival	• body part	defines part of speech (abstract final) and may
	• adverbial	• classifier	add additional meaning (concrete final)
	Secondary	• goal noun	
	• nominal		
	• verbal		

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<sup>1</sup> Wiyot has no native speakers, Yurok fewer than a dozen. The two languages are collectively called “Ritwan,” sometimes seen as a subgroup; I will cast my discussion as if it is not a subgroup, but my proposals are consistent with the alternative view.

For discussion and comments, thanks to Juliette Blevins, Ives Goddard, Paul Kiparsky, Rich Rhodes (none of whom necessarily agrees with me), and audiences at BLS, Michigan, Oxford, and Stanford. I cite otherwise unattributed Yurok data from Robins (1958), Berman (1982), Proulx (1985), and the fieldwork of the Berkeley Yurok project (<http://linguistics.berkeley.edu/~yurok/>), which is partly supported by NSF grant BCS-0004081 to the University of California, Berkeley.

## Algonquian and Yurok Stem Structure

Verb forms are traditionally grouped into five Proto-Algonquian “orders”: the independent, conjunct, imperative, prohibitive, and interrogative (Bloomfield 1946: 97-103). In most orders all inflectional affixes are suffixes, but forms of the independent order have prefixes and suffixes. A standard view (Goddard 1967, 1974), which I will follow, is that the independent order is a relatively young category within Proto-Algonquian, having supplanted the conjunct in the function of expressing independent assertions. Less attention has been paid to the origin of the tripartite (initial + medial + final) stem structure of Algonquian, an omission I seek to rectify in what follows.

Yurok has the phonemes listed in (2), as well as postglottalized oral obstruents (C') and preglottalized sonorant consonants ('C).

(2)	p	t	ch [tʃ]	k	kw [kʷ]	' [ʔ]	i, ii [i:]	u, uu [u:]
	hl [ɬ]	s [ʃ]	sh [ʃ]	x, g [ɣ]		h	e [ɛ ~ e]	o [ɔ], oo [ɔ:]
	m	n, l	r [ɹ]	y [j]	w		r [ə], rr [ə:]	
							a, aa [a:]	

Regularly inflecting Yurok verbs belong to four stem classes: *e*-stems, *aa*-stems, *o*-stems, and *oo*-stems. Singular indicative unipersonal forms of representative verbs belonging to each of these classes are given in (3).

(3)	<u><i>E</i>-STEM</u>	<u><i>AA</i>-STEM</u>	<u><i>O</i>-STEM</u>	<u><i>OO</i>-STEM</u>
1 sg.	nepek'	chewip'ak'	ko'moyok'	sootok'
2 sg.	nepe'm	chewip'aa'm	ko'moyo'm	sootoo'm
3 sg.	nep'	chewip'a'	ko'mo'y	sootok'w
	'eat'	'tidy'	'hear'	'go'

Four modal categories are illustrated in (4) with singular unipersonal forms of the *e*-stem 'eat': indicative, subordinative (called “pronominal-prefix” verbs by Robins (1958)), attributive, and imperative.

(4)	<u>INDICATIVE</u>	<u>SUBORDINATIVE</u>	<u>ATTRIBUTIVE</u>	<u>IMPERATIVE</u>
1 sg.	nepek'	'ne-nepek'	nepoh	—
2 sg.	nepe'm	k'e-nepek'	nepom	nep's
3 sg.	nep'	'we-nepek'	nepin	—

Examples of the indicative, subordinative (marking certain subordinate clauses), and attributive (marking the equivalent of relative clauses) are given in (5).

- (5) a. Indicative      Ho    **nepek'**              ku 'rplrs.  
                              PAST   **eat.INDIC.1SG**   the apple(s)  
                              'I ate the apple(s).'
- b. Subordinative      Ho    newook'              ke'l    **k'e-nepek'**              ku 'rplrs.  
                              PAST   see.INDIC.1SG   you    **2-eat.SUBORD.SG**   the apple(s)  
                              'I saw you eat the apple(s).'
- c. Attributive              ku 'rplrs      ku   k'e-ch'ishah    **nepin**  
                              the apple(s)   the 2-dog              **eat.ATTRIB.3SG**  
                              'the apple(s) your dog ate'

I will assume that the Yurok subordinative and (as noted above) the Algonquian independent order are independent post-Algic innovations. In particular, I will assume that all inflected verbs in Proto-Algic were suffixed.<sup>2</sup>

Yurok has a further verbal category dubbed “noninflected” by Robins (1958), who writes that noninflected verbs “may be used as the syntactical equivalents for all persons of any of the categories of the verb...Many Yurok verbs have both an inflected and a noninflected stem. This latter is usually identical with the first part of the inflected stem” (p. 31). For three typical verbs I give, in (6), noninflected forms together with singular unipersonal indicative forms.

(6)	1 sg.	hohkumek'	skewoksimek'	ko'moyok'
	2 sg.	hohkume'm	skewoksime'm	ko'moyo'm
	3 sg.	hohku'm	skewoksi'm	ko'mo'y
	<b>Noninflected</b>	<b>hoh</b> 'do, make'	<b>skewok</b> 'like, want'	<b>ko'm</b> 'hear'

Robins (1958) cites such verbs as *hoh(kum-)*, *skewok(sim-)*, *ko'm(oy-)*, and so on, implying that the noninflected verb is somehow derived by truncation from the inflected stem.

## 2. Yurok Medial and Final Suffixes

Goddard (1975) first noted that Yurok (and Wiyot) stem structure is generally comparable with that of Algonquian languages, as discussed above, and Proulx (1985) offers a classification of many Yurok morphemes along Algonquian lines. His analysis, distinguishing for example concrete and abstract finals, is useful and has had a major influence on my analysis, but in my view different principles best serve the needs of Yurok morphology. In particular, I treat the Yurok functional counterparts of Algonquian concrete finals as medials. I define as medials those suffixes that need not occur with inflection (they may occur in noninflected verb forms), whereas final suffixes always occur with inflection (never in noninflected verb forms). For simplicity, in what follows, I represent the thematic vowel (*e*, *o*, *aa*, *oo*) as part of the final suffix.

Given these analytic principles, Yurok medial suffixes are of three main types. First, as in Algonquian, some medial suffixes serve as subject classifiers, marking salient categories of shape and the like. A few examples are given in (7).

- (7) Representative Yurok medial suffixes: Subject classifiers
- e'r-** 'trees, sticks, etc.':  
*lo'og-e'r-ono-* 'be charred' (trees, sticks, etc.) (initial *lo'og-* 'black')
  - op-** 'water':  
*kaam-op-e-* 'be rough water' (initial *kaam-* 'bad')  
*skew-op-e-* 'be calm water' (initial *skew-* 'good')
  - oyk-** 'long flexible object':  
*che'l-oyk-e-* 'be dry' (long flexible object) (initial *che'l-* 'dry')

<sup>2</sup> This assumption simplifies the analysis to be presented at the end of the paper; a more elaborated analysis could dispense with this simplifying assumption.

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Second, also as in Algonquian, some medial suffixes refer to body parts or their metaphorical extensions. Two examples are given in (8).

- (8) Representative Yurok medial suffixes: Body parts
- a. **-ehl-** ‘body, earth’:  
*him-ehl-epe-* ‘crawl fast’ (initial *him-* ‘fast’, final *-epe-* ‘self-oriented activity’)  
*kaam-ehl-ese-* ‘be dirty, rough’ (initial *kaam-* ‘bad’, stative final *-ese-*)
  - b. **-e’wey-** ‘face’:  
*mewol-e’wey-e-* ‘wipe one’s eyes’ (initial *mewol-* ‘wipe clean’)  
*s’oop-e’wey-ete-* ‘hit (someone) in the face’ (initial *s’oop-* ‘be hit’, trans. final *-ete-*)

Finally, typically corresponding in function to Algonquian concrete finals, some Yurok medial suffixes identify the basic type of verbal event. As shown in (9), these are often the translation equivalents of English main verbs in complex forms whose initials may express manner or goal meanings.

- (9) Representative Yurok medial suffixes: Verbal event
- a. **-oks-** ‘think’  
*kaam-oks-ime-* ‘dislike’ (initial *kaam-* ‘bad’, final *-ime-* ‘animate object’)
  - b. **-o’r-** ‘run’  
*him-o’r-epe-* ‘run quickly’ (initial *him-* ‘fast’, final *-epe-* ‘self-oriented activity’)  
*raay-o’r-epe-* ‘run past’ (initial *raay-* ‘along, past’, final *-epe-* ‘self-oriented activity’)
  - c. **-oot-** ‘throw’  
*kwomhl-oot-e-* ‘throw back’ (initial *kwomhl-* ‘back’)  
*l-oot-e-* ‘throw’ (default initial *l-*)

Yurok medials like those in (9) must be classified as medials, not finals, as I will show below, because they appear in noninflected as well as inflected verb forms.

Final suffixes fall into two broad classes in Yurok, either expressing aktionsart meanings or affecting lexical and argument structure. Some examples of the first broad class are given in (10), with suggestive rather than definitive suffix glosses.

- (10) Representative Yurok final suffixes: Aktionsart meanings, etc.
- a. **-epe-** ‘self-oriented activity’  
*chwink-epe-* ‘speak’ (initial *chwink-* ‘speak’)  
*him-o’r-epe-* ‘run quickly’ (initial *him-* ‘fast’, medial *-o’r-* ‘run’)  
*skuy-k-epe-* ‘get dressed’ (initial *skuy-* ‘good’, suffix *-(e)k-* ‘do, treat’)
  - b. **-emoye-** ‘be (covered with), have the appearance of’  
*chaalk-emoye-* ‘be sandy’ (*chaalk-* ‘sand’)  
*kwereuhl-emoye-* ‘have a pointed snout’ (initial *kwere-* ‘sharp’, medial *-uhl-* ‘nose’)  
*hlkoolonk-emoye-* ‘be muddy’ (*hlkoolonk-* ‘mud’)
  - c. **-owo-** ‘be or act in a certain way’  
*chpur-owo-* ‘menstruate’ (initial *chpur-* ‘careful’)  
*hlmey-owo-* ‘be mean’ (initial *hlmey-* ‘mean’)  
*kaam-un-owo-* ‘grow badly’ (initial *kaam-* ‘bad’, medial *-un-* ‘grow’)  
*son-owo-* ‘be a certain way’ (initial *son-* ‘thus’)



Robins (1958), who did not treat stem-internal morphology, erroneously classified several final suffixes of this type as markers of inflectional categories. He called *-epe-* in (10a) “reflexive”, for example, though its actual distribution is broader.

A few final suffixes that affect argument structure are illustrated in (11).

(11) Representative Yurok final suffixes: Valence-changing

- |  |                                |            |                          |
|--|--------------------------------|------------|--------------------------|
| a. <b>-ete-</b> ‘transitive/causative’ |                                |            |                          |
| chiwey- <b>ete-</b>                    | ‘crave’                        | chiwey-e-  | ‘be hungry’              |
| kaam-ew- <b>ete-</b>                   | ‘dislike (something’s taste)’  | kaam-ew-e- | ‘taste bad’              |
| myooley- <b>ete-</b>                   | ‘shove, stick (something)’     | myooleye-  | ‘be fixed in the ground’ |
| skuuw- <b>ete-</b>                     | ‘like (something’s taste)’     | skuuw-e-   | ‘taste good’             |
| tek-un- <b>ete-</b>                    | ‘stick (things) together’      | tek-un-e   | ‘be stuck together’      |
| tk-ohp- <b>ete-</b>                    | ‘thicken (something liquid)’   | tk-ohp-e-  | ‘be thick’ (of liquid)   |
| b. <b>-ine-</b> ‘causative’            |                                |            |                          |
| k’nrk- <b>ine-</b>                     | ‘let (something) wilt’         | k’nrk-r-   | ‘wilt’                   |
| l-ohp- <b>ine-</b>                     | ‘scrape out’                   | l-ohp-e-   | ‘molt, come in lumps’    |
| s’rrk- <b>ine-</b>                     | ‘pull (something) apart’       | s’rrk-r-   | ‘come apart’             |
| c. <b>-ume-</b> ‘animate object’       |                                |            |                          |
| kwyr- <b>ume-</b>                      | ‘whistle at (someone)’         | kwyr-rwr-  | ‘whistle’                |
| spyr- <b>ume-</b>                      | ‘blow a whistle at (someone)’  | spyr-rr-   | ‘blow a whistle’         |
| telog- <b>ume-</b>                     | ‘be in pain, resent (someone)’ | telog-e-   | ‘be ill’                 |
| ’rp-ry- <b>ume-</b>                    | ‘tell (someone)’               | ’rp-r-     | ‘tell (something)’       |

Full details of these suffixes’ usage remain to be established. For instance, while *-ine-* in (11b) is clearly causative (the object of an *-ine-* verb is the subject of the corresponding intransitive without *-ine-*), *-ete-* shows several patterns in (11a). The *-ume-* suffix in (11c) is one of several (applicative-like) suffixes that license an added argument with a beneficiary, recipient, or similar role.<sup>3</sup>

### 3. The Development of Noninflected Verbs

At this point, armed with a basic account of Yurok stem-internal morphology, it is possible to examine the morphological structure of noninflected verbs. I will use the term “VN-stem” to refer to a morphological constituent consisting of the initial together with any medial suffixes; an inflected verb consists of a VN-stem, one or more final suffixes, and inflection.<sup>4</sup> Noninflected verbs are simply bare VN-stems, subject to the morphologically conditioned phonological process in (12): a final nonsyllabic segment is deleted if preceded by a nonsyllabic segment.<sup>5</sup>

<sup>3</sup> Note for the record that many medial suffixes select particular final suffixes (in some cases known only in that context); e.g., medial *-o’r-* ‘run’ takes final *-epe-*.

<sup>4</sup> Recall that I treat the thematic vowel as part of the final suffix.

<sup>5</sup> Morphologically, this analysis may seem circular: medial suffixes were defined as those that can occur in noninflected verbs, while final suffixes do not occur in noninflected verbs; and so noninflected verbs are naturally bare VN-stems. The real point is that Yurok has several classes of suffixes, which can be characterized semantically (as above) and also fall into two morphological groups, those that occur in noninflected verbs and those that occur only in inflected verbs.

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- (12) In noninflected verbs: [-syll] → Ø / [-syll] \_\_\_\_ #

As a synchronic effect, the deletion in (12) applies only in noninflected verbs and in no other contexts. Inflected verbs routinely escape (12), for example, as seen in (13) for *e*-stem and *o*-stem third-person singular forms (marked by stem-vowel deletion and glottalization).

- |      |              |                        |                             |
|------|--------------|------------------------|-----------------------------|
| (13) | hookwche-    | → hook <b>kwch</b> '   | '(s/he, it) gambles'        |
|      | hlkyorkwe-   | → hlkyork <b>w</b> '   | '(s/he, it) watches'        |
|      | lehlkeloype- | → lehlkeloy <b>p</b> ' | '(s/he, it) crawls'         |
|      | mr'wrmryke-  | → mr'wrmry <b>k</b> '  | '(it) has as headwaters'    |
|      | tenoowokse-  | → tenoowok' <b>s</b>   | '(s/he) is very wise, rich' |

From the historical point of view, forms like those in (13) escape (12) because the stem vowel originally intervened between the stem and the glottal-stop ending; at that time, the process in (12) would not have been expected to apply.

Surface exceptions to (12) are also common in other parts of speech. As seen in the noninflected verbs in (14), deletion affects final stop + *s* and *rC* sequences, but such sequences do surface in nouns (e.g., *chaanuks* 'baby', *chekws* 'heart') and elsewhere (e.g., *chkwa* 'rk' 'near').

- (14) /tenoowoks/ → *tenoowok* 'be very wise, rich' (inflected *tenoowokse*-)  
 /hlkyorkw/ → *hlkyor* 'look at' (inflected *hlkyorkwe*-)  
 /pegark/ → *pegar* 'dwell, inhabit' (inflected *pegarkoo*-)

The data in (15) show that noninflected verb forms lack final suffixes (they are bare VN-stems) and undergo the deletion process in (12). Inflecting stems are in the left-hand column, with final suffixes printed in boldface; the right-hand columns show the derivation of corresponding noninflected forms, without final suffixes and, in (15b), with deletion as per (12).

- |      |                         |                              |                       |
|------|-------------------------|------------------------------|-----------------------|
| (15) | Inflecting verb stems   |                              | Noninflected verbs    |
| a.   | cheyk-e'r- <b>ono</b> - | 'be small' (trees, etc.)     | /cheyke'r/ → cheyka'r |
|      | ko'm- <b>oyo</b> -      | 'hear'                       | /ko'm/ → ko'm         |
|      | pus-oo'm- <b>ele</b> -  | 'smell of musk'              | /pusoo'm/ → pusoo'm   |
|      | son- <b>owo</b> -       | 'be a certain way'           | /son/ → son           |
| b.   | chprw-rks- <b>imr</b> - | 'miss, remember'             | /chprwrks/ → chprwrk  |
|      | ho'yk'- <b>ete</b> -    | 'lose'                       | /ho'yk'/ → ho'y       |
|      | komch- <b>ume</b> -     | 'know'                       | /komch/ → kom         |
|      | sleko hp- <b>ine</b> -  | 'pull out (something stuck)' | /sleko hp/ → slekoh   |

The ordinary historical cause of morphologically restricted word-final deletion rules (as in the famous case of French masculine adjectives) is that a former suffix protected forms from a regular deletion sound change where it appeared. Where the suffix did not appear, deletion occurred regularly; a morphologically restricted effect was later created when the protecting suffix disappeared. For Yurok, it is

relevant that all Proto-Algonquian nouns ended with a vowel-final suffix expressing gender, number, and obviation status. Yurok does not mark these categories on nouns, and word-final vowel loss is reconstructible for the history of the language, as shown by the representative data in (16), cited from Garrett (2001).

(16)	Proto-Algonquian	Yurok forms with final vowel loss
	*aθwi ‘arrow’	horew ‘object with pointed end’
	*kiila ‘you (sg.)’	ke’l ‘you (sg.)’
	*miina ‘berry’	menomen ‘juneberries’
	*pemyi	pemey ‘grease’
	*penkwi- ‘ashes, powder’	penkw ‘acorn flour’
	*takwa ‘it exists’	’ok’w ‘there is’

The chronology underlying these developments is as follows: the final deletion in (12) occurred as a regular sound change; and then final vowel loss (in nouns and elsewhere) rendered the deletion in (12) opaque, producing the synchronic pattern where deletion is seen only in noninflected verbs. A few representative historical derivations are shown in (17).

(17)		*hlkyorkw	*hlkyorkwe’	*penkwi
	Final [-syll] deletion as in 12	*hlkyor	*hlkyorkwe’	*penkwi
	Final vowel loss	hlkyor	hlkyorkw’	penkw
		‘look at’ (noninflected)	‘s/he looks at’	‘acorn flour’

As implied by the evolution of *hlkyorkw’* in (17), the loss of the stem vowel *e* or *o* in third-person singular verb forms was presumably part of final vowel loss.

#### 4. Against a Truncation Analysis of Noninflected Verbs

Two synchronic analyses can be contemplated for the formation of Yurok noninflected verbs. On one analysis (implicit in Robins’ practice, as noted above), they are formed from inflected forms (or inflectable stems) by truncation of final suffixes (and inflection). On an alternative analysis, they are just forms to which no final suffixes or inflection have been added; morphologically, they are bare VN-stems. On either analysis, noninflected verbs are subject to the rule in (12). In this section I will offer three arguments against the truncation analysis. The three arguments are from typology, argument structure, and discourse function. If these arguments (with the discussion above) are convincing, then noninflected verbs are simply bare VN-stems to which no final suffixes have been added.

In the typology of truncation systems (Weeda 1992, Bat-El 2002), two typical patterns are found. The first is “subtractive” truncation, in which the truncatum (what is truncated) is uniform. For example, as recounted by Bat-El (2002), some Tohono O’odham perfective verbs are derived from imperfectives by deletion of a final consonant. Examples appear in (18a), with the truncatum underlined; two perfectives based on vowel-final imperfectives (no truncation) are shown in (18b).

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- |                     |           |            |
|---------------------|-----------|------------|
| (18)a. hi <u>nk</u> | → hi:n    | ‘to bark’  |
| pi <u>salt</u>      | → pisa    | ‘to weigh’ |
| ga <u>twi</u>       | → gatwi   | ‘to shoot’ |
| heʔe <u>dkad</u>    | → heʔedka | ‘to smile’ |
|                     |           |            |
| b. ci <u>wi</u>     | → ciwi    | ‘to play’  |
| wa <u>wi</u>        | → wacwi   | ‘to bathe’ |

Note that the deletion process in (12) is a subtractive truncation of this type; but the issue at hand is the analysis of the formation of noninflected stems prior to (or independent of) this deletion.

In the other common truncation type, used in the formation of hypocoristics in numerous languages, the target (the result of truncation) is uniform and is usually defined prosodically. For example, in a nominal truncation process described for Yurok by Blevins (2003), nouns of any length are truncated to a uniform C<sub>0</sub>VX template. Examples are shown in (19); the (non-uniform) truncatum is underlined in each example.

- |                                       |         |               |
|---------------------------------------|---------|---------------|
| (19)a. ha <u>a</u> lo <u>p</u>        | → haa   | ‘clear pitch’ |
| we <u>n</u> cho <u>k</u> o <u>w</u> s | → wen   | ‘woman’       |
| wo <u>o</u> me <u>h</u> l             | → woo   | ‘acorn’       |
|                                       |         |               |
| b. ru <u>o</u> wo <u>o</u>            | → rur   | ‘song’        |
| ’we <u>s</u> kweloy                   | → ’wes  | ‘life’        |
|                                       |         |               |
| c. chi <u>n</u> omewes                | → chin  | ‘young man’   |
| tekw <u>o</u> nekws                   | → tekwo | ‘box’         |

The formation of Yurok noninflected verbs resembles neither well-attested truncation pattern. Some additional examples are shown in (20): the noninflected forms themselves are on the right; the inflecting stems they would putatively be derived from are on the left.

- |                                       |                |                                 |
|---------------------------------------|----------------|---------------------------------|
| (20)a. hlkyor <u>kw</u> e-            | → hlkyor       | ‘watch’                         |
| hoh <u>k</u> u <u>m</u> e-            | → hoh          | ‘do, make’                      |
| b. nii’ <u>n</u> ow <u>o</u> -        | → nii’n        | ‘look (for)’                    |
| rii <u>k</u> omoye-                   | → riik         | ‘be full’                       |
| c. skewoks <u>i</u> m <u>e</u> -      | → skewok       | ‘like, want’                    |
| tahtish <u>k</u> emoye-               | → tahtish      | ‘smell rancid’                  |
| d. lehlkeloy <u>p</u> e-              | → lehlkeloy    | ‘crawl’                         |
| megetohl <u>k</u> wo <u>o</u> -       | → megetohl     | ‘look after, take care of, own’ |
| e. chechomeyo’ <u>r</u> ep <u>e</u> - | → chechomeyo’r | ‘trot’                          |
| mrwrksishon <u>o</u> w <u>o</u> -     | → mrwrksishon  | ‘be clean, pure’                |

No phonological generalization fully explains the formation of noninflected verbs as in (14), (15), and (20). The pattern is instead partly morphological, as discussed above; if truncation alone is involved, it is a typologically anomalous truncation pattern.

A second argument against the truncation analysis comes from the syntax of noninflected verbs. This argument is tentative, since the data are still incomplete, but insofar as systematic patterns can be determined it appears that noninflected verbs lack the additional valence contributions of “missing” valence-adding suffixes. If noninflected verbs are derived from inflected forms or inflectable stems, then the argument structure contributions of final suffixes should be present also in the output of truncation. This seems not to be the case, as shown in (21) for the transitive and causative suffixes.<sup>6</sup>

- (21) a. *-ete-* ‘transitive/causative’
- |             |                        |                  |                            |
|-------------|------------------------|------------------|----------------------------|
| ch(y)uup’ry | ‘comb oneself’ (intr.) | ch(y)uup’ry-rtr- | ‘comb (hair)’ (trans.)     |
| mewp-ew     | ‘be strangled’         | mewp-ew-ete-     | ‘strangle’                 |
| pkw-ek-omey | ‘be brought out’       | pkw-ek-omey-ete- | ‘bring out treasures’      |
| srm         | ‘be beaten, killed’    | srm-rtr-         | ‘beat, kill’               |
| s’oop-e’wey | ‘be hit in the mouth’  | s’oop-e’wey-ete- | ‘hit (s.o.) in the face’   |
| toor-a’r    | ‘be horizontal’        | toor-e’r-ete-    | ‘lay across (s.t.)’        |
| wey-ew      | ‘be woven, finished’   | wey-ew-ete-      | ‘weave, finish (a basket)’ |
- b. *-ine-, -ene-* ‘causative’
- |               |                       |                     |                       |
|---------------|-----------------------|---------------------|-----------------------|
| kik-rhl       | ‘be dislocated’       | kik-rhlk-ine-       | ‘dislocate (s.t.)’    |
| mekw-ehl      | ‘be in a heap’        | mekw-ehlk-ene-      | ‘pile (s.t.) up’      |
| men-ehl       | ‘go out’ (of a fire)  | men-ehlk-ene-       | ‘extinguish (a fire)’ |
| s’rks’rrp-rhl | ‘be hit in the mouth’ | s’rks’rrp-rhlk-ine- | ‘hit in the mouth’    |

In each case in (21), a noninflected verb appears on the left and the inflected stem from which it is supposedly derived on the right. The noninflected forms regularly lack the additional arguments licensed by final suffixes. A minimal sentence pair from Trull (2003) is given in (22), where the imperative verb in (22a) has the final suffix *-ete-* (in its partially harmonic form *-rte-* plus imperative glottalization).

- (22) a. Nu chuup’ryrt’es k’e-’lep!  
 GO comb.IMPV.SG 2-hair  
 ‘Go comb your hair!’
- b. Nu chuup’ry!  
 GO comb.NONINFL.  
 ‘Go comb (your hair)!’

<sup>6</sup> Robins (1958:31) writes that noninflected verbs “are formally neither transitive nor intransitive, though in translation and syntactic employment some correspond to inflected transitive verbs and others to intransitive verbs.” His views in this area are perhaps murky because he had not analyzed stem-internal morphology and did not recognize the transitivity suffixes in (21). The transitive verbs whose apparent noninflected counterparts are also transitive are those whose transitivity is not due to a final suffix; if a final suffix transitivizes an intransitive, the noninflected counterpart is apparently intransitive as a rule.

It is harder at present to discern general patterns with applicative-like suffixes of the sort shown in (11c), because their general valence patterns remain somewhat unclear (the typical complexity of psychological verbs).

A third and final argument against the truncation analysis comes from the discourse function of noninflected verbs. Just as the valence-changing effects of final suffixes should be absent in noninflected verbs if they are bare VN-stems, so the modal effects of inflectional suffixes should also be absent. That is, verbs with no (surface, underlying, or historical) inflectional morphology should make no modal contribution to sentence meaning.

The precise consequences of this prediction are hard to assess, but I suggest, following Kiparsky's (1968, 2003) analysis of the Vedic Sanskrit injunctive, that noninflected verbs should appear in two discourse contexts. First, they should appear where a modal meaning is supplied by context, for example in the scope of inflected verbs or in close coordination with them. Second, if the modal semantics of the Yurok indicative is in fact assertive, noninflected verbs might be expected to appear in presuppositional or backgrounded contexts.

Again, conclusions must be tentative until a larger dossier of texts is analyzed, but both predictions seem to explain a range of data. Many noninflected verbs in Yurok texts occur in examples like (23), where an indicative verb *ge'wehl* 'woke up' is asynchronously coordinated with two noninflected verbs, *new* 'see' and *negii'n* 'look'.

- (23) Kohchi 'o **ge'wehl** ku chines, 'ap **new**, temaloh **negii'n** ku 'u-ka'ar.  
once PVB **woke.up.3SG** the young.man PVB **see** in.vain **look** the his pet  
'Once the young man **woke up**, **looked around**, in vain **he looked** for his pet.'  
(Florence Shaughnessy, "The Young Man from Serper," 1951 (Robins 1958:164-167))

Larger discourse units must be studied to evaluate the second prediction, about presuppositional or backgrounded contexts, but here too preliminary data seem to support the prediction. To illustrate, in (24) I give an English translation of Florence Shaughnessy's short Yurok story "The Mourning Dove." Inflected verbs are underlined ("ATTR" = attributive, "IND" = indicative, "SUB" = subordinative), non-inflected verbs ("VN") are underlined and in boldface, and I have divided the story into four episodes.

- (24) Florence Shaughnessy, "The Mourning Dove," 1951 (Robins 1958:155-157), translated
- Once those who inhabit (ATTR) the world all **were gambling** (VN), and the dove too was gambling (IND). He had (IND) a grandfather.
  - There **ran up** (VN) **a messenger** (VN), saying (SUB), *The old man is going to die* (IND). The dove said (IND), *I will gamble* (IND) again, for he was winning (IND).
  - And again **he ran up** (VN) telling (SUB) him, *Well, hurry* (IMPV)! *Your grandfather is going to die* (IND). The dove said (IND), *I will gamble* (IND) again; and if I find (IND) that already he is dead (SUB), *this is what I will do* (IND): *so long as the heavens endure* (IND), *then I will mourn* (IND).
  - And today that is just what he is doing (IND). If somewhere you hear (IND) the dove as **he sits** (VN) there, you will hear (IND) him as it were mourning (IND). Very well he says (IND), *Wee poo poo poo*. And so it is (IND) that still **he is mourning** (VN) today.

The contrast between noninflected and indicative verbs is of particular interest. In (24a) the background is that everybody is gambling (expressed via a noninflected verb), and the narrative involves the dove. In (24b-c) the main narrative involves the conversation of the dove and the messenger; the fact that the messenger ran up is as it were off stage. In (24d) the first noninflected verb appears in a sentence ‘if you hear the dove as he sits there’, where the sitting (noninflected) is background; the second appears in the last sentence in the equivalent of a cleft construction, in a context that must therefore be presuppositional: ‘that is why he is mourning’.

To summarize, while the arguments from syntax and semantics are tentative until a fuller range of data is available and analyzed, a range of evidence suggests that the Yurok noninflected verbs are probably not synchronically and were surely not diachronically derived solely via truncation from inflected verbs or inflecting stems.

## 5. Historical Implications

To reiterate the conclusions of the previous sections, ignoring the phonological change in (12), Yurok noninflected verbs are bare VN-stems (initials with any medial suffixes), while inflected verbs consist of VN-stems as well as final suffixes and inflection. If noninflected verbs did not originate via truncation of inflected verbs, then *inflected verbs must be the newer formation*, based historically on noninflected verbs or their ancestors. Using the term “generic verb” for the ancestor of the final suffix + inflection complex (a formation expressing aktionsart, argument structure, and agreement), the origin of inflected verbs can be schematized as in (25).

(25) Bare VN-stem + generic verb > inflected verb with tripartite stem structure

The tripartite (initial + medial + final) stem structure is pan-Algic, and though my argument has been based on Yurok internal reconstruction, it stands to reason that the agglutinative change in (25) would have happened in Algic, not in the internal history of Yurok. The results of (25) would have been inherited by Algonquian and the Ritwan languages, with the more archaic noninflected verb formation lost in Algonquian and (as far as we know) in Wiyot.<sup>7</sup>

Further evidence that bare VN-stems were once the complements of generic verbs is that Yurok noninflected verbs can still be used as nouns, as shown with a few representative examples in (26). The pattern is extremely common. On the analysis I propose, the phrasal ancestor of inflected verbs was a syntagm in which a generic verb was construed with a bare VN-stem as its complement, in the manner of light verbs and their complements. Presumably the bare VN-stems were in origin syntactically nominal.

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<sup>7</sup> Needless to say, if this scenario is correct, it should be possible to find supporting evidence in Algonquian (and Wiyot). Until such evidence is presented, it is reasonable to regard my proposals (at least in their Algic dimension) as conjectural.

## *Algonquian and Yurok Stem Structure*

(26)		<u>Noun</u>	<u>Noninflected verb</u>	<u>Comparandum</u>
	herikw	‘a cough’	‘to cough’	herikw-one- ‘cough’
	hool-ehl	‘seed, garden’	‘to sow, plant’	
	hool-uul	‘baggage’	‘to carry a load’	hool-uul-ese- ‘carry a load’
	kaap’	‘leaf, greenery’	‘to gather greenery’	
	kep’ehl	‘housepit’	‘there is a housepit’	
	nekom-uy	‘ability’	‘to know how’	nekom-ur-e- ‘swim well’
	po’oh	‘scar’	‘to get well, heal’	
	prkw-rh	‘beak’	‘to peck’	prkw-rhs-rr- ‘peck, knock’
	toor-a’r	‘bar’	‘to be horizontal’	toor-e’r-ete- ‘lay across’

Light verb constructions in general may serve as a typological parallel, but a more precise parallel comes from those languages of northern Australia where inflecting verbs are a closed class and the translation equivalent of ordinary verbs is formed with an open class of noninflecting words serving as the complements of the inflecting verbs. Two such languages are described in the following summary by Schulze-Berndt (2000:69, 532):

[I]n Jaminjung and Ngaliwurru the function of “verbs” in many other languages is fulfilled by members of two distinct parts of speech. The term “verb” (or “generic verb”) is reserved here for members of a closed class of lexemes which obligatorily take verbal inflections. In addition, there is an open class of uninflecting lexemes which translate into languages like English or German as either verbs or adverbs ... Members of this class will be termed “coverbs” here ... Complex verbs of the type described [here] ... constitute an areal feature in Northern Australia.

I have taken the term “generic verb” from this tradition of research; “coverbs” are comparable to the bare VN-stems of my discussion. Important recent studies of Australian coverb + generic verb constructions include those of Schulze-Berndt (2000), Wilson (1999), and Bower (2004). Examples from Wagiman (Wilson 1999) are given in (27), with coverbs in boldface and generic verbs underlined.

- (27) a. **Liri-ma**    nga-ya-nggi    munyaban.  
**swim-ASP**    1SG-go-PAST    other side  
‘I swam to the other side.’
- b. Jahan-gu    mahan    **dilk-ga**    ginggu-nanda-n-ngana?  
what-DAT    here    **stare-ASP**    2SG/1PL-see-PRES-INCL  
‘Why are you staring at us here?’
- c. **Wal**    yaha-ny    lagiyi.  
**grow.PFV**    3SG.become-PPFV    body  
‘Her body has grown.’

As the glosses in (27) suggest, generic verbs contribute general meanings (‘go’, ‘see’, ‘become’), sometimes involving aspect or aktionsart; coverbs supply more specific meanings (‘swim’, ‘stare’, ‘grow’). The comparison with Algic generic verbs and VN-stems, respectively, is striking. Moreover, across a range of north Australian languages surveyed by Schulze-Berndt (2000:532-538), coverb + ge-



neric verb constructions have evolved into inflected preverb-verb compounds, with varying degrees of morphological cohesion in various languages. In short, the reconstructed change in (25) is precisely what we see in living languages.

As a coda, it seems reasonable to assess these proposals areally. Is a VN-stem + generic verb construction plausible in the areal context where Proto-Algic was spoken? It is now generally assumed, following the archaeological and linguistic studies of Denny (1991) and Goddard (1994), that Proto-Algonquian was located at the western periphery of present-day Algonquian territory, and that Proto-Algic may have been spoken in the general Plateau area where present-day Washington, Oregon, and Idaho meet. As Foster (1996:98) puts it, “A middle Columbia River homeland for Wiyot and Yurok is most consistent with the idea of an intermediate homeland location for Proto-Algic.”

In this northwestern areal context, the VN-stem + generic verb construction would be entirely at home. Famously, Chinookan languages have “a characteristic use in many cases of invariable particles accompanied by auxiliary verbs instead of the use of verb-stems to express the main idea” (Sapir 1907:534); Boas (1911: 647) adds that “[p]article verbs [comparable to VN-stems or coverbs] always precede their auxiliary verb [comparable to generic verbs].” Wishram (Upper Chinook) examples are cited in (28) from Sapir (1911); in each example the verb root is -x- ‘do, make’ (underlined and boldface) and the particle verb is printed in boldface.

- (28) a. aga kwô’pt **La’x** gali’xôx  
 now then **in sight** he made it  
 ‘Then he became visible.’
- b. yagô’mEniġ **qxwôL** iki’ax  
 his heart **hanging** it is  
 ‘... his heart is hanging.’
- c. aga kwô’pt **Lq!ô’p** gatci’ux **Lq!ô’p** gali’xôx itc!E’x̣yan yagô’mEniġ  
 now then **cut** he made it **cut** it made itself Merman his heart  
 ‘Then he cut it. Merman’s heart was cut.’
- d. qxi’dau **Ex̣** gatci’ux isk!u’lya itc!E’x̣yan  
 thus **exercising supernatural power** he did to him Coyote Merman  
 ‘Thus Coyote exercised supernatural power on Merman.’
- e. kwô’pt a’ga itc!E’x̣yan **p!a’l’** amxu’xwa  
 then now Merman **being quiet** you will make yourself  
 ‘Now, Merman, you will be quiet.’

Similar structures are found in Kootenai (Morgan 1991:281-283), perhaps closer geographically to the location of Proto-Algic. Such comparisons cannot prove that Proto-Algic had light verb constructions of the proposed type, of course, but they lend credence to a reconstruction based on purely internal considerations.

## 6. Summary

Underlying the tripartite stem structure of Algonquian, Wiyot, and Yurok was a verbal construction with an uninflected word (the ancestor of the Yurok noninflected verb) that contributed most of the lexical meaning and an inflected verb contributing aspect, aktionsart, and inflectional meanings. Already in Proto-Algic this construction was grammaticalized as a tripartite verb, but the uninflected form survived in Proto-Algic and survives to this day in Yurok, whose noninflected verb forms are thus a precious relic of Algic prehistory.

## References

- Bat-El, Outi. 2002. True truncation in colloquial Hebrew imperatives. *Language* 78:651-683.
- Berman, Howard. 1982. A supplement to Robins's Yurok-English lexicon. *International Journal of American Linguistics* 48:197-241.
- Blevins, Juliette. 2003. Yurok syllable weight. *International Journal of American Linguistics* 69:4-24.
- Bloomfield, Leonard. 1946. Algonquian. In C. Osgood, ed., *Linguistic Structures of Native America*, 85-129. (Viking Fund Publications in Anthropology, 6.) New York.
- Boas, Franz. 1911. Chinook. In F. Boas, ed., *Handbook of American Indian Languages*, Part 1, 559-672. (Smithsonian Institution, Bureau of American Ethnology, Bulletin 40.) Washington: Government Printing Office.
- Bowern, Claire Louise. 2004. Bardi verb morphology in historical perspective. Ph.D. diss., Harvard University.
- Denny, J. Peter. 1991. The Algonquian migration from Plateau to Midwest: Linguistics and archaeology. *Papers of the 22nd Algonquian Conference*, 103-124.
- Foster, Michael K. 1996. Language and the culture history of North America. In I. Goddard, ed., *Handbook of North American Indians*, vol. 17, *Languages*, 64-110. Washington: Smithsonian Institution.
- Garrett, Andrew. 2001. Reduplication and infixation in Yurok: Morphology, semantics, and diachrony. *International Journal of American Linguistics* 67: 264-312.
- Goddard, Ives. 1967. The Algonquian independent indicative. *National Museum of Canada Bulletin* 214:66-106.
- Goddard, Ives. 1974. Remarks on the Algonquian independent indicative. *International Journal of American Linguistics* 40:317-327.
- Goddard, Ives. 1975. Algonquian, Wiyot, and Yurok: Proving a distant genetic relationship. In M. D. Kinkade, K. L. Hale, and O. Werner, eds., *Linguistics and Anthropology: In Honor of C. F. Voegelin*, 249-262. Lisse: Peter de Ridder.
- Goddard, Ives. 1994. The west-to-east cline in Algonquian dialectology. In W. Cowan, ed., *Actes du vingt-cinquième Congrès des algonquinistes*, 187-211. Ottawa: Carleton University.

