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FOREWARD

It is with great pleasure that we present the proceedings of the sixth Workshop on American Indigenous Languages (WAIL 2003). In continuing a tradition begun with the student discussion group on North American Indigenous Languages (NAIL), the evolving membership wishes to pay tribute to Marianne Mithun and Wallace Chafe for their consistent encouragement and support. We hope that this third volume of the Working Papers represents another step in the development of WAIL as a forum where we may all share our discoveries, both descriptive and theoretical, concerning these increasingly endangered languages.

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CONTENTS

Floating Moras and Features in Southern Sierra Miwok[1]

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Introduction. The representational level of Southern Sierra Miwok (Miwok-Costanoan) is central to trying to develop an analysis that accounts for length and alternation phenomena, geminate behavior, and the templatic morphology of the language. The focus of this paper is on "lengthening" or "floating" properties of Southern Sierra Miwok (henceforth SSM). In particular, what have been termed 'pre-lengthening' morphemes will be discussed, as will the process of alternating deletion.

Pre-lengthening morphemes, as in (1-2), have the property of lengthening the segment that immediately precedes them.

"Pre-lengthening" morphemes

(1) ʔenup-**:e**-ni:te-ʔ
ʔenup**pe**niite?
'I chased you' (Broadbent 1964:48)

(2) kel:a-na-**:meʔ**
kellana**ameʔ**
'it snowed on us' (B106)

Example (1) illustrates the effect that a pre-lengthening suffix has on consonants, while (2) shows the same for vowels. In each case, the effect of lengthening never affects the suffix itself, but rather the preceding stem.

There is also a process of alternating deletion present in the language. For instance, in (3) the glottal stop in the suffix -ʔte:- is deleted at the surface, while in (4) it surfaces intact.

Alternating deletion

(3) ʔe:nup-**ʔte:**-nY
ʔeenup**tee**nY
'to chase along behind' (Sloan 1991:58)

(4) ṯyk:y:-nY-**ʔte:**-nY
ṯykkyynY**ʔtee**nY
'to shoot all over along the trail' (S58)

There are three interrelated goals of this paper. The first is to show that there actually is a floating unit present in the phonology of the language. In order to accomplish this goal, a competing metrical analysis (iambic lengthening) must be outlined and shown to be

inadequate for generalizing over the data. Once it has been established that the phonology has floating properties, it will be shown that a moraic representation is more desirable than a segmental model. In order to account for all of the floating patterns in the language, it will be shown that reference must actually be made to two different types of floating unit: floating moras, and floating features. Although independently established for other languages respectively, the SSM data suggests that it can be shown that both entities exist within the same language.

Basic SSM Phonology. Possible syllables in SSM are CV, CVV, and CVC. Onsets are obligatory, and complex onsets or codas are prohibited. There is a length distinction for consonants and vowels, however non-identical vowel sequences are prohibited. Epenthesis and deletion are active strategies employed by the language to maintain the above syllable canon.

In addition, there are also two types of morphology present in the language that are directly relevant for the phonology. These are templatic and non-templatic morphology, or in the terms of Freeland (1951), 'autonomic' and 'incremental'. Much of the morphology of SSM is non-templatic; that is, suffixes are regularly concatenated onto a stem. There are suffixes, however, which trigger a templatic mapping onto roots. These suffixes are specified for a template shape (CVCVC, CVCVV, etc.), and the root must conform to the template specification (cf. Sloan 1991). Although SSM templatic morphology is not the focus of this paper, it plays a large role in determining the proper representational units for the language.

Iambic Lengthening. The pre-lengthening suffixes mentioned above have been analyzed by Callaghan (1987:19) and Hayes (1989) as the byproduct of iambic lengthening. Iambic lengthening is a metrical strategy for deriving well-formed feet (Hayes 1995). Iambs, being right-headed feet, would require some prominence on the rightmost syllable of the foot to be well-formed, or at least salient. Given an underlying foot structure with syllables of equal prominence, iambic lengthening can be employed to augment the prominent properties of the rightmost syllable:

(5) Iambic Lengthening
CVCV → CVCV:

In the context of SSM, Hayes (1995:261) states that "the /∪ –/ target is achieved through an elaborate conspiracy involving pre-lengthening suffixes, -CCV suffixes, nonconcatenative morphology, and stem-structure constraints."

There are two major problems with the iambic lengthening approach. The first is that there are metrical exceptions that can't be the result of a strategy to achieve well-formed iambs. Such is the case in (6):

(6) ya:ya:li:-meti- 'giants' (from ya:ya:li- 'giant')
(ya:ya:)(li:me)(ti-) (Freeland 1951:10)

In this example, the underlying form presumably has two heavy syllables followed by a light syllable (ya:ya:li), whereas in the surface form, suffixation actually makes the light syllable heavy, resulting in three heavy syllables in a row. Even if the second metrical foot of the word were being augmented in order to derive a well-formed foot, it would result in a well-formed trochee rather than an iamb. Examples like (6) illustrate the fact that lengthening isn't the result of some type of metrical strategy, but instead must be morphologically driven.

A second problem is the fact that the floating length seems to be a characteristic of individual morphemes rather than morphemes in a metrical position. For instance, in example (7b), the 'lengthening' suffixes will consistently lengthen, while those in (7a) will not.

(7) Length contrast

a.	jo:h-k-**a**-:	b.	jo:h-k-**:a**-ko:
	joohuk**a**a		joohuk**ka**koo
	'he got killed (pres. perfect)'		'they were killed' (B82)

Importantly, these are two different morphemes, but they are in the same metrical position. This suggests that metrical position alone does not dictate the lengthening process.

Furthermore, there exist morphemes consisting only of length and no segmental content, as attested in (8):

(8) Length-only morphemes (from Callaghan 1984, 1987)
{-:} '3 sing. (Declarative Series)
{-:} 'vocative case'

If the contrast in (7) was not convincing evidence that length is an inherent property of individual morphemes, then surely (8) is. Since morphemes like these are identifiable solely by their length, then it seems probable that morphemes with segmental content can have length properties, as well.

In addition, pre-lengthening could not be a byproduct of template mapping, because at the template level there is no spreading (epenthetic segments are default), and template shapes would be hard to represent prosodically (Sloan 1991:88fn7). All of these reasons indicate that the lengthening is indeed a morphological effect, and that iambic lengthening is an inadequate explanation for the data.