- Kiparsky, Paul. 1968. Tense and mood in Indo-European syntax. *Foundations of Language* 4:30-57.
- Kiparsky, Paul. 2003. Blocking, paradigms, and periphrasis. Unpublished paper (lecture handout), Stanford University.
- Morgan, Lawrence Richard. 1991. A description of the Kutenai language. Ph.D. diss., University of California, Berkeley.
- Proulx, Paul. 1985. Notes on Yurok derivation. *Kansas Working Papers in Linguistics* 10/2:101-143.
- Robins, R. H. 1958. *The Yurok Language: Grammar, Texts, Lexicon*. (University of California Publications in Linguistics, 15.) Berkeley: University of California Press.
- Sapir, Edward. 1907. Preliminary report on the language and mythology of the Upper Chinook. *American Anthropologist* N.S. 9:533-544.
- Sapir, Edward. 1911. Wishram text. In F. Boas, ed., *Handbook of American Indian Languages*, Part 1, 673-677 (Smithsonian Institution, Bureau of American Ethnology, Bulletin 40.) Washington: Government Printing Office.
- Sapir, Edward. 2001. Yurok texts. Edited by Howard Berman. In V. K. Golla and S. O'Neill, eds., *Collected works of Edward Sapir*, vol. 14, *Northwest California linguistics*, 1015-1038. Berlin: de Gruyter.
- Schultze-Berndt, Eva. 2000. Simple and complex verbs in Jaminjung: A study of event categorisation in an Australian language. Ph.D. diss., Katholieke Universiteit Nijmegen.
- Trull, Georgiana. 2003. *Yurok Language Conversation Book*. Klamath, CA: Yurok Tribe.
- Valentine, J. Randolph. 2001 *Nishnaabemwin Reference Grammar*. Toronto: University of Toronto Press.
- Weeda, Donald S. 1992. Word truncation in prosodic morphology. Ph.D. diss., University of Texas at Austin.
- Wilson, Stephen. 1999. *Coverbs and Complex Predicates in Wagiman*. Stanford, CA: CSLI Publications.

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# The Morphological Status of *-ʔat* in Nuu-chah-nulth\*

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## 0. Introduction

Nuu-chah-nulth, part of the Southern Wakashan branch of the Wakashan language family, has a suffix *-ʔat*, which appears on the predicate.<sup>1</sup> The presence of *-ʔat* is associated with syntactic and semantic changes. Sapir (1924), Swadesh (1933), and Sapir and Swadesh (1939) treat it as a passive suffix, as do Rose (1981), Rose and Carlson (1984), Emanatian (1988), and Kim (2000). On the other hand, Whistler (1985) analyses it as an inverse marker similar to that found in Algonquian languages, and Nakayama (1997a, b) argues that *-ʔat* only affects the semantics of the predicate in such a way that the whole predication is framed in terms of the effect of an action, event, or state. The goal of this paper is to provide both a morphological and syntactic analysis of *-ʔat*. I claim that *-ʔat* is a passive marker, providing relevant data, which are from my own fieldwork. Interestingly, the use of *-ʔat* is not always optional: the distribution of a *-ʔat* construction is subject to the person hierarchy (cf. Silverstein 1976, Klopeid 1978). This approach will reconcile the morphological, syntactic, and semantic properties of *-ʔat*, leading to the conclusion that *-ʔat* is a passive suffix which is sensitive to the person hierarchy.

## 1. Preliminary Data: Background<sup>2</sup>

In Nuu-chah-nulth, *-ʔat* is sometimes obligatorily present, sometimes optional, and sometimes obligatorily absent with a transitive verb. The distribution of *-ʔat* is determined by a person feature associated with each argument of the verb.<sup>3</sup>

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<sup>1</sup> See Jacobsen (1973) for Makah, and Klopeid (1978) for Nitinat (Ditidaht). Both studies provide an analysis of Makah and Nitinat counterparts of *-ʔat*, respectively.

<sup>2</sup> Abbreviations used in this paper are: CAUS = causative, DEIC = deictic, IND = indicative, INDEF = indefinite, INT = interrogative, MOM = momentaneous, POSS = possessive, REL = relative, Quo = quotative, sg = singular, pl = plural.

<sup>3</sup> *-ʔat* appears not only on the predicate, but also in the inalienable possessive structure on a nominal, as shown in (i):

### 1.1. Contexts Where *-ʔat* Is Obligatorily Present

*-ʔat* is obligatory when a 3<sup>rd</sup> person argument acts upon a 1<sup>st</sup>/2<sup>nd</sup> person argument. In (1), where a 3<sup>rd</sup> person *Mary* is the Agent and a 1<sup>st</sup> or 2<sup>nd</sup> person is the Patient, (1a) is acceptable with *-ʔat* on the predicate. But when *-ʔat* is absent, the sentence is ill-formed as shown in (1b).

- (1) a. yaaʔakapʔatsiʃ/ʔick (ʔuhʔat)<sup>4</sup> Mary.  
       yaaʔak-ʔap-ʔat-siʃ/ʔick ʔuhʔat Mary  
       care-CAUS-ʔat-1sg/2sg.IND by Mary  
       ‘I/You am/are loved by Mary (= Mary loves me/you).’  
   b. \*yaaʔakapʔiʃ Mary siya/suwa.  
       yaaʔak-ʔap-ʔiʃ Mary siya/suwa  
       care-CAUS-3sg/IND Mary me/you  
       ‘Mary loves me/you.’

### 1.2. Contexts Where *-ʔat* Is Optional<sup>5</sup>

The examples in (2) show that if a 3<sup>rd</sup> person acts upon another 3<sup>rd</sup> person, then the presence/absence of *-ʔat* does not affect the grammaticality of a sentence. Therefore, both (2a) with *-ʔat* and (2b) without are acceptable.

- (2) a. yaaʔakapʔiʃ John (ʔuhʔat) Mary  
       yaaʔak-ʔap-ʔat-ʔiʃ John ʔuhʔat Mary  
       care-CAUS-ʔat-3sg/IND John by Mary  
       ‘John is loved by Mary(=Mary loves John).’  
   b. yaaʔakapʔiʃ Mary John  
       yaaʔak-ʔap-ʔiʃ Mary John  
       care-CAUS-3sg/IND Mary John  
       ‘Mary loves John.’

### 1.3. Contexts Where *-ʔat* Is Obligatorily Absent

*-ʔat* is forbidden whenever a 1<sup>st</sup> /2<sup>nd</sup> person is the Agent. There are four cases to consider: 1<sup>st</sup> person Agent-2<sup>nd</sup> person Patient, 2<sup>nd</sup> Agent-1<sup>st</sup> Patient, 1<sup>st</sup> Agent-3<sup>rd</sup> Patient, and 2<sup>nd</sup> Agent-3<sup>rd</sup> Patient; each case is illustrated with separate examples.

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- (i) a. ʔuhciʔatqs ‘my head’      b. ʔuhciʔatʔi ‘his/her head’  
       ʔuhciʔi-ʔat-qs                ʔuhciʔi-ʔat-ʔi  
       head-POSS-1sg                head-POSS-3sg

Although I do not deal with the latter in this paper, their relationship requires further research. A similar phenomenon is attested in Navajo, where the 3sg pronominal prefixes *yi-* and *bi-* are used in both direct/inverse alternations and possession.

<sup>4</sup> Jacobsen (1979) points out that for Makah, another Southern Wakashan language, all prepositions including the Makah counterpart of the Nuuchah-nulth *ʔuhʔat* are prepositional clauses rather than phrases. I leave this issue for further study.

<sup>5</sup> Strictly speaking, in a discourse context, the use of *-ʔat* cannot be free even with 3<sup>rd</sup>-person participants, which I will discuss in detail later. Therefore, by “optional” I mean that its use is SYNTACTICALLY free in a discourse-neutral context.

(3) is an example where a 1<sup>st</sup> person acts upon a 2<sup>nd</sup> person. With *-ʔat* on the predicate, (3a) is ungrammatical. This contrasts with the well-formed sentence (3b), where the predicate occurs with *-ʔat*.

- (3) a. \*yaaʔakʌpatʔick (ʔuhʔat) siʔa      b. yaaʔakuksiš      suʔa  
       yaaʔak-ʔap-**ʔat**-ʔick ʔuhʔat siʔa      yaaʔak-uk-siš      suʔa  
       care-CAUS-ʔat-2sg/IND by me      care-CAUS-1sg/IND you  
       ‘You are loved by me(=I love you).’      ‘I love you’

The sentences in (4) have a 2<sup>nd</sup> person Agent ‘you’ and a 1<sup>st</sup> person Patient ‘I/me’. (4a) is ill-formed with *-ʔat* on the predicate, but (4b) is well-formed without *-ʔat*:

- (4) a. \*yaaʔakapatsiš (ʔuhʔat) suwa      b. yaaʔakapʔick siya.  
      yaaʔak-ʔap-ʔat-siš ʔuhʔat suwa      yaaʔak-ʔap-ʔick siya.  
      care-CAUS-ʔat-1sg/IND by you      care-CAUS-2sg/IND me  
      ‘I am loved by you(=You love me).’      ‘You love me’

In (5), where the Agent is 1<sup>st</sup> or 2<sup>nd</sup> person and the Patient is 3<sup>rd</sup> person *Mary*, (5a) is unacceptable with *-ʔat*, but (5b) is acceptable without *-ʔat*:

- (5) a. \*yaaʔakʌpatʔiʃ Mary (ʔuhʔat) siya/suwa.  
       yaaʔak-ʔap-ʔat-ʔiʃ Mary ʔuhʔat siya/suwa  
       care-CAUS-ʔat-3sg/IND Mary by me/you  
       ‘Mary is loved by me/you (= I/You love Mary).’  
   b. yaaʔakuksiʃ/yaaʔakʌpʔick Mary.  
       yaaʔak-uk-siʃ/yaaʔak-ʔap-ʔick Mary  
       care-CAUS-1sg.IND/care-CAUS-2sg.IND Mary  
       ‘I/You love Mary.’

## 2. The Morphological and Syntactic Behaviour of *-ʔat*

## 2.1. Word Order

Nuu-chah-nulth has an unmarked word order, VSO, in an active clause with two overt arguments with an Agent NP occupying the subject position and a Patient NP occupying the object position. If the postverbal NP is a subject, we predict that the Patient NP will occupy the postverbal position in a *-ʔat* clause.

Comparison of (6a) and (6b) with respect to word order reveals that this is the case. In (6a), which is an active clause, the Agent *Mary* immediately follows the verb, followed by the Patient *John*. In (6b), which is a *-?at* clause, the Patient *John* immediately follows the verb.

- (6) a. Active  
yaaʔakapʔiʃ Mary **John**.  
yaaʔakap-ʔiʃ Mary John  
love-3sg/IND Mary John  
'Mary loves John.'
- b. -ʔat clause  
yaaʔakapʔatʔiʃ **John** (ʔuhʔat) Mary.  
yaaʔakap-ʔat-ʔiʃ John ʔuhʔat Mary  
love-ʔat-3sg/IND John by Mary  
'John is loved by Mary/Mary loves John.'

One might suspect that even if the Agent is realized by an oblique PP, this does not necessarily imply that the Patient is the subject in a *-ʔat* clause. However, the changes of argument order in an active/*-ʔat* pair are not simply changes of word order; they are associated with the changes of grammatical relations of NPs. Therefore, the differences in word order between an active and a *-ʔat* clause are syntactically significant.

## 2.2. A Pronominal Suffix Is a Subject Agreement Marker

Nuu-chah-nulth has no morphological case system. Grammatical relations of nominals are disambiguated not only by unmarked word order, but also by a pronominal suffix on the predicate. I argue that this pronominal suffix is a subject agreement marker.

The pronominal subject suffix system is very complicated, exhibiting a different form according to each Mood. There is no object marking system in Nuu-chah-nulth and the pronominal suffixes identify the subject only. When an active transitive verb occurs with only one overt argument, that argument is always interpreted as an object as shown in (7). The identity of the null subject argument is made clear by the subject agreement marker.

- (7) Active
- |    |                                   |       |    |                                    |       |
|----|-----------------------------------|-------|----|------------------------------------|-------|
| a. | yaaʔakapʔiʃ                       | John. | b. | yaakapʔiʃʔat                       | John. |
|    | yaaʔakap-ʔiʃ                      | John  |    | yaaʔakap-ʔiʃʔat                    | John  |
|    | love-3sg/IND                      | John  |    | love-3pl/IND                       | John  |
|    | ‘She loves John/*John loves her.’ |       |    | ‘They love John/*John loves them.’ |       |

Changes in the word order of a transitive clause with two overt NPs accompany changes in the pronominal suffix. In (8a), the subject is *Mary* and the pronominal suffix *-ʔiʃ* ‘3<sup>rd</sup> sg’ is used, while in (8b), the subject is *John and Bill* and here a different suffix, *-ʔiʃʔat* ‘3<sup>rd</sup> pl’, is used. Consequently, these examples establish that the pronominal suffix is a subject agreement marker.

- (8) Active
- |    |                             |             |         |             |       |
|----|-----------------------------|-------------|---------|-------------|-------|
| a. | kaapapʃiʔaʔʔiʃ              | <b>Mary</b> | John    | ʔuhʔiiʃ     | Bill. |
|    | kaapapʃiʔaʔ-ʔiʃ             | Mary        | John    | ʔuhʔiiʃ     | Bill  |
|    | like-3sg/IND                | Mary        | John    | and         | Bill  |
|    | ‘Mary loves John and Bill.’ |             |         |             |       |
| b. | kaapapʃiʔaʔʔiʃʔat           | <b>John</b> | ʔuhʔiiʃ | <b>Bill</b> | Mary. |
|    | kaapapʃiʔaʔ-ʔiʃʔat          | John        | ʔuhʔiiʃ | Bill        | Mary  |
|    | like-3pl/IND                | John        | and     | Bill        | Mary  |
|    | ‘John and Bill love Mary.’  |             |         |             |       |

Given that the pronominal agreement suffix provides information about the identity of the subject, we expect that if an agreement marker is changed in an active/*-ʔat* pair, this should reflect a change in the grammatical relations of NPs.

We will see how it works by the comparison of (8) and (9). In the pair of (8a) and (9a), the subject marker *-ʔiš* ‘3sg’ identifies the postverbal *Mary* as the subject in an active sentence, (8a), and the subject marker *-ʔišʔaʔ* ‘3pl’ identifies the postverbal *John and Bill* as the subject in its *-ʔat* counterpart, (9a). Also in the pair of (8b) and (9b), the subject agreement marker is different depending on the postverbal NP, *-ʔišʔaʔ* ‘3pl’ and *-ʔiš* ‘3sg’, respectively. This tells us that the presence of *-ʔat* causes a change in the grammatical relation of the Patient NP. That is, the subject agreement marking system provides evidence that the Patient is promoted to the subject in a *-ʔat* clause. The objects *John and Bill* in (8a) and *Mary* in (8b) become a subject in each *-ʔat* counterpart, (9a) and (9b), respectively.

(9) *-ʔat* clause

- a. kaapapšiʔaʔatʔišʔaʔ      **John** ʔuhʔiis **Bill** ʔuhʔat Mary.  
 kaapapšiʔaʔat-ʔat-ʔišʔaʔ      John ʔuhʔiis Bill ʔuhʔat Mary  
 like-ʔat-3pl/IND      John and Bill by Mary  
 ‘John and Bill are loved by Mary/Mary loves John and Bill.’
- b. kaapapšiʔaʔatʔiš      **Mary** ʔuhʔat John ʔuhʔiis Bill.  
 kaapapšiʔaʔat-ʔat-ʔiš      Mary ʔuhʔat John ʔuhʔiis Bill  
 like-ʔat-3sg/IND      Mary by John and Bill  
 ‘Mary is loved by John and Bill/John and Bill love Mary.’

### 2.3. Subject Control

A subject control predicate requires the subject of the subordinate clause to be coreferential to the subject of the main predicate. In (10a), the subject of *ṇamiʔšiʔit* ‘try’ and the subject of *kʷikʷixasiʔ* ‘kiss’ are coreferential to each other, i.e., ‘they’. On the other hand, in (10b), the subjects of each verb, ‘they’ and *Mary*, are not coreferential and the sentence is ungrammatical.

- (10) a. ṇamiʔšiʔitʔišʔaʔ      kʷikʷixasiʔ      John.  
 ṇamiʔšiʔit-mit-ʔišʔaʔ      kʷikʷixasiʔ      John  
 try-PAST-3pl/IND      kiss      John  
 ‘They tried to kiss John.’
- b. \*ṇamiʔšiʔitʔišʔaʔ      kʷikʷixasiʔ      Mary      John.  
 ṇamiʔšiʔit-mit-ʔišʔaʔ      kʷikʷixasiʔ      Mary      John  
 try-PAST-3pl/IND      kiss      Mary      John  
 ‘They tried for Mary to kiss John.’

Based on the syntactic behaviour of a subject control predicate, it is predicted that the presence of *-ʔat* in a sentence with a subject control predicate causes the change of the subject of the predicate on which *-ʔat* appears. The change of the subject results from the promotion of the Patient. (11) shows that this prediction is borne out:



(11) *-ʔat* clause

- a. \**ḥamiṭ-šiṭ-it-ʔiṣ-ʔaṭ*      *kʷikʷixaši-ʔat*      John.  
      *ḥamiṭ-šiṭ-mit-ʔiṣ-ʔaṭ*      *kʷikʷixašiṭ-ʔat*      John  
      try-PAST-3pl/IND      kiss-ʔat      John  
      ‘They tried for John to be kissed’
- b. *ḥamiṭ-šiṭ-it-ʔiṣ-ʔaṭ*      *kʷikʷixaši-ʔat*      ʔuḥ-ʔat      John.  
      *ḥamiṭ-šiṭ-mit-ʔiṣ-ʔaṭ*      *kʷikʷixašiṭ-ʔat*      ʔuḥ-ʔat      John  
      try-PAST-3pl/IND      kiss-ʔat      by      John  
      ‘They tried to be kissed by John.’

The ungrammaticality of (11a), which is a *-ʔat* counterpart of (10a), shows the subject of the main clause and the subject of the subordinate clause are not identical: the subject position of the subordinate predicate is occupied by *John*, which is in the object position in the active counterpart (10a), while the subject of the main clause is occupied by a 3<sup>rd</sup> pl. ‘they’. On the other hand, in (11b), which is a *-ʔat* counterpart of an ungrammatical active clause like ‘They<sub>i</sub> tried for John to kiss them<sub>i</sub>’, the presence of *-ʔat* makes this sentence grammatical since the Patient object is promoted to the subject of ‘kiss’, in which case the subject is identical with the subject of the main predicate ‘try’.

## 2.4. The Agent in a *-ʔat* Clause

In this section I provide evidence that the Agent NP is an adjunct, not a subject.

### 2.4.1. Possessive Structure

In Nuuchahnulth, possession is expressed by attaching a possessive suffix to a possessed nominal root, the antecedent NP of the possessive pronominal expression necessarily occupying the subject position. The position of the antecedent, therefore, determines the grammaticality of sentences, which eventually gives evidence that the Agent NP is not a subject in a *-ʔat* construction. This is illustrated in (12), an active clause, and in (13), a *-ʔat* clause. First, (12a-b) exhibit a subject-object asymmetry in terms of coreference between an antecedent and a possessive pronominal suffix. In (12a), the NP *John* is a subject and the NP *ʔuušh̥yumsukʔi* ‘his friend’ is an object, where the possessive and *John* refer to the same entity. In (12b), the NP *ʔuušh̥yumsukʔi* ‘his friend’ is a subject and the NP *John* is an object, where again the possessive and *John* refer to the same entity as indicated by the coindexation. Here, note that the same sentence can also mean ‘He<sub>i</sub> saw John<sub>j</sub>’s friend’, which is grammatical if *He* refers to another person, not *John*. On the other hand, in (13a), which is a *-ʔat* counterpart of (12a), the antecedent *John* follows the NP *ʔuušh̥yumsukʔi* ‘his friend’, which is in the subject position. This leads to an ungrammatical sentence. In (13b), which is a *-ʔat* counterpart of (12b), the antecedent *John*, in the subject position, precedes the NP *ʔuušh̥yumsukʔi* ‘his friend’, and unlike the latter, this sentence is grammatical.

(12) Active clause

- a. naatsiičiʔitʔiš      **John** ʔuušhʔumsukʔi.  
 naatsiičiʔ-mit-ʔiš    John ʔuušhʔums-ukʔi  
 see-PAST-3sg/IND    John<sub>i</sub> friend-3sg/POSS<sub>i</sub>  
 ‘John<sub>i</sub> saw his<sub>i</sub> friend.’
- b. naatsiičiʔitʔiš      ʔuušhʔumsukʔi    **John.**  
 naatsiičiʔ-mit-ʔiš    ʔuušhʔums-ukʔi    John  
 see-PAST-3sg/IND    friend-3sg/POSS<sub>i</sub>    John<sub>i</sub>  
 \*‘His<sub>i</sub> friend saw John<sub>i</sub>.’

(13) -ʔat clause

- a. naatsiičiʔanitʔiš      ʔuušhʔumsukʔi    (ʔuhʔat)    **John.**  
 naatsiičiʔ-mit-ʔiš    ʔuušhʔums-ukʔi    ʔuhʔat    John  
 see-ʔat-PAST-3sg/IND    friend-3sg/POSS<sub>i</sub>    by      John<sub>i</sub>  
 \*‘His<sub>i</sub> friend was seen by John<sub>i</sub>/John saw his friend.’
- b. naatsiičiʔanitʔiš      **John** (ʔuhʔat) ʔuušhʔumsukʔi.  
 naatsiičiʔ-mit-ʔiš    John ʔuhʔat ʔuušhʔums-ukʔi  
 see-ʔat-PAST-3sg/IND    John<sub>i</sub>    by      friend-3sg/POSS<sub>i</sub>  
 ‘John<sub>i</sub> was seen by his<sub>i</sub> friend./His friend saw John’

**2.4.2. Scrambling**

In Nuu-chah-nulth, an argument can be extracted from its original position, but an oblique PP cannot. In (14b), the object *ʔuušhʔumsukʔi* ‘his friend’ is extracted from its original position, the position following the subject. However, this sentence is still grammatical. On the other hand, in a -ʔat construction, an oblique PP (*ʔuhʔat*) *ʔuušhʔumsukʔi* cannot move to the front of the subject, as seen in (15b) and (16b) (also see Rose 1981).

(14) Active clause

- a. naatsiičiʔitʔiš      John    **ʔuušhʔumsukʔi.**  
 naatsiičiʔ-mit-ʔiš    John    ʔuušhʔums-ukʔi  
 see-PAST-3sg/IND    John    friend-3sg/POSS  
 ‘John saw his friend.’
- b. naatsiičiʔitʔiš      **ʔuušhʔumsukʔi**    John.  
 naatsiičiʔ-mit-ʔiš    ʔuušhʔums-ukʔi    John  
 see-PAST-3sg/IND    friend-3sg/POSS    John  
 ‘John saw his friend.’

(15) -ʔat clause

- a. naatsiičiʔanitʔiš      John    **ʔuhʔat**    **ʔuušhʔumsukʔi.**  
 naatsiičiʔ-mit-ʔiš    John    ʔuhʔat    ʔuušhʔums-ukʔi  
 see-ʔat-PAST-3sg/IND    John    by      friend-3sg/POSS  
 ‘John was seen (by) his friend/His friend saw John.’

- b. \*naatsiici?anit?iš      ?uh?at    ?uušh̥yumsuk?i    John.  
       naatsiici?at-mit-?iš    ?uh?at    ?uušh̥yums-uk?i    John  
       see-?at-PAST-3sg      by          friend-3sg/POSS    John  
       ‘John was seen (by) his friend.’
- (16) a. naatsiici?anit?iš      John    ?uušh̥yumsuk?i.  
       naatsii-?at-mit-?iš      John    ?uušh̥yums-uk?i  
       see-?at-PAST-3sg/IND    John    friend-3sg/POSS  
       ‘John was seen (by) his friend/His friend saw John.’
- b. \*naatsiici?anit?iš      ?uušh̥yumsuk?i    John.  
       naatsiici?at-mit-?iš    ?uušh̥yums-uk?i    John  
       see-PAST-3sg/IND      friend-3sg/POSS    John  
       ‘John was seen (by) his friend./His friend saw John’

These examples show that the PP oblique is not an argument, since it exhibits differences from an argument with respect to scrambling. This is consistent with the claim that the Agent of a *-?at* construction occupies an adjoined position.

### 2.4.3. Optional Oblique PP

Another property of an adjunct is optionality and an oblique PP in Nuu-chah-nulth exhibits this property as well: it can be omitted. (17b) shows that despite the lack of an Agent NP, the sentence is available, giving evidence that the oblique is an adjunct and thus the Agent is suppressed to an adjunct in a *-?at* clause.

- (17) *-?at* clause
- a. yaa?akap?at?iš      John    ?uh?at    **Mary.**  
       yaa?akap-?at-?iš    John    ?uh?at    Mary  
       love-?at-3sg/IND    John    by          Mary  
       ‘John is loved by Mary/Mary loves John.’
- b. yaa?akap?at?iš      John.  
       yaa?akap-?at-?iš    John  
       love-?at-3sg/IND    John  
       ‘John is loved/(someone) loves John.’

In sum, the syntactic tests of active/*-?at* pairs show that (i) the Agent of an active clause is suppressed to an oblique PP or omitted in a *-?at* clause and (ii) the Patient of an active clause is promoted to the subject in a *-?at* clause. However, we have observed that these syntactic phenomena are not observable in every combination of persons. The distribution of *-?at* is sensitive to person features. The next section considers in more detail the person restrictions that are associated with *-?at*.

## 3. The Person Hierarchy

In Nuu-chah-nulth the most salient discourse referent, i.e., the topic, must occupy

the subject position in surface structure.<sup>6</sup> In a discourse context, speech act participants (SAP), which are 1<sup>st</sup> and 2<sup>nd</sup> person, are more topical than 3<sup>rd</sup> person. This is a universal phenomenon, which determines the person hierarchy. Therefore, unless the Agent is less topical than the Patient, only an active construction is available as in (18). On the other hand, if the Patient is more topical than the Agent, a *-ʔat* construction is enforced, allowing the more topical Patient to occupy the subject position as in (19). In addition, both an active and a *-ʔat* construction are available in a discourse-neutral context when the participants are all 3<sup>rd</sup> person as in (20).

- (18) a. \*yaaʔakapʔatʔiʃ Mary ʔuhʔat siʔa.  
           yaaʔakap-ʔat-ʔiʃ Mary ʔuhʔat siʔa  
           love-ʔat-3sg/IND Mary by me  
           ‘Mary is loved by me/I love Mary.’  
       b. yaaʔakuksiʃ Mary.  
           yaaʔakuk-siʃ Mary  
           love-1sg/IND Mary  
           ‘I love Mary.’
- (19) a. yaaʔakapʔatsiʃ ʔuhʔat Mary.  
           yaaʔakap-ʔat-siʃ ʔuhʔat Mary  
           love-ʔat-1sg/IND by Mary  
           ‘I am loved by Mary/Mary loves me.’  
       b. \*yaaʔakapʔiʃ Mary siʔa.  
           yaaʔakap-ʔiʃ Mary siʔa  
           love-3sg/IND Mary me  
           ‘Mary loves me.’
- (20) a. yaaʔakapʔatʔiʃ John ʔuhʔat Mary.  
           yaaʔakap-ʔat-ʔiʃ John ʔuhʔat Mary  
           love-ʔat-3sg/IND John by Mary  
           ‘John is loved by Mary/Mary loves John.’  
       b. yaaʔakapʔiʃ Mary John.  
           yaaʔakap-ʔiʃ Mary John  
           love-3sg/IND Mary John  
           ‘Mary loves John.’

We can also see that, in a discourse context, if the participants are all 3<sup>rd</sup> person, an active or *-ʔat* construction is alternatively used, depending upon whether the topic plays a role of Agent or Patient. Consider the following text, which is excerpted from Sapir and Swadesh (1939), which deals with the Tseshah dialect.

- (21) *qʷiyʔhʔaqakič tanakmis* ‘What Mosquitoes are made of’  
       a. ...ʔiqhok wawaʔatʔitq... (Sapir and Swadesh 1939:15)  
           Lit: what he (the chief) had been told ‘what (his child) had said to him’  
       b. ...qʷiqhʔatoʔsi qaʔhkwʔapʔat... (Sapir and Swadesh 1939:15)  
           ‘what it was that brought it about that people (neighbours) were killed off’  
       c. ...ʔawičʔaʔ ʔawitʔaʔʔisʔi... (Sapir and Swadesh 1939:16)  
           ‘the little young man approach now’  
       d. ...witwaʔʔi poʔniqsaʔaʔ ʔaʔaxpaʔʔiʔat... (Sapir and Swadesh 1939:16)  
           Lit: .. and the little young man was speared at by all shooting at one mark.  
           ‘the warriors ran down to the beach and speared at him, all at once’

<sup>6</sup> According to the definition of “topic” by the Prague school, a topic is a contextually bound element having to do with information known from the context, from the situation, or from general conditions of the given utterance. Also, the topical element must be definite.

This is one of the 44 folk tales published in *Nootka Texts*. In the story, whenever a 3<sup>rd</sup> person topic plays a thematic role of Patient, a *-ʔat* construction is used. At first, in (21a), the topic of the story is the chief, whose daughter's son is killing neighbours. In (21b), the topic is changed to neighbours, who are being killed by the chief's grandson. In (21c-d), the topic is the young man, who is killing neighbours: in (21c), he is the Agent and thus an active construction is used, while in (21d), he is the Patient, who is caught and speared by the warriors.

As seen above, discourse sensitivity applies to a sentence which has 3<sup>rd</sup> person participants only. Also, consider the following examples: a *-ʔat* construction is preferred if one of the participants is more topical than the other, as in (22), or obligatory, as in (23).

- (22) a. ʔačaqḥač kaapap Mary.  
           ʔačaq-ḥač kaapap Mary  
           who-3sg/INT love Mary  
           ‘Who loves Mary/Who is it (that) loves Mary?’  
       b. ʔačaʔathāč kaapaʔat Mary.  
           ʔačaq-ʔat-ḥač kaapap-ʔat Mary  
           who-ʔat-3sg/INT love-ʔat Mary  
           ‘By whom is Mary loved/Who is it (that) Mary is loved by?’

- (23) a. \*ʔuḥmitʔiš ḥaa yaqmitii kʷikʷixašiḥ Mary.  
           ʔuḥ-mit-ʔiš ḥaa yaq-mit-ii kʷikʷix-as-šiḥ Mary  
           3sg/pl-PAST-3sg/IND DEIC REL-PAST-3sg/REL kiss-cheek-MOM Mary  
           ‘This is (the one) who kissed Mary on the cheek.’  
       b. ʔuḥʔanitʔiš ḥaa yaʔanitii kʷikʷixašiḥ Mary.  
           ʔuḥ-ʔat-mit-ʔiš ḥaa yaq-ʔat-mit-ii kʷikʷix-as-šiḥ Mary  
           3sg/pl-ʔat-PAST-3sg/IND DEIC REL-ʔat-PAST-3sg/REL kiss-cheek-MOM Mary  
           ‘This is (the one) by whom Mary was kissed on the cheek.’

A 3<sup>rd</sup> person *Mary* occupies the object position in (22a), which is an active construction, and the subject position in (22b), which is a *-ʔat* construction. The Nuu-chah-nulth speakers strongly prefer the latter, however, when the discourse topic is *Mary*.

In the case of relative structures such as (23), only a *-ʔat* construction is possible. This is due to a clash between topic and focus. According to Bresnan and Kanerva (1989), the extracted element in a relative clause is focused, and elements cannot simultaneously be foci and topics. This means that in the subject extraction context, the canonical topic cannot be in the subject position, and thus passivization is enforced as in (23b). This leads to a sentence where a subject position is occupied by a promoted Patient, which provides another piece of evidence that the Patient is promoted to a subject position in a *-ʔat* construction. As a result, an extraction process occurs from an adjunct position, which is an oblique. This raises a question: is it generally possible to extract obliques in Nu-

chah-nulth? As we discussed above, we cannot extract an oblique from its original position in a simple sentence. Therefore, it seems that the availability of the extraction of an oblique is structure-dependent. This requires further research.

Section 2 provides much syntactic evidence that a Patient NP is promoted to a subject position and an Agent NP is suppressed to an adjunct position in a *-ʔat* construction. These two syntactic processes are typical of the passive. An apparently unique property of the Nuuchahnulth passive is that it is sensitive to the person hierarchy, unlike Indo-European languages (like English, German, etc.). Some previous studies, however, show that the person/animacy hierarchy is involved in the formation of passive as well (cf. Jelinek and Demers (1983) for Lummi, Forrest (1994) for Bella Coola, and Jelinek (1990) for Southern Tiwa, among others). These findings dismiss the argument that the person hierarchy is the only criterion to determine whether a construction is active or inverse.

In sum, a topic, which is higher in the person hierarchy, must occupy a subject position in Nuuchahnulth, and if this convention is disrupted, then a *-ʔat* construction, i.e., passivization, is enforced. On the other hand, if both the Agent and the Patient are in the same hierarchy, i.e., 3<sup>rd</sup> person, then topicality determines the proper construction: if the topic is Patient, then a *-ʔat* structure; if Agent, then an active structure.

#### **4. Conclusion**

I have investigated the morphological (and syntactic) status of *-ʔat*. The distribution of *-ʔat* turns out to be determined by person features associated with arguments of a verb. In addition, when a less topical element is an Agent, *-ʔat* appears on the predicate, and when a more topical element is an Agent, an active construction is used. I have provided evidence for both the morphological and syntactic properties of *-ʔat*. The person hierarchy explains the distribution of *-ʔat* and the grammaticality of a sentence, which is basically associated with changes of a grammatical relation of an argument. To conclude, the *-ʔat* construction is a passive sensitive to the person hierarchy.

#### **References**

- Bresnan, Joan, and Jonni M. Kanerva. 1989. Locative inversion in Chichewa: A case study of factorization in grammar. *Linguistic Inquiry* 20:1-50.
- Emanatian, Michele. 1988. The Nootka passive revisited. In W. Shipley, ed., *In Honor of Mary Haas*, 265-291. Berlin: Mouton de Gruyter.
- Forrest, Linda B. 1994. The de-transitive clauses in Bella Coola: Passive vs. inverse. In T. Givón, ed., *Typological Studies in Language: Voice and Inversion*, 147-168. Amsterdam: John Benjamins.
- Jacobsen, William H., Jr. 1973. The pattern of Makah pronouns. Paper presented at the 8th International Conference on Salish Languages. Eugene, OR.

- Jacobsen, William H., Jr. 1979. Noun and verb in Nootkan. In B. S. Efrat, ed., *The Victoria Conference on Northwestern Languages*, 1976, 83-153. British Columbia Provincial Museum, Heritage Record No. 4.
- Jelinek, Eloise, and Richard A. Demers. 1983. The agent hierarchy and voice in some Coast Salish languages. *International Journal of American Linguistics* 49:167-185.
- Jelinek, Eloise. 1990. Grammatical relations and coindexing in inverse systems. In K. Dziwirek, P. Farrell, and F. Mejias-Bikandi, eds., *Grammatical Relations: A Cross-Theoretical Perspective*, 227-246. Stanford: CSLI.
- Kim, Eun-Sook. 2000. The morphology and syntax of *-ʔat* in Nuuchah-nulth in the Minimalist Theory. In H.-K. Moon, ed., *In Honour of Professor Young-Jae Lee*, 237-281. Seoul: Korea University Press.
- Klokeid, Terry J. 1978. Surface structure constraints and Nitinaht enclitics. In E.-D. Cook and J. Kaye, eds., *Linguistic Structures of Native Canada*, 157-176. Vancouver: University of British Columbia Press.
- Nakayama, Toshihide. 1997a. Discourse-pragmatic dynamism in Nootka morphosyntax. Ph.D. diss., University of California, Santa Barbara.
- Nakayama, Toshihide. 1997b. Functions of the Nootka (Nuuchah-nulth) 'passive' suffix. *International Journal of American Linguistics* 63:412-431.
- Rose, Suzanne M. 1981. Kyuquot grammar. Ph.D. diss., University of Victoria.
- Rose, Suzanne M., and Barry F. Carlson. 1984. The Nootka-Nitinaht passive. *Anthropological Linguistics* 26(1):1-12.
- Sapir, Edward. 1924. The rival whalers, a Nitinat story (Nootka text with translation and grammatical analysis. *International Journal of American Linguistics* 3:76-102
- Sapir, Edward, and Morris Swadesh. 1939. *Nootka Texts: Tales and Ethnological Narratives with Grammatical Notes and Lexical Materials*. Philadelphia: Linguistic Society of America.
- Silverstein, Michael. 1976. Hierarchy of features and ergativity. In R. M. W. Dixon, ed., *Grammatical Categories in Australian Languages*, 112-171. Canberra: Australian Institute of Aboriginal Studies.
- Swadesh, Morris. 1933. *Internal Economy of the Nootka Word*. Ph.D. diss., Yale University.
- Whistler, Kenneth W. 1985. Focus, perspective, and inverse person marking in Nootkan. In J. Nichols and A. C. Woodbury, eds., *Grammar Inside and Outside the Clause*, 222-265. Cambridge: Cambridge University Press.

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## On the Two Salish Object Agreement Suffixes<sup>\*</sup>

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### 0. Introduction

Salish languages are famous for their rich morphological structures. They have a variety of affixes including lexical suffixes, transitive suffixes marking control and causation, and personal affixes. Among the personal affixes, some languages exhibit two sets of object suffixes. For example, Tillamook (Egesdal and Thompson 1998:250, 259) has two different forms for first-person singular object: *-c* in (1a) and *-wš* in (1b).<sup>1,2</sup>

- (1) a. *c-wə-wi-c-Ø*.  
ST-RDP-leave-TR:1SG.(S)OBJ-3SUB<sup>3</sup>  
'They left me.'
- b. *de š-s-gi-g<sup>w</sup>əʔəš-tí-wš-Ø*.  
ART DSD-NM-RDP-kill-CS-1SG.(M)OBJ-3SUB  
'They want to kill me.'

In contrast, Thompson (1985:397, 394) has only one set of object suffixes, and thus *-cm* is the first-person singular object suffix in both (2a) and (2b).

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<sup>1</sup> Abbreviations for grammatical terms used in this paper are as follows. APPL applicative, ART article, ATN autonomous, AUX auxiliary, CONT continuative, CS causative, DAT dative, DET determiner, DIR directive, DSD desiderative, ERG ergative, FUT future, IMP imperative, NC non-control, NM nominalizer, NOM nominative, OBJ object, OBL oblique, PL plural, POSS possessor, PRT particle, PST past, RDP reduplication, SER serial, SG singular, ST stative, SUB subject, TR transitive.

<sup>2</sup> I have standardized hyphenations and glosses in the cited examples and regularized the orthography following Kroeber (1999). Any mistakes or misinterpretations are my own.

<sup>3</sup> The segmentation of the general transitive suffix and an S-object suffix can be problematic. In many languages, the general transitive suffix coalesces with the initial /s/ of the S-object resulting in /c/ or /θ/. See Table 2.



- (2) a. cú-n-**cm**-s.  
say-TR-**1SG.OBJ**-3SUB  
'He told me.'
- b. k<sup>w</sup>ís-s-**cm**-s.  
fall-CS-**1SG.OBJ**-3SUB  
'She caused me to fall (or managed to make me fall).'

Previously in Kiyosawa (2004), I surveyed the distribution of two sets of object suffixes, and showed that all Salish languages except Twana, Thompson, and Shuswap retain two sets of object suffixes, at least partially. I also proposed that form follows function in Salish object marking: there are two object sets formally because there are two different types of objects functionally. In this paper, I develop the functional discussion on the two object sets from Kiyosawa (2004), and add more evidence to support the hypothesis that the M-object set is equivalent to dative agreement.

### 1. S-Objects and M-Objects

The two sets of object suffixes are reconstructed by Newman (1980):

TABLE 1. Proto-Salish Object Pronominal Suffixes

	1SG	2SG	3SG	1PL	2PL
Neutral Object	*-c (<*-t-s)	*-ci (<*-t-si)	*Ø	*-al	*-ulm
Causative Object	*-mx	*-mi	*Ø	*-muł	*-muł

They differ in distribution—one set typically follows the general transitive suffix and the other the causative suffix. Thus, one set has been referred to as “neutral” (Newman 1980) or “non-causative” (Kinkade 1982), and the other “causative” (Newman 1980, Kinkade 1982). Here I refer to them as S-OBJECT and M-OBJECT sets based on their form, following Kinkade (1998) and Montler (1996). Since third-person object suffixes are zero, I limit my discussion to first- and second-person object suffixes. Table 2 gives the two object suffixes for forms where there is a distinction.<sup>4</sup>

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<sup>4</sup> As mentioned in footnote 5, the general transitive suffix coalesces with the initial /s/ of the S-object resulting in /c/ or /θ/. The surface forms of the S-object set are shown in this paper where applicable. Also note that the initial /t/ of the plural S-objects is historically from the general transitive suffix in Bella Coola and Upper Chehalis (Paul Kroeber, p.c.). See Table 1 for Newman’s (1980) reconstruction.

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TABLE 2. S-objects and M-objects<sup>5,6</sup>

BRANCH	LG	OBJ	1SG	2SG	1PL	2PL
Be	Be	S	-c(an)		-tul	
		M	-m(an(ca))		-mul	
CS	Sl	S	-θ	-θi		
		M	-mš	-mi		
	Se	S	-c	-cí		-ci...-élap
		M	-mš	-mi		-mi...-élap
	Sq	S	-c			
		M	-mš			
	Hl	S	-θamš	-θamə		
		M	-amš	-amə		
	Sa	S	-s	-sə		-sə
		M	-aŋəs	-aŋə		-aŋə
	Cl	S	-c	-c		-c
		M	-úŋəs	-úŋə		-úŋə
	Ld	S	-c	-cid		
		M	-bš	-bicid		
TS	Ch	S	-c(al)	-ci	-tul(ł)	-tul(ł)
		M	-mš (<-mal)	-mi	-mul(ł)	-mul(ł)
Ti	Ti	S	-c	-cə		
		M	-wəš	-wə		
NIS	Li	S	-c(-al)	-ci(n)/-cih		
		M	-tumx(-al)	-tumi(n)/-tumih		
SIS	Ok	S		-c		
		M		-(ú)m		
	Sp	S		-cí		
		M		-(ú)m		
	Cr	S	-ce(l)	-ci		
		M	-me(l)	-mi		
	Cm	S	-c(a(l))	-ci		
		M	-m	-m		

<sup>5</sup> Twana, Thompson, and Shuswap do not distinguish two sets of object suffixes. Therefore, they are excluded from Table 2.

<sup>6</sup> The key references that were consulted to ascertain the object suffix forms were: Bella Coola (Davis and Saunders 1997), Clallam (Montler 1996), Coeur d'Alene (Doak 1997), Columbian (Kinkade 1980, 1982), Halkomelem (Gerds 1988), Lillooet (Van Eijk 1997), Lushootseed (Bates et al. 1994, Hess 1967, Hess and Bates 1998), Okanagan (A. Mattina 1973, 1994; N. Mattina 1993), Saanich (Montler 1986), Sechelt (Beaumont 1985), Shuswap (Kuipers 1974), Sliammon/Comox (Watanabe 1996, 2003), Kalispel/Spokane (Carlson 1972, 1980), Squamish (Kuipers 1967), Thompson (Thompson and Thompson 1992), Tillamook (Egesdal and Thompson 1998), Upper Chehalis (Kinkade 1991).

The data are summarized in Table 3; the dots indicate where the distinction between S- and M-object sets is retained:

TABLE 3. S-object and M-object Retention

LANGUAGE	1SG	2SG	1PL	2PL
Ch	•	•	•	•
Cl, Sa, Se	•	•		•
Be	•		•	
Cm, Cr, Hl, Ld, Li, Sl, Ti	•	•		
Sq	•			
Ok, Sp		•		

Upper Chehalis is the only language that retains two full paradigms of suffixes. Other languages have leveled the paradigm mostly in the plural. Interior Salish languages have lost it in both the first- and second-person plural object suffixes, and Central Salish languages have lost it in the first-person plural. Overall, no generalizations are possible about which languages have lost the distinction, either by branch or by person and number.

## 2. The Distribution of Two Object Sets

Salish languages form transitive constructions with various verbal suffixes.<sup>7</sup> Those suffixes include the general transitive suffix, *\*-nt*, and the causative suffix, *\*-stw*. In addition, there is the non-control transitive suffix, *\*-nwá-n*. The non-control transitive suffix *\*-nwá-n* is used for actions that are performed accidentally or accomplished with difficulty (Thompson 1985). I refer to these three suffixes collectively as “transitive suffixes.” In addition, Salish languages have from two to six applicative suffixes, which often appear in combination with transitive suffixes. The distribution of the two object sets is summarized in Table 4:

TABLE 4. Distribution of Two Object Sets

S-OBJECT	M-OBJECT
General transitive	Causative, Non-control, Applicative <i>*-nas</i>

The important thing to note about *\*-nas* is that it is not followed by any of the transitive suffixes, nor is any part of it transparently composed of a transitive suffix. Yet the applicative construction is syntactically transitive, and it is followed by M-object set. It appears in Central Salish languages (Clallam,

<sup>7</sup> The proto-forms of verbal suffixes are reconstructed by Kinkade (1998).

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Halkomelem, Lushootseed, Saanich, and Twana), Tsamosan (Upper Chehalis), and Tillamook, but it is not found in Interior Salish languages. The most frequent use of the relational applicative *\*-nəs* is with motion and speech act verbs. The applied object is usually the goal of a motion, as illustrated in (3), or the addressee of a speech act.

- (3) Hl      ʔi      yə-ʔewə-nəs-**ámš**-əs.  
          AUX      SER-come-APPL-1SG.(M)OBJ-3ERG  
          ‘He is coming toward/after me.’ (Gerds 1988:136)

Furthermore, Table 5 summarizes the distribution of the two object sets when following stacking of suffixes:

TABLE 5. Suffix Combinations

SUFFIXES	OBJ
Non-control + General transitive	S
Applicative + General transitive	S
Non-control + Causative	M
Applicative + Causative	M
Applicative + Non-control	M

The transitive suffixes play a key role in determining which object set occurs. The general transitive suffix governs the S-object set, and otherwise the M-object set occurs.

### 2.1. The Case of *-xi(t)*

We see from the above that there are two types of applicative suffixes—those that are followed by transitive suffixes and those that are not. In addition, there is one applicative suffix that seems to behave either way, depending on the language. This is the suffix *\*-xi*, which is the most widespread of the redirective suffixes. As seen in Table 6, most languages have the S-object set with this suffix, but the Southern Interior Salish languages, with the exception of Coeur d’Alene, take the M-object set.

Therefore, we see that, in some Southern Interior Salish languages, *-xit* behaves like the applicative suffix *\*-nəs* in taking M-object suffixes. This would be anomalous if the *t* of *-xit* were regarded as the transitive suffix, since we know from the above discussion that *-t* governs the S-object set. In fact, Kinkade (1982) does not separate *-xi* and *-t* in Columbian. So perhaps this suffix is now a single morpheme *-xit* in some languages.<sup>8</sup> In other words, the applicative suffix and the

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<sup>8</sup> A. Mattina (1985, 1994), N. Mattina (1996), and Van Eijk (1997) do not segment *-x(i)t*, while Doak (1997) and Carlson (1980) do.

TABLE 6. *\*-xi* with the Two Sets of Object Suffixes

LG	DATA	OBJ	TRANSLATION	SOURCE
Sa	ǰət-sí- <b>s</b> -əs.	S	‘He got it ready for me.’	Montler 1986:171
Cl	k <sup>w</sup> nə-sí- <b>c</b> -əŋ cn. <sup>9</sup>	S	‘I look at (s.t.) for you.’	Montler 1996:262
Ld	ʔúǰ <sup>w</sup> -yi- <b>c</b>	S	‘fetch it for me, go in my place’	Hess 1967:43
Ti	(de) wał huq-tən-ši- <b>c</b> . <sup>10</sup>	S	‘He went after me with a knife.’	Egesdal & Thompson 1998:252
Ch	ʔit yús-š- <b>c</b> .	S	‘He/she worked for me.’	Kinkade 1991:372
Li	n-kih-k-xi- <b>c</b> .	S	‘Put it in your pack for me!’	Van Eijk 1987:173
Ok	//kaʔkíc-xt- <b>m</b> -ən t a-kł-ǰaʔxán//	M	‘I found you some shoes.’	A. Mattina 1994:211
Sp	k <sup>w</sup> úl’-š-t- <b>m</b> -n.	M	‘I made you something.’	Carlson & Flett 1989:35
Cr	mǐʔ-mǐʔ-ši- <b>c</b> -n.	S	‘I told you a story.’	Doak 1997:151
Cm	kál-xt- <b>m</b> -s.	M	‘He/she gave it to me.’	Kinkade 1982:56

general transitive suffix have been reanalyzed into a single morpheme.<sup>11</sup> In this case, S-objects are not necessarily expected. In the next section, I propose a functional explanation for why the M-object set follows *-xit*.

Table 4 is modified as Table 7.

TABLE 7. Distribution of Two Object Sets

S-OBJECT	M-OBJECT
General transitive	Causative, Non-control, Applicative <i>*-nas</i> , <i>*-xit</i> (SIS)

This brings up the question: is there a common feature of causatives, non-control transitives, and applicatives that causes them to determine the M-object set? I turn to this question in the next section.

<sup>9</sup> Montler (1996:262) says, “The presence of the *-əŋ* is unexpected if this applicative included the basic transitivizer. Some speakers can, indeed, get forms such as *k<sup>w</sup>nəsíc cn* in more or less free variation with, but preferring, the *l/2* form given...”

<sup>10</sup> In Tillamook, there is no independent evidence for segmenting /t/ from the applicative *-ši*, although the /t/ in this suffix might have derived historically from a general transitive suffix (Paul Kroeber, p.c.).

<sup>11</sup> An alternative analysis is that *-xit* is the proto-form of this applicative suffix, and it was reanalyzed as two morphemes, *-xi-t*. However, such a reanalysis would have had to occur independently in other languages over several branches.

### 3. The Dative Hypothesis

Salishanists generally refer to suffixes from both sets as “object” (or accusative, e.g., Barthmaier 2002, Doak 1997, Montler 1996). There is no doubt that both sets mark syntactic objects. However, since there are formally two different sets, it is worthwhile to explore the possibility that they may not be marking the same type of object. In this section, I propose that the M-object set registers agreement with a “dative” object. By this I mean either an indirect object or the sorts of direct objects that are often marked dative case rather than accusative case in dependent-marking languages.

First, as discussed above, the causee in the causative construction is an M-object in all Salish languages. In many dependent-marking languages of the world, causees are often marked with dative case. For example, dative is used in the causative construction in Bolivian Quechua (Cole 1983):

- (4)    nuqa        wawa-man        yaca-č̣i-n.  
         I            child-DAT        know-CS-1SG  
         ‘I taught it to the child.’

The object of the causative construction is often marked by a case other than accusative, since the causee is not a patient.

Second, objects of applicatives are also not patients. The applied object of \*-*nəs* is generally the goal of a motion verb or the goal (addressee) of a speech act verb. The applied object of -*xit* in Southern Interior Salish is a goal or benefactive. Cross-linguistically, we find that objects of these types are often marked dative in dependent-marking languages. For example, goals of motion, speech act verbs, and transfer verbs appear in the dative case in Japanese:

- (5)    a. Bob-ga        Canada-ni        ki-ta.  
         Bob-NOM    Canada-DAT    come-PST  
         ‘Bob came to Canada.’  
  
         b. Bob-ga        Mary-ni        it-ta.  
         Bob-NOM    Mary-DAT     say-PST  
         ‘Bob said to Mary.’  
  
         c. Bob-ga        Mary-ni        hon-o        age-ta.  
         Bob-NOM    Mary-DAT    book-ACC    give-PST  
         ‘Bob gave a book to Mary.’

Third, degrees of agency and control are often associated with case or agreement splits. Salish languages have overt transitive suffixes that distinguish control (6a) and non-control (6b): S-objects appear with the former and M-objects with the latter:

- (6) Se a.  $\text{ʔi}$  sép-et-**c**-as.  
 AUX slap-TR-**1SG.(S)OBJ**-3SUB  
 ‘He/she slapped me.’ (Beaumont 1985:122)
- b.  $\text{ʔi}$  sép-nú-**mš**-as.  
 AUX slap-NC:**1SG.(M)OBJ**-3SUB  
 ‘He/she slapped me (accidentally).’ (Beaumont 1985:122)

In some languages such as Eastern Pomo (McLendon 1978), high and low agency are differentially marked in the agreement system, and in Acehnese (Durie 1985), low agency transitives appear with neuter intransitive verbs. Also, in Japanese, causatives with high control have accusative-marked causees as in (7a), but ones with low control have dative causees as in (7b).

- (7) a. Bob-ga Mary-o suwar-ase-ta.  
 Bob-NOM Mary-ACC sit-CS-PST  
 ‘Bob made Mary sit down.’
- b. Bob-ga Mary-ni suwar-ase-ta.  
 Bob-NOM Mary-DAT sit-CS-PST  
 ‘Bob let Mary sit down.’

Thus, the Salish M-object set as dative (6b) resonates with cross-linguistic observations concerning agency and control.

One more point to be made for Salish is that the four Southern Interior languages choose object sets on the basis of aspect. The Columbian data in (8a) is perfective and has the general transitive and an S-object, while (8b) is imperfective and has the causative suffix and an M-object. Other than aspect, there is no difference.

- (8) Cm a.  $\text{yər-mí-n-c-Ø}$ .  
 push-APPL-TR-1SG.(S)OBJ-3SUB  
 ‘He pushed me.’ (Kinkade 1982:53)
- b.  $\text{yər-mí-st-m-s}$ .  
 push-APPL-CS-1SG.(M)OBJ-3SUB  
 ‘He is pushing me.’ (Kinkade 1982:54)

This type of split marking based on aspect is quite familiar in split ergative systems. For example, in Kashmiri (Altaha 1985), dative case is used for the object in an imperfective as in (9b).

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- (9) a. maštər-ən      ɪ:s      parnamiyt      mard-Ø.  
teacher-ERG      AUX.PL      teach(PERF)      men-NOM  
‘The teacher had taught the men.’
- b. sahla-Ø      ɪs      hičnawa:n      mard-an.  
Sahla-NOM      AUX.SG      teaching      men-DAT  
‘Sahla was teaching the men.’

In Hopper and Thompson (1980), punctuality is one of the parameters of transitivity: that is, punctual action is higher in transitivity than non-punctual action. In the Columbian examples in (8), it might be the case that the transitive suffix follows the function of the object suffix, that is, the imperfect construction is lower in transitivity, so M-objects are chosen. Then the general transitive suffix cannot precede the object suffix, so the causative suffix is used.

Given my hypothesis that the M-object set parallels dative case, its use for marking the non-patient objects of causative and applicative constructions is not unexpected. Also low agency/control and non-punctual aspect are associated with low transitivity. Cross-linguistically, low transitivity is often manifested as non-canonical case on the subject or the object (Haspelmath 2001). Thus, marking objects in non-control and imperfect environments with the object suffix set equivalent to dative case is not unexpected.

#### **4. Conclusion**

Salish languages, except Twana, Thompson, and Shuswap, distinguish two sets of suffixes for at least some first- and second-person object forms. These are referred to as S-objects and M-objects, based on their forms. As previously noted, the S-object set follows the general transitive suffix, while the M-object set follows the causative suffix. In many Salish languages, the non-control and applicative suffixes are followed by a transitive suffix (either general transitive or causative), which in turn determines the object set. However, in other languages, an M-object is directly suffixed to the non-control transitive or applicative suffix. Thus, objects of the general transitive construction are S-objects, while objects of causatives, non-control transitives, and applicatives are M-objects.

The distribution of the two sets of object suffixes in the various transitive constructions suggests that the occurrence of the M-object set is functionally motivated. M-objects are used for objects that are not patients, e.g., the goal or benefactive objects of applicatives, or the causee in causative constructions. The functions of the M-object set are summarized in Table 8:



TABLE 8. The Function of the M-object Set

SEMANTIC FUNCTION OF OBJECT	SUFFIX			
	<i>-nas</i>	<i>-xit</i>	CS	NC
Goal	√	√		
Benefactive		√		
Causee			√	
Patient (in a low transitive clause)			√	√

Thus, the usage of the M-object set parallels the use of dative case on objects in dependent-marking languages.

Given that remnants of this system are seen in all branches of the family, two object sets should be posited for Proto-Salish. Furthermore, since there were two sets, they probably had distinct functions. In this paper, I have suggested that the function of the M-object set was to mark dative objects, and this role can still be observed in the use of M-objects in many Salish languages.

## References

- Altaha, Fayez. 1985. Non-nominative subjects in Kashmiri. Ph.D. diss., State University of New York at Buffalo.
- Barthmaier, Paul. 2002. Transitivity and lexical suffixes in Okanagan. *International Conference on Salish and Neighbouring Languages* 37:1–15.
- Bates, Dawn, Thom Hess, and Vi Hilbert. 1994. *Lushootseed Dictionary*. Seattle: University of Washington Press.
- Beaumont, Ronald C. 1985. *she shashishalhem, the Sechelt Language: Language, Stories and Sayings of the Sechelt Indian People of British Columbia*. Penticton, B.C.: Theytus Books.
- Carlson, Barry F. 1972. *A Grammar of Spokane: A Salish Language of Eastern Washington*. Ph.D. diss., University of Hawaii.
- Carlson, Barry F. 1980. Two-goal transitive stems in Spokane Salish. *International Journal of American Linguistics* 46:21–26.
- Carlson, Barry F., and Pauline Flett. 1989. *Spokane Dictionary*. *University of Montana Occasional Papers in Linguistics* 6.
- Cole, Peter. 1983. The grammatical role of the causee in universal grammar. *International Journal of American Linguistics* 49:115–133.
- Davis, Philip W., and Ross Saunders. 1997. *A Grammar of Bella Coola*. *University of Montana Occasional Papers in Linguistics* 13.
- Doak, Ivy Grace. 1997. Coeur d'Alene grammatical relations. Ph.D. diss., University of Texas at Austin.
- Durie, Mark. 1985. Control and decontrol in Acehnese. *Australian Journal of Linguistics* 5:43–53.

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- Egesdal, Steven M., and M. Terry Thompson. 1998. A fresh look at Tillamook (Hutéyu) inflectional morphology. In E. Czaykowska-Higgins and M. D. Kinkade, eds., *Salish Languages and Linguistics: Theoretical and Descriptive Perspectives*, 235–273. Berlin: Mouton de Gruyter.
- Gerdts, Donna B. 1988. *Object and Absolutive in Halkomelem Salish*. New York: Garland.
- Haspelmath, Martin. 2001. Non-canonical marking of core arguments in European languages. In A. Y. Aikhenvald, R. M. W. Dixon, and M. Onishi, eds., *Non-Canonical Marking of Subjects and Objects*, 53–84. Amsterdam: John Benjamins.
- Hess, Thomas M. 1967. Snohomish grammatical structure. Ph.D. diss., University of Washington.
- Hess, Thomas M., and Dawn Bates. 1998. Semantic role assignment in Lushootseed causatives. *International Conference on Salish and Neighbouring Languages* 33:221–234.
- Hopper, Paul J., and Sandra A. Thompson. 1980. Transitivity in grammar and discourse. *Language* 56:251–299.
- Kinkade, M. Dale. 1980. Columbian Salish *-xí*, *-l*, *-túl*. *International Journal of American Linguistics* 46:33–36.
- Kinkade, M. Dale. 1982. Transitive inflection in Moses-Columbian Salish. *Kansas Working Paper in Linguistics* 7:49–62.
- Kinkade, M. Dale. 1991. *Upper Chehalis Dictionary*. University of Montana Occasional Papers in Linguistics 7.
- Kinkade, M. Dale. 1998. Comparative Salish seminar. Ms., University of British Columbia.
- Kiyosawa, Kaoru. 2004. The form and function of the two Salish object suffix sets. In D. B. Gerdts and L. Matthewson, eds., *Studies in Salish Linguistics in Honor of M. Dale Kinkade*, 235–256. University of Montana Occasional Papers in Linguistics 17.
- Kroeber, Paul D. 1999. *The Salish Language Family: Reconstructing Syntax*. Lincoln: The University of Nebraska Press.
- Kuipers, Aert H. 1967. *The Squamish Language: Grammar, Texts, Dictionary*. The Hague: Mouton.
- Kuipers, Aert H. 1974. *The Shuswap Language: Grammar, Texts, Dictionary*. The Hague: Mouton.
- Mattina, Anthony. 1973. Colville grammatical structure. Ph.D. diss., University of Hawaii.
- Mattina, Anthony. 1985. *The Golden Woman: The Colville Narrative of Peter J. Seymour*. Tucson: The University of Arizona Press.
- Mattina, Anthony. 1994. *-tult*, and more on Okanagan transitive forms: A working paper. *International Conference on Salish and Neighbouring Languages* 29:204–231.

- Mattina, Nancy. 1993. Some lexical properties of Colville-Okanagan ditransitives. *International Conference on Salish and Neighbouring Languages* 28:265–284.
- Mattina, Nancy J. 1996. Aspect and category in Okanagan word formation. Ph.D. diss., Simon Fraser University.
- McLendon, Sally. 1978. Ergativity, case, and transitivity in Eastern Pomo. *International Journal of American Linguistics* 44:1–9.
- Montler, Timothy R. 1986. *An Outline of the Morphology and Phonology of Saanich, North Straits Salish*. *University of Montana Occasional Papers in Linguistics* 4.
- Montler, Timothy R. 1996. Some Klallam paradigms. *International Conference on Salish and Neighbouring Languages* 31:257–263.
- Newman, Stanley. 1980. Functional changes in the Salish pronominal system. *International Journal of American Linguistics* 46:155–167.
- Thompson, Laurence C. 1985. Control in Salish grammar. In F. Plank, ed., *Relational Typology*, 391–428. Berlin: Mouton de Gruyter.
- Thompson, Laurence C., and M. Terry Thompson. 1992. *The Thompson Language*. *University of Montana Occasional Papers in Linguistics* 8.
- Van Eijk, Jan P. 1987. Dictionary of the Lillooet language. Ms., University of Victoria.
- Van Eijk, Jan P. 1997. *The Lillooet Language: Phonology, Morphology, Syntax*. Vancouver: UBC Press.
- Watanabe, Honoré. 1996. Sliammon (Mainland Comox) transitive constructions with *-ʔəm*, *-ni*, and *-mi*. *International Conference on Salish and Neighbouring Languages* 31:327–338.
- Watanabe, Honoré. 2003. *A Morphological Description of Sliammon, Mainland Comox Salish, with a Sketch of Syntax*. Osaka: Faculty of Informatics, Osaka Gakuin University.

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## On the Karuk Directional Suffixes\*

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### 0. Introduction

This paper takes a look at the complex set of directional suffixes in Karuk, a Hokan language of northern California.<sup>1</sup> My goal is to provide a first pass at characterizing the rather diverse syntax and semantics of these suffixes. To this end, I begin by providing a taxonomy of the suffixes according first to whether they are applicative or not, and second, according to certain characteristics of the argument added. I then turn to the issue of accounting for the syntax of sentences containing these suffixes, appealing to the separationist aspect of Distributed Morphology (DM; see, e.g., Halle and Marantz 1993, Harley and Noyer 1999) to suggest a way to account for the fact that the suffixes combine lexical and functional information in single monomorphemic forms. The kinds of arguments which have been made in favor of separationism are based on various types of mismatch between form and function in morphology, and the combination of lexical and functional meanings found in the Karuk suffixes provides a new kind of mismatch to add to that set of arguments.

### 1. The Data

Karuk actually has a variety of ways of indicating location, direction, and other oblique case notions. A few of these (bare nominals, postpositions, etc.) appear in the examples used in this paper. I focus here, though, on the directional suffixes.

Karuk is a polysynthetic language, with a number of derivational suffix “slots” after the verb. Bright, in his 1957 grammar of the language, numbers them out from the verb stem as illustrated in the table in (1).

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<sup>1</sup> The set of suffixes considered actually marks more than just direction—in fact, they mark a variety of semantic categories—but I will call them “directionals” here just for ease of reference.

(1) Karuk verbal derivational suffix template (Bright 1957:91-115)

V	SUFFIX CLASS							
	1	2	3	4	5	6	7	8
	- <i>va</i> plural action	5 suf- fixes	38 directional suffixes	21 suf- fixes	- <i>ahi</i> essive	- <i>na:</i> plural	- <i>tih</i> dura- tive	- <i>ač</i> diminu- tive

As the table in (1) shows, suffix class 1 consists of only one member, -*va* ‘plural action’.<sup>2</sup> Class 2 consists of five suffixes with various meanings, and class 3 contains what Bright calls the “directional suffixes.” There is, though, one suffix in class 2 which also has directional meaning: -*taku* ‘on or onto a horizontal surface’ (in class 2 because it can combine with directional suffixes from class 3). In addition to these suffixes, there are also several in class 4 whose meanings fit semantically and functionally with this set (although they tend to have more generic meanings than the suffixes of classes 2 and 3). The table in (2), then, provides the entire list of what I will call the directional suffixes, broadly defined.<sup>3</sup>

(2) Karuk directional suffixes (Bright 1957:94-110)

Pos	Form	Meaning	Form	Meaning
2	- <i>taku</i>	‘on/onto a horizontal surface’		
3	- <i>mu</i>	‘to there’	- <i>ra:</i>	‘to here’
	- <i>rupu</i>	‘from here downriverward’	- <i>ra:</i>	‘to here from downriver’
	- <i>unih</i>	‘from here downhillward’	- <i>ra:</i>	‘to here from downhill’
	- <i>ura:</i>	‘from here uphillward’	- <i>faku</i>	‘to here from uphill’
	- <i>rô:vu</i>	‘from here upriverward’	- <i>vârak</i>	‘to here from upriver’
	- <i>sip(riv)</i>	‘up to the height of a man or less’	- <i>iš(rih)</i>	‘down from the height of a man or less’
	- <i>kaθ</i>	‘from here across a body of water’	- <i>rina</i>	‘to here from across a body of water’
	- <i>kara</i>	‘horizontally toward the center of a body of water’	- <i>riPa:</i>	‘horizontally away from the center of a body of water’

<sup>2</sup> See Bright (1957:92-93) for further discussion; I am simplifying somewhat here.

<sup>3</sup> The zero before some of the suffixes is Bright’s notation for a harmonizing vowel. Also note that I have replaced his use of ‘thither’, ‘hither’, and ‘hence’ with ‘to there’, ‘to here’, and ‘from here’, respectively.

*On the Karuk Directional Suffixes*

Pos	Form	Meaning	Form	Meaning
	-kara	‘into one’s mouth’	-rúPa:	‘out of one’s mouth’
	-rámnih	‘in/into a container’	-rřšuk	‘out of a container’
	-vara	‘in through a tubular space’	-kiv	‘out through a tubular space’
	-rúprih	‘in through a solid’	-rúprař	‘out through a solid’
	-fúruk	‘into an enclosed space’	-rúPuk	‘out of an enclosed space’
	-Øvrin	‘in opposite direction’	-tunva	‘toward each other’
	-várayva	‘here and there within an enclosed space’	-Øθuna	‘here and there in an open area’
	-kírih	‘into or onto fire’		
	-ku	‘onto a vertical surface’		
	-kúrih	‘into (water)’		
	-paθ	‘around in a circle’		
	-rař	‘in, into’		
	-rip	‘off, out’ [RARE]		
	-ruprin	‘through’ [RARE]		
	-suru	‘off, away’		
	-Øvra:	‘over’ [RARE]		
	-Øvraθ	‘into a sweathouse; over’		
	-Øvruk	‘down over the edge’		
4	-ara	‘with’ [INSTRUMENTAL]		
	-e:p	‘away from [a person]’		
	-ihi	‘for’ [BENEFACTIVE]		
	-kiri	‘in, on, by way of, by means of’		
	-ko:	‘to’		
	-rih	‘up’ [RARE]		
	-sař	‘along with’		
	-uk	‘to here’		
	-úniř	‘to, at, about’		

From the table in (2) we can observe that some of the suffixes in class 3 come in pairs, but that this is not true of all of them. A few of the suffixes from the table are illustrated in (3)–(5):<sup>4</sup>

<sup>4</sup> Abbreviations used in this paper are as follow: ANT – anterior; ANTIC – anticipative; DIM – diminutive; DUR – durative; EMPH – emphatic; FUT – future; HAB – habitual; IMP – imperative; IT – iterative; LOC – locative; PART – participial; PERF – perfective; PL – plural; SG – singular.

- (3) xás ʔuváttakar  
 xas ʔu-váta-kara  
 and 3SG-walk.on.a.log-horizontally.toward.the.center.of.a.body.of.water  
 ‘And he walked out into the river on it’ [T1, line 75, pp. 174-175]
- (4) čími váripi pá:hak  
 číMi va-rip-i pá:h-ak  
 ANTIC go-out-IMP boat-LOC  
 ‘Get out of the boat!’ [T3, line 179, pp. 186-187]
- (5) paʔíppahak ʔíp kú:k ʔuppá:θmat  
 pa=ʔípaha-ak ʔíp kú:k ʔu-pá:θ-mu-at  
 the=tree-LOC near.past to 3SG-throw-to.there-PAST  
 ‘he threw it at the tree’ [Bright 1957:140]

(3) shows *-kara* ‘horizontally toward the center of a body of water’. In (4) we see a nominal corresponding to the source argument (‘boat’), marked with a locative case suffix. (5) provides an example with a verbal suffix (*-mu*), a nominal suffix (*-ak*), and a postposition (*kú:k*), all marking the same thematic role (goal).

## 2. Analysis

In this section I first provide a classification of the suffixes, and then go on to explore ways we might account for them using some of the mechanisms of DM.

### 2.1. Classification of the Suffixes

As a first step towards understanding the use of these suffixes I have sorted them according to whether or not they add an argument. The class of suffixes which do add an argument can then be further sorted. This is shown in (6):<sup>5</sup>

- (6) Classification of directional suffixes  
 I. Directionals: do not add argument  
 II. Applicatives: add argument  
     A. Simple applicatives (Path)  
     B. Applicative + object (Path + Ground): add and conflate argument  
         1. Applicative + object; category of ground generically specified  
         2. Applicative + object; ground as medium generically specified  
         3. Applicative + object; ground specified  
     C. Applicative + object (Path + Ground): add/conflate deictic argument

---

An equals sign indicates attachment of a clitic to its host. The source of examples from Bright’s (1957) texts is noted in the format: Text number, line number, page number(s).

<sup>5</sup> For discussion of similar suffixes in the related language Atsugewi, see Talmy (1985).

Before discussing details, I should point out that these categories are not mutually exclusive; that is, several of the suffixes fall into more than one category. Note also that the categories do not correspond to position class.

## 2.2. The Directionals

I begin with what I will call the true directionals.<sup>6</sup> (7) lists this set of suffixes and (8) provides examples:

### (7) I. Directionals

-iš(rih)	‘down from the height of a man or less’		
-sip(riv)	‘up to the height of a man or less’		
-kiri	‘in, on, by way of, by means of’		
-paθ	‘around in a circle’	[→ -iro:piθ / ____ -va]	
-unih	‘down from a considerable height’		
-ura:	‘up to a considerable height’		
-rih	‘up’	-Øvra:	‘over’
-suru	‘off, away’	-Øvraθ	‘over’

- (8) a. xás taʔittam ʔukrí:šrihe:n  
 xas taʔitam ʔu-ikriv-išrih-ahe:n  
 and so 3SG-sit-down from the height of a man or less-ANT  
 ‘And so he sat down’ [T7, line 26, pp. 188-189]
- b. taʔittam kunípvi:tšurahe:n  
 taʔitam kun-íp-vit-suru-ahe:n  
 so 3PL-IT-paddle-off-ANT  
 ‘So they paddled off’ [T3, line 159, pp. 174-175]
- c. yané:kva passa:mváro: ʔuvúrunihtih  
 yané:kva pa=sa:mváro: ʔu-vuĩ-unih-tih  
 he.saw.that the=creek 3SG-flow-down from considerable height-DUR  
 ‘There was a creek flowing down.’ [T3, line 65, pp. 172-173]

In (8a) we see *-išrih* ‘down from the height of a man or less’. In (8b) we find *-suru* ‘off’, and in (8c) *-unih* ‘down from a considerable height’.

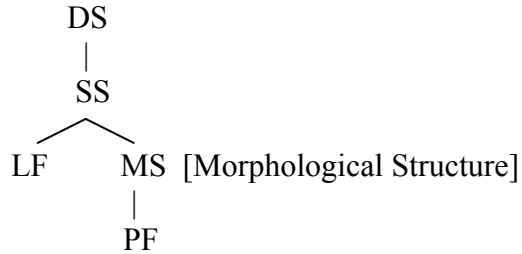
## 2.3. Distributed Morphology Interlude

The second set of suffixes are all applicative; that is, they add an argument to the valence of the verb. The rest of this paper is devoted to exploring the syntax and semantics of this set, and the framework that I situate this in is Distributed Morphology. Very briefly, DM proposes that the structure of the grammar is as in (9):

<sup>6</sup> These correspond to what Talmy (1985) calls “satellites.”



(9) Structure of the Grammar in DM (Harley and Noyer 1999)



One of the core aspects of DM is that it is a separationist theory, and this becomes important to the discussion below. Separationism is the position that the form and the meaning of morphemes are handled by different parts of the grammar—that is, it rejects the traditional definition of “morpheme” as the minimal unit of sound and meaning. This is contrary to most other theories of morphology, which we can characterize as “morpheme-based” (following Aronoff 1994:8), and which involve what Anderson (1992:48) refers to as “classical” morphemes (that is, morphemes in the traditional sense).<sup>7</sup>

Separationism is realized in DM as follows: D-structure and S-structure manipulate terminal nodes which consist solely of features. At MS a number of operations on these terminal nodes—merger, fusion, fission, etc.—may occur. At that point vocabulary insertion takes place, inserting phonetic content in the terminal nodes. Note that there is no lexicon in DM; rather, meanings are distributed across the terminal nodes, the vocabulary entries, and an encyclopedia. Vocabulary entries are semantically underspecified, containing just enough featural information for insertion in the appropriate places. This gets filled out by information in the encyclopedia.

#### 2.4. The Applicative Suffixes

Returning to the suffixes, we now consider the applicatives. The first category is the simple applicatives: these transitivize an intransitive verb or add a third argument to a transitive. I follow Talmy in characterizing the semantics of this class as ‘Path’, defined as “the variety of paths followed, or sites occupied, by the Figure object” (1985:129).<sup>8</sup> See (10) and (11):

<sup>7</sup> See Anderson (1992, especially chapter 3; §3.2 “Problems with Morphemes”) for a convincing catalog of mismatches between form and meaning which he argues suggest the correctness of separationism. The applicatives that I discuss in this paper add a new type of data to this catalog.

<sup>8</sup> *-ara* ‘with’ is an exception to the characterization of these as marking Path, in which case perhaps it should not be included with the set of suffixes under discussion after all. I include it because it is so clearly applicative in its function.

(10) IIA. Simple applicatives ((almost all) Path)

-ara	‘with’	-raĩ	‘in, into’
-ihi	‘for’	-rip	‘off, out’
-kiri	‘in, on, by way of, by means of’	-ruprin	‘through’
-ko:	‘to’	-saĩ	‘along with’
-paθ	‘around’	-suru	‘off’
	[→ -iro:piθ / ____ -va]	-úniš	‘to, at, about’
		-Øvra:	‘over’

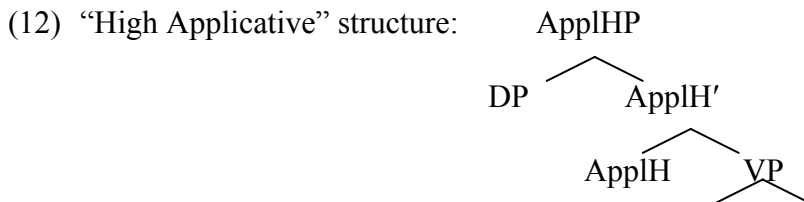
- (11) a. ʔappa p̄amútra:x tá kunĩspa:tsur  
 ʔápap pa=mu-átrax tah kun-ĩšpat-suru  
 on.one.side the=his-arm PERF 3PL-break-off  
 ‘They pulled off his arm on one side’ [T9, line 38, pp. 192-193]

- b. nu: páy pe:θivθa:ne:n ʔitaharâ: nupíhiro:piθvutih  
 nú: pay pa=iθivθa:ne:n ʔitáhara-an nu-p-ʔih-iro:piθ-va-tih  
 we this the=earth ten-PART 1PL-IT-dance-around-PL.ACT-DUR  
 ‘We dance around this earth ten times’ [T9, line 23, pp. 192-193]

- c. tí: kanvinnaxsunači  
 tí: kán-vírax-suru-ač-i  
 let 1SG>3SG-lick-off-DIM-IMP  
 ‘Let me lick it off [the rock]!’ [T14, line 24, pp. 200-201]

(11a) contains *ĩšpat*, an intransitive verb meaning ‘break’, and (11b) contains *ʔih*, likewise intransitive and meaning ‘dance’. In each case, addition of an applicative suffix transativizes the verb. (11c) contains a transitive verb, ‘lick’, to which a third argument is added with *-suru* (although in this case the argument is unexpressed, because it is known from the immediately preceding context).