Segmental Models. The SSM representational level has been characterized by segmental slots such as CV slots (Smith 1985) or x-slots (Sloan 1991). For the purposes of this paper, CV and x-slots will be treated as the same. Sloan has challenged the use of moras in representing SSM, claiming that "the distinction between a floating and a non-floating phoneme is not stateable in a moraic model" (1991:13). In developing an x-slot representation, Sloan posits a floating x-slot, as well as a floating phoneme. The pre-lengthening morphemes in (9-10) will help to illustrate the specifics of the x-slot model.

As in (1) and (2), the morphemes in question trigger a lengthening of the consonant or vowel immediately preceding the morpheme:

(9) ʔam:u-k-**:aʔ**
ʔammukkaʔ
'he got hurt' (B106)

(10) lit-h-a-**:meʔ**
lithaameʔ
'it's risen on us' (B63)

An example of a segmental representation of a floating x-slot is given in (11). Importantly, there is no segmental content associated to the floating x-slot underlyingly.

(11) Floating x-slots (Sloan 1991:38-39)

```
x x        x x x x
  |          | | |
  a          me ʔ
```

The lack of segmental content associated to the x-slot allows for the spreading of existing segments, or double association, resulting in the lengthening of segments (such as in 9-10). This process is illustrated in (12) below, where floating x-slots, when concatenated with a stem, are associated to the preceding segments, deriving a long consonant or vowel.

(12) Concatenation and spreading (from Sloan 1991)

```
x x x x x - x - x x - x        x x x - x - x - x x x x
| | \/ |   |   |   | |        | | |   | |   | | |
ʔ a m u k   a ʔ              l i t   h a   m e ʔ

x x x x x x x x x             x x x x x x x x x
| | \/ | |/ | |               | | | | |/ | | |
ʔ a m u k a ʔ                 l i t h a m e ʔ
```

The x-slot representation accounts for segmental structure, but fails to account for any prosodic structure above the level of the segment. Since all x-slots are presumed to be uniform, this type of representation cannot determine what skeletal positions are projecting what type of prosodic constituent (nucleus, etc.).

The x-slot representation, and segmental models in general fail to capture certain phonological facts, which will be discussed below.

Moraic Model. There are several reasons for independently motivating the adoption of a moraic level of representation in SSM. These include the stress pattern of the language, the asymmetric behavior between underlying and derived geminates, syllable maximality, and parallel patterns in other languages.

The stress pattern of SSM certainly motivates the need for the mora in phonological representation. Under moraic theories, moras account for weight and what can be considered non-alternating length (Broselow 1995, Newman 1972). Analyzing the stress pattern of SSM motivates the adoption of moras. As Broadbent has noted,

> "The syllabic canon of this language is notably rigid. When length is treated as a consonant, as is done here, only two syllable types are found: CV and CVC. These will be referred to as SHORT SYLLABLES and LONG SYLLABLES respectively. [...] Stress, which is not phonemic, can be predicted from the pattern of long and short syllables within the word. [...] In isolated forms, primary stress falls on the first long syllable. Primary stress is marked by the following factors: (1) the syllable bearing it is louder than surrounding syllables; (2) the syllable-final consonant is a little longer than usual (if this consonant is /./, this means that the phonetic vowel length is maintained for longer than usual); and (3) if a short syllable (weakly stressed) immediately precedes, the long syllable is higher in pitch than the short one.
>
> Secondary stress falls on succeeding long syllables. In a sequence of long syllables, the even-numbered ones tend to be less-heavily stressed than the odd-numbered ones, counting from the beginning of the long-syllable sequence. Short syllables carry weak stress." (Broadbent 1964:16-17, cited in Sloan 1991:23).

Broadbent's descriptions indicate that stress in SSM is best characterized by weight, and is thus moraic in nature.

The asymmetric behaviors between underlying and derived geminates is another motivation for adopting the mora for SSM. Underlying geminates display inalterability effects (Hayes 1986, Schein and Steriade 1986), and will not be split by epenthesis. Derived geminates, on the other hand, may be affected by epenthesis or deletion. In order to account for this asymmetry, some sort of underlying moraic structure must be posited (Brown, to appear).

Furthermore, moras also account for maximal syllable shapes. Syllables in SSM can be CV, CVV, or CVC. A segmental model such as x-slots predicts that since long vowels are present, CVVC syllables would be well-formed. An alternative way of explaining the possible syllables in SSM is by means of a bimoraic maximum; this type of maximality rules out the CVVC syllable, as it is trimoraic.

It has been assumed in the literature that moras can't float unsupported by a root node (Zoll 1998). Tonal phenomena, however, suggests that floating tones may be accompanied by a floating tone-bearing mora, independent of a root node (Pulleyblank 1994). This is illustrated in the case of suffix behavior in Hausa (Newman 1995:767-

769). In Hausa, the suffix -`wáa ('-ing') triggers a pre-lengthening effect[2] similar to that in SSM.

(13) Hausa suffix -`wáa

káamàa 'catch'	káamàawáa 'catching'
kâr̃àntáa 'read'	kâr̃àntâawáa 'reading'

The low tone that surfaces on the stem can be attributed to a floating low tone on the suffix. As Newman notes, there is also a floating mora present on the suffix as well. The combined effect of the floating low tone and floating mora is the spreading of the low tone onto the stem and the lengthening of the preceding segment. Tonal interactions aside, this is similar to the pre-lengthening effects in SSM.

The notion of a floating mora can then be imported into the representational level of SSM as such: (14) and (15) again illustrate pre-lengthening suffixes, and (16) is an example of how a moraic representation would model such suffixes.

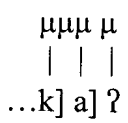
Floating moras

(14) lit-h-a-**:me?**
litha**ame?**
'it's risen on us' (B63)

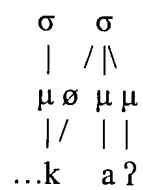
(15) ʔam:u-k-**:a**-ʔ
ʔammuk**ka**ʔ
'he got hurt' (B106)

(16) Moraic Representation (-:a-ʔ)

Input:



Output:



In the mapping from underlying to surface form, floating moras are concatenated with a stem, and if onset creation takes place, the mora deletes (Hyman 1984, 1985). This mirrors the representation of geminates proposed by Shaw (1992) and Davis (1999), and is consistent with geminate representations language-internally (Brown, to appear).