(12) illustrates a proposed structure for this type of applicative:



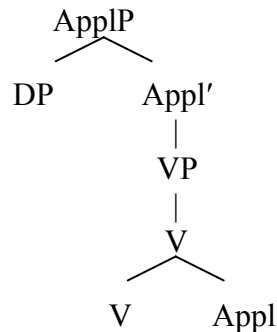
Recent literature on applicatives has argued for a distinction between “high applicatives” and “low applicatives.”<sup>9</sup> A high applicative head merges with VP, while a low applicative merges with a DP object. Although Karuk lacks the kinds of syntactic tests (e.g., passivization) used for other languages to establish the type of an applicative, the very fact that the applicative suffixes can attach to

<sup>9</sup> See, e.g., McGinnis (2001), Pykkänen (2001).

intransitive verbs (both unergative and unaccusative) provides the evidence needed to conclude that they are high applicatives. (Because there is no low applicative in Karuk I refer to these simply as “applicatives” from this point on.)

In Karuk, then, the applicative head lowers and undergoes morphological merger with the verb at MS, resulting in a structure like that shown in (13).<sup>10</sup> Once merger has taken place, Vocabulary insertion can insert the appropriate suffix.

(13) Merger of applicative morpheme with verb:



The next set of suffixes in this category is a bit more complicated. These are the applicatives which mark location and/or direction, and in addition specify something about the added argument. That is, the semantic elements of Path and Ground are conflated in single lexical items. There are three such types; the first specifies the general category of the added argument, as shown in (14):

(14) IIB-1. Applicative + object; category of ground generically specified

a. Location

-ku	‘on a vertical surface’
-ramnih	‘in a container’
-taku	‘on a horizontal surface’

b. Goal

-fúruk	‘into an enclosed space’
-ku	‘onto a vertical surface’
-kúrih	‘into cavity or aperture’
-ramnih	‘into a container’
-taku	‘onto a horizontal surface’

<sup>10</sup> I assume that this operation is of the type that Embick and Noyer (2001) call Lowering, although nothing critical rests on this claim.

### c. Source

-e:p            ‘away from a person’  
-riřuk        ‘out of a container’            -rúPuk    ‘out of an enclosed space’

d. Dispersed

-ØØuna 'here and there in an open area'  
-várayva 'here and there within an enclosed space'

These suffixes mark location, goal, source, and a category I call “dispersed.” In each case, the suffix marks not only the thematic relation (‘in’, ‘on’, ‘out of’), but also a generic description of the physical characteristics of the ground (‘vertical surface’, ‘a container’, etc.). Consider next the examples in (15):

- (15) a. yánava ʔitráhyar ʔakvá:t kunʔirukû:ntako:  
yánava itráhyar akva:t kunʔirukû:r-taku-o:  
he.saw.it ten raccoon 3PL-PL-sit-on.horizantal.surface-HAB  
‘He saw ten raccoons sitting [in a tree]’ [T4, line 8, pp. 176-177]
- b. ʔíppaha kunʔirukû:ntako:  
ʔípahA-ak kunʔirukû:r-taku-o:  
tree-LOC 3PL-PL-sit-on.horizantal.surface-HAB  
‘They (raccoons) were sitting in a tree’ [T5, line 4, pp. 180-181]
- c. xás ʔutfúnukva  
xas ʔu-it-fúruk-va  
and 3SG-look-into.an.enclosed.space-PL  
‘So he looked in [to the sweathouse]’ [T4, line 124, pp. 178-179]
- d. kári xás kunitfúnukva pe:kmaháčra:m  
kári xas kunʔit-fúruk-va pa=ikmaháčra:m  
and.then 3PL-look-into.an.enclosed.space-PL the=sweathouse  
‘And they looked into the sweathouse’ [T5, line 95, pp. 182-183]

(15a) and (b) illustrate the use of *-taku* ‘on a horizontal surface’. In (15a) we see that it can be used without further specification of the type of horizontal surface involved (and in this case, from context we know that it is the branch of a tree), while (15b) shows that the additional argument can be further specified, in this case with a locative case-marked noun ‘tree’. (15c) and (d) show a parallel pair with *-fūruk* ‘into an enclosed space’.

In the second subcase of this category, the suffix indicates direction plus the medium (or perhaps better the shape of the medium) through which the action

takes place.<sup>11</sup> As in the first subcase, the medium is only generically specified. These suffixes are given in (16), with examples in (17):

(16) IIB-2. Applicative + object; ground as medium generically specified

- |                              |         |                                   |
|------------------------------|---------|-----------------------------------|
| a. <u>'In' + medium</u>      | -rúprih | 'in through a solid'              |
|                              | -vara   | 'in through a tubular space'      |
| b. <u>'Out' + medium</u>     | -kiv    | 'out through a tubular space'     |
|                              | -rúprañ | 'out through a solid'             |
| c. <u>Other + medium (?)</u> | -Øvruk  | 'down over the edge of something' |

- (17) a. xás ʔumθavitrû:prihva  
 xas ʔu-imθavit-rúprih-va  
 then 3SG-club-in.through.a.solid-PL.ACT [T1, line 136, pp. 166-167]  
 'He almost clubbed through them [the yellowjackets]'
- b. xás ʔámta:p kíč ʔúkpu:pvar ʔapma:n  
 xas ámta:p kíč ʔu-ikpup-vara apma:n  
 and dust just 3SG-rise.in.a.puff-in.through.a.tubular.space mouth  
 'And just dust puffed into his mouth' [T4, line 76, pp. 178-179]

(17a) shows *-rúprih* 'in through a solid', used without further specification of the medium. (17b) shows *-vara* 'in through a tubular space' with the noun 'mouth' describing the kind of tubular space through which the dust moves.

The third type of applicative suffix marking locative and/or directional arguments includes a specific *type* of argument, as shown in (18) and (19):

(18) IIB-3. Applicative + object; ground specified

- a. Goal + object
- |        |   |        |                      |
|--------|---|--------|----------------------|
| -kara  | 'horizontally toward the center of a body of water' | -kúrih | 'into water'         |
|        |   | -tunva | 'towards each other' |
| -kara  | 'into one's mouth'                                  | -Øvraθ | 'into a sweathouse'  |
| -kírih | 'into or onto fire'                                 |        |                      |
- b. Source + object
- |        |  |
|--------|--|
| -ríPa: | 'horizontally away from the center of a body of water' |
| -rúPa: | 'out of one's mouth'                                   |
| -Øvrin | 'in opposite direction'                                |

<sup>11</sup> See Talmy (2000:27) for discussion of the semantics of 'through'.

- (19) a. pihnê:fič tuvô:ruvraθahe:n  
 pihnê:fič t=ʔu-vô:ř-Øvraθ-ahe:n  
 coyote PERF-3SG-move.slowly-into.a.sweathouse-ANT  
 ‘Coyote has come into the sweathouse’ [T2A, line 10, pp. 168-169]
- b. xás ʔá:s ʔúska:kurih  
 xas ʔá:s ʔu-iškak-kúrih  
 and water 3SG-jump-into.water  
 ‘So he jumped into water’ [T5, line 32, pp. 182-183]

(19a) illustrates the use of -Øvraθ. (19b) shows that the added argument can be doubled by a noun with the same meaning as is carried by the suffix.

There appear, then, to be three possibilities for sentences which contain a verb marked by one of these suffixes: first, no overt manifestation of the added argument, as in (19a), where the suffix is the only element which contributes the meaning ‘sweathouse’. We also find doubling of the added argument, as in (19b), where the suffix means ‘into water’ and is redundantly specified by the noun ʔá:s ‘water’. Finally, when the added argument is only generically specified, a more specific version can be added for clarification. In (15d) the suffix provides the general type of argument intended, in this case ‘an enclosed space’, and the NP ‘sweathouse’ is used to specify what type of enclosed space is meant.

The obvious next question is whether the structure provided in (12) will account for this set of suffixes as well as for the simple applicatives. Doubling of the object is optional for the suffixes of category IIB (that is, the applicatives which add and conflate an argument), indicating that the object which is semantically fused with the applicative component of the suffix is the actual object, and any overt DP functions as an adjunct. Further evidence that such overt DPs are adjuncts comes from the possibility of multiple doubling, as in (20):

- (20) kári xás ʔi:nâ:k ʔuvô:nfuruk ʔikmaháčra:m  
 kári xas ʔi:nâ:k ʔu-vô:ř-fúruk ikmaháčra:m  
 and.then indoors 3SG-crawl-into.an.enclosed.space sweathouse  
 ‘Then he crawled into a sweathouse’ [T5, line 93, pp. 182-183]

In this example the suffix means ‘into an enclosed space’. The sentence also contains a word meaning ‘indoors’, as well as a noun specifying the goal as a sweathouse. Thus the goal is triply marked in this sentence: by the suffix, by the locative ‘indoors’, and by the DP. This shows that at a minimum the language does allow doubling of the material added by the suffix (because even if we treated one of the two non-suffixal elements as the locative argument in such cases we would still have doubling by the other non-suffixal element).

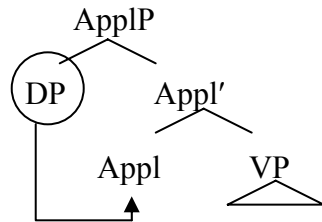
Based both on the optionality of overt locative arguments and on the evidence from multiply marked examples, I conclude that the doubled and further specified objects are adjuncts rather than the realization of the argument added by the

suffix. That is, I propose is that the suffixes of set IIB (those which conflate the applicative with the argument) fit into the same underlying structure as do the suffixes of set IIA (the simple applicatives), shown above in (12).

The difference between the types is that the suffixes of category IIB undergo merger and fusion with the DP argument before vocabulary insertion. Fusion is an operation which “takes two terminal nodes that are sisters under a single category node and fuses them into a single terminal node” (Halle and Marantz 1993:116). Given this description of the process, merger must take place first to combine the DP and applicative head under a single node. These two steps are sketched out in (21) and their result is shown in (22). In these schematizations, “*f*” stands for the features which would characterize each element before vocabulary insertion (I return to this topic below).

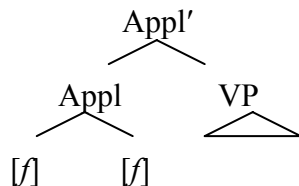
(21) a. Merger  
 $\text{AppIP}[\text{DP}] \text{AppI}'[\text{Appl}] \rightarrow \text{AppI}'[\text{Appl}[\text{Appl DP}]$

b. Merger schematized



c. Fusion  
 $\text{Appl}[\text{Appl DP}] \rightarrow \text{Appl}'[\text{Appl}[[f]] [f]]$

(22) Result of merger and fusion



An alternative to this approach might be to relax the sisterhood requirement on fusion, allowing adjacency to be a sufficient condition for fusion. This would simplify the process under consideration to a single step. However, since there is so little literature on fusion, I will proceed under the assumption that merger does have to take place before fusion can operate. The resolution of this question does not significantly affect the basic idea proposed here.

If merger fails to take place, fusion is blocked and simply cannot occur. In this case the DP can be filled with an overt nominal and the applicative head (if there is an appropriate one available) must be drawn from category IIA—that is, the applicatives which do not include information on their associated argument. But if merger and fusion do take place, the resulting fused applicative head is lowered and suffixed to the verb.

It would be legitimate to ask at this point whether it would be simpler to say that these are lexical items with complex semantics and be done with it. There are two ways to respond to this question. First, if one adopts the kind of approach to morphosyntax current in many theories in which functional elements are manipulated by the syntax, a fusion approach is the only way of combining the functional material in these suffixes with the lexical material which they undeniably contain. Second, and more theory-neutrally, I think we would be missing a significant generalization if we treated these as semantically and syntactically opaque. The applicative suffixes form a set, and to treat the simple applicatives (my category IIA) differently than the applicatives which fuse with some specification of the argument (my category IIB) would overlook the similarities across the sets.

## **2.5. A Digression on Hand-Waving**

There are several issues that I am glossing over, a few of which I address here.

First, if we adopt the analysis of applicatives proposed in sources like Pylkkänen (2001) and McGinnis (2001), important details remain to be dealt with, such as the checking and possible movement of DPs. The argument introduced by the applicative head checks its Case on *v*, which is not a problem for intransitives, but gets complicated if there is a theme argument in addition to the applicative argument. One possible solution is found in the proposals of Gerdts and McGinnis (2003), in which there are more sites for merger of a high applicative head than the one shown in (12), but I leave specific resolution of this aside.

Second, the issue of the “appropriate” features for the DP and the applicative is one that should be taken seriously. Consider Halle and Marantz’s comment:

The morphosyntactic features [at the levels of DS, SS, and LF] are drawn from a set made available by Universal Grammar... The semantic features and properties of terminal nodes created at DS will also be drawn from Universal Grammar and perhaps from language-particular semantic categories or concepts. (1993:121)

The features for the applicative heads are fairly easy to deal with. Various linguists have made proposals over the years for universal categories along these lines. To take one example, another separationist morphologist, Robert Beard, has argued for a universal set of what he calls Grammatical Category Functions (Beard 1995). This is a set of 44 primitive grammatical functions which are expressed by case and adpositions in the world’s languages, and is intended to be



exhaustive and universal.<sup>12</sup> Beard acknowledges that it is preliminary, but says that “at most one or two additional functions” (1995:206) might need to be added. The meanings that the applicative heads contribute in Karuk fall nicely into Beard’s categories (despite the fact that they are verbal suffixes and he only considers instances of case and adpositions).

However, what universal features characterize a DP which must be filled with a vocabulary entry meaning ‘sweathouse’? There are two ways we could answer this question. On the one hand, in the quote just given, Halle and Marantz suggest that some language-particular semantic categories might be included in the set of features found in terminal nodes. If ‘sweathouse’ is culturally salient enough to be lexicalized into a directional suffix, perhaps we could just posit a feature [+sweathouse]. On the other hand, if that seems too far-fetched, another aspect of DM might be invoked to handle the problem. Recall that vocabulary entries are underspecified in DM. That is, they only contain sufficient features to get inserted in the right places. An alternative to having a feature [+sweathouse] would be to have more general features for, say, buildings, or structures built by humans, maybe with particular functions designated as well. The vocabulary entry would match on these general features, and then the encyclopedia would fill in the language-particular cultural information that the specific structure is a sweathouse.

## 2.6. Applicatives with Deictic Arguments

Returning now to the set of Karuk directionals, the final set is IIC, directionals which add and conflate a deictic argument. These are listed in (23) and exemplified in (24):

- (23) IIC. Applicative + object (Path + Ground): add & conflate deictic argument
- |  |      |                                       |
|--|------|---------------------------------------|
| 1. <u>Goal + away (distal)</u>               | -mu  | ‘to there’                            |
|  |      |                                       |
| 2. <u>Goal + here (proximal)</u>             | -ra: | ‘to here’                             |
|  | -uk  | ‘to here’                             |
|  |      |                                       |
| 3. <u>Goal + here (proximal) + direction</u> |      |                                       |
| -faku  |      | ‘to here from uphill’                 |
| -ra:   |      | ‘to here from downhill’               |
| -ra:   |      | ‘to here from downriver’              |
| -rina  |      | ‘to here from across a body of water’ |
| -várak                                       |      | ‘to here from upriver’                |

<sup>12</sup> Cf., however, Wierzbicka's much more restrictive Natural Semantic Metalanguage, a "common core" (1997:24) of semantic primitives that all languages are claimed to share. For a description of this theory's temporal and spatial primitive notions, see Goddard and Wierzbicka (2002:66-71).

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#### 4. Source + here (proximal) + direction

-kaθ	‘from here across a body of water’	-rupu	‘from here downriverward’
		-unih	‘from here downhillward’
-rô:vu	‘from here upriverward’	-ura:	‘from here uphillward’

- (24) a. tî: kú: kaníkfu:kmi  
tî: ku:k kán'íkfu-mu-i  
let to.there 1SG-crawl-to.there-IMP  
'Let me crawl to it' [T1, line 55, pp. 164-165]
- b. va: vúra ?ô:k nupθivruhuke:š  
vá:h vúrA ?ô:k nu'p-θivruh-uk-aviš  
so EMPH here 1PL-IT-float-to.here-FUT  
'We'll float back to here' [T3, line 154, pp. 174-175]
- c. xás paʔiššaha tuvú:nfak  
xas pa=ʔišahA t-ʔu-vuř-faku  
and the=water PERF-3SG-flow-to.here.from.uphill  
'And the water flowed away downhill' [T4, line 81, pp. 178-179]
- d. čavúra ?ô:k ʔiθivθané:nʔa:čip tó :pθivru:hvarak  
čavúrA ?ô:k iθivθa:ne:n-ʔá:čip t=ʔu-p-θivruh-várak  
finally here world-center PERF-3SG-IT-float-to.here.from.upriver  
'Finally he floated back downriver here to the center of the world'  
[T1, line 83, pp. 164-165]

These suffixes are yet more complex than the ones we have seen before. First, note that there is only one (24a) which indicates a location away from the speaker, this is the (relatively) simple *-mu* 'to there'. *-mu* is similar to the suffixes of class IIB, in that it both marks goal and simultaneously expresses the argument 'there'. It is different, though, in that the goal is specified with reference to the location of the speaker or subject. There are two suffixes which mark the parallel category 'to here', *-ra:* and *-uk*. The latter is the more common of the two; in fact, I have yet to find any textual examples with the former.

The second thing to note is that the rest of the suffixes mark both a deictically determined source or goal *and* a direction. For example, *-faku* adds ‘to here’ and the direction ‘from uphill’; *-várak* adds ‘to here’ and ‘from upriver’.

The syntactic possibilities for sentences containing these suffixes are the same as they are for the other suffixes; that is, they can occur alone (24c), entirely doubled (as in (24a)), with just the deictic argument doubled (24b), or with the deictic argument doubled *and* further specified ((24d), where we have both ‘here’ and ‘world-center’ specified as goal).

Most of the suffixes of this set could be given an analysis which conflates an applicative head ('to' or 'from'), a deictic locative argument ('here' or 'there'),

and a direction (e.g., ‘downhillward’). However, the two which mean ‘to here from across a body of water’ and ‘from here across a body of water’ (-*rina* and -*kaθ*, respectively) suggest that an even more complex analysis is required. These include the applicative head and deictic location, but in addition include a second applicative notion (‘across’) and a second specification of ground (‘a body of water’). Under the analysis proposed here, we would have to posit two applicative heads, with repeated merging and fusion of the heads and arguments. This pushes the analysis to the limits of credibility, but it could be done. The complexity of the data could be argued to justify a correspondingly complex analysis in such cases.

### 3. Conclusion

To sum up, this paper has provided a survey of the directional suffixes of Karuk, broadly defined. I have taken a general look at their semantics, although a truly detailed examination awaits further study. I have also looked at the syntax of sentences which contain these suffixes, and have found that they fall into two broad classes: those which merely describe a Path (meaning directional and locative notions, for the most part), and those which increase the valence of the verb. Among the latter set we find simple applicatives, which allow an argument to be added to the clause containing the verb, and more complex items which encode both the directional or locative meaning plus something about the applicative argument as well. As we saw, this can be a generic category or a precise specification of the ground argument.

The last type, in which we find conflation of the functional element with some highly specific lexical element, provides—I argue—powerful evidence for the correctness of the separationist hypothesis: that the form and the meaning of morphemes are best dealt with separately in the grammar. This is significant because the Karuk suffixes are derivational, and separationism, while fairly widely accepted in approaches to inflection, is less often appealed to in approaches to derivation (although see Beard 1998).

Furthermore, the examples of fusion that I have found in the literature are few, but always involve fusion of two elements of the same category, for example functional heads or clitic arguments. In Karuk, as I have shown, we have a somewhat different possibility: a situation in which a lexical and a functional head fuse to form single monomorphemic items. Separationism allows for a systematic account of suffixes which simultaneously encode the functional notion of Path (for example, ‘into’) and a highly specific lexical notion, Ground (for example, ‘sweathouse’), as are found in the Karuk data.

### References

- Anderson, Stephen R. 1992. *A-Morphous Morphology*. Cambridge: Cambridge University Press.

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- Aronoff, Mark. 1994. *Morphology by Itself: Stems and Inflectional Classes*. Cambridge, MA: MIT Press.
- Beard, Robert. 1995. *Lexeme Morpheme Base Morphology*. Albany: State University of New York Press.
- Beard, Robert. 1998. Derivation. In A. Spencer and A. M. Zwicky, eds., *The Handbook of Morphology*. Oxford: Blackwell.
- Bright, William. 1957. *The Karok Language*. University of California Publications in Linguistics, vol. 13. Berkeley: University of California Press.
- Embick, David, and Rolf Noyer. 2001. Movement Operations After Syntax. *Linguistic Inquiry* 32(4):555-595.
- Gerdts, Donna, and Martha McGinnis. 2003. A phase-theoretic analysis of Kinyarwanda multiple applicatives. Handout for talk given at Canadian Linguistics Association. <http://www.ucalgary.ca/~mcginnis/papers.html>.
- Goddard, Cliff, and Anna Wierzbicka. 2002. *Meaning and Universal Grammar: Theory and Empirical Findings, Volume I*. Amsterdam: John Benjamins.
- Halle, Morris, and Alec Marantz. 1993. Distributed Morphology and the pieces of inflection. In K. Hale and S. J. Keyser, eds., *The View from Building 20*, 111-176. Cambridge, MA: MIT Press.
- Harley, Heidi, and Rolf Noyer. 1999. Distributed Morphology. *Glott International* 4(4):3-10.
- McGinnis, Martha. 2001. Variation in the phase structure of applicatives. Ms: <http://www.ucalgary.ca/~mcginnis/papers.html>.
- Pylkkänen, Liina. 2001. What applicative heads apply to. In M. M. Fox, A. Williams, and E. Kaiser, eds., *Proceedings of the 24<sup>th</sup> Annual Penn Linguistics Colloquium*. Penn Working Papers in Linguistics 7.1. Philadelphia: Department of Linguistics, University of Pennsylvania.
- Talmy, Leonard. 1985. Lexicalization patterns: Semantic structure in lexical forms. In T. Shopen, ed., *Language Typology and Syntactic Description, Volume III: Grammatical Categories and the Lexicon*. Cambridge: Cambridge University Press.
- Talmy, Leonard. 2000. *Toward A Cognitive Semantics*. Cambridge, MA: MIT Press.
- Wierzbicka, Anna. 1997. *Understanding Cultures Through their Key Words*. Oxford: Oxford University Press.

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# **A Methodology for the Investigation of Speaker's Knowledge of Structure in Athabaskan**

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## **0. Introduction**

The purpose of this paper is to investigate methodologies that get at speakers' tacit knowledge of structure in polysynthetic languages. As linguists we need theoretical structures that both link languages to other languages and are internally cohesive. Polysynthetic languages pose a particular challenge to linguistic theories because of the internal complexity of the word. Polysynthesis generally refers to language types in which the verbal structure is semantically rich, morphologically complex with an opaque morpheme structure. In polysynthetic languages, word formation is often characterized as an often highly abstract concatenation of virtual morphemes that are conditioned by post hoc morphophonemic rules. However in light of their learnability and their overall long-term stability as polysynthetic, a more parsimonious model is likely to have an advantage over abstract models where internal structure is obscure. Adding to the problem, crucially, given that polysynthetic languages as a rule are often severely under-documented, the availability of data on polysynthesis in no way is comparable to that found with better-studied languages like English, which places us at a severe disadvantage in our understanding of them. With pre-theoretic assumptions in place concerning the nature of polysynthesis, the models resulting from research naturally tend toward translations of polysynthesis into analytic frameworks. We consider such approaches to be limited in their productivity and insight; the rest of this paper focuses on the development of new methodologies for the investigation of polysynthetic languages using Navajo, a canonical example of a polysynthetic language as our test case, expandable to the Athabaskan family.

Some of the essential issues presented by polysynthesis are: the nature of lexical productivity, the structure of a verb-based lexicon, the nature of evidence for theory, techniques of language documentation, and the nature of language change in lexically complex languages.

# 1. The Young and Morgan Grammars

Important to this enterprise is the existence of the Young and Morgan (YM) grammars and dictionaries, in particular 1980 and 1987, which represent extensive work on the documentation of the Navajo language and the patterns that exist in the language family. One of the more striking aspects of this opus is that the dictionaries are word based. Already, this runs counter to previously established concatenative models. If the morphemes are indeed fully productive, we might expect the lexicon to be a list of the more “productive” morphemes and a set of concatenation rules; this is a standard approach. However, as those who work on polysynthetic languages know, the word is the principal level of sound/meaning pairing. YM refer to fully inflected forms as lexical items; it is at this level that meaning is assigned. We take this as a starting point. If individual units/morphemes exist within the word, they will emerge and speakers will exhibit knowledge of them.

Central to the YM opus on Navajo is the word formation system they developed for their dictionaries. They use a paradigm-based system consisting of two basic units, each exhibiting conjugational variation. For the purpose of this paper, we will call them simply the pre-stem and the stem domains, and refer the reader to discussion of their specific structure. The two parts are combined to form a fully inflected lexical word.

The insight that Young and Morgan provide is that, even in this highly polymorphic language family, the word is still the primary unit of lexical access. This fact calls up issues of morphemic productivity and lexicalization. The two principal parts of the verb are roughly comparable to the stem and pre-stem domains and make up the core verb. Every word consists of at least the bases of these two units, which exhibit paradigmatic or conjugational variation. In their dictionaries, YM (1980, 1987) have developed an ingenious word formation algorithm that allows the combination of these two paradigm types (Base paradigms and stem paradigms) into a word and associates the word entry to the full set of conjugations and inflections that are possible for that *word*.<sup>1</sup> It is in this sense that word formation is a conjoining of the two units. In the following example, the verb word *yishcha* ‘I cry’ is broken into its two component parts, a bisyllabic unit (in the dictionary, this word is linked, via the pre-stem, to a set of paradigms that it participates in as a meaning unit). This is an example of a minimal or core verb. We refer the reader to YM for further examples.

Core Verb	
$\sigma$	$\sigma$
yish	cha
pre-stem	stem

<sup>1</sup> For discussion of the structure of the Young and Morgan grammars and dictionaries, see the final chapter in McDonough (2003).

We call attention to the two components, the pre-stem and stem units as distinct units, the two basic parts that make up the meaning unit “word.” These units may vary independently, though the combinations are apparently not always productive. One overriding question concerns the speaker’s tacit knowledge of this structure. Can we demonstrate that these units do vary independently? How productive is the system? Do the often rich specifications of the pre-stem limit the interpretation of the stem? One piece of evidence that they do comes from the regularities in the lexicon itself.

Consider the verb stem, the final syllable in the verb word. The verb stems in Athabaskan are “classificatory” stems, that is they refer to specific properties of objects or movement, for instance, such as the way an object is handled, its plurality or its physical shape. An example of this is the verbs of eating in Navajo. How eating is spoken about depends on what is being eaten; this specification is in turn encoded by the verb stem:

‘I eat...	yish ghał	meat	‘rolling, turning manner’	
	yish keed	donut	‘sliding manner’	
	yish chozh	cabbage	‘leafy’	
	yis ts’éeł	ice cream	‘mushy’	(YM 871)

The verb stem refers to the way things move: /ghał/ is the basis for verbs that refer to the basic motion of rolling in a turning manner, and also shows up in various constructions with meanings such as ‘to look about’ (roll the eyes), to describe water rushing out of a canyon, to lie around (YM 1987:g329).<sup>2</sup> The stem /keed/ is not confined to eating; it refers to sliding in a slow, dragging manner, and also shows up in the verb that refers to a slide show. The stem /choosh/ refers to ‘a flat, leafy object’ and shows up in ‘to graze’, /ts’éeł/ refers to mushy matter, etc. Another way of looking at this is to consider these activities in Navajo (Young 2000); all of these are related by having the same verb stem /dzííz/, translated as ‘drag, pull’:

<p>Activities designed using the stem: - dzííz ‘pull, drag, or tow’</p>
---

pull bag off a truck  
haul a trailer  
pull a sheep out of a corral  
tow a log out of the road  
to midwife  
pull a car into a shop  
sideswipe something  
pull a splinter out  
drag log and add it to a pile

<sup>2</sup> YM’s 1987 *The Navajo Language* is divided into two books with separate numbering. These are designated as ‘g’ (grammar) and ‘d’ (dictionary), as in ‘d139’ (= page 139 in the dictionary).

Mary Ann Willie (p.c.) has proposed that a native fluent speaker, versus a non-fluent speaker, has access to this structure (and it is the case that Navajo word play is based on this kind of variation).<sup>3</sup> We refer you to the stem and root dictionary in YM and Young (2000) for extensive discussion of the stems and the meanings they participate in.

To the left of the stem is the pre-stem domain. The pre-stem contains, as a base, the traditional grammatical elements that all core Athabaskan verbs have, which include tense/aspect and subject agreement marking (*yish* =  $\emptyset$ imperfective/1<sup>st</sup> person singular, a synthesis of positions VII ('Mode') and VIII ('subject agreement') in the template). YM consider these to be fusional elements, and they list them as conjugational paradigms. Calling these elements the Base Paradigms (YM g:200-201), as the "base of all word formation," they list 16 distinct conjugation patterns. That is, the realization of this fusional morpheme is paradigmatic and not combinatorial. McDonough (1990, 2000, 2003) has called these base morphemes the Aux stem; S. Rice (p.c.) calls them TAM/A (Tense/Aspect Marking with Agreement), a term we adopt. The pre-stem can also contain a very rich set of prefixal material from both the disjunct and conjunct domains, which may significantly alter the context a verb word may apply to. But overall, the base of the domain, sitting at the right edge, is the TAM/A conjugations. In the example below, the 1<sup>st</sup>-3<sup>rd</sup> person singular and dual of the  $\emptyset$  imperfective conjugation is listed, with the verb stem /*lchin*/. This is a canonical conjugation and it is often used to represent the "underlying" subject agreement morpheme set in templatic analyses. Again we refer the reader to YM for the differences between the 16 conjugations and their combinatorial possibilities.

$\emptyset$  – imperfective (TAM/A)

	Sing	dual	
1	(y) <i>ish</i>	ii(d)	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> <i>yishchin</i>  <i>yish</i>   (i)chin                      'I smell it'                 </div>
2	Ni/H	(w)oh	
3	(y)i	--	

To the immediate left of TAM/A may fall a set of morphemes that alter the aspectual nature of the event signified by the word (*position VI* morphemes in the YM template). These are a difficult set of morphemes to define, both in terms of their morphophonemics and their semantics. In describing them YM (1987:g80) state:

Elements that no doubt were distinct in form and transparent in meaning historically have converged in shape... For some the meaning remains sufficiently transparent to permit definition, while for others meaning is obscure and definition is speculative or impossible on the basis of available data.

<sup>3</sup> See also Supalla's (1987) work on ASL classificatory verbs.



This is a very rich and problematic area. YM refer to many of these as “subaspectual” morphemes, as they contain marking for “subaspects” to the conjugational paradigms (basically: imperfective, perfective, optative, and future), such as the seriative, inceptive, iterative, terminative, repetitive, revisionary, inchoative. A full discussion of these interesting morphemes is beyond the scope of this paper and we refer the reader to the extensive and excellent discussion in YM. What is important for us the concatenative relationship between the pre-stem entity and the verb stem.

To see the nature of this problem, note the following example. The stem is the same, /baaz/, meaning ‘a hooplike or circular object’ as it is used in the verb ‘to drive a wheeled vehicle’. The pre-stem carries the information about how the stem /baaz/ and its referent ‘a hooplike object’<sup>4</sup> are involved in the verbal activity stipulated by the verb word:

pre-stem	stem (lbááz)	
ni’sé	lbááz	‘to drive to a destination and return’
nánís	bááz	‘to return in it’
há’dís	bááz	‘to go after it’
na’as	bááz	‘to drive around’ (YM d871)

The pre-stem domain combines with the stem to form these various meanings. In the present discussion, these subaspectuals are the morpheme types we are interested in for the salience of their distinctions (to return in a car, versus drive around in a car). We propose that because these morphemes condition the way in which an object moves or gets handled, speakers are likely to be able to manipulate them independently of the stem.

The question we wanted to ask is: Is there a way that we can get at a speaker’s tacit knowledge of these two separate parts of the verb without explicitly asking them for their judgments?

## 2. Videos

In this section, we describe initial results of a new methodology we are developing with the aim of further investigating speaker knowledge of verb structure. The technique we used was to make and present videos of an activity to speakers and ask them to describe the activity. To get at subaspects, we decided to see if we could induce speakers to produce constructions like the seriative. We chose to attempt to embody the seriative because it is a rather salient distinction in the way an object, specified by the verb stem, is handled or moves.

<sup>4</sup> It is by convention that ‘a hooplike object’ is used in constructions that refer to driving a car, and we expect this type reference to vary across the language communities.

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Seriative Subaspect "...performing the verbal sequence one after the other..." "...describes the verbal action as segmented in form..." YM 1987:166

For example, in the following examples are two forms of the verb with the stem /jaad/ 'handle plural objects', and an example of verb 'to go in plural objects'; both include the seriative lexeme /hi-/.<sup>5</sup> All the forms indicate plural objects, but the manner in which they are carried is different depending on the pre-stem domain.

<i>hi-</i> seriative 'subaspect'	<i>jaád</i> 'handle plural objects'	
nish jaáh	'I arrive carrying them'	
yah 'ahish jaáh	'I carried them in one after another'	YM:1987:166
	<i>kaáh</i> 'go (+3)'	
yah 'ahi kaáh	'they are going in, one after another'	YM:1987:166

At issue was the question as to whether we could induce speakers to produce alternations in the pre-stem domain such as the seriative over a non-seriative construction. The logic behind this goal was based on the postulation that if our hypotheses about the underlying meaning and uses of the pre-stems were correct, we should be able to apply this knowledge to reliably create situations that would generate alternate responses. We wanted to see if we could induce speakers to produce variation in subaspect in the pre-stem domain, while maintaining the same verb stem, by showing them similar activities performed in different manners.

To accomplish this we made series of iMovie videos, using a video camera plugged into a Mac. This proved to be a quick and easy process to which native speakers responded quite well, thus excellent for fieldwork. The videos were of two types: ones we made informally at the University of Rochester varying an activity that we believed could be representative of a subaspectual difference (the seriative). This included a video of a popcorn eating activity (plural object, plural behavior), and included variations such as one person eating out of a bowl of popcorn, three people together eating out of the bowl, three separately walking up to the bowl and eating out of it. We predicted that the pre-stem domain, and crucially not the stem, would vary according to the changes in the type of behavior. The second type of videos were ones we made on site in the field, at the NLA summer Institute, while a group of people were in the kitchen preparing dinner: a food preparation video. In this, we videoed people making chicken enchiladas, in particular, the activity of tearing up cooked chicken: one man

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<sup>5</sup> Recall that these elements tend to be synthetic and difficult to segment. The seriative has several allophones, including a vowel length distinction. See YM 1987:g86.

pulling a chicken apart, and two, then three people tearing up the chicken with their hands.

Both types of videos were played in an informal way to native Navajo speakers, who were asked to describe the scene in the video. We were looking to see how speakers used the pre-stem and stem domains to describe the activity. The results indicate that speakers do manipulate the two parts of the verb in describing the types of actions in structured ways, but their ability to do so is very complex. In the following section we discuss two relevant examples of the data we obtained.

### 3. Data

The first video was one of people eating popcorn, made at the University of Rochester. The videos were informal, which turned out to be very beneficial, as speakers responded to their naturalness very positively. Our aim with this video was to elicit the seriative construction. That is, we hoped that speakers would agree on a single verb stem that would represent the activity (popcorn eating) and vary the pre-stem in describing the various ways the action was being depicted in the videos. The videos presented one person eating popcorn out of a bowl (a), three people eating out of a bowl (b), and three people going up to the bowl one at a time (c). We asked speakers to describe the actions and to write down their answers.



(a)



(b)



(c)

Examples of some of the constructions we got were as follows:

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*aza'yii jáá*  
*aza'yo t'á*  
*ayii jáá*

Two of the three constructions used the *disjunct* postposition /*aza-*/ 'into the mouth' (YM 1987:d139). Speakers also used two different verb stems that referred to a salient distinction in the video which pertained to the *manner* in which the action took place: one actor (c), as opposed to the others, picked up popcorn one piece at a time; it looked quite polite in comparison. The others in the video were unceremoniously scooping up handfuls of popcorn and putting them into their mouths (a) and (b). The two verb stems are as follows:

<i>jáá</i>	'move, handle many small objects'
<i>t'á</i>	'eat a hard object'

The action of the actor in (c) was described using the /*t'á*/ stem, 'eat a hard object'.

The pre-stem domain also varied. Two constructions which used a plural verb stem /*jáá*/ also contained the pre-stem morpheme /*yii*/, arguably containing subaspectual information (YM 1987:g83). The third, using the stem /*t'á*/, also contained subaspectual marking (YM:g85), though distinct from the ones appearing with /*jáá*/.

A second example follows. This video was made in the kitchen of a dormitory that housed the participants and teachers of the Navajo Language Institute, summer 2003. Several people were preparing dinner consisting in part of chicken enchiladas. Preparing the chicken involved sitting at a table and tearing up a single cooked chicken (crucially, it turned out) with the fingers. We videoed one person doing the activity (a), two (b), and then three people working together to tear up the chicken. We were then able to play the video to native Navajo speakers who were in the room and ask them to describe the activity. We were able to effectively capture an activity on video and play it back while it was still within its context, thus presenting speakers with a cohesive and contained section of a shared activity to replay and discuss, while the participants still shared the activity. Given the richness of the specification within the verb and how little we understand it, providing a shared context is non-trivial. As we will see below, we got encouraging results.

As before, the speakers were asked to write down the words and phrases they used in describing the activity, though in the future we suggest recording these sessions using high quality audio recording techniques.