Floating Features. It doesn't seem to be the case that moras account for the full range of data. There must be another type of unit that displays floating qualities: a floating feature. The motivation for another unit comes in examples like (17) below:

(17) ʔe:nup-**ʔte:**-nY
ʔeenup**tee**nY
'to chase along behind' (S58)

In order to expand her system, Sloan (1991) posits floating phonemes. Floating phonemes are in essence the complement to floating x-slots. Only with floating phonemes, there is no x-slot associated to the segmental content.

(18) Floating phoneme
xx
||
ʔci

Sloan's proposal of a floating phoneme is too broad a generalization; it predicts that any phoneme in the inventory of the language can float. This, however, is not the case. In fact, only the glottal stop is subject to floating.

Since the glottal stop is the only segment which appears to undergo the alternating deletion characteristic of Sloan's floating phonemes, it can probably be more accurately characterized as a floating feature [constricted glottis] (cf. Macaulay and Salmons 1995).

There is evidence for both the floating mora and floating feature in SSM, as there is a difference between floating moras and floating [cg] in terms of deletion. The cases of floating moras will trigger epenthesis, whereas the cases of floating features will trigger deletion.

Floating [constricted glottis]

(19) marpo:sa-**ʔči**-
marpoosa**ʔči**- (S37)

(20) palal-**ʔči**
palal**či**-
'people from near Palona' (S37)

In (19), [cg] surfaces because it does not violate prosodic constraints, as does (20), which suffers deletion.

These can be contrasted with regular concatenative morphemes which don't suffer deletion:

(21) kala:-ŋ-**n**i-nti-ʔ
kalaaŋ**in**inti?
'I can dance' (B11)

(22) jaw:e-j-**n**ti-ʔ
jawwej**in**ti?
'it will be my bow' (B104)

In these cases, the /n/ cannot be floating, since a potential structure-violation triggers epenthesis with regular suffix-initial segments

An exception to the floating feature analysis is the behavior of the glide /j/, which seems to float in much the same way as the glottal stop.

(23) hala-ja:-ni-:	'go find it'	(cf. hal-pa- 'to find')
(24) ʔyw:y-ja:-ni-:	'go and eat (whenever you want)!'	(cf. ʔyw:y 'to eat')
(25) he:l-a:-ni-:	'go and fight!'	(cf. he:l- 'to fight')
(26) ʔyw:-a:-ni-:	'go and eat now!'	(S64)

In (23-24), the glide surfaces where there is no other candidate to serve as the onset of the syllable. In (25-26), however, when there is an available onset (in fact a segment that MUST be syllabified as an onset because of maximality restrictions on the preceding syllable), the glide fails to surface.

The x-slot representation for the floating glide /j/ (Sloan 1991) is given in (27), where there are no x-slots associated to the segment /j/.

(27) x-slot representation

xx
\/
ja

Is there a solution available which avoids a floating phoneme representation? One possibility is that there is more than one floating feature in the language. Under this view, the glide would be represented by a floating [high], or perhaps a floating [front] feature, which has been independently posited for German (Wiese 1996). Since there is more than one vowel that carries the feature [front] (namely, /i,e/), and more than one vowel with the feature [high] (namely /i,ɨ,u/), then the notion of a single floating feature will not be able to accurately predict the quality of the surface vowel.

Another possibility is that the vowel sequence for the morpheme is underlyingly /ia/. There do seem to be a number of vowel/glide interactions in the grammar to support an underlying vowel surfacing as a glide (Broadbent 1964). In addition, constraints against non-identical sequences of vowels would militate against a surface /ia/ sequence.

The result of this would be the underlying /i/ surfacing as a glide when an onset position is available, or deleting when the prosody would not allow the syllabification of an additional consonant. Assuming the underlying /ia/ sequence, these things together would explain the alternating deletion without resort to an additional floating feature or the postulation of a floating phoneme.

Conclusion. Previous analyses of the Southern Sierra Miwok representational level have not adequately accounted for the full range of phonological facts in the language. Analyses based on iambic lengthening will not account for the full range of lengthening data in the language, as metrical principles fail to get at certain morphological aspects. Segmental models can be shown to be too unrestrictive, as they are not constrained enough to explain other areas of the phonology (stress, geminate behavior, maximality). The postulation of floating phonemes is likewise an overgeneralization, as it makes predictions which don't bear out in the language.

Most of the data can be accounted for if a segmental representation is updated to a moraic one, however, it still doesn't account for all of the floating properties of the language. The floating feature [constricted glottis] is needed in addition to the notion of a floating mora to get at the whole range of facts. The result is the presence of two floating entity within the same language: floating moras and floating features.

Notes

[1]Thanks to Chris Golston, Douglas Pulleyblank and Pat Shaw for reading and commenting on earlier versions of this paper. Research on this paper was supported by a SSHRC grant #410-2002-004 awarded to Douglas Pulleyblank (Principal Investigator). All errors remain the author's.

[2]Although there are no examples in the text of a short vowel immediately preceding the suffixation of -`wáa, Newman notes that "-`wáa is also preceded by a floatingmora which ensures that any verb-final vowel before -`wáa is long, i.e., /-`wáa/ is perhaps better represented as /-:`wáa/" (1995:780 fn).

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Causation in Warihio

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1. Introduction

This paper describes different causation constructions that occur in Warihio, a Southern Uto-Aztecan language. Warihio presents the three formal ways described in the literature in which causation is expressed: lexical causatives, morphological causatives, and syntactic causatives. In addition, Warihio presents a fourth type, between the morphological and the syntactic types, that I am calling a morpho-syntactic causative. Following the binding hierarchy proposed in Givón (1980, 2001), constructions containing a caused event plus a causing event are ranked from the most to the least syntactically integrated type. In Warihio, this corresponds to the lexical-morphological-syntactic continuum (Comrie, 1989), and overlaps the functional domains of the causative continuum proposed in Shibatani and Pardeshi (2001).

2. Some remarks on Warihio

Warihio is a member of the Sonoran branch of the Uto-Aztecan family. It is divided into two dialects. The upland dialect that is spoken in the mountains of Chihuahua, Mexico and the River dialect, whose speakers live along the Mayo river and the Guajaray river is spoken in Sonora, Mexico. The latter is the dialect described in this work.