The action of this video involved tearing apart a cooked chicken with the fingers. As opposed to the previous video, in which one of the actors could be identified as doing something in a different manner, in this video, the activity

across the actors was identical, and presented to speakers while the larger activity (meal preparation) was still occurring. Only the number of actors changed. (There was no difference between two and three actors.) We received a number of different constructions; for the most part they differed in the pre-stem domain rather than in the verb stem. Some examples of the elicited verbs are listed below, followed by a discussion. The forms in the orthographic representations were those given by the speakers; there are differences in tonal specification from that found in YM.

For the most part, for the verb stems, the speakers used forms of the verb stem /*dlaad*/, which participates in verbs meaning ‘to tear or pull’, the most salient aspect of the activity.



*niyi ldlah*  
*niyiis dlaad*  
*nayii ldlaad*  
*niyi' nish*  
*niyi lts'ii*

*ahanis dlaad*  
*ahandini ldlaad*

Speakers also used two other verb stems: most common was /*nish*/, a generic stem that is used in constructions referring to work, but to which YM also assign the meaning ‘tear’. Another form used was the stem /*lts'ii*/, which refers to a pinching movement made with the fingers.

However, the greatest differences were in the pre-stem domain. For this discussion we separate these into two groups (as above): the /*n*/ initial and the /*aha*/ initial, and discuss them briefly. The *n*-initial fall into two groups: the /*ni*/ ‘terminative, cessative’ and the /*na*/ ‘around about’ (YM 1987:g37 and references therein); both are disjunct prefixes. Within the conjunct domain several exhibit the long vowel indicative of some type of subaspectual variation. Only one of

them, /*niyıldlah*/, appears to have a simple conjunct construction made up of a single TAM/A element (nperf/3rd):

*niyıldlah*  
 ni                      # yi                      [ ɭdlah ]  
 'term, cessative' # nperf/3rd              [ 'tear, pull' ]

Thus we find speakers responding to an identical activity by using distinct pre-stem combinations. They were present at the activity depicted in the video, and it was presented to them as a video while the context in which they experienced it still held (in the kitchen cooking).

Potential glosses for the /*aha*/ constructions are as follows (the disjunct morphemes are marked off by '#' according to Athabaskan conventions; all glosses are from YM):

*ahanis dlaad*  
 [aha              # nis              ]              [ ɭ-dlaad ]              (YM 1987:d39)  
 ['together' # n-imper/1s]              [ trans- 'tear, pull' ]

*ahandini ɭdlaad*  
 [ahan              # di                      - ni ]              [ ɭdlaad ]              (YM 1987:d39)  
 ['together' # 'act with hands' - n-imper/1s]              [ trans- 'tear, pull' ]

Apart from agreement marking (1<sup>st</sup> versus 3<sup>rd</sup>) the differences between these two constructions are solely in the presence of the /*di*-/ 'hands or arms' in one of them. They differ from the previous examples in the shape of the pre-stem domain.

In several instances we asked speakers if they could comment on the constructions they chose. One speaker, when asked about her construction /*niyılınish*/, replied that the /*niyıl*/ part (our pre-stem) was "the pinching part" of the meaning.<sup>6</sup> To us this potentially signifies two testable things: that speakers extract some understanding of the meanings of the pre-stem domain as independent units, thus they are at least partially combinatorial, and that the pre-stem domain may well condition the interpretation and choice of the stem. Also, the *manner in which an activity is performed* is highly relevant to the chosen lexical item in two distinct ways, (1) in the choice of the make-up of the pre-stem complex and (2) in the choice of the verb stem.

We also found that the informality of the videos was a considerable benefit to the discussion of the activity, and we recommend that future work be done using native actors in natural situations.

<sup>6</sup> In a similar case, a native speaker deconstructed the word /*názhnoodahil*/ 'circle dance' (a type of dance). Knowing the stem /*dah*/ referred to 'dance or celebrate', she separated out the pre-stem, which contains the /*ná*/ 'encircling', to mean 'circle around'. She could not identify the aspect or agreement markers in the construction, though she could manipulate them.



In summary, native Navajo speakers exhibit behavior that indicates they possess independent access to both parts of the verb. As to the question of how important is the aspect of the pre-stem to expressing events, the answer was confounded by many things, likely to include exposure to the variations of the pre-stem domain. This is a testable hypothesis.

#### **4. Conclusion**

In conclusion, using the videos in the field to work with native speakers has proved to be a viable technique. The small videos provided focus for discussion of verb forms among native speakers. It provided them with a context for discussing different verb forms and vocabulary items. Several speakers sat around the computer and discussed the videos, attention was focused on the videos, and the conversation and discussion were lively. This activity allowed us to record the session in which speakers were using language in a unselfconscious way. Thus this also provided a potential source for corpus work, including recorded dialogue. The technique gets at knowledge of structure: what speakers choose to vary can tell us something about what they have access to and how productive the morphemes are.

To do further work, we need to work with native speakers. Working with a parsimonious model of the internal structure of the verb, we need to develop more controlled experimental materials, including especially videos, that are developed in conjunction with native speakers, and that reflect patterns in the lexicon. The body of data that comes out of recorded sessions, of both the video recordings and the discussion of them, is likely to yield a rich set of material to analyses that will help us understand the nature of the verb and its combinatorial base. Finally, because of the similarity of the languages within the family, this video technique and the materials developed for one Athabaskan language are likely to be useful across the Athabaskan family.

#### **References**

- McDonough, J. 1990. Topics in the Morphology and Phonology of Navajo Verbs. Ph.D. diss., University of Massachusetts at Amherst.
- McDonough, J. 2000. On the bipartite model of the Athabaskan verb. In T. B. Fernald and P. R. Platero, eds., *The Athabaskan Languages: Perspectives on a Native American Language Family*, 139-166. Oxford: Oxford University Press.
- McDonough, J. M. 2003. *The Navajo Sound System*. Dordrecht: Kluwer.
- Young, R. W. 2000. *The Navajo Verb System: An Overview*. Albuquerque: University of New Mexico Press.
- Young, R., and W. Morgan. 1987. *The Navajo Language*. Albuquerque: University of New Mexico Press.

*Speaker's Knowledge of Structure in Athabaskan*

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# Productivity and Lexicalization in Pima Compounds<sup>\*</sup>

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## 0. Introduction

In this paper we describe aspects of nominal compounding in Pima, a Uto-Aztecan language of Arizona closely related to Tohono O’odham (Papago), discussing ways that compounds and “pseudo-compounds” are lexicalized and examining their pluralization, which is of particular interest because compound plural reduplication may appear in several (often discontinuous) locations. We close with a proposal for handling optional reduplication in a formal grammar.

## 1. Data

### 1.1. Basic Reduplication and Stress

The default pattern of pluralization (for both native words and loans) results in a copy of the initial consonant appearing immediately after the first vowel of the stem (Riggle 2003), as in (1). If copying the initial consonant alone would produce a dispreferred coda or cluster, then the initial consonant-vowel sequence is copied, as in (2):

- (1) C-copying: ‘lion’ *mávit* → *mámvit*; ‘orange’ *nálash* → *nánlash*
- (2) CV-copying: ‘rock’ *hódai* → *hóhodai*, but not \**hóhdai*  
‘peach’ *ñúlash* → *ñúñulash* but not \**ñúñlash*

Plural reduplication in Pima is extremely productive, although words like *táatam* ‘tooth’ that look inherently reduplicated generally lack plurals.<sup>1</sup>

Primary stress in Pima overwhelmingly falls on the initial syllable of the stem (cf., for Tohono O’odham, Fitzgerald 1997). However, object/possessive clitics like second person singular *’em-*, though clearly included within the phonological word, are not stressed in words like *’em-’ú’us* ‘your trees’ (cf. *’ú’us* ‘trees’).

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<sup>1</sup> Words borrowed from Spanish or English sometimes use borrowed plural morphology. We do not consider here a second non-singular form, the “distributive”, which differs in both meaning and form from the plural (cf., e.g., Mathiot 1973: 36).

### 1.2. Basic Compounding

Compounding in Pima is very productive, though the language has many lexicalized compounds (Riggle and Munro 2004). Pima has copulative (dvandva) compounds like *màakai-páal* ‘doctor-priest’ and determinative compounds like *vàtopi-váinom* ‘fish-knife’ (a knife shaped like, made out of, or adorned with fish, though not a knife used for eating or cutting fish, a knife suitable for use by fish, or a knife owned by a fish).<sup>2</sup> Determinative compounds in Pima are modifier-head (right-headed): for example, compare *vàtopi-váinom* with *vàinom-vàtopi* ‘knife-fish’ (a fish shaped like, made out of, or adorned with a knife). Main stress in Pima compounds falls on the rightmost stem, while every other stem in the compound gets secondary stress. This pretonic secondary stress is significantly less than primary stress, but still greater than the (lack of) stress on the clitics discussed in section 1.1, as seen in examples like *’em-vàtopi-váinom* ‘your fish knife’. (We are not able to compare Pima pretonic secondary stress with the Tohono O’odham posttonic secondary stress reported by Fitzgerald (e.g., 1997).)

### 1.3. Borrowed Words with Non-Initial Stress

Some Pima borrowings (mainly from Spanish) are lexically specified for non-initial stress on the syllable that was stressed in the source language: *màlóoma* ‘acrobat’ (< Sp. *maromo*) and *vìlgóodii* ‘apricot’ (< Sp. *albaricoque*) are prototypical examples, with a secondary stressed syllable before a stressed syllable with a long vowel. However, *càpaliya* ‘chaps’ (< Sp. *chaparreras*), *’òvispla* ‘bishop’ (< Sp. *obispo*), and *Mòndlái* ‘California’ (< Sp. *Monterrey*) show that in these borrowings more than one syllable may precede the main stress, which may fall on a short vowel or diphthong.

Such words have been discussed by Miyashita (2004), who terms their reduplication “collateral,” and Fitzgerald (1999, 2004). Miyashita argues that stress need not be marked for these words, but falls predictably on the non-initial long vowel. We adopt a lexical account because words like ‘bishop’ and ‘California’ show non-initial stress on vowels that are not long. Words like ‘apricot’ illustrate another contrast between our analysis and Miyashita’s: we assume that Pima indeed has a group of words that, like ‘apricot’, contain unstressed (final) long vowels. Following Saxton, Saxton, and Enos (1983), but contra, e.g., Zepeda (1983), we recognize only two degrees of vowel length for Pima. By our analysis, final short *i* is devoiced following most consonants, and underlying final long *i* surfaces as a short voiced vowel.

## 2. Multiple Plural Marking in Compounds

Multiple plural marking in copulative compounds occurs throughout Romance languages (Olsen 2001), as well as in English, when the first element of the compound has an irregular plural (Baker and Bobaljik 2002:61), as in (3):

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<sup>2</sup> Pima does not have “possessive” nominal compounds of the *grey-beard* or *blue-hair* type.

- (3) (Spanish) ‘actor-dancer’ *actor-bailarín* *actores-bailarines*  
 (Portuguese) ‘actor-producer’ *actor-encenador* *actores-encenadores*  
 (English) ‘gentleman-farmer’ *gentleman-farmer* *gentlemen-farmers*

Pima similarly marks both elements of copulative compounds with plural morphology, as in (4):

- (4) (Pima) ‘doctor-priest’ *màakai-páal* *màmakai-pápal*

In fact, however, Pima can mark both elements of all compound words with reduplication. Comparable reduplicative patterns occur in Mandarin (cf. Feng 2003) and in Sino-Korean “consecutive reduplication” (Chung 1999:170). Each stem of a plural compound may be reduplicated, but at least one must be, meaning that a two-part compound like *vàtopi-váinom* ‘fish-knife’ may have three plurals, one with both stems reduplicated (*vàtopi-vápainom*), one with only the first stem reduplicated (*vàptopi-váinom*), and one with only the second stem reduplicated (*vàtopi-vápainom*). Our consultant, Virgil Lewis, reports no difference in meaning among plural variants like those listed in (5), and generally only memory limits the number of plurals he volunteers.

(5) gloss and etymology	singular	plural forms
‘bridge’ (tree-road)	<i>’ùs-vóog</i>	<i>’ù ’us-vópog, ’ù ’us-vóog, ’ùs-vópog</i>
‘church’ (mass-house)	<i>mìish-kíi</i>	<i>mìimsh-kíik, mìmsh-kíi, mìish-kíik</i>
‘onion soup’ (onion-soup)	<i>sìvol-sóoba</i>	<i>sìsvol-sósba, sìsvol-sóoba, sìvol-sósba</i>
‘peso’ (Mexican-dollar)	<i>Jiukam-píish</i>	<i>Jiujkam-píipsh, Jiujkam-píish, Jiukam-píipsh</i>
‘peyote’ (coyote-plant.type)	<i>bàn-nód:adag</i>	<i>bàban-nónd:adag, bàban-nód:adag, bàn-nónd:adag</i>
‘tamarack’ (salt-tree)	<i>’ònk-’ús</i>	<i>’ò ’onk-’ú ’us, ’ò ’onk-’ús, ’ònk-’ú ’us</i>
‘uvula’ (throat-bell)	<i>bà ’itk-kámpañ</i>	<i>bàba ’itk-kákampañ, bàba ’itk-kámpañ, bà ’itk-kákampañ</i>
‘wagon’ (tree-car)	<i>’ùs-kálit</i>	<i>’ù ’us-káklit, ’ù ’us-kálit, ’ùs-káklit</i>

We will come back to the variation among plural forms in section 5 below.

### 3. Pseudo-Compounds

Pima borrowed words with non-initial stress (section 1.3) may indicate their plural by reduplicating both the initial syllable and the stressed vowel (cf. Saxton, Saxton, and Enos (1983:xvi) for Papago): e.g., *màmlóloma* ‘acrobats’. However, such words typically have more than one plural form, following the same pattern of multiple reduplication that we saw with the compounds in (5). Either or both of the secondary and main stressed portions of the word may reduplicate to indicate the plural, as in (6), again with no reported difference in meaning:

- (6) ‘acrobat’ *màlóoma* → ‘acrobats’ *màmlóloma*, *màmlóoma*, *màlóloma*

Other than compounds, borrowed words of this type are the only uninflected Pima words with non-initial primary stress, the only words that reduplicate more than one syllable of the base, and the only words that regularly have more than one plural. The pattern of variable multiple plural marking in these borrowings can be attributed to the fact that they have non-initial primary stress. Because this property is unique to compounds in the native vocabulary these words have been reanalyzed as “pseudo-compounds,” despite their having only one semantic head (Riggle and Munro 2004).

Following the pseudo-compound analysis, we separate the two parts of such words, each of which behaves as a (pseudo-)stem, with a hyphen (just as though they were ordinary native compounds), as in (7). (In this we follow Saxton, Saxton, and Enos (1983), who use the hyphen as a diacritic to indicate that exceptional stress occurs on the following vowel.)

(7) gloss and etymology	singular	plural forms
‘apricot’ (< Sp. <i>albaricoque</i> )	<i>vìl-góodii</i>	<i>vìpil-gógodii</i> , <i>vìpil-góodii</i> , <i>vìl-gógodii</i>
‘bishop’ (< Sp. <i>obispo</i> )	<i>’ò-víspla</i>	<i>’ò’ò-vìpispla</i> , <i>’ò’ò-víspla</i> , <i>’ò-vìpispla</i>
‘blueing’ (< Sp. <i>anil</i> )	<i>’à-ñiil</i>	<i>’à’a-ñiñil</i> , <i>’à’a-ñiil</i> , <i>’à-ñiñil</i>
‘chaps’ (< Sp. <i>chaparreras</i> )	<i>càpa-liiya</i>	<i>càcpa-líliya</i> , <i>càcpa-liiya</i> , <i>càpa-líliya</i>
‘clown’ (< Sp. <i>payasa</i> )	<i>pà-yáasa</i>	<i>pàp-yáyasa</i> , <i>pàp-yáasa</i> , <i>pà-yáyasa</i>
‘dove’ (< Sp. <i>paloma</i> )	<i>pà-lóoma</i>	<i>pàp-lóloma</i> , <i>pàp-lóoma</i> , <i>pà-lóloma</i>
‘emcee’ (< Sp. <i>fiestero</i> )	<i>pìas-tiilo</i>	<i>pìaps-títilo</i> , <i>pìaps-tiilo</i> , <i>pìas-títilo</i>
‘gallon’ (< Sp. <i>galón</i> )	<i>và-lóon</i>	<i>vàp-lólon</i> , <i>vàp-lóon</i> , <i>và-lólon</i>
‘glass’ (< Sp. <i>limeta</i> )	<i>lì-miida</i>	<i>lìl-mímida</i> , <i>lìl-miida</i> , <i>lì-mímida</i>
‘pistol’ (< Sp. <i>pistola</i> )	<i>pìs-tóolii</i>	<i>pìps-tótolii</i> , <i>pìps-tóolii</i> , <i>pìs-tótolii</i>
‘pie’ (< Sp. <i>pastel</i> )	<i>pàs-tiil</i>	<i>pàpas-títìl</i> , <i>pàpas-tiil</i> , <i>pàs-títìl</i>
‘vest’ (< Sp. <i>chaleco</i> )	<i>cà-líigo</i>	<i>càc-líligo</i> , <i>càc-líigo</i> , <i>cà-líligo</i>
‘sheriff’ (< Sp. <i>cherife</i> < Eng.)	<i>cà-liihi</i>	<i>càc-lílihi</i> , <i>càc-liihi</i> , <i>cà-lílihi</i>

As (7) shows, when the second element of the pseudo-compound is reduplicated, length corresponding to the stress in the Spanish source word is lost. Plurals like *vìpil-gógodii* and *’à-ñiñil* with short stressed vowels show non-initial stress which is not dependent on non-initial vowel length.

Parallel analyses of loanwords following native morphological patterns occur in many languages: for example, Swahili *kitabu* ‘book’, borrowed from Arabic *kitaab*, is analyzed as *ki-tabu*, a member of noun class 7-8, with plural *vi-tabu* (Tom Hinnebusch and Leston Buell, p.c.). Similarly, Martin (2004) shows that French loans into Malagasy with the same prosodic patterns as compounds in the native lexicon show exceptional compound-like behavior in reduplication.

It would certainly be possible to formulate an analysis of multiple plural

marking in these loans because of their stress, rather than morphological reanalysis, but this approach ignores the existence of precisely similar multiple plural marking in compounds. Claiming that these two patterns of optional multiple reduplication have unrelated motivations, one prosodic and the other morphological, misses a major generalization. Alternatively, attributing both patterns to prosody and not morphology ignores the connection between multiple marking in Pima compounds and multiple marking in compounds cross-linguistically. Thus, the pseudo-compound analysis is not only simpler but also significantly more illuminating from a cross-linguistic perspective.

#### 4. Lexicalization of Compounds and Pseudo-Compounds

Many Pima compounds illustrate different processes of lexicalization and reanalysis. For example, the meaning of many compounds, including some of those in (5), is not derived componentially. The same conventionalization is confirmed by Saxton, Saxton, and Enos (1983), who list Tohono O'odham equivalents of many of our examples.

Although possessive interpretations for compounds like *vàtopi-váinom* 'fish-knife' are not possible, there are possessive compounds whose second element is semantically inalienable with lexicalized metaphorical interpretations:

(8)	<b>gloss and etymology</b>	<b>singular</b>	<b>plural</b>
	'baby coyote' (coyote-child)	<i>bàn-mád</i>	<i>bàaban-máamad</i>
	'butter' (Chinese.person-brain)	<i>cìino-'oág</i>	(no plural)
	'pipe cutter' (monkey-tail)	<i>càango-báhi</i>	<i>càcango-báabhai</i>
	'saddle horn' (saddle-head)	<i>pùust-mó'o</i>	<i>pùpst-móom</i>

Reduplicated forms in compounds may differ from those of the corresponding independent words. The two stems that combine to form the compound 'small dragonfly sp.' in (9), *múuki* 'corpse' and *jíviadam* 'arriver', each have suppletive plurals, but in the compound regular plurals emerge, parallel to the behavior of English lexicalized compounds like *Toronto Maple Leafs*:

- (9) 'small dragonfly sp.' *mùuki-jíviadam*  
 < *múuki* 'corpse' (pl. *kó'i*) + *jíviadam* 'arriver' (pl. *dádakam*)  
 → pl. *mùmuki-jíjiviadam* but not *\*kò'i-dádakam*

The most striking change that accompanies the lexicalization of compounds is the reanalysis of their atypical non-initial stress. This reanalysis is especially frequent with pseudo-compounds: their first syllable acquires native-like primary stress while stress (and consequently length) on the originally stressed non-initial syllable is lost. Nativized words (10) reduplicate only their initial syllable:

(10)	<b>gloss and etymology</b>	<b>singular</b>	<b>plural</b>
	‘bell’ (< Sp. <i>campana</i> )	<i>kámpañ</i>	<i>kákampañ</i>
	‘candle’ (< Sp. <i>candela</i> )	<i>kánjul</i>	<i>kákanjul</i>
	‘car’ (< Sp. <i>carreta</i> )	<i>kálit</i>	<i>káklit</i>
	‘drum’ (< Sp. <i>tambor</i> )	<i>támbol</i>	<i>tátambol</i>
	‘gun’ (< Sp. <i>arcabuz</i> )	<i>gávos</i>	<i>gágvos</i>
	‘horse’ (< Sp. <i>caballo</i> )	<i>káviu</i>	<i>kákaviu</i>
	‘paper’ (< Sp. <i>papel</i> )	<i>tápial</i>	<i>tátpial</i>
	‘peach’ (< Sp. <i>durazno</i> )	<i>ñúlash</i>	<i>ñúñulash</i>
	‘soap’ (< Sp. <i>jabón</i> )	<i>shávoñ</i>	<i>sháshvoñ</i>
	‘soldier’ (< Sp. <i>soldado</i> )	<i>shóndal</i>	<i>shóshondal</i>
	‘wagon tongue’ (< Sp. <i>timón</i> )	<i>címoñ</i>	<i>cícmoñ</i>
	‘week’ (< Sp. <i>domingo</i> )	<i>dómig</i>	<i>dódmig</i>

Although the words in (10) are documented only in the reanalyzed form with initial stress, there are numerous other borrowed words that alternate (for a single speaker, such as our Pima consultant; between speakers; or between Pima and Tohono O’odham) between a pseudo-compound form with non-initial stress (like those in (7)) and a reanalyzed initially stressed form (like those in (10)), thus supporting the notion of a gradual historical reanalysis of all such forms.<sup>3</sup> In (11), unmarked forms are Pima, and Tohono O’odham words (from Saxton, Saxton, and Enos 1983)<sup>4</sup> are preceded by TO.

(11)	<b>gloss and etymology</b>	<b>pseudo-compound</b>	<b>nativized form</b>
	‘bonnet’ (< Sp. <i>cucurucho</i> )	TO <i>kù-lúuji</i>	<i>kúluji</i>
	‘cook’ (< Sp. <i>cocinero</i> )	<i>kòs-ñéel</i>	<i>kósñel</i>
	‘godfather’ (< Sp. <i>padrino</i> )	<i>pò-líina</i>	<i>póolina</i>
	‘lining’ (< Sp. <i>abolla</i> )	TO <i>’à-póola</i>	<i>’ápola</i>
	‘palomino’ (< Sp.)	TO <i>pàl-míito</i>	<i>pálmito</i>
	‘saddle blanket’ (< Sp. <i>sudadero</i> )	<i>shù-víijel</i>	<i>shúvijel</i>
	‘sock’ (< Sp. <i>calcetín</i> )	TO <i>kàl-síido</i>	<i>kálsido</i>
	‘tobacco’ (< Sp. <i>tabaco</i> )	TO <i>tà-wáago</i>	<i>távako</i>

Again, only the initial primary stressed syllable of nativized loans is reduplicated.

- (12) *kòs-ñél* ‘cook’ (pseudo-compound) → pl. *kòks-ñél*, *kòks-ñéñel*, *kòs-ñéñel*  
*kósñel* ‘cook’ (nativized) → pl. *kóksñel*; \**kóksñeñel*, \**kósñeñel*

In a few cases, the reanalyzed form with initial stress may be anticipated by

<sup>3</sup> It is possible that more recently speakers have re-borrowed some words as pseudo-compounds, beginning the cycle of nativization again.

<sup>4</sup> Here and below we have adapted the Saxton, Saxton, and Enos (1983) orthography to match ours; note that TO *w* corresponds to Pima *v*.

speakers' reluctance to mark a non-initial stressed syllable for plural:

(13) gloss and etymology	pseudo-compound	nativized form
'California'	<i>Mònd-lái</i> ; pl. <i>Mòmònd-lái</i> ,	<i>Móndlai</i> ;
(< Sp. <i>Monterrey</i> )	* <i>Mòmònd-lálai</i> , * <i>Mònd-lálai</i>	pl. <i>Mómòndlai</i>
'coffee'	<i>kò-hvíi</i> ; pl. <i>kòk-hvíi</i> ,	<i>kóhvii</i> ;
(< Sp. <i>café</i> )	* <i>kòk-hvípi</i> , * <i>kò-hvípi</i>	pl. <i>kókvii</i>

Undoubtedly, one of the things that speeds the reanalysis of pseudo-compounds is the fact that they have only one semantic head. In some cases, speakers may folk-etymologize pseudo-compounds (even bilingually) so that they more clearly contain two heads. As (14) shows, the Spanish *Noche Buena* 'Christmas Eve' was originally borrowed as *Nòji-wíino* (*Nòji-víino* in earlier Pima), which was presumably a semantically opaque pseudo-compound for most speakers. In current Pima, this is *Ñèòsh-víino*; *Ñéòsh* means 'God' (itself a loan from Spanish *Dios*), and Mr. Lewis has suggested that 'Christmas Eve' comes from Spanish *Dios viene* 'God comes'.

- (14) Sp. *Noche Buena* 'Christmas Eve' (lit. 'good night') > earlier Pima and current TO *Nòji-wíino* > current Pima *Ñèòsh-víino*

The less clear the evidence for two semantic heads, the more likely the reanalysis, and indeed, most cases of reanalyzed compound stress that we have identified are in loanwords. However, the same process occurs in native compounds<sup>5</sup> like (15), which is presented with Mr. Lewis's suggested etymology:

- (15) *hoáshom* 'deerskin medicine bag' < *hoá* 'basket' + *shóoma* 'sewn item'  
→ pl. *hoáhashom*

Alternatively, Saxton, Saxton, and Enos (1983) relate this word to *huái* 'deer'. Clearly, once such a word is relexicalized with its original compound stress reanalyzed, its etymological word structure is less accessible. Like the nativized pseudo-compounds, reanalyzed native compounds have only one plural.

## 5. The Productivity of Compounding

Pima compounds may also be productively formed with more than two stems, the last of which receives primary stress. Since each stem may optionally be marked with plural reduplication, there is extensive variation. In general, if there are *n* stems, there are  $2^n - 1$  plural variants. Thus, a compound with three stems will have seven plurals, varying by whether three, two, or just one stem is reduplicated.

<sup>5</sup> Pima verbs present many more examples of old compounds with reanalyzed stress. Marcus Smith has provided us with examples like *gátwua* 'to shoot' (< *gáat* 'gun' plus *wuá* 'to do') and *gógswua* 'to sleep around, be slutty' (< *gógs* 'dog' plus *wuá*).



- (16) [*'us-kàlit*]-[*váinom*] [tree-car]-[knife] 'wagon-knife' (three stems)  
**pls. – all three reduplicants:**  
 [*'u'us-kàkalit*]-[*vápainom*];  
**two reduplicants:**  
 [*'u'us-kàkalit*]-[*váinom*], [*'u'us-kàlit*]-[*vápainom*], [*'us-kàkalit*]-[*vápainom*];  
**one reduplicant:**  
 [*'u'us-kàlit*]-[*váinom*], [*'us-kàlit*]-[*vápainom*], [*'us-kàkalit*]-[*váinom*]

Note that pseudo-compound loans show the same pattern of optional reduplication in compounds as they do in isolation (so the stems we refer to may be pseudo-stems). Thus, even if there aren't *n* distinct morphemes, there can still be  $2^n - 1$  plurals in apparent free variation. With four (pseudo-)stems a compound will have 15 plurals, as in (17).

- (17) [*vil-gòodii*]-[*pas-tíil*] [apricot]-[pie] 'apricot-pie' (four stems)  
**pls. – all four reduplicants:**  
 [*vipil-gògodii*]-[*paps-títil*];  
**three reduplicants:**  
 [*vipil-gògodii*]-[*paps-tíil*], [*vipil-gògodii*]-[*pas-títil*], [*vipil-gòodii*]-[*paps-títil*],  
 [*vil-gògodii*]-[*paps-títil*];  
**two reduplicants:**  
 [*vipil-gògodii*]-[*pas-tíil*], [*vipil-gòodii*]-[*pas-títil*], [*vil-gòodii*]-[*paps-títil*],  
 [*vipil-gòodii*]-[*pas-títil*], [*vil-gògodii*]-[*paps-tíil*]  
**one reduplicant:**  
 [*vipil-gòodii*]-[*pas-tíil*], [*vil-gògodii*]-[*pas-títil*], [*vil-gòodii*]-[*paps-tíil*],  
 [*vil-gòodii*]-[*pas-títil*]

The basic generalization is that the initial consonant of each stem (or pseudo-stem) may optionally be reduplicated but at least one stem must be marked with plural morphology in every plural compound. Thus, with five stems, a compound will have 31 plural forms. This is illustrated in (18).

- (18) [*li-mìida*]-[*hoas-hà'a*]-[*dágkuanakud:*] [glass]-[baskety-jar]-[wiper]  
 'glass dish cloth' (five stems)  
**pls. – all five reduplicants:**  
 [*lil-mìmida*]-[*hoahas-hàha'a*]-[*dádagkuanakud:*];  
**four reduplicants:**  
 [*li-mìmida*]-[*hoahas-hàha'a*]-[*dádagkuanakud:*],  
 [*lil-mìida*]-[*hoahas-hàha'a*]-[*dádagkuanakud:*],  
 [*lil-mìmida*]-[*hoas-hàha'a*]-[*dádagkuanakud:*],  
 [*lil-mìmida*]-[*hoahas-hà'a*]-[*dádagkuanakud:*],  
 [*lil-mìmida*]-[*hoahas-hàha'a*]-[*dágkuanakud:*];  
**three reduplicants:**



[lil-mìmida]-[hoahas-hà'a]-[dágkuanakud:],  
 [lil-mìmida]-[hoas-hàha'a]-[dágkuanakud:],  
 [lil-mìmida]-[hoas-hà'a]-[dádágkuanakud:],  
 [lil-miida]-[hoahas-hàha'a]-[dágkuanakud:],  
 [lil-miida]-[hoahas-hà'a]-[dádágkuanakud:],  
 [lil-miida]-[hoas-hàha'a]-[dádágkuanakud:],  
 [li-mìmida]-[hoahas-hàha'a]-[dágkuanakud:],  
 [li-mìmida]-[hoahas-hà'a]-[dádágkuanakud:],  
 [li-mìmida]-[hoas-hàha'a]-[dádágkuanakud:],  
 [li-miida]-[hoahas-hàha'a]-[dádágkuanakud:]

**two reduplicants:**

[lil-mìmida]-[hoas-hà'a]-[dágkuanakud:],  
 [lil-miida]-[hoahas-hà'a]-[dágkuanakud:]  
 [lil-miida]-[hoas-hàha'a]-[dágkuanakud:],  
 [lil-miida]-[hoas-hà'a]-[dádágkuanakud:],  
 [li-mìmida]-[hoahas-hà'a]-[dágkuanakud:],  
 [li-mìmida]-[hoas-hàha'a]-[dágkuanakud:],  
 [li-mìmida]-[hoashà'a]-[dádágkuanakud:],  
 [li-miida]-[hoahas-hàha'a]-[dágkuanakud:],  
 [li-miida]-[hoahas-hà'a]-[dádágkuanakud:],  
 [li-miida]-[hoas-hàha'a]-[dádágkuanakud:]

**one reduplicant:**

[lil-miida]-[hoas-hà'a]-[dágkuanakud:],  
 [li-mìmida]-[hoas-hà'a]-[dágkuanakud:],  
 [li-miida]-[hoahas-hà'a]-[dágkuanakud:],  
 [li-miida]-[hoas-hàha'a]-[dágkuanakud:],  
 [li-miida]-[hoas-hà'a]-[dádágkuanakud:]

Compounds that include apparently inherently reduplicated words like *táatam* ‘tooth’ or *Móomli* ‘Mormon’ that lack a plural (section 1.1), such as *Jùukam-tàatam-máakai* (Mexican-tooth-doctor) ‘Mexican dentist’ or [*Mòomli*]-[’ò-víspla] (Mormon-bishop) ‘Mormon bishop’ have fewer plural variants than would be expected from their number of stems. Although it contains three stems, for example, ‘Mexican dentist’ has three plurals, not seven: *Jùujkam-tàatam-mámakai*, *Jùujkam-tàatam-máakai*, and *Jùukam-tàatam-mámakai*.

## 6. A Formal Account of Local Optionality

The multiple marking of plurals in compounds can be derived with a positionally indexed Base-Reduplicant faithfulness constraint (cf. Nelson 2003, Riggle 2003).

### (19) BASE/REDUPLICANT-MAX-C<sub>1</sub>:

The initial consonant of each stem must be copied in reduplication.

We can restrict multiple reduplication with a countervailing force that penalizes

surface forms with multiple exponents of the plural morpheme:<sup>6</sup>

(20) \*MULTIPLE-EXPONENTS (\*MULTEX):

Multiple expression of a single input morpheme is penalized.

Free variation in plural reduplication in Pima shows what Vaux (2003) calls “sequential optionality.” This presents a challenge for OT analyses of variation that rely on variation in constraint ranking to select varied output forms (Anttila 1997, Boersma and Hayes 2001). Because there is only one ranking per derivation a sort of all-or-nothing behavior is predicted. This is illustrated in (21) below.<sup>7</sup>

(21)	RED+miish+kii ‘church’	*MULTEX	B/R-MAX-C <sub>1</sub>
a. (☞)	mi <u>m</u> sh-kíi <u>k</u>	*	
b. (☞)	mi <u>m</u> sh-kíi		*
c. (☞)	miish-kíi <u>k</u>		*
d.	miish-kíi		**!

If B/R-MAX-C<sub>1</sub> is ranked above \*MULTEX, candidate a is selected and each stem is marked with reduplication. With the inverse ranking, candidate b or c will win and only one stem will be reduplicated. Reranking the constraints predicts either that all of the stems should show reduplication or that only one stem will show reduplication. This is problematic when forms with more than two stems are considered because there is no way to generate an “intermediate” alternative like the one in (22b) below in which only a few of the stems show reduplication.

(22)	RED+vil-gòodii-pas-tíil ‘apricot-pie’	*MULTEX	B/R-MAX-C <sub>1</sub>
a.	vil-gòodii-pas-tí <u>il</u>		***
b. ☞	vil-gò <u>g</u> odii-pas-tí <u>il</u>	*!	*!*
c.	vi <u>p</u> il-gò <u>g</u> odii-pa <u>p</u> s-tí <u>il</u>	***	

To generate candidates like (22b), we will borrow the notion of optionality from rule-based grammars, but because OT constraints embody phonological principles, we won’t simply make them turn off some of the time. Instead, following Boersma and Hayes (2001) and Anttila (1997), we’ll generate the different outputs in free variation by reranking the constraints in the grammar. The tricky part is capturing the local character of the optionality. To do this, we allow constraints to be reranked within a single derivation rather than just between derivations. In (23) we represent B/R-MAX-C<sub>1</sub> twice, once above

<sup>6</sup> Alternatively, we might pit B/R-MAX-C<sub>1</sub> against \*STRUCTURE (Zoll 1993) or a constraint barring discontinuous expression of morphemes. Our focus here is on the interaction between these drives, not on capturing the general cross-linguistic dispreference for multiple expression of morphemes.

<sup>7</sup> For concreteness we assume that Pima reduplicants (boldfaced in the examples below) appear immediately to the right of material they copy (following Riggle 2003; section 1.1), but note that no aspect of our analysis hinges crucially on this assumption.

\*MULTEX and once below it.

(23)	‘church’ RED+miish+kii	A B/R-MAX-C <sub>1</sub>	*MULTEX	B B/R-MAX-C <sub>1</sub>
a.	mi <u>m</u> sh-kii <u>k</u>		*	
b.	mi <u>m</u> sh-kii	(*)		( )
c.	miish-kii <u>k</u>	(*)		( )
d.	miish-kii	(*)(*)		( )()

In this tableau, potential loci for the violations of the optionally ranked constraint are enclosed in parentheses. Each violation must be assigned to exactly one of its potential locations.

In (23) we’ve illustrated the case where all of the B/R-MAX-C<sub>1</sub> violations are assigned to the A column. Candidates b or c can win if the violation marks for d and c or b respectively are demoted to column B. But candidate d can also win if its violations are demoted to column B and the violations for b and c are left in column A. This is problematic because the selection of candidate d is not motivated by \*MULTEX, merely arising as an artifact of the optional ranking.<sup>8</sup>

The key to avoiding this type of problem is to make sure that a given violation is treated the same way across the candidates. To do this we extend the segmental indexing of correspondence theory (McCarthy and Prince 1995) to the violations themselves, giving each star the index of the segment that caused it, as in (24):<sup>9</sup>

(24)	‘church’ RED+m <sub>1</sub> ii <sub>2</sub> sh <sub>3</sub> +k <sub>4</sub> ii <sub>5</sub>	A B/R-MAX-C <sub>1</sub>	*MULTEX	B B/R-MAX-C <sub>1</sub>
a.	mi <u>m</u> sh-kii <u>k</u>		*	
b.	mi <u>m</u> sh-kii	(*) <sub>4</sub>		( ) <sub>4</sub>
c.	miish-kii <u>k</u>	(*) <sub>1</sub>		( ) <sub>1</sub>
d.	miish-kii	(*) <sub>1</sub> (*) <sub>4</sub>		( ) <sub>1</sub> ( ) <sub>4</sub>

Thus, the violations of B/R-MAX-C<sub>1</sub> are either indexed with 1 for the initial consonant of the first stem or with 4 for the initial consonant of the second stem. Candidate d shares an index 4 violation with candidate b (because they both fail to copy the initial consonant of the second stem) and also shares an index 1 violation with candidate c (because they both fail to copy the initial consonant of the first stem). In this sense the violations incurred by candidate d are a true superset of those incurred by either b or c.

Using indices on the violations allows us to formulate the following principle on evaluation with optionally ranked constraints:

<sup>8</sup> Candidate d could be ruled out by REALIZE MORPHEME (cf. Kurisu 2001), but we still need to prevent candidates with unmotivated violations from being selected by optional reranking.

<sup>9</sup> For constraints that are violated by a sequence of segments, it doesn’t matter which segment’s index is used for the violations so long as the choice is consistent across candidates.

(25) **CONSISTENCY OF EVALUATION:**

In choosing how to assign the violations of a given optionally ranked constraint, all violations with the same index must be assigned to the same column.

If the CONSISTENCY OF EVALUATION principle is obeyed, then every assignment of the violations of the optionally ranked constraint B/R-MAX-C<sub>1</sub> will yield an attested plural variant as a potential optimal output. For instance, in (26), we've shown the case where every violation of the optionally ranked constraint has been assigned to the A column: this selects candidate f (where each stem is reduplicated). Demoting some or all of the violations to column B selects different candidates as optimal.

(26)	'apricot-pie' RED + v <sub>1</sub> il-g <sub>4</sub> òodii-p <sub>8</sub> as-t <sub>1</sub> iil	A B/R-MAX-C <sub>1</sub>	*MULT EX	B B/R-MAX-C <sub>1</sub>
a.	vil-gòodii-pas-tí <u>til</u>	(*) <sub>1</sub> (*) <sub>4</sub> (*) <sub>8</sub>		( ) <sub>1</sub> ( ) <sub>4</sub> ( ) <sub>8</sub>
b.	vil-gò <u>god</u> ii-pas-tí <u>til</u>	(*) <sub>1</sub> (*) <sub>8</sub>	*	( ) <sub>1</sub> ( ) <sub>8</sub>
c.	vi <u>pil</u> -gòodii-pas-tí <u>til</u>	(*) <sub>4</sub> (*) <sub>8</sub>	*	( ) <sub>1</sub> ( ) <sub>8</sub>
d.	vi <u>pil</u> -gò <u>god</u> ii-paps-tíil	(*) <sub>11</sub>	**	( ) <sub>11</sub>
e.	vi <u>pil</u> -gòodii-paps-tí <u>til</u>	(*) <sub>4</sub>	**	( ) <sub>4</sub>
f.	vi <u>pil</u> -gò <u>god</u> ii-paps-tí <u>til</u>		***	

7. **Summary**

In this paper we have presented a description of Pima compounding and pseudo-compounding (by which borrowed words with anomalous non-initial stress are analyzed as compounds because of their similarity to native compounds). Both compounds and pseudo-compounds show variable reduplicative plural marking: while plural must be marked at some point, any number of the stems in a compound may be reduplicated. Certain older Pima compounds have various lexicalized features, and both pseudo- and native compounds may be regularized with non-compound initial stress. Finally, we've outlined a strategy for generating local optionality in Optimality Theory.

**References**

- Anttila, Arto. 1997. Deriving variation from grammar: A study of Finnish genitives. In F. Hinskens, R. van Hout, and L. Wetzels, eds., *Variation, Change and Phonological Theory*, 35–68. Amsterdam: John Benjamins.  
 Rutgers Optimality Archive ROA-63.
- Baker, Mark, and Jonathan David Bobaljik. 2002. An introduction to morphology. Ms., Rutgers University and McGill University.
- Boersma, Paul, and Bruce Hayes. 2001. Empirical tests of the gradual learning algorithm. *Linguistic Inquiry* 32:45–86.

- Chung, Chin Wan. 1999. Consecutive reduplication in Korean. *Harvard Studies in Korean Linguistics* VIII:88–101.
- Feng, Guanjun Bella. 2003. Verb versus adjective reduplication in Mandarin. LSA.
- Fitzgerald, Colleen M. 1997. O’odham Rhythms. Ph.D. diss., University of Arizona.
- Fitzgerald, Colleen M. 1999. Loanwords and stress in Tohono O’odham. *Anthropological Linguistics* 41:193–208.
- Fitzgerald, Colleen M. 2004. How many reduplications are there in Tohono O’odham? Workshop on American Indigenous Languages, Santa Barbara.
- Martin, Andy. 2004. Pseudo-compounds in Malagasy. Southwest Optimality Theory Workshop, Santa Cruz.
- Mathiot, Madeleine. 1973. *A Dictionary of Papago Usage*. Bloomington: Indiana University.
- McCarthy, John. 1999. Sympathy, cumulativity and the Duke-of-York gambit. In K. Baertsch and D. A. Dinnsen, eds., *Indiana University Working Papers in Linguistics 1: Optimal Green Ideas in Phonology*, 57–91. Bloomington: IULC.
- Miyashita, Mizuki. 2004. O’odham collateral reduplication. Workshop on American Indigenous Languages, Santa Barbara.
- Nelson, Nicole. 2003. Asymmetric Anchoring. Ph.D. diss., Rutgers University.
- Olsen, Susan. 2001. Copulative compounds: A closer look at the interface between syntax and morphology. In Geert Booij and Jaap van Marle, eds., *Yearbook of Morphology 2000*, 279–320. Dordrecht: Kluwer.
- Riggle, Jason. 2003. Infixation in Pima reduplication and its theoretical consequences. LSA.
- Riggle, Jason, and Pamela Munro. 2004. One morpheme—two reduplicants: Pseudo-compounds in Pima. LSA, <http://www.bol.ucla.edu/~riggle/riggleMunroLSA04.pdf>.
- Saxton, Dean, Lucille Saxton, and Susie Enos. 1983. *Papago/Pima—English, O’otham—Mil-gahn; English Papago/Pima, Mil-Gahn-O’otham Dictionary*. Second ed., ed. by R. L. Cherry. Tucson: University of Arizona Press.
- Vaux, Bert. 2003. Why the phonological component must be serial and rule-based. LSA.
- Zepeda, Ofelia. 1983. *A Papago Grammar*. Tucson: University of Arizona Press.

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## **Promiscuous Paradigms and the Morphologically Conditioned “Ergative Split” in Texistepec Popoluca (Zoquean)\***

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### **0. Introduction**

Many authors have struggled to capture the relationship between the various phenomena to which the label “ergativity” is applied. Languages can conflate transitive objects with intransitive subjects, to the exclusion of transitive subjects, at several different levels: syntactic structure, morphological case marking, and verbal agreement systems (Dixon 1994). While some of these patterns may partially overlap in a single language, the overlap is never complete—no language seems to be 100 percent ergative, by any definition (Dixon 1977, 1994). The diversity of these patterns both within and across languages has challenged efforts to define ergativity in a way that is both informative and restrictive. I argue against the assumption that ergative patterns share some underlying syntactic commonality, based on evidence that, in verbal agreement systems, the source of “ergativity” or “split ergativity” may originate in the morpho-phonology, rather than the assignment of Case in the syntax.

This paper advocates a position first adopted by Woolford (1999), that there are two distinct types of ergative agreement. One type is parasitic on Case, typically involving agreement only with Nominative (a.k.a. “Absolutive”) arguments, as in Hindi. A second type occurs in languages with no ergative case morphology on nominals, and crucially does not depend on the assignment of Ergative Case in the syntax (Woolford 1999). I argue that the second type is just one of many examples of phonology and morphology “intrusively” affecting the choice between syntactically distinct agreement paradigms.

In support of the distinction between ergative agreement systems that are based on Case and those based on morphological paradigm selection, I present

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evidence from Texistepec Popoluca, a Zoquean language of Veracruz, Mexico. In Texistepec Popoluca the choice of a historically “nominative” clitic paradigm over a historically “ergative” affixal agreement paradigm is blocked by the introduction of another unrelated clitic. This indicates that, synchronically, the mechanism responsible for cross-referencing the arguments by either agreement or clitics is sensitive to the linear ordering of clitics and affixes before the verb.<sup>1</sup>

Woolford (1999, 2001) demonstrates that the typology implicit in recent alignment-based approaches to morphology in Optimality Theory predicts the existence of languages that have ergative agreement systems without Ergative Case. I show that this typology allows for the Texistepec system as well. I further provide historical evidence that an independent sound change triggered the morpho-phonological change responsible for the current “split” in the agreement system. This split is due to the different morpho-phonology of clitics and affixes.

### 1. On the Dissociation of Ergative Case and Ergative Agreement Systems

Ergative agreement and Ergative Case can exist independently of one another. There are two known ergative agreement patterns, out of three logical possibilities. We find systems like Mayan and Zoquean languages with cross-referencing verbal morphology for both “ergative” and “nominative” (“absolutive”) arguments. We also find languages like Hindi where only arguments with Nominative Case control agreement—agreement is with intransitive subjects and with Nominative objects in clauses that have Ergative or Dative subjects. But there is a typological gap, since no language seems to have agreement only with Ergative DPs (transitive subjects) (Woolford 1999 and references). For those who would attribute ergative agreement and ergative Case marking to the same grammatical mechanism, this gap is problematic, since the most common type of nominal Ergative Case system has overt Ergative marking and zero marking for Nominative/Absolutive (Dixon 1994).

Further evidence for the dissociation of case and agreement is that many languages with Ergative-Absolutive nominal case marking also have Nominative-Accusative (subject-object) agreement systems (Woolford 1999 and references).

#### (1) Walmatjari: **ERG-ABS** Case, Su-Obj agreement (Hudson 1978)

- a. parl - tjara - Ø pa -lu - pinja njanja marnin - warnti - rlu  
*boy -DU -ABS INDIC - SuPl - ObjDu saw woman- PL -ERG*  
 ‘The women saw the two boys.’
- b. marnin - warnti - Ø pa -lu wurna yani  
*woman- PL -ABS INDIC -SuPl walkabout went*  
 ‘The women went for a walk.’

Since Ergative Case does not entail ergative agreement, there is little explanatory benefit in attributing ergative agreement to covert Ergative Case.

<sup>1</sup> Here “clitic” broadly denotes any syntactically or prosodically dependent grammatical particle.



Examples like (1) show that covert Ergative Case in the syntax is not sufficient to explain ergative agreement, and the discussion below will show that it is not necessary either.

## 2. Promiscuous Paradigms and Agreement Splits

If we adopt the prevalent view that agreement is a purely syntactic phenomenon, then we are committed to the position that choice between agreement paradigms should be unaffected by linear morphological and morpho-phonological conflicts. One problem this view faces is the selection of definite articles in Spanish.

Spanish feminine nouns beginning with stressed *á* take the masculine definite article *el*, thus avoiding hiatus between the feminine article *la* and the noun’s initial *á*. For example, with feminine *água* ‘water’, the masculine article is selected: *el água*, not *\*la água*. Either the [+FEM] feature of the feminine article is paradoxically deleted in a certain phonological environment, or the phonology must somehow occasionally trump morphosyntax in paradigm selection.

A similar problem arises when agreement “splits” are conditioned by a linear morphological environment, rather than a syntactic criterion. Woolford (2001:19) notes that in Yimas, the presence of a negative clitic before the verb blocks the usual agreement clitic, causing the alternation in (2).

- |   |   |
|---|---|
| (2) a. <u>ama</u> +wa-t<br>1CL+go-PERF<br>‘I went.’ | b. <u>ta+ka</u> -wa-t<br>NegCl+1AgrSu-go-PERF<br>‘I didn’t go.’ |
|---|---|

Similarly, in Lavukaleve (Papuan), canonical subject and object agreement appears on all verbs except those bearing the prefix *e-*, which occupies the usual subject agreement slot.<sup>2</sup> Verbs in *e-* use the “object” agreement paradigm to agree with their subjects as seen in (3) from Terrill (2003).

- (3) a. meo vo-e-tegi -ge  
tuna 3PIObj- SBD- feed -ANT  
‘...when the bonito started feeding...’  
b. vau a-igu-ge  
out 1SgSu-go-ANT  
‘...when I went out...’

There is no compelling syntactic explanation for this split. The subject in (3a) cannot have Accusative Case by means of ECM, because this pattern can occur with any verb in the superordinate clause. The problem with treating this as an “ergative split” (in which the “subject” agreement is actually “ergative”) is that the only intransitive subjects that trigger “absolutive” agreement are third person subjects in adverbial clauses, while all others trigger “ergative” agreement. A

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<sup>2</sup> According to Terrill (2003:424–5), this prefix appears on intransitive verbs in adverbial clauses.



better option is to attribute the pattern to a morphological alternation like the Spanish and Yimas examples above. Under this approach, we need only acknowledge that the paradigms are “promiscuous” (i.e., not inviolably limited to one grammatical role), and that paradigm choice can be influenced independently of the syntax by the linear morphological or phonological environment.

A similar but more complex morphologically conditioned agreement split is found in Texistepec Popoluca. The “ergative” paradigm is extended to intransitive subjects in the imperfective aspect only, as seen in (4). This pattern is unattested in languages with overt case on DPs—in fact, it is the reverse of a typological universal noted by Dixon (1994:99) that ergativity is associated with perfectivity.<sup>3</sup> While the other aspects are marked by a free word (4b) and suffix (4c), the imperfective clitic (4a) occupies the same morphological position that the “absolutive” proclitic usually fills.

- (4) a. ʔuŵẽj                      b. maʔ      kwej                      c. kwe:jp  
       ʔu+      <sup>N</sup>-wej                      maʔ    # k+wej                      k+wej-p  
       IMPFV+**1Su**-howl                      PERF # **1Su**+howl                      **1Su**+howl-FUT  
       ‘I am howling.’                      ‘I howled.’                      ‘I will howl.’

Accounting for this pattern in terms of the Case assignment in the syntax would be problematic, but several morphological theories can already generate such a pattern in the morphological structure, independently of the syntax.

### 3. Generating Ergative Agreement and Splits in the Morphology

Most theories of morphology posit some level of morphological or phonological structure, which is responsible for the selection of phonological material to express morpho-syntactic features, and/or for the linear arrangement of morphemes (e.g., Distributed Morphology (Halle & Marantz 1993), A-Morphous Morphology (Anderson 1992), OT-LFG (Bresnan 2001), and alignment-based OT morphology (McCarthy & Prince 1993, Grimshaw 2001, Legendre 1998a,b)). These approaches all claim that spell-out of morpho-syntactic features as either affixes or clitics is the result of competition, governed by constraints or processes that dictate where and how (and if) features will be expressed.

Woolford (1999) uses such a competition-based approach to analyze the “ergativity” of the agreement system in Jacaltec Mayan (Table 1) (Craig 1977).

Table 1.

	Subject Agr prefix	Clitic/default		<u>Subject</u>	<u>Object</u>
1	w-	-hin	Intrans:	Clitic	
2	haw-	-hach	Trans:	SubjAgr	Clitic
3	y-	-Ø			

<sup>3</sup> See Anderson (1977) and Dixon (1977) for discussion of this association.

### *Texistepec Popoluca “Ergative Split”*

In Woolford’s analysis, the clitic paradigm is the default inflection. However, for transitive clauses, where the single clitic cannot express all the morphosyntactic features, an otherwise absent subject agreement prefix emerges. For Jacaltec, this means using the clitic paradigm for transitive objects and intransitive subjects, and the subject agreement prefix for transitive subjects only—an “ergative” pattern of agreement that is crucially not dependent on Ergative Case.

While several approaches could simply stipulate that a particular language works in this way, Woolford (1999, 2001) observes that a small set of constraints proposed in unrelated work on morphology in Optimality Theory predicts languages like Jacaltec. Work by Anderson (1996), Legendre (1998a,b), and Grimshaw (2001) on clitic placement and Bresnan’s (2001) treatment of pronominal synthesis predict a typology including “ergative” agreement patterns generated in the morphology. I will employ the markedness constraints in (5) and the faithfulness constraint in (6) (Bresnan 2001, Woolford 2001).

- (5)    a. **\*affix**      Economize / preferentially avoid affixes.  
          b. **\*clitic**     Economize / preferentially avoid clitics.
- (6)    **MAX<sub>PERSON</sub>**    Faithfully agree with person features in the input.

When markedness outranks faithfulness, morpho-syntactic features are not expressed. The ranking {*\*affix*, *\*clitic*} » **MAX<sub>PERS</sub>** prohibits agreement. But when the markedness constraints are ranked below **MAX<sub>PERS</sub>**, agreement appears. In this case, the relative ranking of *\*affix* and *\*clitic* will determine how the features are expressed. Whichever form is more marked fails to appear, as shown in (7–10).

(7)    Ranking for **only affixal agreement**

Input: Subj	<b>MAX<sub>PERS</sub></b>	<i>*clitic</i>	<i>*affix</i>
a. $\varphi$ <i>Agr<sub>Subj</sub></i>			*
b. <i>Cl<sub>Subj</sub></i>		*!	
c. $\emptyset$	*!		*

(8)    Ranking for **only affixal agreement**

Input: Subj & Obj	<b>MAX<sub>PERS</sub></b>	<i>*clitic</i>	<i>*affix</i>
a. $\varphi$ <i>Agr<sub>Subj</sub></i> ; <i>Agr<sub>Obj</sub></i>			**
b. <i>Cl<sub>Subj</sub></i> ; <i>Cl<sub>Obj</sub></i>		*!*	*
c. <i>Cl<sub>Obj</sub></i> ; <i>Agr<sub>Subj</sub></i>		*!	*
d. <i>Agr<sub>Subj</sub></i> ; $\emptyset$	*!		*

(9) Ranking for **only clitics**

Input: Subj	MAX <sub>PERS</sub>	*affix	*clitic
a. $Agr_{Subj}$		*!	
b. $\text{☞ } Cl_{Subj}$			*
c. $\emptyset$	*!		

(10) Ranking for **only clitics**

Input: Subj & Obj	MAX <sub>PERS</sub>	*affix	*clitic
a. $Agr_{Subj}; Agr_{Obj}$		*!*	
b. $\text{☞ } Cl_{Subj}; Cl_{Obj}$			**
c. $Cl_{Obj}; Agr_{Subj}$		*!	*
d. $Cl_{Subj}; \emptyset$	*!		*

A morphological ergative agreement pattern relies on a mixed distribution of clitics and affixes, but for both clitics and affixes to appear, some higher ranked constraint must sometimes compel the more marked form. For this purpose we introduce into the ranking from (10) a clitic-verb alignment constraint (McCarthy & Prince 1993; Legendre 1998a; Grimshaw 2001; Woolford 1999, 2001).

(11)  $CL_{V^0}$  Align(Clitic, Right,  $V^0$ , Left)

The ranking of  $CL_{V^0} \gg MAX_{PERS} \gg *clitic$  produces a one-clitic limit, because both clitics cannot simultaneously align with the verb stem.

(12) Ranking that enforces a **one-clitic limit**

Input: Subj & Obj	$CL_{V^0}$	MAX <sub>PERS</sub>	*clitic
a. $Cl + Cl + V^0$	*!		**
b. $\text{☞ } Cl + V^0$		*	*
c. $\emptyset + V^0$		**!	

We can now combine the results of tableaux (10) and (12). Affixes will be required in order to satisfy MAX<sub>PERSON</sub> in transitive clauses only, where it is not possible for the less marked clitics to cross-reference both arguments. The alignment constraint Subj<sub>V<sup>stem</sup></sub> in (13) ensures that the subject agreement will be expressed as an affix, leaving object agreement to be expressed as a default clitic.

(13) **Subj<sub>V<sup>stem</sup></sub>** Align (Subject, Right,  $V^{\text{stem}}$ , Left)

If we include Subj<sub>V<sup>stem</sup></sub> in the rankings from (10) and (12), we find a constraint ranking to yield a simple ergative agreement system, like the Jacalteco system in Table 1 above:  $CL_{V^0} \gg MAX_{PERSON} \gg *affix \gg *clitic \gg Subj_{V^{\text{stem}}}$ .

*Texistepec Popoluca “Ergative Split”*

(14) Ranking for clitics and affixes in an “ergative” pattern

Input: Subj	CL <sub>[V]<sup>0</sup></sub>	MAX <sub>PERS</sub>	*affix	*clitic	Subj <sub>[V]<sup>stem</sup></sub>
a. <i>Agr<sub>Subj</sub></i>			*!		
b. <i>Cl<sub>Subj</sub></i>				*	

(15) Ranking for clitics and affixes in an “ergative” pattern

Input: Subj & Obj	CL <sub>[V]<sup>0</sup></sub>	MAX <sub>PERS</sub>	*affix	*clitic	Subj <sub>[V]<sup>stem</sup></sub>
a. <i>Cl<sub>Subj</sub> + Cl<sub>Obj</sub> + V</i>	*!				
b. <i>Cl<sub>Obj</sub> + Agr<sub>Subj</sub> + V</i>			*	*	
c. <i>Cl<sub>Subj</sub> + Agr<sub>Obj</sub> + V</i>			*	*	*!

Woolford’s approach thus yields an “ergative” pattern of agreement that does not require covert Ergative Case, and does not require any enrichment to the theory. A bold prediction of this approach is that where “ergativity” is based on one clitic blocking another, other clitics unrelated to the cross-referencing system could cause the same blocking effect, inducing affixal agreement for intransitive subjects. I will argue that is this is what happens in Texistepec Popoluca.

#### 4. Texistepec Popoluca Agreement: A Morphologically Based Split

##### 4.1. Ergativity and Inverse

The cross-referencing of core arguments in Texistepec Popoluca employs a paradigm of affixes (Set A) and a paradigm of clitics (Set B). In Table 2, the cells with A affixes are un-shaded, and cells with B clitics are shaded.

Table 2. Cross-referencing morphology for all possible argument structures

Subj→Obj (any asp.)	Subj→Obj (any asp.)	Subj (imperf.)	Subj (perf., future)
<b>1→3</b> 1st-A / <sup>N</sup> -/	<b>3→1</b> 1st-B /k+/ <b></b>	<b>1</b> 1st-A / <sup>N</sup> -/	<b>1</b> 1st-B /k+/ <b></b>
<b>2→3</b> 2nd-A /j <sup>N</sup> -/	<b>3→2</b> 2nd-B /kj+/ <b></b>	<b>2</b> 2nd-A /j <sup>N</sup> -/	<b>2</b> 2nd-B /kj+/ <b></b>
<b>3→3</b> 3rd-A /j-/ <b></b>		<b>3</b> 3rd-A /j-/ <b></b>	<b>3</b> Ø- <b></b>
<b>1→2</b> /k+ <sup>N</sup> -/ ; <b>2→1</b> /kj+ <sup>N</sup> -/ = portmanteau			

In Table 2, the agreement shows an ergative pattern, as illustrated by (16).

- (16) a. maʔ kwěj  
maʔ k+wej  
PERF 1B+howl  
‘I howled.’
- b. maʔ wej  
maʔ Ø+wej  
PERF 3B+howl  
‘He howled.’
- c. maʔ wějjaʔ  
maʔ Ø-<sup>N</sup>-wej-aʔ  
PERF 3B-1A-howl-APPL  
‘I howled to him.’

Also, cross-referencing for first and second persons always aligns with the verb stem, often at the expense of any third person argument in the clause. This is known as “inverse alignment” (Klaiman 1993). In Texistepec Popoluca, inverse clauses like (17b) lack subject agreement.

- (17) a. maʔ ʔãʔm                      b. maʔ kʔaʔm  
           maʔ Ø<sup>N</sup>-ʔaʔm                maʔ k+ʔaʔm  
           PERF 3B-1A-*see*              PERF 1B+*see*  
           ‘I saw him/her/it.’            ‘She/he/it saw me.’

Finally, there is an apparent split in ergativity between those clauses with the imperfective clitic *ʔu* and those without it, as discussed in section 2 above. Here, (18a) uses a Paradigm A prefix to cross-reference the subject.

- (18) a. ʔuʷẽj                      b. maʔ    kwɛj                      c. kwɛjɔp  
           ʔu+                      N-wɛj                      maʔ    # k+wɛj                      k+wɛj-p  
           IMPFV+1A-*howl*            PERF # 1B+*howl*                      1B+*howl*-FUT  
           ‘I am howling.’            ‘I howled.’                      ‘I will howl.’

#### 4.2. Explaining Inverse Alignment

Using the approach to agreement outlined in section 3, I will address the “inverse alignment” phenomenon in (17). The alignment of first and second person features always with the stem is enforced by an alignment constraint as in (19). I also decompose MAX<sub>PERSON</sub> into MAX<sub>1&2</sub> and MAX<sub>3RD</sub> so that third person arguments that cannot be aligned are not expressed.

- (19) 1&2<sub>[V-Stem]</sub>            Align(1st&2nd Person, Left, Verb Stem, Right)

- (20) MAX<sub>1&2</sub>            Express 1st and 2nd person features.

The ranking shown in (21) and (22) produces a pattern of agreement that is both “ergative” and “inverse.”

#### (21) Ranking for inverse alignment

Input: 1stSu; 3rdObj	MAX <sub>1&amp;2</sub>	1&2 <sub>[V-Stem]</sub>	CL <sub>[V<sup>0</sup>]</sub>	Subj <sub>[V<sup>stem</sup>]</sub>	MAX <sub>3RD</sub>	*aff	*cl
a. 1Agr <sub>Subj</sub> +3Agr <sub>Obj</sub>		*!		*		**	
b. 3Cl <sub>Obj</sub> +Ø	*!			*	*	*	*
c. 3Cl <sub>Obj</sub> +1Agr <sub>Subj</sub>						*	*
d. 1Cl <sub>Subj</sub> +Ø					*!		*

#### (22) Ranking for inverse alignment

Input: 3rdSu; 1stObj	MAX <sub>1&amp;2</sub>	1&2 <sub>[V-Stem]</sub>	CL <sub>[V<sup>0</sup>]</sub>	Subj <sub>[V<sup>stem</sup>]</sub>	MAX <sub>3RD</sub>	*aff	*cl
a. 3Agr <sub>Subj</sub> +1Agr <sub>Obj</sub>				*!		**	
b. 3Cl <sub>Subj</sub> +1Cl <sub>Obj</sub>			*!				**
c. 1Cl <sub>Obj</sub> +3Agr <sub>Subj</sub>		*!				*	*
d. 3Cl <sub>Subj</sub> +Ø	*!						
e. 1Cl <sub>Obj</sub> +Ø					*		*

#### 4.2. Explaining Split Ergativity

The second problem, the “split” in ergativity, is captured even more easily under this approach. We simply decompose the constraint on clitic alignment,  $CL_{[V^0]}$ , allowing differential alignment for the imperfective and person clitics.

(23) **Impfv<sub>[V<sup>0</sup>]</sub>, Pers<sub>[V<sup>0</sup>]</sub>** Align a functional feature with  $V^0$ .

The final ranking in (24) and (25) incorporates this split into the system. Because  $\text{Impfv}_{[V^0]}$  dominates  $*\text{affix}$ , a violation of the imperfective alignment is avoided by the use of an affix rather than a person clitic to cross-reference the intransitive subject in (24). In (25), where there is no imperfective clitic in the way, cross-referencing by person clitic proceeds as usual.

#### (24) Ranking for **split ergativity**

Input:3rdSu; Impf	$\text{MAX}_{1\&2}$	$1\&2_{[V\text{Stem}]}$	$\text{Pers}_{[V^0]}$	$\text{Su}_{[V\text{stem}]}$	$\text{MAX}_{3\text{RD}}$	$\text{Impfv}_{[V^0]}$	$*\text{aff}$	$*\text{cl}$
a. $\text{Impf}+3\text{Agr}_{\text{Subj}}$							*	
b. $\text{Impf}+3\text{Cl}_{\text{Subj}}$						*!		*
c. $3\text{Cl}_{\text{Subj}}+\text{Impfv}$			*!					
d. $\text{Impfv} + \emptyset$					*!			*

#### (25) Ranking for **split ergativity**

Input:3rdSu; Impf	$\text{MAX}_{1\&2}$	$1\&2_{[V\text{Stem}]}$	$\text{Pers}_{[V^0]}$	$\text{Su}_{[V\text{stem}]}$	$\text{MAX}_{3\text{RD}}$	$\text{Impfv}_{[V^0]}$	$*\text{aff}$	$*\text{cl}$
a. $\text{Perf}+3\text{Agr}_{\text{Subj}}$							*!	
b. $\text{Perf}+3\text{Cl}_{\text{Subj}}$								*
c. $3\text{Cl}_{\text{Subj}}+\text{Perf}$			*!					
d. $\text{Perf} + \emptyset$					*!			*

This approach explains a problematic agreement system without complicating the syntax. The selection among clitic, affix, and zero and the linear alignment of these elements alone produces the complex agreement pattern.

#### 5. Historical Evidence in Favor of This Approach

There is converging diachronic evidence that the Texistepec Popoluca ergative split is due to morphological alignment rather than Case in the syntax. I will explain how a small phonological change triggered a morphological change, which is now responsible for the split discussed in section 4.2.

Table 3 shows Sets A and B for Proto-Zoquean (PZ), Sierra Popoluca (SP), and Texistepec Popoluca (TP) (Wichmann 1996, Kaufman 1963).

Table 3. Zoquean Set A and B paradigms

Set A	PZ	SP	TP	Set B	PZ	SP	TP
1st-excl.	<i>in-</i>	<i>an-</i>	<sup>N</sup> <sub>-</sub>	1st-excl.	<i>i-</i>	<i>a-</i>	<i>k-</i>
2nd	<i>min-</i>	<i>in-</i>	<i>j</i> <sup>N</sup> <sub>-</sub>	2nd	<i>mi-</i>	<i>mi-</i>	<i>kj-</i>
3rd	<i>ij-</i>	<i>i-</i>	<i>j-</i>	3rd	Ø-	Ø-	Ø-

Texistepec Popoluca's Set B markers (in the shaded column) reflect a complete innovation. This innovation, I argue, is responsible for the synchronic split in the imperfective. In other Zoquean languages, there is no split.

The *k* in TP's Set B forms is the reflex of the final segment of the adverbial particle *\*maʔak* in PZ meaning 'earlier today'. This innovation resulted from the adoption of *\*maʔak* as the perfective aspect marker. Presumably, *\*maʔak* became the perfective marker after the loss of the PZ perfective suffix *\*-wi*, which was in turn due to a sweeping sound change in TP, in which all short vowels in final position were deleted (Wichmann 1996, 2003). The left half of this adverb remains as the current pre-verbal perfective marker *maʔ*, as shown in Table 4.

Table 4. Zoquean perfective aspect markers (Kaufman 1963, Wichmann 1996)

Proto-Zoquean	Chimalapa Zoque	Sierra Popoluca	Texistepec
<i>-wi</i>	<i>-wi</i>	<i>-u</i>	<i>maʔ #</i>

Synchronically, the perfective *maʔ* is a free word, not an affix or clitic, and the *k* of Set B is a very recently grammaticized clitic.<sup>4</sup> So, while other Zoquean languages show a very parallel paradigmatic alternation between the two Sets in their shared pre-verbal "slot," it is no surprise that the Texistepec Popoluca Set B markers show very different morpho-phonological alignment than the Set A markers. This is illustrated by the TP first person Set A and B forms in Table 5.

Table 5.

	<i>ʔoʔks</i> 'scrape'	<i>baʔks</i> 'beat'	<i>hak</i> 'cut'	<i>so:s</i> 'cook'	<i>nim</i> 'say'
1stB	<i>kʔoʔks</i>	<i>kbaʔks</i>	<i>khak</i>	<i>kso:s</i>	<i>kdim</i>
1stA	<i>ʔoʔks</i>	<i>maʔks</i>	<i>hāk</i>	<i>zo:s</i>	<i>nim</i>

<sup>4</sup> This analysis is further supported by the distribution of adverbial second-position clitics like *+naʔ* 'currently' (i), which frequently appear between *maʔ* and V<sup>0</sup> (ii), but cannot appear between *ʔu+* and V<sup>0</sup> (iii). While *maʔ* can serve as a host for a second-position clitic, *ʔu+* cannot.

- i. *ʔend<sup>1</sup>ε:naʔ* *wjoʔkkaʔjja* *ka:tʃεʔ*    ii. *maʔnaʔ* *wεʔk*    iii. *\*ʔunaʔ* *wεʔk*  
*ʔend<sup>1</sup>ε:+naʔ* *j-woʔk-kaʔj-ja* *ka:tʃεʔ*    *maʔ +naʔ* *Ø-wiʔk*    *ʔu+ +naʔ* *wiʔk*  
 NEG+CL 3A-gather-INTEN-PL trash    PERF+CL 3B-eat    IMP+ +CL eat  
 'They're not gathering up the trash yet.'    'He has just now eaten.'    'He's eating now.'

Two TP Set A affixes contain a nasal that is never realized segmentally. This feature systematically nasalizes the onset and/or peak of the verb stem. Due to the innovation described above, the Set B counterpart to this nasal feature is a segmental *k*, which has no direct phonological effect on the stem.

Another difference between Sets A and B arises with derivational stem reduplication. It is typical to inflect both reduplicants with Set A morphology as in (26a), although this is never acceptable with Set B morphology as in (26b).

- |  |  |
|--|--|
| <p>(26) a. ʔu biʔmbiʔmhoʔj ɛɛ:naʔʔa:p<br/>         ʔu+j-biʔm-(j-)biʔm-hoʔj ɛɛ:naʔ-ʔa:p<br/>         IMP+3A-hop-(3A-)RED-AMB <i>Elena</i>-FEM<br/>         ‘Elena goes hopping around.’</p> | <p>b. maʔ kbiʔmbiʔmhoʔj<br/>         maʔ kj-biʔm-(*kj-)biʔm-hoʔj<br/>         PERF 3A-hop-(3A-)RED-AMB<br/>         ‘You hopped all around.’</p> |
|--|--|

Based on these morpho-phonological data, Set B forms are clitics and Set A forms are affixal subject agreement. Sets A and B do not occupy the same “slot,” because historically the source of Set B is a separate adverb off to the left of the verb, while Set A is a prefix. Set A has, in fact, recently fused with the verb even more than in many neighboring languages, by becoming non-segmental.

## 6. Conclusions

I have argued that the mechanisms responsible for the ergative, inverse, and split characteristics of the Texistepec Popoluca agreement system are independent of Case assignment in the syntax, and that they are morphological in nature. I have joined Woolford (1999, 2001) in advocating a distinction between agreement alternations that are based on Case and those that are based on morphological alignment, supplying new data from Texistepec Popoluca. In particular, I have tried to highlight the commonality between this sort of agreement pattern and other paradigm alternations that are morphological rather than syntactic in nature.

Features from a hierarchically organized syntax must be linearized and assigned a complex but qualitatively different morphological and prosodic structure. Paradigm alternations are often conditioned by the morphological or prosodic environment, and such factors are also involved in the placement of clitics. Conveniently, grammatical descriptions couched in Optimality Theory automatically imply a specific typology, so the analysis here follows quite directly from prior approaches to paradigm alternations and clitic placement.

In general, the explanation of complex and split agreement systems in terms of promiscuous paradigms and morphological alignment is appealing because it affords a much simpler syntax. The cost in terms of morphological machinery is relatively little, since paradigm selection and alignment are things the grammar must already do anyway.



## References

- Anderson, S.R. 1977. On mechanisms by which languages become ergative. In C. Li, ed., *Mechanisms of Syntactic Change*, 317–363. Austin: U. of Texas Press.
- Anderson, S.R. 1992. *A-Morphous Morphology*. Cambridge: CUP.
- Anderson, S.R. 1996. How to put your clitics in their place. *The Linguistic Review* 13:165–191.
- Bresnan, J. 2001. The emergence of the unmarked pronoun. In Legendre et al.
- Craig, C.G. 1977. *The Structure of Jacalteco*. Austin: U. of Texas Press.
- Dixon, R.M.W. 1977. The syntactic development of Australian languages. In C. Li, ed., *Mechanisms of Syntactic Change*, 365–415. Austin: U. of Texas Press.
- Dixon, R.M.W. 1994. *Ergativity*. Cambridge: CUP.
- Grimshaw, J. 2001. Optimal clitic position and the lexicon in Romance clitic systems. In Legendre et al.
- Hudson, J. 1978. *The Core of Walmatjari Grammar*. Canberra: AIAS
- Kaufman, T. 1963. Mixe-Zoque Diachronic Studies. Ms.
- Klaiman, M.H. 1993. Inverse languages. *Lingua* 88:227–261.
- Legendre, G. 1998a. Second position clitics in a V2 language: Conflict resolution in Macedonian. In J. Austin and A. Lawson, eds., *ESCOL 1997*, 139–149.
- Legendre, G. 1998b. Optimization in French stylistic and complex inversion. Presented at Rutgers University Workshop in OT Syntax, May 1, 1998.
- Legendre, G., J. Grimshaw, and S. Vikner, eds. 2001. *Optimality-Theoretic Syntax*. Cambridge, MA: MIT Press.
- McCarthy, J., and A. Prince. 1993. Generalized alignment. In B. Geert and J. van Marle, eds., *Yearbook of Morphology*, 79–153. Dordrecht: Kluwer.
- Reilly, E. 2002. A Survey of Texistepec Popoluca Verbal Morphology. Unpublished undergraduate thesis. Carleton College, Northfield, MN.
- Terrill, A. 2003. *A Grammar of Lavukaleve*. New York: Mouton.
- Wichmann, S. 1996. *The Mixe-Zoquean Languages of Mexico*. Salt Lake City: University of Utah Press.
- Wichmann, S. 2003. The grammaticalization and reanalysis of a paradigm of auxiliaries in Texistepec Popoluca: A case study in diachronic adaptation. *SKY Journal of Linguistics* 16.
- Woolford, E. 1999. Ergative agreement systems. In K. Grohmann and C. Struijke, eds., *Proceedings of the Workshop on Morphology*. University of Maryland Working Papers in Linguistics 10:157–191.
- Woolford, E. 2001. Clitics and agreement in competition: Ergative cross-referencing patterns. Ms., ROA-449.

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## On the classification of Wakashan lexical suffixes<sup>\*</sup>

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### 0. Introduction

This paper proposes an analysis of lexical suffixes in the Southern Wakashan language Nuuchahnulth which derives their morphological behaviour from their syntactic status as predicates. Under the analysis, locative suffixes (eg. *-(q)hta* ‘on the foot’) and non-locative lexical suffixes (eg. *-ityak* ‘fear’) are treated alike as affixal predicates.

- |     |    |   |    |   |
|-----|----|---|----|---|
| (1) | a. | šušuwish̥taḥ<br>šuwis- <b>(q)hta</b> [+R]-ḥ<br>shoes- <b>on.foot</b> -3.Q<br>‘Is he wearing shoes?’ | b. | ḥihiyityaksis̥ʔaaṭ<br>ḥiyi- <b>ityak</b> [+R]-sis̥ʔaaṭ<br>snakes- <b>fear</b> -1sg.IND-always<br>‘I’m always afraid of snakes.’ |
|-----|----|---|----|---|

I introduce diagnostics for the syntactic structure of affixal predicates, and argue that the different combinatory properties of these suffixes derive from variations in their argument structure (eg. unaccusative, transitive, locatum). Across all classes of affixal predicates in Nuuchahnulth, I claim that the predicate uniformly incorporates the argument introduced syntactically as its complement (cf. Stonham & Yiu 2000, Davis & Sawai 2001). This analysis correctly predicts the absence of unergative suffixes, which lack an internal argument.

The treatment of lexical suffixes has been a long-standing issue of contention in the Wakashan literature. In their seminal work on Nuuchahnulth (then referred to as “Nootka”), Sapir & Swadesh (1939) propose a division between two

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basic classes of lexical suffixes: root-like “governing” suffixes, and modificational “restrictive” suffixes (see also Swadesh 1939). Suffixes such as *-ityak* ‘fear’ fall under the rubric of governing suffix, while locative suffixes like *-(q)hta* ‘on the foot’ are classified as restrictive suffixes. While to date this traditional classification has been upheld for Southern Wakashan languages (Rose 1981, Davidson 2002), Boas (1947) rejected the distinction between governing and restrictive suffixes for the Northern Wakashan language Kwak’wala, arguing that such a classification is eurocentric and not based on language-internal evidence. This paper sides with Boas (1947) in arguing that a contrast between governing and restrictive suffixes is unwarranted: suffixes in both classes must be treated as essentially “root-like” predicates.