2.1 constituent order

Warihio is a nominative-accusative language. Nouns are not case marked, but there are two sets of pronouns, one for subjects and the other for non subjects[1], that can illustrate its nominative-accusative nature:

(1) a. neé amó wewe-ré
1SG:S 2SG:NS hit-PAST
'I hit you.'

b. muú no'ó wewe-ré
2SG:S 1SG:NS hit-PAST
'You hit me.'

c. muú u'má-re
2SG:S run-PAST
'You ran.'

Warihío has flexible order in the sense that more than one sequence of S, V, O, and IO are possible. It has flexible order as well as other features characteristic of SOV and SVO

languages. Miller (1984) considers Warihío to be in the process of changing from an SOV to an SVO language, and Barreras (2000) proposed a change from SOV to VSO. I, rather, describe Warihío as a language with a pragmatically based flexible order with some strongly grammaticalized features of an SOV language such as verbal suffixes, postpositions, and a final copula. This is shown in the flexible clausal nominal order of the next examples of River Warihío:

(2) a. waní ihkó-ke-ru piípi sipičá tapaná obregón hustína
John give-APL-PAST one dress yestrday Obregón Agustina
'John gave Agustina a dress yesterday in Obregón.'

The SVOIO sentence above may accept alternative orders, semántico-pragmatically motivated. All the orders are possible:

(2) b.

waní piipi sipičá ihkókeru hustina tapaná obregón	SOVIO
ihkókeru waní piípi sipičá hustína tapaná obregón	VSOIO
ihkókeru piípi sipičá waní hustína tapaná obregón	VOSIO
tapaná waní ihkókeru piípi sipičá hustina obregón	SVOIO
obregón waní hustína ihkókeru piípi sipičá tapaná	SIOVO
hustina ihkókeru piípi sipičá tapaná obregón waní	IOVOS

2.2 Participants

The participants in the sentence can occur without definiteness or plurality markers:

(3) waní čikó-re kawái
John steal-PAST horse
'John stole a horse/the horse/horses/the horses.'

Warihio, as I mentioned above, has two sets of personal pronouns, one set for S/A and another set for O/recipients/possessives/reflexives/subjects of subordinate clauses. One important aspect of Warihio grammar pertaining to causative constructions is that Warihio does not use verbal agreement or case marking in signaling the role of their noun participants. Moreover, the different sets of personal pronouns help us to differentiate only between subjects (of main clause) and the remaining participants in a causative construction, so the morphological encoding of the causee hierarchy (Comrie, 1985, 1989) is not available to signal differing kinds of causee in Warihio. Instead, the degree of control retained by the causee and the distinction between a patientive causee and an agentive causee, (i.e.the degree of directness) (Shibatani and Pardeshi, 2001) are expressed by the semantics of the base verb and the causative 'verb'. This includes the degree of implicativeness in correlation with the state of syntactic integration of the causative construction.

3. Warihio causatives

Following Haspelmath (1993:90) the inchoative/causative verb pair is defined semantically: "it is a pair of verbs which express the same basic situation (generally a

change of state, more rarely a going-on) and differ only in that the causative verb meaning includes an agent participant who causes the situation, whereas the inchoative verb meaning excludes a causing agent and presents the situation as occurring spontaneously". That is, the transitive counterpart of an inactive intransitive verb (Shibatani and Pardeshi, 2001) constitutes a lexical causative.

3.1 Lexical causatives

In Warihio, the causative verb counterparts show these different types: suppletion, labile, vowel and consonant alternation, equipollent alternation, and suffixation.

3.1.1 Suppletion

Most languages have suppletive forms for some verbs:

(4) a. karí taha-ré
house burn-PAST
'The house burned.'

b. peterá muku-ré
Petra die:ssg-PAST
'Petra died.'

a'. aapóe kosó-re karí
3PL:S burn-PAST house
'They burned the house.'

b'. maniwíri me'á-re peterá
Manuel kill:osg-PAST Petra
'Manuel killed Petra.'

3.1.2 Labile

I found some labile verb pairs: *yetépani* 'CLOSE', *oíčani* 'START', *sawéna* 'ROCK', *wa'káni* 'CHIP OFF', that is, verbs for which the inchoative and causative forms are the same:

(5)a. puetá yetépa-re
door close-PAST
'The door closed.'

b. waní yetépa-re puetá
John close-PAST door
'John closed the door.'

3.1.3 Vowel and consonant alternation

All the position and some displacement verbs in Warihio present the intr./tr. pair. Some of them present suppletive forms, *kahtí/yahčí* 'be sitted:ssg.'/ 'set:osg', some others present a vowel alternation in the base from *–i* (intr.) to *–a* (tr.)[2] as in (6), or with an additional change in the preceding consonant as (7) shows:

(6) a. ihpíčira weri ehkína-či
broom be standing:ssg corner-LOC
'The broom is in the corner.'

b. hustína werá-re ihpíčira ehkína-či
Agustina place s. standing:osg broom corner-LOC
'Justina put the broom in the corner.'

(7) a. waní paki-ná kari-čí
John enter:ssg-PRES house-LOC
'John is entering the house.'

b. waní pahča-ní kuitá kari-čí
John put in:osg- PRES child house- LOC
'John is putting the child inside the house.'

Like many Uto-Aztecan languages, Warihío presents in some of its positional-movement verbs, different forms that agree in number for the subject in the case of intransitive verbs (8) and for the object for the counterpart transitive (lexical causatives) verb (9):

(8) a. ihpíčira ahawí ehkína-či
brooms be standing:spl:PRES corner-LOC
'The brooms are in the corner.'

b. hustína ahawá-re ihpíčira ehkína-či
Agustina place s. standing:opl brooms corner-LOC
'Justina put the brooms in the corner.'

(9) a. kukučí mo'i-ná kari-čí
children enter:spl-PRES house-LOC
'The children are entering the house.'

b. waní mo'a-ré kukučí kari-čí
John put in:osg- PRES children house- LOC
'John is putting the children inside the house.'