The organization of this paper is as follows. In §1, I argue that the combinatory properties of lexical suffixes derive from the argument structure of their predicate class. Diagnostics for the syntactic structure of affixal predicates are introduced in §2. In §3, I argue against the traditional analysis which treats Wakashan suffixes as governing or restrictive. §4 presents implications for the claim that lexical suffixation is an areal feature of the Pacific Northwest.

### 1. The combinatory properties of lexical suffixes

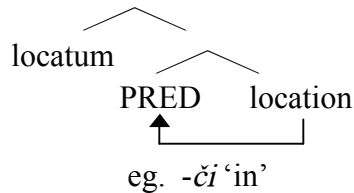
Since the first study of Southern Wakashan languages in the early twentieth century, researchers have observed that suffixes show contrasts in the type of relationship that holds between the suffix and its morphological host (Sapir & Swadesh 1939, Swadesh 1939, Rose 1981, Nakayama 1997, Davidson 2002). For example, Davidson (2002:181) notes that the locative suffixes *-či* ‘in’ and *-ču(u)* ‘in a container’ show opposite patterns with respect to the nominal they suffix to. In the examples below, the locative suffix *-či* ‘in’ can suffix to the nominal *qaʔuuc* ‘burden basket’ (2a), while *-ču(u)* ‘in a container’ cannot (3b).

- (2) a. *qaʔuuc-či-ʔiš*                      *yama*  
burden.basket-in-3.IND              salal.berries  
‘The salal berries are in a burden basket.’
- b. \* *yama-či-ʔiš*                      *qaʔuuc*  
salal.berries-in-3.IND              burden.basket
- (3) a. *haʔum-ču-ʔiš*                      *qaʔuuc-ʔi*  
food-in.container-3.IND              burden.basket-DET  
‘There’s food in the burden basket.’
- b. \* *qaʔuuc-ču-ʔiš*                      *haʔum*  
burden.basket-in.container-3.IND              food

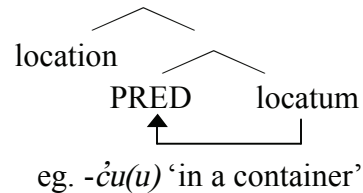
The claim that I develop in this paper is that the combinatory properties of lexical suffixes in Nuuchahnulth fall out from their argument structure. Under my analysis, the locative suffixes *-či* ‘in’ and *-ču(u)* ‘in a container’ are classified

as location predicates and locatum predicates, respectively (cf. Hale & Keyser 2002). Location predicates take a location argument as their direct object, while locatum predicates take a locatum (theme) argument as their direct object.

(4) a. *location predicate*



b. *locatum predicate*



As I will discuss in §2, affixal predicates in Nuuchahnulth incorporate an argument which occurs as a direct object. This derives the effect that a location predicate such as -čī 'in' suffixes to its location argument, while a locatum predicate such as -čū(u) 'in a container' is restricted to suffixing to a locatum.

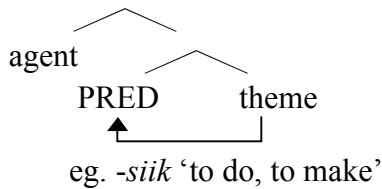
Under this analysis, locative suffixes are two sub-types of affixal predicates. Non-locative affixal predicates are also found in Nuuchahnulth, including transitive predicates such as -siik 'to do, to make' and unaccusative predicates such as -suuʔ 'to die'.

(5) a. ʔučʔin-siik-it-siš  
dress-make-PST-1sg.IND  
'I made a dress.'

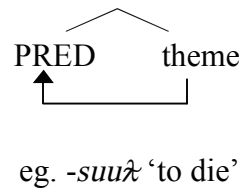
b. ʔaya-suuʔ-waʔiš  
many-die-3.QUOT  
'Lots died.'

The analysis I give of these suffixes is shown in (6). As with locative predicates, I propose that these predicates incorporate the argument that occurs as their object (cf. Rose 1981, Stonham & Yiu 2000, Davis & Sawai 2001, Wojdak 2003a).

(6) a. *transitive affixal predicate*



b. *unaccusative affixal predicate*



In the following section, I introduce syntactic diagnostics which corroborate this analysis of the argument structure of affixal predicates.

## 2. Syntactic diagnostics for argument structure

Under my analysis, Nuuchahnulth lexical suffixes are affixal predicates which uniformly incorporate their objects. This section provides evidence for a distinction between subjects and objects in Nuuchahnulth, and shows that a range of syntactic tests motivate an analysis in which locative suffixes belong to two

distinct classes which have inverse argument structures. Before turning to cases involving locative affixal predicates, however, I first consider diagnostics for the syntactic structure of non-locative affixal predicates.

## 2.1. Transitive predicates

Syntactic phenomena in Nuuchahnulth which differentiate between subjects and objects of transitive predicates include clausal inflection, incorporation, word order, and a construction known as possessive-raising.

### 2.1.1. Diagnostic #1: Clausal inflection corresponds to subject

Clausal inflection in Nuuchahnulth corresponds to the syntactic subject of a transitive predicate, not to the object (Rose 1981, Davidson 2002). This holds for both affixal (7a) and non-affixal (7b) predicates in the language.

- (7) a. čupčupšumt-**nah**-siš  
sweater-**look.for**-1sg.IND  
'I'm looking for a sweater.'
- b. kithšiʔaqʔsiš                      suwa ʔathii    wikquus    haanaʔaʔas  
**kith**-šiʔ-ʔaqʔ-siš                      suwa ʔathii    wik-quus    haanaʔaq-ʔas  
**ring**-PERF-FUT-1sg.IND you    tonight NEG-1sg.C lahal-go  
'I'll call you tonight if I don't go to the lahal game.'

### 2.1.2. Diagnostic #2: Only objects incorporate

Incorporation is another diagnostic for the subject/object distinction. Transitive affixal predicates incorporate only their objects; subjects in Nuuchahnulth do not incorporate (Davis & Sawai 2001, Wojdak 2003a).

- (8) a. mahtʔiiʔamitʔiš                      čakup  
mahtʔii-**ʔaap**-mit-ʔiš                      čakup  
house-**buy**-PST-3.IND    man  
'A man bought a house.'
- b. \* čakup-**ʔaap**-mit-ʔiš                      mahtʔii  
man-**buy**-PST-3.IND    house  
'A man bought a house.'

Note that in the absence of incorporation, an affixal predicate attaches to the expletive morpheme ʔu- (cf. Stonham 1998, Wojdak 2003a).

- (9) ʔuʔaamitʔiš                      čakup mahtʔii  
ʔu-**ʔaap**-mit-ʔiš                      čakup mahtʔii  
Ø-**buy**-PST-3.IND    man    house  
'A man bought a house.'

### 2.1.3. Diagnostic #3: Neutral VSO word order

Word order also generally distinguishes between subjects and objects. In potentially ambiguous contexts, VSO word order is rigid (cf. Rose 1981).

- (10)    ʔuʔuuyukʔiš            Ken    Kay  
          ʔu-yuk[+R]-3.IND    Ken    Kay  
          Ø-cry.for-3.IND    Ken    Kay  
          ‘Ken is crying for Kay.’  
          (*unavailable interpretation*: ‘Kay is crying for Ken.’)

### 2.1.4. Diagnostic #4: Possessive-raising corresponds to subject

A final diagnostic for differentiating subjects and objects is supplied by a construction known as possessive-raising. In possessive-raising configurations (11b), a possessive marker appears on the predicate rather than (or in addition to) the possessum subject, and the clausal inflection matches the possessor of the subject (Davidson 2002, Ravinski *in prep*).

- (11)    a.    ʔu-yuʔaaʔ-ʔiš    ʕiniiʔ-ukqs    hupkumʔ  
                 Ø-find-3.IND    dog-1sg.POSS    ball  
                 ‘My dog found the ball.’  
             b.    ʔu-yuʔaaʔ-uk-siš    ʕiniiʔ    hupkumʔ  
                 Ø-find-POSS-1sg.IND    dog    ball  
                 ‘My dog found the ball.’  
                 (*unavailable interpretation*: ‘The dog found my ball.’)

Possessive-raising is a diagnostic for subjecthood, since subjects, but not objects, are eligible to receive an interpretation as the possessum in this construction.

### 2.1.5. Summary

In sum, I have illustrated four syntactic diagnostics which motivate a distinction between the subjects and objects of transitive affixal predicates. Taken together, these diagnostics provide support for the proposal that only objects of affixal predicates incorporate. For example, the argument that tests as a non-subject by the possessive-raising diagnostic is the same argument that incorporates in (12).

- (12)    hamuut-uʔaaʔ-uk-siš            ʕiniiʔ  
          bone-find-POSS-1sg.IND    dog  
          ‘My dog found a bone.’

We now turn to the syntactic structure of intransitive affixal predicates.

## 2.2. Unaccusative predicates

Unaccusatives are the sole type of intransitive affixal predicate found in Nuuchah-nulth. While unaccusative predicates in the language may be either affixal

(13a) or non-affixal (13b), to the best of my knowledge, unergatives in Nuu-chah-nulth are exclusively non-affixal.

(13) *Unaccusative predicates: affixal and non-affixal*

- |    |   |   |
|----|---|---|
| a. | ʔu- <b>hii</b> -ʔaʔ-ʔiš<br>Ø- <b>arrive</b> -TEMP-3.IND<br>'My auntie has arrived now.' | naʔiiqs-ak-qs<br>aunt/uncle-POSS-1sg.POSS |
| b. | <b>hinin</b> -ʔaʔ-ʔiš<br><b>arrive</b> -TEMP-3.IND<br>'My auntie has arrived now.'      | naʔiiqs-ak-qs<br>aunt/uncle-POSS-1sg.POSS |

(14) *Unergative predicates: exclusively non-affixal*

- |  |  |
|--|--|
| ʔiihʔiihamitʔiš<br><b>ʔiih</b> -a[+R]-mit-ʔiš<br><b>cry</b> -ITER-PST-3.IND<br>'My auntie was crying.' | naʔiiqsakqs<br>naʔiiqs-ak-qs<br>aunt/uncle-POSS-1sg.POSS |
|--|--|

The absence of unergative affixal predicates is directly predicted by an analysis in which affixal predicates incorporate their objects. Since unergatives lack an internal argument, they have no object which they may suffix to.

In contrast, it is predicted by the analysis that unaccusative affixal predicates may freely incorporate their single argument, since this internal argument is introduced as an object. This prediction holds:

- |         |  |    |   |
|---------|--|----|---|
| (15) a. | paastinʔathniʔiš<br>paastinʔath- <b>hii</b> -ʔiš<br>Americans- <b>arrive</b> -3.IND<br>'Americans came.' | b. | quʔaʔathʔiš<br>quuʔas- <b>ʔath</b> -ʔiš<br>people- <b>reside</b> -3.IND<br>'There's people living there.' |
|---------|--|----|---|

Note that outside of the incorporation test, the diagnostics employed for transitive predicates in Nuu-chah-nulth are inapplicable for intransitive ones. For example, the single argument of both unergatives and unaccusatives determines clausal inflection and is compatible with possessive-raising. The pattern of possessive-raising for unaccusatives and non-affixal unergatives is shown below.

(16) *Unaccusative predicates (affixal & non-affixal)*

- |    |  |                        |
|----|--|------------------------|
| a. | <b>hinin</b> -ʔak-it-siš<br><b>arrive</b> -POSS-PST-1sg.IND<br>'My auntie arrived.'      | naʔiiqsu<br>aunt/uncle |
| b. | ʔu- <b>hii</b> -ʔak-it-siš<br>Ø- <b>arrive</b> -POSS-PST-1sg.IND<br>'My auntie arrived.' | naʔiiqsu<br>aunt/uncle |

(17) *Unergative predicate (non-affixal)*

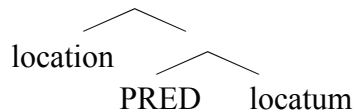
ʃiihʃiihakitsiš	naʔiiqsu
<u>ʃiih</u> -a[+R]-ak-mit-siš	naʔiiqsu
<u>cry</u> -CONT-POSS-PST-1sg.IND	aunt/uncle
'My auntie was crying.'	

Possessive-raising fails to distinguish between unaccusatives and unergatives, since both classes behave identically in allowing their single argument to receive an interpretation as a possessum.

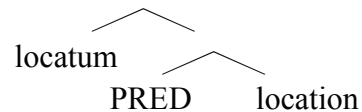
### 2.3. Locative predicates

This section provides support for a syntactic division between two classes of locative affixal predicates, which I term locatum and location predicates (following Hale & Keyser 2002). I propose that these locative predicates have argument structures which are the inverse of each other.

(18) a. *locatum predicate*



b. *location predicate*



The tests which I introduced in §2.1 will serve to support this analysis.

#### 2.3.1. Diagnostic #1: Clausal inflection corresponds to subject

The first diagnostic, clausal inflection, indicates that locatum and location predicates take different subjects. For locatum predicates, the person inflection corresponds to the location argument.

(19) ʔu-ciʔum-siš                      sačkaḥs  
 Ø-on.side.of.head-1sg.IND    comb  
 'I've got a comb on the side of my head.'

For location predicates, the person inflection matches the locatum argument.

(20) ʔuu-ciʔuk-siš                      ḥačiqs  
 Ø-going.to-1sg.IND    [place name]  
 'I'm going to Tofino.'

#### 2.3.2. Diagnostic #2: Only objects incorporate

Locatum and location predicates show opposite patterns of incorporation. Only the locatum argument of a locatum predicate may incorporate.



- (21) a.    *ʔiʔiʔumt-uxs-ʔiʃ*               *ʔuucma*  
           straw.hat-**on.head**-3.IND    woman  
           ‘A woman is wearing a straw hat.’  
       b.    \**ʔuucma-kuxs-ʔiʃ*               *ʔiʔiʔumt*  
           woman-**on.head**-3.IND       straw.hat

In contrast, only the location argument of a location predicate may incorporate:

- (22) a.    *qaʔuuc-ʕi-ʔiʃ*               *ʔama*  
           basket-**in**-3.IND           salal.berries  
           ‘There’s salal berries in the burden basket.’  
       b.    \**ʔama-ʕi-ʔiʃ*               *qaʔuuc*  
           salal.berries-**in**-3.IND   basket

This pattern is directly predicted if location predicates have locations as their objects, while locatum predicates have locata objects. As noted for non-locative predicates in §2.1.2, only objects of transitive predicates incorporate.

### 2.3.3. Diagnostic #3: Neutral VSO word order

In ambiguous contexts, speakers prefer fixed VSO word order (§2.1.3). This word order diagnostic provides support for an analysis in which location and locatum predicates have inverse argument structures. As indicated by example (23), locatum predicates characteristically show a predicate-location-locatum word order, which is predicted if the location is the subject and the locatum the object.

- (23)   *ʔuucʔiʃ*           *ʕamaʔakʔi*           *ciixsac*  
       *ʔu-aqʔ-ʔiʃ*       *ʕamaʔakʔi*           *ciixsac*  
       Ø-**inside**-3   oven-DET               frying.pan  
       ‘There’s a frying pan in the oven.’  
       (consultant’s comment: “*you have to use this order, or else it sounds like the oven is in the frying pan*”)

For location predicates, in contrast, the locatum standardly precedes the location.<sup>2</sup>

- (24)   *ʔukʷiʔiʃ*           *ʔamaʔi*               *qaʔuuc*  
       *ʔu-ʕi-ʔiʃ*           *ʔama-ʔi*               *qaʔuuc*  
       Ø-**in**-3.IND   salal.berries-DET   burden.basket  
       ‘The salal berries are in a burden basket.’

### 2.3.4. Diagnostic #4: Possessive-raising corresponds to subject

The possessive-raising pattern of locatives also supports an analysis in which locatum and location predicates take different subjects. With locatum predicates, a

<sup>2</sup> However, as with non-locative sentences, locatives generally allow alternative word orders in unambiguous contexts. This process of scrambling requires further research.

possessive marker on the predicate can only be associated with an interpretation in which the location is the possessum. This diagnoses the location as the subject (cf. §2.1.4). An example is given in (25) with the locatum predicate *-ʔat* ‘on a flat surface’. Here, the location *čʰupčʰupšumʔ* ‘sweater’ is obligatorily interpreted as the possessum.

- (25)  $\text{simtiqa}^{\text{+}}\text{uk}^{\text{+}}\text{ziš}$  Lucy čupčupsum<sup>+</sup>  
 $\text{simtii-?a}^{\text{+}}\text{-uk-?iš}$  Lucy čupčupsum<sup>+</sup>  
 name-on.surface-POSS-3.IND Lucy sweater  
 ‘There is a name is on Lucy’s sweater.’ (possessum = location)

In (25), an interpretation of ‘*Lucy’s name is on a sweater*’ is unavailable. Thus, the locatum (*simtii* ‘name’) proves to be ineligible as the possessum, indicating that it is not a subject.

With location predicates, however, the opposite pattern holds: in possessive-raising with location predicates, only the locatum receives an interpretation as the possessum.

- (26) qaʔuuc-**či**-ʔak-siš                      ʔama  
basket-**in**-POSS-1sg.IND              salal.berries  
'My salal berries are in a burden basket.' (possessum = locatum)  
(*unavailable interpretation*: The salal berries are in my burden basket)

This pattern corresponds to analysis in which the locatum argument is the subject of a location predicate.

## 2.4. Conclusion

In this section, I motivated the claim that locative and non-locative suffixes should both be treated as affixal predicates which incorporate their objects. Previous accounts of Nuuchah-nulth lexical suffixes (eg. Rose 1981) did not consider members of the locatum class to be predicative. As I have shown, however, there is strong syntactic evidence that locatum suffixes are a sub-type of transitive affixal predicates.

Under this analysis of affixal predicates, the morphological pattern of suffixation falls out from the predicates' argument structure. Only arguments introduced as objects of a predicate may serve as the host for suffixation. A variety of diagnostics confirm a classification in which locative suffixes show two distinct types of argument structure as location and locatum predicates.

### 3. A note on the governing/restrictive distinction

This paper proposes that the combinatory properties of Nuuchahnulth suffixes are derivable from their status as affixal predicates. In this section, I suggest some empirical and conceptual advantages which such an analysis has over the traditional claim that suffixation patterns derive from a distinction between root-like

“governing” suffixes and modification “restrictive” suffixes (cf. Sapir & Swadesh 1939, Swadesh 1939, Rose 1981, Nakayama 1997, Davidson 2002).

Under traditional classifications, predicates which I have analysed as non-locative transitive (eg. -ʔaap ‘to buy’) and location predicates (eg. -či ‘in’) are treated as governing suffixes which take their morphological base as their object (Rose 1981). On the other hand, predicates which I have classified as unaccusative (eg. -ñii ‘arrive’) and locatum predicates (eg. -ču ‘in a container’) are grouped together with an assortment of other suffixes (eg. plural markers) as restrictive suffixes. It is claimed that when a restrictive suffix attaches to a nominal, the nominal does not serve as the object of the suffix, but rather as a predicate (Rose 1981:314). At the heart of the governing/restrictive hypothesis is the idea that restrictive suffixes, unlike governing suffixes, do not determine the syntactic (Davidson 2002) or semantic (Rose 1981) class of a resulting word.

This classification has the empirical inadequacy of failing to predict the absence of unergative suffixes. Since the difference between so-called governing and restrictive suffixes is not explicitly linked to argument structure, there is no means of specifying that a viable lexical suffix requires an internal argument. An additional empirical disadvantage is the existence of “non-restrictive” uses of restrictive suffixes. Under the governing/restrictive hypothesis, a restrictive suffix modifies the base which it attaches to. This hypothesis corresponds to the following interpretational possibilities (Davidson 2002):

- (27) qaʔuuc-ču  
 pack.basket-in.container  
 = ‘pack-basket (that is) in a container’  
 \* ‘in a pack-basket’ (Tseshaht dialect: Davidson 2002: 181 ex. 275b)

However, my fieldwork on the Ahousaht dialect of Nuuchah-nulth has shown the opposite pattern.

- (28) wiḵ-um                      ʔuyii    haʔum-ču-ʔi  
 NEG-2sg.IMP(FUT) give    food-in.container-DET  
 ‘Don’t give her the one with food in it!’  
 (*does not mean* ‘Don’t give her the food that’s in a container.’)

This interpretation is unexpected under the governing/restrictive hypothesis.<sup>3</sup>

Conceptually, the governing/restrictive hypothesis has two major inadequacies. The first is that in failing to treat members of the restrictive category as predicates, this classification misses the syntactic similarities which these suffixes have to members of the governing class. Suffixes in both categories show a

<sup>3</sup> The interpretation follows from the predicate/argument flexibility which characterizes Wakashan languages. Any predicate (here, the locative predicate -ču(u) ‘in a container’) can be converted to an argument in Nuuchah-nulth via the addition of the enclitic determiner -ʔi (Wojdak 2001).

subject-object asymmetry, and also participate equally in the formation of *wh*-questions and relative clauses (Wojdak 2003b). The second conceptual problem with the traditional governing/restrictive analysis is the lack of uniformity within the restrictive class. Restrictive suffixes in Nuuchah-nulth include a large class of “spatial disposition” suffixes as well as a small miscellaneous class of non-locative suffixes including degree and plural morphemes (Davidson 2002). It is unclear what conceptual motivation there is for treating functional elements (such as plural markers) and lexical morphemes as a unified class.

To conclude, it appears that the governing/restrictive analysis is unsuccessful in capturing the predicative properties of Nuuchah-nulth suffixes. Therefore, I propose that this hypothesis should be abandoned for Wakashan languages (see also Boas 1947), in favour of an analysis which derives the suffixation pattern of predicative lexical suffixes from their argument structure.

#### **4. Typological implications**

Lexical suffixation has long been treated as an areal feature of languages of the Pacific Northwest (see, for example, Sapir 1911, Gerds & Hinkson 1996, Mithun 1999). Like Wakashan languages, Salish languages have locative lexical suffixes that denote body parts.

- (29)    ni       cən       kʷəs-cəs  
         AUX   1sub.   burn-hand  
         ‘I burned my hand.’ (Halkomelem Salish: Gerds 1998: 95 ex. 41)

It has been proposed that Salish lexical suffixes derive historically from nouns (Carlson 1989) and have undergone differing degrees of grammaticalisation as modifiers (Gerds & Hinkson 1996). Gerds (1998: 97) notes that there is support for the notion that “lexical suffixes can be regarded as incorporated nouns that have lost their status as free-standing nominals”.

In Wakashan, however, the inverse is true: lexical suffixes pattern productively as incorporating predicates in Nuuchah-nulth. For this reason, lexical suffixes in Wakashan are only superficially similar to their counterparts in Salish languages.

#### **References**

- Boas, Franz. 1947. Kwakiutl Grammar, with a glossary of the suffixes. *Transactions of the American Philosophical Society* 37(3): 201-377.  
Carlson, Barry F. 1989. Compounding and lexical affixation in Spokane. *Anthropological Linguistics* 31: 69-82.  
Davidson, Matthew. 2002. Studies in Southern Wakashan (Nootkan) Grammar. Doctoral dissertation, SUNY at Buffalo.

- Davis, Henry and Naomi Sawai. 2001. Wh-movement as Noun Incorporation in Nuuchah-nulth. In K. Megerdooian and L. A. Bar-El (eds.) *WCCFL 20 Proceedings*. Somerville, MA: Cascadilla Press.
- Gerdts, Donna B. 1998. Incorporation. In Andrew Spencer and Arnold M. Zwicky (eds.) *The Handbook of Morphology*. Oxford: Blackwell.
- Gerdts, Donna B. and Mercedes Q. Hinkson. 1996. Salish lexical suffixes: A case of decategorialization. In A. Goldberg (ed.) *Proceedings of the Conference on Conceptual Structure, Discourse, and Language*, 163-176. Stanford, CA: CSLI.
- Hale, Ken and Samuel Jay Keyser. 2002. *Prolegomenon to a Theory of Argument Structure*. Cambridge, MA: MIT Press.
- Mithun, Marianne. 1999. *The languages of Native North America*. Cambridge: Cambridge University Press.
- Nakayama, Toshihide. 1997. Discourse-pragmatic dynamism in Nuuchah-nulth (Nootka) morphosyntax. Doctoral diss., University of California, Santa Barbara.
- Ravinski, Christine. *in prep.* Possession in Nuuchah-nulth. M.A. Thesis, UBC.
- Rose, Suzanne M. 1981. Kyuquot grammar. Doctoral diss., University of Victoria.
- Sapir, Edward. 1911. The problem of noun incorporation in American languages. *American Anthropologist* 13: 250-282.
- Sapir, Edward and Morris Swadesh. 1939. *Nootka Texts: Tales and Ethnological Narratives*. Philadelphia: Linguistic Society of America.
- Stonham, John. 1998. Numerals and incorporation in Nootka. In *Papers for the 33<sup>rd</sup> ICSNL*, 384-394. University of Washington.
- Stonham, John and Sze Man Yiu. 2000. Woman-buy vs. two-have: Two types of incorporation in Nootka. Paper presented at the LSA annual winter meeting.
- Swadesh, Morris. 1939. Nootka internal syntax. *IJAL* 9: 77-102.
- Wojdak, Rachel. 2001. An argument for category neutrality? In K. Megerdooian and L. A. Bar-El (eds.) *WCCFL 20 Proceedings*, 621-634. Somerville, MA: Cascadilla Press.
- Wojdak, Rachel. 2003a. PF Incorporation: Evidence from Wakashan. Paper presented at the 26<sup>th</sup> GLOW Colloquium, Lund, Sweden.
- Wojdak, Rachel. 2003b. Predicative lexical suffixes in Nuuchah-nulth. In *Papers for the 38th ICSNL*. UBCWPL 11: 275-289.

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## Morphological Orthodoxy in Yupik-Inuit\*

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### 0. Introduction

Yupik-Inuit (or Eskimo) languages have one pervasive morphological process, recursive suffixation to a base, and—normally—a corollary scope rule according to which any suffix is an operator or modifier with scope over exactly the base to which it was added. This pattern is both prolific and exclusive: there is (almost) no prefixation, no mutation, ablaut, reduplication, nor any base-base or (practically any) word-word compounding. Moreover the pattern has apparently been historically persistent, since it dominates all known members of Yupik-Inuit and more distantly-related Aleut as well.

Taking this morphological ‘straitjacket’ as its starting point, this paper explores violations of the corollary scope rule. My point is that these scopal violations are determined by the grammatical or semantic content of individual suffixes, in keeping with the behavior associated with that content in languages with more heterodox morphology and syntax. In effect, then, the language family’s orthodox morphology becomes the ground for a natural experiment, allowing us to diagnose independent and perhaps universal structural proclivities of certain common lexico-grammatical functions.

### 1. A sketch of word structure

We begin with a quick sketch of word structure—the morphological ‘straight-jacket’—in Cup’ik, a variety of Central Alaskan Yupik (CAY) spoken in Chevak, Alaska. The facts, as will be noted later, are similar in most detail in the rest of CAY; with a little more difference in detail in the four other Yupik languages of

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Alaska and Russia; and with yet more difference in the Inuit-Iñupiaq continuum of Alaska, Canada, and Greenland (see Woodbury 1984 on the language family). Still, the basic suffixing-only, root-derivation-inflection pattern is uniform across the family and even includes distantly-related Aleut (Bergsland 1997).

### 1.1. Inflectional suffixation: Nouns

Grammars of Yupik-Inuit languages since Kleinschmidt (1851) are in near-total agreement on what constitutes derivation vs. inflection, so I will simply assume this distinction. This understanding is, moreover, in keeping with the contemporary view (Anderson 1982) that inflection involves morphological categories made obligatory or otherwise relevant at the phrasal level, whereas derivation does not.

Ordinary nouns are inflected, suffixally, for seven CASES indicating a range of NP argument and adjunct functions as in (1); and for three NUMBERS, as in (2):<sup>1</sup>

#### (1) Case inflection

ABSOLUTE	arnaq	‘the/a woman (S or definite O)’
RELATIVE	arna-m	‘the/a woman (A) or woman’s (P)’
MODALIS	arna-meng	‘a woman (O); from the/a woman’
TERMINALIS	arna-mun	‘to/for/by the/a woman’
LOCATIVE	arna-mi	‘at the/a woman’
VIALIS	arna-kun	‘via the/a woman’
EQUALIS	arna-tun	‘like the/a woman’

#### (2) Number inflection

ABSOLUTE SINGULAR	arnaq	‘the/a woman’
ABSOLUTE DUAL	arna-k	‘two women’
ABSOLUTE PLURAL	arna-t	‘three or more women’

In addition, nouns are marked for the PERSON—first, second, third, and reflexive-third—AND NUMBER OF THEIR POSSESSOR (P), if any. (3)-(4) show a pro-drop-type pattern for possessed NPs. The possessor is in the relative case. (5) shows some sample possessive suffixes, which are treated as markers for whole bundles of information: case and number of the head (possessed) noun, plus person and number of the possessor:

- (3) (arna-m)            eni-i  
       woman-REL.SG    house-ABS.SG+3SGP  
       ‘the woman’s/her house’

<sup>1</sup> These categories are also marked in a number of closed noun subclasses such as pronouns, attributive adjectives, quantifiers, and demonstratives.



- (4) (wii) en-ka  
me.REL.SG house-ABS.SG+1SGP  
'my house'

- (5) **Possessor inflection**
- |                  |             |                             |
|------------------|-------------|-----------------------------|
| ABS.SG           | qayaq       | 'the/a kayak' (unpossessed) |
| ABS.SG+1SGP      | qaya-qa     | 'my kayak'                  |
| ABS.PL+3SGP      | qaya-i      | 'his kayaks'                |
| ABS.DU+3PLP      | qaya-gkek   | 'those two's two kayaks'    |
| LOC.SG+3REFL.SGP | qaya-mini   | 'in his own kayak'          |
| VIAL.DU+2SGP     | qaya-gpekun | 'via your two kayaks'       |

The plusses (+) in (5) are a notational convenience for expressing major divisions within category bundles. While these bundles can often be analyzed into component formatives (segmented with dashes (-)), the formatives do not always correlate one-to-one with individual category values. Thus in (6), while the first example does show a one-to-one correlation, the second shows a one-to-many correlation and the third a many-to-one correlation:

- (6) **Category bundle      Formatives      Formative values**
- |              |           |                     |
|--------------|-----------|---------------------|
| VIAL.DU+2SGP | -g-pe-kun | -DU-2SGP-VIAL       |
| ABS.PL+3SGP  | -i-       | -ABS.PL+3SGP        |
| ABS.DU+3DUP  | -g-ke-k   | -ABS.DU-ABS.DU-3DUP |

Given this level of entanglement, it is reasonable to assume—as my category bundle notation implies—that each bundle and its associated formative array is a single entity, and that speakers simply learn them all as a (fairly large) and partly irregular list, along lines of Anderson (1992).

## 1.2. Inflectional suffixation: Verbs

Like noun inflection, verb inflection is marked entirely suffixally. The key category is MOOD, indicating illocutionary functions for verbs heading main clauses and various subordination, adverbial, or linkage functions for verbs heading non-main clauses:

- (7) **Mood inflection (some adverbial moods omitted)**
- |               |             |  |
|---------------|-------------|--|
| INDICATIVE    | tekit-uq    | 's/he arrived, is arriving'                  |
| INTERROGATIVE | tekit-a     | 's/he arrived, is arriving (in WH-Q)'        |
| OPTATIVE      | teki-lli    | 'may s/he arrive'                            |
| PARTICIPLE    | tekite-lria | '(surprisingly) s/he arrives, arrived'       |
| APPOSITIONAL  | teki-lluni  | 'then s/he arrived, arrives; s/he, arriving' |
| CONSEQUENTIAL | tekic-an    | 'when/because s/he arrived, is arriving'     |
| CONCESSIVE    | teki-ngraan | 'although s/he arrived, is arriving'         |



In addition, inflection in most moods includes marking for the PERSON AND NUMBER OF THE ABSOLUTIVE-CASE INTRANSITIVE SUBJECT (S), OR OF THE RELATIVE-CASE TRANSITIVE SUBJECT (A) AND ABSOLUTIVE-CASE TRANSITIVE OBJECT (O). As in NPs, this follows the familiar pro-drop pattern, as (8)-(9) illustrate for intransitive clauses and (10)-(11) illustrate for transitive clauses:

- (8) (Arnaq) qavar-tuq.  
woman.ABS.SG sleep.IND.3SGS  
'The woman/She is sleeping.'
- (9) (Wangkuta) qavar-tukut  
we.ABS.PL sleep-IND.1PLS  
'We are sleeping.'
- (10) (Arna-m) (kaugpii-t) tangrr-ai.  
woman-REL.SG walrus-ABS.PL see-IND.3SGA+3PLO  
'The woman/She saw the walruses/them.'
- (11) (Kaugpii-m) (wii) tangrr-aanga.  
walrus-REL.SG me.ABS.SG see-IND.3SGA+1SGO  
'The walrus/It saw me.'

Likewise—just as in noun inflection—each verbal inflectional suffix can be seen as a single, often-irregular entity standing for a complex bundle of categories.

### 1.3. Particles

Particles are the third and final morphological class, defined by their lack of inflection. They function as adverbs and interjections, for example:

- (12) keyianeng 'always'  
unuk 'last night'  
cali 'also; more'  
tawa 'now; then; That's enough!'  
qa YES-NO QUESTION MARKER; 'Huh?'  
Kiiki! 'Hurry up!'  
Uuminaqsaga! 'Darn!'

### 1.4. Inflectional summary

Let us summarize the above with the following three morphological rules:

- (13) Noun word = Noun base + Noun inflection  
Verb word = Verb base + Verb inflection  
Particle word = Particle base

A WORD is thus a complete morphological entity, whereas a BASE is a word, minus its inflectional suffix. For particles, word and base are identical since there is, by definition, no inflectional suffix.

### 1.5. Derivational suffixation

Bases may be simple, but they may also be derived from other bases by recursive suffixation:

- |      |  |   |
|------|--|---|
| (14) | ivruci-t                                   | ‘waterboots (ABS.PL)’   |
|      | ivruci- <b>li</b> -uq                      | ‘she <b>is making</b> waterboots (IND.3SGS)’                            |
|      | ivruci-li- <b>sta</b>                      | ‘ <b>someone who</b> makes waterboots (ABS.SG)’                         |
|      | ivruci-li-ste- <b>nger</b> -tut            | ‘they <b>have</b> someone who makes (them) waterboots (IND.3PLS)’       |
|      | ivruci-li-ste-ngqer- <b>sugnait</b> -ut    | ‘they <b>definitely don’t</b> have someone who makes (them) waterboots’ |
| (15) | quuyurni-uq                                | ‘s/he is smiling (IND.3SGS)’  |
|      | quuyurni- <b>art</b> -uq                   | ‘s/he is <b>suddenly</b> smiling’                                       |
|      | quuyurni-arte- <b>llru</b> -uq             | ‘s/he suddenly smiled’  |
|      | quuyurni-arte-llru- <b>yaaq</b> -uq        | ‘s/he suddenly smiled, <b>but in vain</b> ’                             |
|      | quuyurni-arte-llru-yaaqe- <b>llini</b> -uq | ‘ <b>evidently</b> s/he suddenly smiled, but in vain’                   |
| (16) | Nakleng!                                   | ‘Poor thing!’   |
|      | Nakl- <b>u’rluq</b> !                      | ‘ <b>Dear</b> poor thing!’  |

Examples (14)-(16) involve, respectively, a noun base, a verb base, and a particle base. Note that with each new round of suffixation, a new base is derived, and that new base is itself treated inflectionally either as a noun, a verb, or a particle.

### 1.6. Derivational summary

The above can be summarized with the following rule:

- (17) Base = Base (+ Derivational Suffix)

Because the rule is recursive, it allows for a base to be followed by any number of derivational suffixes.

### 1.7. Corollary scope rule

Informally, we may observe that suffixes—inflectional as well as derivational—semantically PERTAIN to the bases to which they are added. Moreover, when suffixation is recursive, each new suffix pertains semantically to all and only the

base to which it is added: not to a part of the base, nor (except in the case of inflection) to a whole phrase. It is fair to say that this is a basic assumption about morphology, although it is only sometimes made explicit, whether as something absolute (e.g., DiSciullo and Williams 1987), or as a default that helps us explain to ourselves the ‘weirdness’ of cases which violate it somehow (e.g., Baker 1985, Sadock 1991). Let us formulate it as follows:

(18) **Corollary scope rule**

A suffix is an operator or modifier with scope over exactly the base to which it was added.

It should be clear, for example, that (18) describes well the semantics evident in (14)-(16), and that it may serve as a transparent interpretive corollary for the formational rules in (13) and (17).

**2. The orthodoxy of suffixation**

How do suffixation and the corollary scope rule just described amount to a ‘morphological orthodoxy’? Suffixation is prolific; it is (virtually) the only process in the morphology; and it has been stable and persistent throughout the Yupik-Inuit family and even Eskimo-Aleut. Let us take each point in turn.

**2.1. Suffixation is prolific**

This is the case, first, in the sense that there are many productive suffixes. In Jacobson’s (1984) dictionary of Central Alaskan Yupik (which includes Cup’ik as one of its varieties), there are listings for about 300 possible inflectional endings for ordinary nouns, 1200 for ordinary transitive verbs, and about 500 derivational suffixes.

Suffixation is also prolific in that it is used liberally. According to Jacobson (1984:423), a CAY word may have up to six derivational suffixes but rarely more; Central Siberian Yupik has a lesser tendency toward suffixation than CAY (de Reuse 1994:53); while of West Greenlandic, Fortescue (1984:313) writes, “up to ten or more affixes in succession before the inflectional ending is not particularly unusual—at least in the written language”.

We get a crude but effective sense of this simply by observing the sheer bulk of the words in an excerpt of ordinary conversational text from Cup’ik, in which productive derivational affixes are italicized: thus, what precede them are simple bases and what follow them are inflectional endings. Most inflected words in the passage have at least one derivational suffix, and many have two or three (‘=’ marks enclitic particles, which we can think of as separate syntactic words):

- (19) A: Aukwaawaq taw’ *apc-artu-llrania*, *atur-yug-luk’* *erne-rpak*, *aki-lir-luku* taw’ *pi-sqe-lluku*; *Aki-lir-ciq-aa=gguq*; *Qessa-ngait-uq*; *El-pet=llu* taw’ *qaner-ya-urr-luten*. Qaagem?  
B: *Qessa-it-ni-aqami* qa?