3.1.4 Equipollents

There is a group of stative verbs with adjectival meaning base. These verbs conform the equipollent inchoative/causative pair, since the inchoative verb is derived with the inchoative suffix *–pa* and the causative form with the suffix *–na/-ča* from the same adjectival base. This group contains verbs like *kasí-na* 'be broken', *si'pá-ni* 'be torn', *či'wá-ni* 'be cut', *wi'ló-na* 'be flexible', *pi'rí-na* 'be twisted'[3]:

(10) a. sipičá si'pá-ni
dress torn-PRES
'The dress is torn.'

b. sipiča si'pá-re
dress torn-PAST
'The dress got torn.' (someone did it)

c. sipičá si'pá-pa-re
dress torn-INCH-PAST
'The dress got torn.'
(because the dress was old)

d. hustína si'pa-ná-re sipičá
Agustina torn-CAUS-PAST dress
'Agustina tore the dress.'

The occurrence of the causative suffix *–ča* shows an event conceived as iterative:

(11) a. waní ta'pá-ča-re pií weréwa ampá marikí kuú ehpé
John cut d. the m.-CAUS-PAST one twenty over five stick today
'John cut down the middle twenty five sticks today.'
lit. 'John cut down the middle and cut down the middle twenty five sticks today.'

Even though the causative suffixes *–na* and *-ča* in this group show a very direct involvement of the causer, there may exist a specific context (-and depending upon the nature of the causee) where the causer involvement is only in indirect terms. There is a type of plant called *panéwa* that it twists itself around another tree or around a stick. If someone plants a *panéwa* alone must put a stick stand near to it in order the *panéwa* can twist, otherwise it grows up on the ground without twisting. The following examples show this:

(12) a. panéwa pi'rí-na
Panéwa twist-PRES
'The panéwa is twisted.'

b. panewa pi'rí-pa-re
Panéwa twist-INCH-PAST
'The panéwa twisted.'

c. waní pi'rí-na-re panéwa
John twist-CAUS-PAST panéwa
'John twisted the panéwa.'

In (12b) the *panéwa* should twisted by itself and in (12c) it did it with John´s indirect help, since he put the stick near to the *panéwa.*

Almost all of the remaining adjectival series, which occur as stative verbs in Warihio, undergo equipollent alternations. But in this case the causative verb shows an additional causative suffix *-te*. Some of these stative verbs include *waki-ná* 'BE DRY', *sami-ná* 'BE WET', *tu'na-ní* 'BE THICK', *resipá-ni* 'BE TIRED', *sawái-na* 'BE YELLOW', *tohsána-ni* 'BE WHITE':

(13) a. sipičá waki-ná
dress dry-PRES
'The dress is dry.'

b. sipičá waki-pá-re
dress dry-INCH-PAST
'The dress got dry.'

c. ta'á waki-pá-te-re sipičá
sun dry-INCH-CAUS-PAST dress
'The sun dried the dress.'

3.1.5 Suffixation: *-te*

There is a special adjectival/stative verb group on which the suffix *–te* produces the meaning of 'perceiving V'. Among these adjectival stems are *čihpú* 'BITTER', *kahká* 'SWEET', *ta'yá* 'TASTY', *ma'čía* 'CLEAR/LIGHT', *pewá 'HARD'*, *tahtá* 'HOT', *tu'rá* 'COLD':

(14) a. tapaná kahpé čipú-re
yesterday coffee bitter-PAST
'yesterday the coffee was bitter.'

b. tapaná kahpé no'ó čipu-té-re
yesterday coffee 1SG:NS bitter-CAUS-PAST
'Yesterday I tasted bitter the coffee.'
lit. 'Yesterday the coffee made me taste-perceive bitter.'

(15) a. weré ma'čía i'wá
much clear/light here
'There is too much light here.'

b. weré no'ó ma'či-ré-te-na i'wá
much 1SG:NS light-APL-CAUS-PRES here
'I see very well/clear here.'
lit. 'Here the light makes me perceive very clear here.'

(16) a. tehkí wasa-čí pewá
work field-loc hard
'The field work is hard.'

b. tehkí wasa-čí tamó pewa-pá-te-na
work field-loc 1PL:NS hard/strong-INCH-CAUS-HAB
'The field work makes us strong.'
lit. 'The field work makes us feel hard.'

In the case above, the causer, which in many instances is inanimate and shows the quality of 'V' produced on the causee, that is animate, the perception of 'V'. It could be what Shibatani and Pardeshi (2001:39) explain like a case of "realignment of the causer and the causee vis-à-vis grammatical relations" in the case of the causative forms of verbs like LAUGH and CRY.

3.2 Morphological causatives

3.2.1 The causative suffix *-te*

This suffix has cognates in other Uto-Aztecan languages; *-te* (Tarahumara), *-tua* (Yaqui), *-te* (Cora), *-ti* (Ute), etc. This suffix participates in the formation of lexical causative, as we saw above. It is also part of the typical morphological causative type found in Uto-Aztecan languages. More over, the causative suffix *–te* together with the causing verb *isi-ná* 'move' or the causing verb *intó-na* 'come' constitute a mixed type found in Warihio, the morpho-syntactic type.

Other inactive intransitive verbs than adjectival/stative accept the –te suffixation in the causative form. Some of these verbs are *kočiná* 'SLEEP', *wičiná* 'FALL DOWN', *werípani* 'GROW UP', *mukuná* 'DIE:SSG':

(17) a. kukucí ko-kočí-pa-re
children RED-sleep-INCH-PAST
'The children went sleep.'

b. waní ko-kočí-pa-te-re kukučí
John RED-sleep-INCH-CAUS-PAST children
'John put the children to sleep.'

(18) a. toomante weri-pá-re peniátiame
tomatoe stand up:ssg- INCH-PAST nice
'The tomatoes grew up nice.'

b. hustína weri-pá-te-re toomante peniátiame
Agustina stand up:ssg- INCH-CAUS-PAST tomatoe nice
'Agustina made the tomatoes grew up nice.'

(19) a. waní muku-ré
John die:ssg- PAST
'John died.'

b. pedró mukuh-té-re waní
Peter die:ssg- CAUS-PAST John
'Peter made John die.'

The difference between the examples shown in (17)-(19) and the adjectival base causative forms given in the section before is that the involvement of the causer is more indirect in the former than in the latter. For example in (17) John could have taken the children to bed so they got sleep, in (18) Agustina made grow the tomatoes up by irrigating them and Peter in (19) made John die not taking him to the doctor. Even more, all verbs in (17)-(19) accept alternative causative construction(s) which shows a difference in the semantics concerning the directness degree of the two sub-events:

(17) c. waní isi-ré kukučí ko-kočí-te-ka
John move:sg-PAST children RED-sleep-CAUS-PTCP
'John made the children go to sleep.' (By telling stories).

d. waní nu'ré-re kukučí ko-kočí-te-ka
John order-PAST children RED-sleep-CAUS-PTCP
'John made the children go to sleep.' (By giving an order, she can't be far away from the sleeping place).

e. waní nu'ré-re ko-koči-míči-o kukučí
John order-PAST RED-sleep-PURP-DC children
'John made the children go to sleep.' (By giving an order, she can be far away from the sleeping place, even in other house.)

(18) c. hustina isi-ré weri-pa-míči-o toomante peniátiame
Agustina move:sg-PAST stand up:ssg- INCH-PURP-DC tomatoe nice
'Agustina made the tomatoes grew up nice.' (By throwing some seeds in a very

fertile place.)

(19) c. pedró isi-ré muku-mičí-o waní
Peter move:sg-PAST die:ssg-PURP-DC John
'Peter made John die.' (By giving him accidentally some poisonous food.)

Most of the base verbs that can constitute morphological causatives are active intransitives:

(20) a. waní yau-ré
John dance-PAST
'John danced.'

b. neé yau-té-ru waní
1SG:S dance-CAUS-PAST John
'I made John dance.'

(21) a. maría wikahtá-re
Mary sing- PAST
'Mary sang.'

b. neé wikahtá-te-ru maría
1SG:S sing-CAUS-PAST:EVID Mary
'I made Mary sing.'

For the meaning of 'succeed' in making the causee do something, Warihio uses the adjective *kawé* 'good, well' plus *–te* suffixed to the base verb:

(22) a. neé yau-rú waníta aháma
1SG:S dance-PAST Johanna with
'I danced with Johanna.'

b. puú kawé no'ó yau-té-ru waníta ahama
DEM:PROX well 1SG:NS dance-CAUS-PAST:EVID Johanna with
'He succeeded in having me dance with Johanna.'

In general, transitive and ditransitive base verbs occur in morpho-syntactic and syntactic causative constructions. However, we can find morphological causatives from transitive bases, but only with the causative meaning of 'force', which for Warihio requires the free adjective *utewáči* 'forced' in addition to the causative suffix:

(23) a. kukucí ihpíči-re pete-čí
children clean- PAST house-LOC
'The children cleaned the house.'

b. hustína utewáči ihpíči-te-re kukučí pete-čí
Agustina forced clean-CAUS-PAST children house-LOC
'Agustina forced the children to clean the house.'

3.3 Morpho-syntactic causatives

The morpho-syntactic type of causative construction shows characteristics of the morphological type, e.a. the causative suffix *–te* and at the same time the presence of syntactic type features like some auxiliary verbs with a general causative meaning . These verbs are represented in Warihío for verbs of general movement, *isi-ná/noká-ni* 'move ssg/spl', *intó-na* 'come'. In (24b), we have a causative construction from an inactive intransitive verb, and in (25b) from an active intransitive verb:

(24) a. kukucí ko-kočí-pa-re
children RED-sleep-INCH-PAST
'The children slept.'

b. hustína **isi-ré** kukučí ko-kočí-**te**-ka
Agustina move:sg-PAST children RED-sleep-CAUS-PTCP
'Agustina made the children go to sleep.'

(25) a. neé u'má-ru
1SG:S run-PAST:EVID
'I ran.'

b. muú **isi-ré** no'ó u'má-**te**-ka
2SG:S move:sg-PAST 1SG:NS run-CAUS-PTCP
'You made me run.'

Another characteristic of syntactic causatives in this type of causative constructions is that the causing event is qualified by the tense/aspect marker *–re/-ru,* and the caused event shows a less-finite marking, like the participializer *–ka*, which is the case in (24b) and (25b). Notice that in the morphological type of (20b) and (21b) the tense suffix *–re/-ru* occurs right after the causative suffix *-te* .

In (26b), we can observe that the causing event is the suppletive form for 'move s pl.' which is in agreement with a plural causer:

(26) a. maría yau-ré
Mary dance-PAST
'Mary danced.'

b. teemé noká-ru yau-te-ka maría
1PL:S move:pl-PAST:EVID dance-CAUS-PTCP Mary
'We made Mary dance.'

It is possible to find causative constructions of this type from transitive verbs, as is shown in (27):

(27) a. neé tapaná inaté-ru kukučí
1SG:S yesterday take care-PAST:EVID children
'Yesterday I took care of the children.'

b. tapaná muú isi-ré no'ó inaté-te-ka kukučí
yesterday 2SG:S move:ssg-PAST 1SG:NS take care-CAUS-PTCP children
'Yesterday, you had/made me take care of the children.'

An example with *intó-na* 'come' is in (28):

(28) a. waní nasuá-re pedró háma
John fight-PAST Peter with
'John fought with Peter.'

b. neé intó-ru nasua-té-ka waní pedró aháma
1SG:S come-PAST:EVID fight-CAUS-PTCP John Peter with
'I made John fight with Peter.'

We observed in the past sections that the most productive mechanism in the formation of the causative constructions is the *-te* suffixation, which covers all types of base verbs; inactive and active intransitives, transitives. Even tough in Warihío only a few verbs are pure (atomic) lexical causative verbs –suppletive and labile- in their form, that is non morphologicaly analizable, we have classified all of the verbs seen in that section as functional lexical causative verbs. Since all of them share the semantics –transitivity- of their base verbs, they are inactive intransitive verbs and their causativized forms show a major spatio-temporal overlapping in the two sub-events that are conformed.

3.4 Syntactic causatives

The syntactic causatives in Warihio are formed with the purposive suffix *–míči-* in the caused event verb plus a causing 'auxiliary' verb. These 'auxiliary' verbs are represented by general movement verbs like *isi-ná/noká-ni*, 'move' S sg./ S pl., *intó-na* 'come', or a general causer verb like *yowá-ni* 'make', the verb *toa-ní* 'let', the more directive-less implicative verbs *itané-na* 'ask', *nu'ré-na* 'order' and *yetó-na* 'invite'. The causing 'auxiliary' verb generally shows agreement in number with the causer and presents the tense marker like the morpho-syntactic causatives. The syntactic causatives can be formed from inactive intransitive verbs (29), active intransitive with the sense of permissive causative (30), transitive (31) and di-transitive (32):

(29) a. neé wiči-rú
1SG:S fall-PAST:EVID
'I fell down.'

b. aapóe noka-ré no'ó wiči-míči-o
3PL:S move:spl-PAST 1SG:NS fall-PURP-DC
'They made me fall down.'