- A: Qessamka-*u-qapiare-yaaq*-uq.  
 B: Maqi-yug-luni taw' qeya-*mluarer*-tuq. Qeya-*ura-qer*-luni=ll' ua=i, qessa-*it-ni*-aqami taw'. Qessa-yugnai-*pallaare-naur*-tuq. Qessamka-*u-yaaq*-uq. <NAME>=am, <NAME>-m qetunra-a,  
 A: Qessamka-*u-qapiara*-lria=gguq=gga taw' pi-ngraatni=ll' nii-*cuu*-nani. Kin-kut ellime-llratni mer-*taa-sqe*-lluku. Nanra-*lli-a*=gguq qessa-*it-ni*-luku; Ellime-*qar-aqan*=ll', qessa-yuit-*ni*-luku. Cali.  
 A: Cali. Qessa-yuit-*ni*-luku.  
 C: Al' pi-ani=gguq, kevgute-t tegu-luk' ag'-uq.  
 A: Matarr-luku tawaam u-n' pi-*sqe*-kumtegg.  
 C: Kayu-*ng*-uq=gguq an-*u-rqe*-lliki.  
 B: Kayu-*ng-ni*-kuni tau-m iqairissuu-llugpak keveg-*ciq*-aa.

## 2.2. Suffixation is (virtually) the only process in the morphology

Exceptions to this are extremely rare across the entire language family. There is no mutation or ablaut. Some languages have innovated isolated nonconcatenative prosodic processes such as final vowel lengthening for certain pragmatic functions, including yes-no question formation in Eastern Canadian Inuktitut varieties (e.g., Harper 1974:12-3), or vocative vowel doubling in Cup'ik (Woodbury 1987:726-8):

(20)	Nonvocative	Vocative
	ukut 'there here'	Ukuut! 'Hey, you here!'
	anngaqliq 'eldest brother'	Anngaqliiq! 'Hey, eldest brother!'
	qayaq 'kayak'	Qayaaq! 'Hey, kayak(er)!'

There is just one apparent prefix, *ta-*, which marks demonstratives as distal. In Cup'ik it occurs with just one of the demonstrative bases but in Eastern Inuit, including West Greenlandic (Sadock 2003:67-8), it is somewhat more productive:

(21)	Proximal	Distal
	massa 'here, near speaker'	tamassa 'there, near speaker'
	affa 'here, north'	taava 'there, close by'
	samma 'here, far down'	tasama 'there, far down'
	kigga 'here, toward outside'	takkiga 'there, toward outside'

Most surprisingly, given the strongly concatenative cast of Yupik-Inuit morphology, there is no compounding, except in two limited cases. In Cup'ik and one other CAY dialect (Cup'ig, spoken on Nunivak Island), there is a verb base *ete-* 'to be (at)', used as in (22):

- (22) Ene-m aki-ani et-ut.  
 house-REL.SG opposite-LOC.SG+3SGP be-IND.3SGS  
 'They are at the opposite side of the house.'

However it is common in Cup'ik and Cup'ig, and obligatory in the rest of CAY, to compound the already-inflected head of the associated locative phrase with *ete-*, which is then subject to further suffixation:

- (23) Ene-m            aki-an-et-ut.  
       house-REL.SG    opposite-LOC.SG+3SGP-be-IND.3PLS  
       'They are at the opposite side of the house.'

For Cup'ik this seems a clear case of lexically-governed postlexical or postinflectional compounding. But for the dialects not allowing examples like (22) with uncompounded *ete-*, the compounding process is only a relic.

Another case of postlexical or postinflectional compounding—if one considers this compounding at all—is that of enclitic particles (Cup'ik, from (19) above):

- (24) aki-lir-ciq-aa=gguq  
       money-provide-FUTURE-IND.3SGA.3SGO=it.is.said  
       'he will pay him, it is said'

=*gguq* 'it is said' is one of a handful of enclitic particles which forms a stress domain with the already-inflected word to which it is added (Woodbury 2002:89-96).

These limited postinflectional cases are the only cases of compounding. What never occurs at all is the preinflectional base-base compounding common in English and most other languages.

Thus, aside from a few prosodic modifications, one prefix, and limited postlexical compounding, the morphology is confined to suffixation.

### 2.3. Suffixation is historically stable and persistent

The Yupik-Inuit (or Eskimo) protolanguage is estimated at roughly several thousand years old; proto-Eskimo-Aleut at several thousand more (Woodbury 1984, Fortescue et al. 1994, Bergsland 1989). The corollary scope rule, the inflection rules (13), and the rule of derivation (17) hold for all modern Yupik-Inuit languages and (except for some postlexical verb-auxiliary verb compounding) Aleut as well. The number, person, and case categories and agreement patterns are the same throughout Yupik-Inuit, and are marked with cognate formatives; the mood categories are also very similar (though not always directly cognate: see Bergsland 1951, 1989); and as already noted, suffixation is virtually the only process in the morphology.

A powerful further indication of historical stability is that derivational suffixes are almost never the 'grammaticalizations' of historical bases compounded with other bases (*ete-* 'to be at', if it is on its way in (22)-(23) to becoming a suffix, is the rare exception). That is, suffixes are cognate with other suffixes across the family, not with bases. Thus in Fortescue et al. (1994)'s extensive comparative

dictionary of Eskimo, modern bases in the daughter languages are reconstructed as bases in Proto-Eskimo, not as suffixes; and modern suffixes are reconstructed as suffixes, not as bases. This even extends to proto-Eskimo-Aleut, with just a few exceptions.

#### **2.4. Conclusion so far**

Suffixation is the pervasive, and (virtually) exclusive technique of the morphology. It has maintained itself as such at least from the time of Proto-Eskimo-Aleut into all attested daughter languages. It is this that I term MORPHOLOGICAL ORTHODOXY.

If Eskimo-Aleut, with its pervasive suffixation, is at one typological extreme of morphological orthodoxy, then we must count Chinese—with liberal compounding but nearly no affixation—as at the other. Furthermore, both extremes stand in contrast to MORPHOLOGICALLY HETERODOX families like Indo-European or Algonkian, which partake liberally of compounding, of affixation, and of nonconcatenative morphological processes.

#### **3. The ‘work’ of suffixation**

It should be no surprise that suffixation does a lot of ‘work’ in Yupik-Inuit in the sense that many of the functions encoded by suffixation there are encoded by other means in other languages. This section gives a very brief sketch of the situation in CAY, setting the stage for our investigation into the relationship of some of this ‘work’ with violations of the corollary scope rule (17). The reader can refer to Jacobson (1984) and Woodbury (1981) for documentation of the specific CAY suffix meanings referred to below (or Badten et al. 1987 for Central Siberian Yupik or Fortescue 1983 for the Inuit varieties, since these functions are common throughout the family):

**The work of pronouns.** Done by person-and-number-of-possessor marking in noun inflection; person-and-number-of-core-arguments marking in verb inflection.

**The work of case particles and adpositions.** Done by case marking in noun inflection.

**The work of illocutionary particles, subordinating conjunctions and complementizers.** Done by mood marking in verb inflection.

**The work of lexical and auxiliary verbs.** Done by noun-to-verb derivational suffixes, including the only forms in the language for ‘have’, ‘be’, ‘be at’, and ‘get’; also forms for relatively concrete meanings like ‘eat’, ‘hunt’, ‘make’, ‘hit someone in (body part noun)’, ‘have a messy (NOUN)’, ‘suffer from (NOUN)’, and ‘smell strongly of (NOUN)’.

Also done by verb-to-verb derivational suffixes, including forms for argument-structure affecting notions like ‘be easy to’, ‘let’, ‘ask/tell to’, ‘say that’, ‘wait for (SOMEONE) to’, ‘be time to’, ‘(VERB) in place of’; such modal meanings as ‘try to’, ‘want to’, ‘be about to’, ‘plan to’; and aspect or time-related meanings like ‘be in a state of (VERB)-ing’, ‘become’, ‘begin to’, ‘not have (VERB)-ed yet’, and ‘(VERB) late’.

**The work of nouns, quantifiers and specifiers.** Done by verb-to-noun derivational suffixes, including forms for ‘device for (VERB)-ing’, ‘place for (VERB)-ing’, ‘time of (VERB)-ing’, and ‘extent of (VERB)-ing’.

Also done by noun-to-noun derivational suffixes, including forms for ‘abundant’, ‘bit of’, ‘a few lousy (NOUN)-s’, ‘supply of’, ‘inhabitant of’, ‘relation as (KIN NOUN)’, ‘one who is similar to (NOUN)’, and ‘owner of’.

**The work of adjectives.** Done by noun-to-noun derivational suffixes, including (often the only) forms for ‘new’, ‘good’, ‘old’, ‘large’, ‘small’, ‘darned’, ‘genuine’, ‘poor substitute for (NOUN)’, and ‘early (TIME NOUN)’.

Also done by verb-to-verb derivational suffixes, including forms whose effect is to modify the meaning of the subject of the verb such as ‘poor (SUBJECT) does (VERB)’ and ‘darned (SUBJECT) does (VERB)’.

**The work of adverbs.** Done by verb-to-verb derivational suffixes, including forms for temporal meanings like ‘now and then’, ‘late’; for propositional attitude meanings like ‘evidently’, ‘contrary to expectation’, ‘probably’; manner meanings like ‘poorly’, ‘happily’, ‘well’, ‘easily’, ‘roughly’, ‘quickly’; and degree meanings like ‘more and more’, ‘excessively’, ‘barely’; negatives like ‘not’, ‘will not’, and ‘never’.

#### 4. Thesis

With the extent of ‘work’ done by suffixation now in mind, let me state my thesis:

- (25) Anomalies, ‘glitches’, and other special qualifications of the rules for inflectional and derivational suffixation ((13) and (17)) and of the corollary scope rule (18) are referred to the grammatical or semantic content of individual suffixes, in keeping with the behavior associated with that content in languages with more heterodox morphology and syntax.

In what follows I will take up three such anomalies: noun-to-verb derivational suffixes whose scope anomalies recall characteristics of N+V compounding or ‘noun incorporation’ (Sec. 5); verb-to-verb suffixes whose scope anomalies recall characteristics of the syntax and semantics of complement-taking verbs (Sec. 6); and word-internal verb-base ellipsis whose formational anomalies recall syntactic gapping (Sec. 7).

#### 5. Noun-to-verb derivational suffixes with N+V compound (noun incorporation) properties

As noted in Sec. 3, CAY (and all Yupik-Inuit) has noun to verb derivational suffixes which do the ‘work’ of nominal complement taking verbs. (26) lists eight of the 85 or so productive noun to verb suffixes in Cup’ik (see Woodbury 1981:349-485; Jacobson 1984), illustrated with examples in (27):



- |      |                  |                           |
|------|------------------|---------------------------|
| (26) | NOUN-ngu-        | ‘be NOUN’                 |
|      | NOUN-ngqerr-     | ‘have NOUN’               |
|      | NOUN-ngite-      | ‘lack NOUN’               |
|      | NOUN-tur-        | ‘eat NOUN’                |
|      | NOUN-lngu-       | ‘be tired of NOUN’        |
|      | NOUN-li-         | ‘make NOUN’               |
|      | NOUN-yag-        | ‘for NOUN to be abundant’ |
|      | NOUN-cugninarqe- | ‘to smell like NOUN’      |
- 
- |      |                             |   |
|------|-----------------------------|---|
| (27) | kitu- <b>u</b> -yit?        | ‘Who <b>are</b> you?’ (INT.2SGS)                |
|      | qaya- <b>ngqer</b> -tua     | ‘I <b>have</b> a kayak’ (IND.1SGS)              |
|      | pilugupi- <b>it</b> -ua     | ‘I <b>don’t have</b> any seal boots’ (IND.1SGS) |
|      | taryaqvag- <b>tur</b> -tua  | ‘I’ <b>m eating</b> king salmon’ (IND.1SGS)     |
|      | citegta- <b>lngu</b> -unga  | ‘I’ <b>m tired of</b> tomcods’ (IND.1SGS)       |
|      | en- <b>li</b> -unga         | ‘I’ <b>m building</b> a house’ (IND.1SGS)       |
|      | cug- <b>yag</b> -tuq        | ‘There <b>are lots of</b> people’ (IND.3SGS)    |
|      | puyur- <b>cugninarq</b> -uq | ‘It <b>smells like</b> smoke’ (IND.3SGS)        |

These suffixes enter into a construction that presents a class of systematic anomalies for the corollary scope rule (18):

- |      |                          |
|------|--------------------------|
| (28) | Ene-ngqer-tua.           |
|      | house-have-IND.1SGS      |
|      | ‘I have a house/houses.’ |
- 
- |      |  |
|------|--|
| (29) | Ciku-meng    atauci-meng    ene-ngqer-tua.       |
|      | ice-MOD.SG    one- MOD.SG    house-have-IND.1SGS |
|      | ‘I have one house made of ice.’                  |

Semantically, the base *ene*- ‘house’ is construed as the head of a noun phrase that is modified by two entirely independent inflected nouns in the modalis case, i.e., ‘one house made of ice’. Moreover, the modalis case is an appropriate case for syntactically independent indefinite direct objects and other verbal complements, as shown in (30), where *ene*- ‘house’, with its coconstituents *ciku*- ‘ice’ and *ataucir*- ‘one’, is the indefinite direct object of the inflected verb base *tangerr*- ‘see’:

- |      |  |
|------|--|
| (30) | En-meng    ciku-meng    atauci-meng    tanger-tua.           |
|      | house- MOD.SG    ice- MOD.SG    one- MOD.SG    see- IND.1SGS |
|      | ‘I see one house made of ice.’                               |

The corollary scope rules appears to be violated in (29) because while *-ngqerr*- ‘have’ has scope over the whole base *ene*- ‘house’, it also has scope over the external modifiers of that base, namely *ciku*- ‘ice’ and *ataucir*- ‘one’, despite



their syntactic independence as inflected words. Also apparently violated is the lexicalist hypothesis (see DiSciullo and Williams 1987 and others before them), which rules out derivational processes which refer to syntactic phrases, and syntactic constituency relations among parts and subparts of words.

Sadock (1980, 1985), in an effort to challenge the lexicalist hypothesis, pointed out parallels between West Greenlandic constructions like (29), and noun incorporation constructions in Iroquoian languages and in Southern Tiwa, terming all as ‘noun incorporation’. For these constructions, he argued that a morphological principle bound the head noun with a governing verbal element, while a different—and mismatching—syntactico-semantic principle treated the noun head and its modifiers as a single NP complement to the governing verbal element. He used the term ‘noun incorporation’—traditionally used to describe the noun-base-with-verb-base compounding that was the hallmark of the construction in Iroquoian and Southern Tiwa.

Despite the functional parallelism, Mithun (1984, 1986)—echoing Sapir (1911)—argued that only N+V compounding, not Yupik-Inuit type suffixal derivation, constituted true noun incorporation, adducing as well some functional differences.

It is indeed interesting whether the syntactico-semantic ramifications of N+V compounding are necessarily different from those of noun-to-verb derivation. Nevertheless, the degree to which they are similar is very striking and worthy of an account, especially since—apparently—the more we learn about each of them, the more parallels we find.

For example, CAY allows what has been called a DOUBLING construction, as in the following Cup’ik text example:

- (31) Qalqapa-paarrlug-meng    qalqapa-ngqe-llru-yaaq-lua    taw’;  
       axe-huge- MOD.SG            axe-have-PAST-alas!- APO.1SGS    then
- eqiurr-suute-pigar-meng    uqama-il-ngur-meng.  
       chop-device.for-real- MOD.SG    bearable.weight-lack-one.which- MOD.SG  
       ‘I did (alas!) once have an axe, a huge axe; a real chopper (sc, sharp), a  
       heavy one.’

Here, there are multiple, loosely-slung modalis-case modifiers for *qalqapag*-‘axe’, the base in the scope of *-ngqerr-* ‘have’. But note that among them is *qalqapapaarrlugmeng* ‘huge axe’, repeating the very noun base it seems to modify.

It turns out that such doubling is possible as long as the internal noun base is not more referentially specific than the external NP. Thus (32), like (31), is fine; but (33), where the noun base *can’giirar-* ‘blackfish’ is more specific than *neqe-* ‘fish’ is ruled out:

- (32) can'giira-neng      neqe-ngqerr-ameng.  
blackfish- MOD.PL   fish-have-CONSEQ.3REFL.PLS  
'when they have fish, blackfish'
- (33) \*neq-neng      can'giira-ngqerr-ameng.  
fish-MOD.SG   blackfish-have- CONSEQ.3REFL.PLS  
'when they have blackfish, fish' [elicited]

According to Sadock (1985), doubling is ruled out in West Greenlandic; and in that respect, he argues, West Greenlandic is like Southern Tiwa, which also allows stranding but rules out doubling in its N+V compounding construction. Yet doubling is a hallmark of Iroquoian incorporation, where it is shown to place precisely the same requirements on the relative specificity of the internal and external noun copy, so that the internal copy functions as a classifier to which the external copy may add specificity (H. Woodbury 1975).<sup>2</sup> Thus, variations among the Yupik-Inuit languages in their treatment of noun-to-verb derivational suffixes emulates the variation we also find among N+V compounding systems.

Apparently, once affixes have meanings typical of verb bases in most other languages, they pick up syntactic characteristics like the ability to govern complex NP complements. Even more, since they co-occur in the same word with a noun, they pick up the morphosyntactic and semantic characteristics of N+V compounds. This seems to me the phenomenon to be noted and explained, much more so than the obvious and evident structural distinction between affixal derivation and compounding. For here, function seems to trump structure.

## **6. Verb-to-verb suffixes with complement-taking-verb properties**

We now turn to a second case. Like the first one, it involves derivational suffixes which do the 'work' of complement-taking verbs; but in this case the complements are not nominal but verbal or clausal, and the suffixes—which derive verbs from verbs—have meanings like 'say,' 'think,' 'tell,' and 'cause'.

### **6.1. Basic examples**

Kleinschmidt (1851) identified a set of West Greenlandic suffixes which, when added to a verb base, added an agent argument as a relative case subject, while preserving as non-subjects the original base's absolutive and (if any) relative case arguments. He called them DOUBLE TRANSITIVE suffixes. The following is a list of

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<sup>2</sup> Rosen (1989:308) suggests that West Greenlandic constructions with stranding as in (29) are covert classifier-incorporation structures too, only with a null-headed external NP. While this is consistent with the facts in some cases, it isn't in all cases because a null-head reading is not always available. So, on this hypothesis, (29) would mean something like 'I house-made one [NULL-HEAD] made of ice'. However, if we test this in (30) by deleting *enmeng* 'house-MD.SG', the result means 'I see one piece of ice' and not 'I see one [NULL-HEAD] made of ice' or 'I see something made of ice.'

major double transitive suffixes in Cup'ik (discussed in Woodbury 1985, Jacobson 1984, 1995):

- (34) VERB-ni- 'say that (SUBJECT) VERB-s/VERB-ed'  
 VERB-yuke- 'think that (SUBJECT) VERB-s/VERB-ed'  
 VERB-nayuke- 'think that (SUBJECT) might VERB'  
 VERB-sqe- 'want, ask, tell (SUBJECT) to VERB'  
 VERB-cite- ~ VERB-vkar- 'let, allow, cause (SUBJECT) to VERB' (suppletive)

To see how this works, consider these examples, respectively, of inflected intransitive and transitive verb bases (examples from Woodbury 1985):

- (35) Tengmiaq ayag-tuq.  
 bird.ABS.SG go.away-IND.3SGS  
 'The bird went away.'
- (36) Tan'gurraa-m tengmiaq ivar-aa.  
 boy-REL.SG bird. ABS.SG seek-IND.3SGA+3SGO  
 'The boy looked for the bird.'

Then, when the suffix *-cite- ~ -vkar-* 'let, allow, cause (SUBJECT)...' is added, a new letter/allower/causer subject can be expressed:

- (37) Liissa-m tengmiaq ayag-**cit**-aa  
 Lisa- REL.SG bird. ABS.SG go.away-**let**-IND.3SGA+3SGO  
 'Lisa let/made the bird go away. '
- (38) Liissa-m tengmiaq tan'gurrar-mun ivar-**cit**-aa  
 Lisa-REL.SG bird. ABS.SG boy-TERM.SG seek-**let**-IND.3SGA+3SGO  
 'Lisa let/made the boy look for the bird.'

By the corollary scope rule (18), the double transitive suffix has scope over the entire base to which it is added. This is seen in recursive stages, in keeping with the derivational suffixation rule (17), in the following two text examples. Each contains two double transitives, *-cite- ~ -vkar-* 'let, allow, cause (SUBJECT)...' and *-ni-* 'say that (SUBJECT)...':

- (39) Ekucir -**ciss** -ngait -**ni** -luta  
 Pay.fare -**let/make** -will.not -**say** -APO.1PLO  
 'Saying (he) will not make us pay any fare'
- (40) nulirqe -**vkar** -ciq -**ni** -luku  
 marry -**let/make** -will -**say** -APO.3SGO  
 'Saying (he) will let him marry'

But (17) and (18) do not tell the whole story. In particular, they do not explain why there are some key differences in combinatoric potential even among the major double transitive suffixes listed above.

## **6.2. Differences in the embedding of tense**

One such difference concerns tense-marked verb bases: of the suffixes in (34), just *-ni-* ‘say that (SUBJECT)...’ and *-yuke-* ‘think that (SUBJECT)...’ can combine with tense-marked bases, that is, bases ending with tense suffixes like *-llru-* ‘PAST’, *-ciqe-* ‘FUTURE’, *-qatar-* ‘be about to...’ or *-ngaite-* ‘will not’. This can be seen in (39)-(40), where *-ni-* ‘say that (SUBJECT)...’ follows *-ngaite-* ‘will not’ and *-ciqe-* ‘FUTURE’, respectively. It can also be seen in (41)-(42), which, along with (39)-(40), occur in a body of transcriptions of about 20 hours of Cup’ik narrative and conversation (supplemented with several Yup’ik examples from Jacobson):

### **(41) Examples with *-ni-* ‘say that (SUBJECT)...’**

*Naulluu-llru-ni-uq*, ‘he says he was ill’ (Jacobson 1995:324)  
*pirpa-k-tu-llru-ni-luku*, ‘saying he always had good (weather)’  
*tangerr-lug-naq-saaqe-ci-q-ni-luku*, ‘saying he will tend to look poorly’  
*pic-uic-aaqe-ci-q-ni-luku*, ‘saying he will tend not to catch game’  
*aqva-ci-q-ni-lukek*, ‘saying (he) will fetch those two’  
*nakaciu-qatar-ni-luki*, ‘saying they are going to have a Bladder Festival’  
*mer-tar-vi-ur-ci-q-ni-yuk-aq-aqa*, ‘I thought (they) said it will be a place for getting water’

### **(42) Examples with *-yuke-* ‘think that (SUBJECT)...’**

*Tuqute-llru-yuk-luki*, ‘thinking (he) killed them’ (Jacobson 1995:326)  
*Aya-llru-yuk-aa*, ‘he thinks he (someone else) went’ (Jacobson 1984:599)  
*Maqi-ya-qatar-yuk-luku*, ‘he was thinking of going to take a firebath’

By contrast, there are no examples in the Chevak corpus, or in other sources that I know of, of tense-marked bases combining with the other three double transitives listed in (34), namely:

- (43) VERB-nayuke-                    ‘think that (SUBJECT) might VERB’  
      VERB-sqe-                    ‘want, ask, tell (SUBJECT) to VERB’  
      VERB-cite- ~ VERB-vkar- ‘let, allow, cause (SUBJECT) to VERB’ (suppletive)

The account that I wish to offer is simply this: the semantics of *-ni-* ‘say that (SUBJECT)...’ and *-yuke-* ‘think that (SUBJECT)...’ allows for the embedding of a complete proposition, including tense; whereas the semantics of the suffixes in (43) includes specification of an unrealized modality for the embedded proposition in place of tense. In English, this same property of ‘say’ and ‘think’ is handled syntactically, by the device of *that*-complementation with verbs *say* and *think*, which allows for the expression of embedded-clause tense. Notice that this

account is in violation of the corollary scope rule in (18) since it extends the scope of tense (and hence also the double transitive suffixes) to constituents outside of the immediate bases to which they are attached.<sup>3</sup>

This account also allows us to explain another fact. *-ni-* ‘say that (SUBJECT)...’ and *-yuke-* ‘think that (SUBJECT)...’ are recursive to a degree greater than other suffixes in that they start verbal derivation over again. Thus, for example, it is possible for two tense markings to occur if and only if one of these two suffixes has occurred, e.g.:

- (44) atanqe -ciq -ni -llru -ateng amani.  
Wait.for -FUTURE -say -PAST -CONSEQ.3SGA+3REFL.PLO there  
'Because he said (he) will wait for them there'
- (45) Naulluu -llru -ni -llru -uq.  
be.ill -PAST -say -PAST -IND.3SGS  
'He said he was ill.' (Jacobson 1995:324)

This is possible, however, if tense is allocated per (semantically) embedded clause.

### 6.3. A (familiar) anomaly in the embedding of negation

The double transitives also differ with respect to the embedding of bases negated with *-nrite-* ‘not’ or *-ngaite-* ‘will not’, (which combines tense and negation). The same two suffixes that could combine with tense-marked bases can combine with negation-marked bases; but they are joined by a third, *-nayuke-* ‘think that (SUBJECT) might...’ (which, following our observations in Sec. 6.2, can only occur with the untensed *-nrite-* ‘not’ and not the tensed *-ngaite-* ‘will not’). Thus:

- (46) **Examples with -ni- ‘say that (SUBJECT)...’**  
*Nuli-q-ngait-ni-luku*, ‘saying (he) will not have her as a wife’  
*tekiy-ngait-ni-lun*, ‘saying he (himself) will not arrive’  
*makuu-vkar-ngait-ni-luku*, ‘saying he will not let it be this kind’
- (47) **Examples with -yuke- ‘think that (SUBJECT)...’**  
*Qacingqa-nri-cuk-luki*, ‘thinking they were not staying put’  
*Atur-ngai-cuk-luku*, ‘thinking you will not encounter it’
- (48) **Examples with -nayuke- ‘think that (SUBJECT) might...’**  
*Niite-nrit-nayuk-luku*, ‘thinking (they) might not hear him’  
*Keg-ga-nrit-nayuk-luku*, ‘thinking (they) might not just bite him’

<sup>3</sup> Although even here, the corollary scope rule is problematic since the suffix also has scope over the terminalis case notional subject of the embedded verb base. See Woodbury and Sadock (1986) for demonstration and discussion.

This free occurrence of negation contrasts with restrictions on negation with *-sqe-* ‘want, ask, tell (SUBJECT) to...’, with which negation must occur ‘outside’ the embedded base, i.e., after *-sqe-* (here *-vke-* is a suppletive allomorph of *-nrite-* ‘not’):<sup>4</sup>

(49) **Examples with *-sqe-* ‘want, ask, tell (SUBJECT) to...’**

*Anuqe-gguire-sqe-vke-naki*, lit: ‘not telling (them) to pass to windward of them’ (entails: ‘telling them *not* to pass to windward of them’)

*Pekte-sqe-vke-naki*, lit: ‘not telling (them) to walk’ (entails: ‘telling them *not* to walk’)

*Inangli-sqe-vke-nata*, lit: ‘not telling us to go to bed’ (entails: ‘telling us *not* to go to bed’)

*Kiner-ci-qaa-sqe-vke-naki*, lit: ‘not telling him to dry them’ (entails: ‘telling him *not* to dry them’)

This is, of course, the familiar NEG-RAISING pattern found for verbs like *want* in English, where *I don’t want him to come*, with negation ‘outside’ *want*, nevertheless entails ‘I want him *not* to come’. Note however that English does not have this entailment so clearly with *say to*, cf. *I didn’t say to come* vs. *I said not to come*. In any case, the pattern that we find is another violation of the corollary scope rule (18) which can be explained in terms of its emulation of a cross-linguistically wide-spread pattern associated with its semantic function: in this case, the neg-raising pattern common with ‘want’ and ‘say to’ complementation. If this is right as a general matter, then we may well find considerable further correspondence between the grammar of productive Yupik-Inuit word-internal suffixes with meanings like ‘say’, ‘think’, and ‘tell’, and that of their independent-word cousins in languages with less synthesis.

**7. Verb base ellipsis in Tarramiut Inuktitut**

We now turn to our third case, which concerns rules (13) and (17), which ensure that every word begins with a base, to which derivational and then inflectional suffixes may be added. This base-first principle is especially robust because the base lexicon and the suffix lexicon are disjunct in all Yupik-Inuit languages: that is, there are no elements which function sometimes as a base, and other times as a suffix.

The following from Cup’ik bear this out: none are good because the beginning element in each case is a suffix and not a base:

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<sup>4</sup> This allomorph occurs with the subordinative mood marker *-na-*, which itself is a suppletive allomorph of the normal subordinative marker *-lu-*, triggered by *-nrite-* and other etymologically stative suffixes ending in *-ite-*. Of course, one might simply take this as meaning that CAY has innovated a negative subordinative mood in *-vken-*, a conclusion which in no way changes the scopal arguments being advanced here.

- (50) \*li-uq                      ‘s/he made (something)’ (IND.3SGS)  
       \*yugnait-uq              ‘s/he definitely didn’t’  
       \*llini-uq Peter-aq      ‘Peter evidently did’

Instead, all Yupik-Inuit languages have an ‘empty’ base *pi-*, which means ‘thing’ when functioning as a noun, and ‘do’ when functioning as a verb. Using *pi-* as the base, it is possible to ‘support’ suffixes like those in (50):

- (51) **pi**-li-uq                      ‘s/he made it/one’ (IND.3SGS)  
       **pi**-yugnait-uq              ‘s/he definitely didn’t’  
       **pi**-llini-uq Peter-aq      ‘Peter evidently did’

In this way, it is possible to make use of the lexical content of suffixes, even in the absence of a specific, concrete base, and still obey the rules in (13) and (17).

However, Swift and Allen (2002) document a unique innovation in Tarramiut Inuktitut which violates the normal rules by allowing suffixes word-initially:

- (52) Anaana      qajur-tu-ruma-junga.                      (Elijah 2;5)  
       mother      soup-consume-want-PARTICIPLE.1SGS  
       ‘Mother, I want to have soup.’
- 0-Nia-lir-qutit    siaru.      (Elijah’s mother)  
       ZERO.BASE-TODAY.FUT-INGRES-IND.2SGS      later  
       ‘You will [have soup] later today.’
- (53) Qajur-tu-nia-lir-qutit    siaru.      (Full form)  
       soup-consume-TODAY.FUT-INGRES-IND.2SGS      later  
       ‘You will have soup later today.’

On their analysis, the word-initial suffixes follow an implicit ZERO VERB BASE which can be reconstructed from the discourse context: thus in the mother’s response in (52), the (complex) base meaning ‘consume soup’ is cued in the child’s request. They conclude that:

...postbases [i.e., derivational suffixes] with certain meanings are prevalent in elliptical structures, specifically temporal, modal, politeness, and negation. These postbases fall into semantic categories often associated with auxiliaries cross-linguistically, and many of them make clear contributions to the meaning of an existing structure, e.g., *-guma-* ‘want to’, *-qajaq-* ‘be able to’, *-si-* ‘be about to’, and *-nngit-* ‘not’. However, it is not clear whether these characteristics contribute to the prominence of these postbases in elliptical structures by for example, rendering them more analyzable than other postbases. (p. 154)



Even taking into account their caution about triggering predicate meanings, what is very clear is that this is a morphologically embedded instance of the GAPPING pattern found on a syntactic level in English and other languages.

One difference between this phenomenon, and the two preceding ones is that this one undermines not only the corollary scope rule—the CONSTRUAL of morphological structure—but also the morphological structure itself. That is, verb base ellipsis loosens morphological orthodoxy in a way which undermines the notion of suffixation. For whatever reason, such loosening of structure is extremely rare in Yupik-Inuit, given such a strict historical disjunction between the base and suffix lexicons.

## **8. Conclusions**

Given the large amount of ‘work’ done by suffixation in Yupik-Inuit, I hope it will be productive to use anomalies, ‘glitches’, and other special qualifications of the rules for inflectional and derivational suffixation ((13) and (17)), and of the corollary scope rule (18), as a heuristic for finding further instances in the family of universally-attested semantic and syntactic phenomena: the three examples given seem only to scratch the surface.

More broadly, it would be worth exploring other language families with persistently orthodox or rigid morphological structure—whether pervasively-suffixing like Yupik-Inuit, pervasively compounding like Chinese, or some other radical type—in order to understand better the extent and the limits of structure; as well as the influence on structure of meaning and function. It seems to me that Sapir (1921) was grappling with this same set of issues when he wrote the following somewhat enigmatic set of passages:

We may put the whole matter in a nutshell by saying that the radical and grammatical elements of language, abstracted as they are from the realities of speech, respond to the conceptual world of science, abstracted as it is from the realities of experience, and that the word, the existent unit of living speech, responds to the unit of actually apprehended experience, of history, of art. The sentence is the logical counterpart of the complete thought only if it be felt as made up of the radical and grammatical elements that lurk in the recesses of its words. It is the psychological counterpart of experience, of art, when it is felt, as indeed it normally is, as the finished play of word with word. (p. 33)

The best that we can do is to say that the word is one of the smallest, completely satisfying bits of isolated ‘meaning’ into which the sentence resolves itself. (p. 35)

Such features as accent, cadence, and the treatment of consonants and vowels within the body of a word are often useful as aids in the external demarcation of the word, but they must by no means be interpreted, as is sometimes done, as themselves responsible for its psychological existence. They at best but strengthen a feeling of unity that is already present on other grounds. (p. 36)

The fascinating questions raised by looking at matters this way seem to me to transcend contentious, all-or-nothing positions on whether it is structure or function that supremely determines natural languages.



## References

- Anderson, Stephen R. 1982. Where's morphology? *Linguistic Inquiry* 13: 571-612.
- Anderson, Stephen R. 1992. *A-Morphous morphology*. *Cambridge Studies in Linguistics* 62. Cambridge: Cambridge University Press.
- Badten, Linda Womkon, Vera Oovi Kaneshiro, Marie Oovi, and Steven A. Jacobson. 1987. *A Dictionary of the St. Lawrence Island / Siberian Yupik Eskimo Language*. Fairbanks: Alaska Native Language Center, University of Alaska.
- Baker, Mark. 1985. The mirror principle and morphosyntactic explanation. *Linguistic Inquiry* 16: 373-415.
- Bergsland, Knut. 1951. Kleinschmidt Centennial IV: Aleut demonstratives and the Aleut-Eskimo relationship. *IJAL* 17: 167-79.
- Bergsland, Knut. 1989. Comparative aspects of Aleut syntax. *Journal de la société finno-ougrienne* 82: 7-80.
- Bergsland, Knut. 1997. *Aleut Grammar*. *Research Paper No. 10*. Fairbanks: Alaska Native Language Center, University of Alaska.
- de Reuse, Willem J. 1994. *Siberian Yupik Eskimo: The Language and its Contacts with Chukchi*. *Studies in Indigenous Languages of the Americas*. Salt Lake City: University of Utah Press.
- DiSciullo, Anna-Maria, and Edwin Williams. 1987. On the definition of the word. *Linguistic Inquiry Monograph* 14. Cambridge: MIT Press.
- Fortescue, Michael. 1983. *A Comparative Manual of Affixes for the Inuit Dialects of Greenland, Canada, and Alaska*. *Meddelelser om Grønland, Man and Society* 4. Copenhagen.
- Fortescue, Michael. 1984. *West Greenlandic*. *Croom Helm Descriptive Grammars*. London: Croom Helm.
- Fortescue, Michael, Steven Jacobson, and Lawrence Kaplan. 1994. *Comparative Eskimo Dictionary with Aleut Cognates*. *Research paper No. 9*. Fairbanks: Alaska Native Language Center, University of Alaska.
- Harper, Kenn. 1974. *Some aspects of the grammar of the Eskimo dialects of Cumberland Peninsula and North Baffin Island*. *National Museum of Man Mercury Series, Ethnology Division, Paper No. 15*. Ottawa: National Museums of Canada.
- Jacobson, Steven A. 1984. *Yupik Eskimo Dictionary*. Fairbanks: Alaska Native Language Center, University of Alaska.
- Jacobson, Steven A. 1995. *A Practical Grammar of the Central Alaskan Yupik Eskimo Language*. Fairbanks: Alaska Native Language Center, University of Alaska.
- Kleinschmidt, Samuel. 1851. *Grammatik der grönländischen Sprache*. Berlin. [Reprinted 1968, Hildesheim: Geog Olms.]
- Mithun, Marianne. 1984. The evolution of noun incorporation. *Language* 60: 847-93.

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- Mithun, Marianne. 1986. On the nature of noun incorporation. *Language* 62: 32-37.
- Rosen, S. 1989. Two types of noun incorporation: A lexical analysis. *Language* 65: 294-317.
- Sadock, Jerrold M. 1980. Noun incorporation in Greenlandic: A case study of syntactic word formation. *Language* 56: 300-319.
- Sadock, Jerrold M. 1985. Autolexical syntax: A theory of noun incorporation and similar phenomena, *Natural Language and Linguistic Theory* 3: 379-440.
- Sadock, Jerrold M. 1991. *Autolexical Syntax: A Theory of Parallel Grammatical Representations*. Chicago: University of Chicago Press.
- Sadock, Jerrold M. 2003. *A Grammar of Kalaallisut (West Greenlandic Inuttut)*. *Languages of the World / Materials* 162. Munich: Lincom Europa.
- Sapir, Edward. 1911. The problem of noun incorporation in American languages. *American Anthropologist* 13: 250-82.
- Sapir, Edward. 1921. *Language: An Introduction to the Study of Speech*. New York: Harcourt, Brace, and Co.
- Swift, Mary D. and Shanley E. M. Allen. 2002. Verb base ellipsis in Inuktitut conversational discourse. *IJAL* 68(2): 133-156.
- Woodbury, Anthony C. 1981. Study of the Chevak dialect of Central Yupik Eskimo. Ph.D. dissertation, University of California, Berkeley.
- Woodbury, Anthony C. 1984. Eskimo and Aleut languages. In David Damas (ed.) *Vol. 5: Arctic*, 49-63, in William C. Sturtevant (ed.) *Handbook of North American Indians*. Washington: Smithsonian Institution Press.
- Woodbury, Anthony C. 1985. Marginal agents. *Papers from the Parasession on Causatives and Agentivity. CLS 21, part 2*, 271-292.
- Woodbury, Anthony C. 1987. Meaningful phonological processes: A consideration of Central Alaskan Yupik Eskimo prosody. *Language* 63(4): 685-740.
- Woodbury, Anthony C. 2002. The word in Cupik. In Dixon, R. M. W. and Alexandra Y. Aikhenvald (eds.) *Word: A cross-linguistic typology*, 79-99. Cambridge: Cambridge University Press.
- Woodbury, Anthony C. and Jerrold M. Sadock. 1986. Affixal verbs in syntax: A reply to Grimshaw and Mester. *Natural Language and Linguistic Theory* 4: 229-44.
- Woodbury, Hanni. 1975. Onondaga noun incorporation: Some notes on the interdependence of syntax and semantics. *IJAL* 41(1): 10-20.

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