(30) a. waníta yau-ré
Juanita dance-PAST
'Juanita danced.'

b. no'nó toa-ré yau-míči-o wanita
father let-PAST dance-PURP-DC Juanita
'My father let Juanita to dance.'

(31) a. muú katewé-re ko'ré
2SG:NS fix-PAST fence
'You fixed the fence.'

b. neé amó nu'ré-ru katewe-míči-o kó're
1SG:S 2SG:NS order-PAST:EVID fix-PURP-DC fence
'I ordered you to fix the fence.'

(32) a. waní i'tóče-re muuní pedró
John send-PAST beans Peter
'John sent beans to Peter.'

b. neé intó-ru i'toče-míči-o muuní waní pedró
1SG:S come-PAST:EVID send-PURP-DC beans John Peter
'I made John send beans to Peter.'

Even though the purposive suffix is not an implicative one, it has been reported in general to be one of the major origins of syntactic causatives that can become a real causative suffix (Song 1996:49-68, 95-96).

4. The correlation of the three continua

The sentences in (17)-(19) repeated here for convenience are very good examples of the great degree of correlation between syntactic integration and spatio-temporal overlapping that exists in Warihío.

(33) a. kukucí ko-kočí-pa-re
children RED-sleep-INCH-PAST
'The children went sleep.'

b. waní ko-kočí-pa-te-re kukučí
John RED-sleep-INCH-CAUS-PAST children
'John put the children to sleep.'

c. waní isi-ré kukučí ko-kočí-te-ka
John move:sg-PAST children RED-sleep-CAUS-PTCP
'John made the children go to sleep.' (By telling stories).

d. waní nu'ré-re kukučí ko-koči-te-ka
John order-PAST children RED-sleep-CAUS-PTCP
'John made the children go to sleep.' (By giving an order, she can't be far away from the sleeping place).

e. waní nu'ré-re ko-koči-miči-o kukučí
John order-PAST RED-sleep-PURP-DC children
'John made the children go to sleep.' (By giving an order, she can be far away from the sleeping place, even in other house.)

(34) a. toomante weri-pá-re peniátiame
tomatoe stand up:ssg- INCH-PAST nice
'The tomatoes grew up nice.'

b. hustína weri-pá-te-re toomante peniátiame
Agustina stand up:ssg- INCH-CAUS-PAST tomatoe nice
'Agustina made the tomatoes grew up nice.'

c. hustina isi-ré weri-pa-mičí-o toomante peniátiame
Agustina move:sg-PAST stand up:ssg- INCH-PURP-DC tomatoe nice
'Agustina made the tomatoes grew up nice.' (By throwing some seeds in a very fertile place.)

(35) a. waní muku-ré
John die:ssg- PAST
'John died.'

b. pedró mukuh-té-re waní
Peter die:ssg- CAUS-PAST John
'Peter made John die.'

c. pedró isi-ré muku-mičí-o waní
Peter move:s g-PAST die:ssg-PURP-DC John
'Peter made John die.' (By giving him accidentally some poisonous food.)

For instance for the caused sub-events *mukuná* 'DIE:SSG' and *kočiná* 'SLEEP', there several causative constructions from the more to the less syntactically integrated/spatio-temporal overlapping type:

+	syntactic integration/spatio-temporal overlapping		-
me'yáni		mukuhténa	isiná + mukumíčio
kočipátena	isiná + kočitéka	nu'réna + kočiteka	nu'réna + kočimičio

Even though *'isiná + kočitéka'* and *'nu'réna + kočiteka'* are formally very similar, there is a subtle difference between the degree of implicativeness of the auxiliary causing verbs. The verb *isiná* 'to move' shows a greater implicativity than the verbal causing verb *nu'réna* 'to order', that's why I collocate the latter to the right of this continnum. The same is happening with *'nu'réna + kočimičio'* in contrast with *'nu'réna + kočiteka'*. Both constructions share the causing verbal verb *nu'réna* 'to order', but the latter is a causative construction of the morpho-syntactic type with the causative suffix *–te*, while the first one is the typical syntactic type with the less implicative purposive suffix *–mičio*.

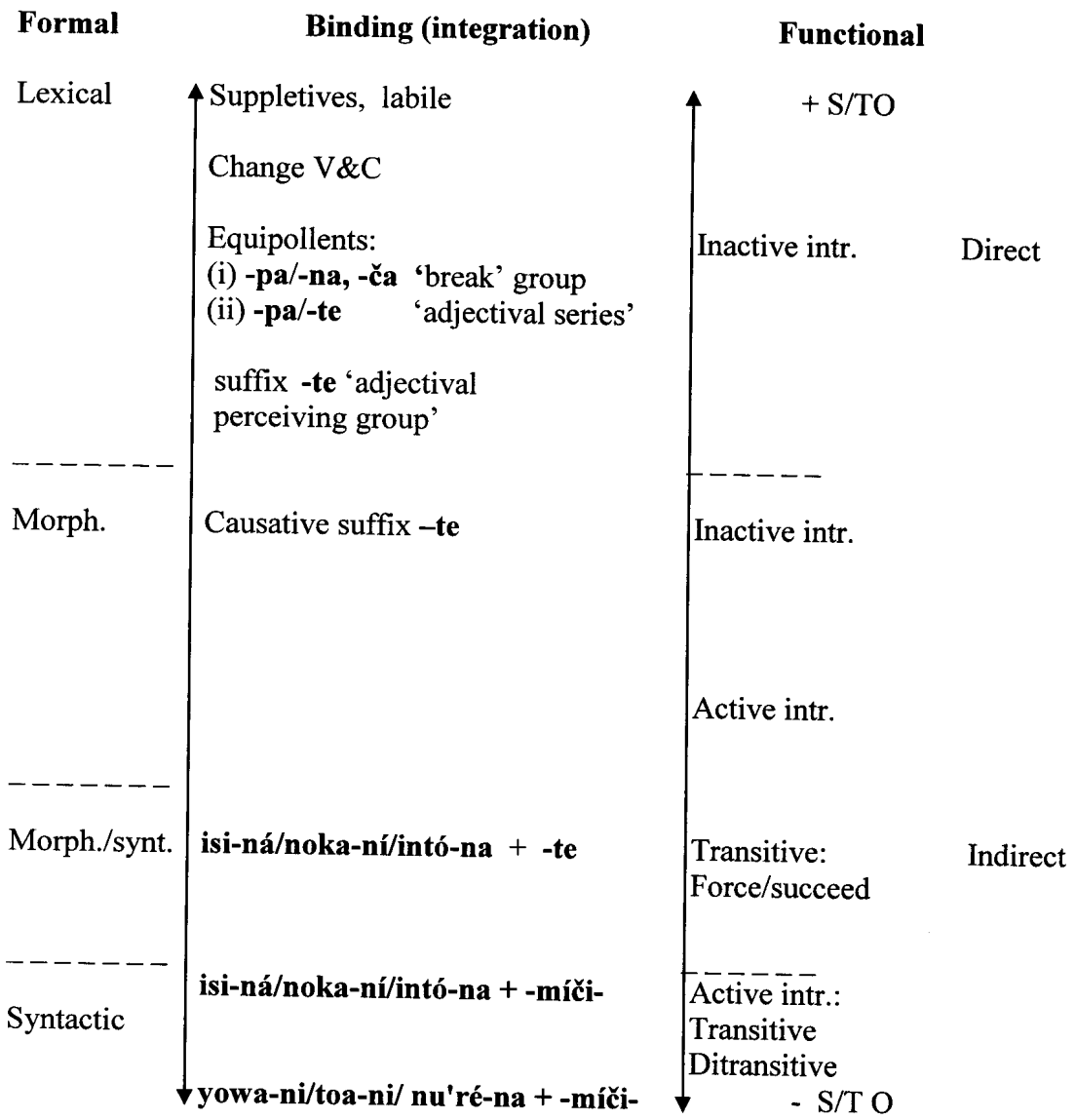
5. Conclusion

We have shown that in Warihío causative constructions there is a great correlation between the form and the functional domain. In general terms, the more formally integrated causative construction the more spatio/temporal overlapping events, and the less formally integrated causative construction the less spatio/temporal overlapping events. The causative suffix *–te* has shown to be highly productive in the sense that can occurs in all different semantic verbs; inactive intransitive, active intransitive and transitive. This causative suffix has cognates in other languages genetically and areally related, such as Cora and Yaqui. But in the case of the *-te* Cora (Vazquez, 2001) the suffix is restringed to inactive intransitive base verbs, whereas the *-tua* Yaqui covers the whole range of base verbs; inactive and active intransitives, transitives and, inclusive ditransitives. Even though this total coverage is made in Warihio by syntactic causative constructions. The morpho-syntactic causative construction type found in Warihio is very interesting since it could show, in some events, an intermediate degree in the spatio/temporal functional domain between the morphological and the syntactic types, which is exactly its place according to its form.

The direction of the coverage of the base verb semantics is from the most inclusive syntactic type to the least inclusive lexical type through the morpho-syntactic and the morphological types with overlapping points in the directness domain between them. This follows the direction of the clause integration proposed by Givón (1980, 2001), and more clearly Shibatani and Pardeshi's claim about the degree of morphological transparency of the causative element (2001:115): ¨A higher degree of morphological transparency correlates with higher degree of separability of elements corresponding to the two event segments constituting a causative situation.

Next I try to schematize the three continua proposed in the literature. To the left the lexical-morphologycal-syntactic continuum (Comrie 1985, 1989), in the center the binding hierarchy (Givón 1980, 2001), and to the right the directness continuum (Shibatani and Pardeshi, 2001). In Warihio, the three continua correlate to a considerable degree, as can be seen in the next schema:

Correlation of the causative continua in Warihio



Notes

1 Miller (1996) labels these sets as direct and oblique pronouns respectively.
2 This vowel alternation also occurs in Yaqui, another southern Uto-Aztecan language, but from –e to –a.
3 This semantic verb group is very similar to the labile 'break' group that occurs in Cora (Vázquez, 2001).

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Salish Psych Applicatives[1]

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1 Salish applicatives

There are 23 languages in the Salish language family of the Pacific Northwest, and they are grouped into 5 branches as shown in Table 1.

Branch		Language
Bella Coola		Bella Coola
Central Salish		Comox/Sliammon, Clallam, Halkomelem, Lushootseed, Nooksack, Northern Straits, Pentlatch, Sechelt, Squamish, Twana
Interior Salish	Northern Interior Salish	Lillooet, Shuswap, Thompson
	Southern Interior Salish	Coeur d'Alene, Columbian, Kalispel/ Flathead/Spokane, Okanagan/Colville
Tsamosan		Lower Chehalis, Upper Chehalis, Cowlitz, Quinault
Tillamook		Tillamook

Table 1: Branch of the Salish language family

Salishan languages are known for their polysynthetic structure. They exhibit a large number of affixes (prefixes, suffixes, and infixes) and reduplications, a rich agreement system of personal inflection, a rich system of transitive suffixes, and lexical suffixation (which is like noun incorporation, only the lexical suffix bears no resemblance to free-standing noun of same or similar meaning). A template for the verbal suffixes is given in Table 2.

root	+1 lexical suffix	+2 applicative	+3 antipassive	+4 transitive (- control, causative)	+5 object, passive, reflexive, reciprocal	+6 subject

Table 2. Verbal suffix template[2]

In this paper, we address aspect one function of the zone 2 suffixes—the applicatives. An applicative construction is where a non-patient NP is the object of the clause and verb morphology signals the semantic role of the object. As previously shown in Kiyosawa (1999, 2000, 2002), Salish languages have two types of applicatives—redirective and relational.[3] In redirective constructions, the verb stem is usually transitive, and the semantic role of the applied object is usually goal, benefactive, malefactive, or possessor.[4]

• Dative

(1) *Spokane* (Carlson 1980: 24)

xʷíc̓-**š**-t-ən	łuʔ	Agnes	łuʔ	t	yámx̌ʷeʔ
gave-APPL-TR-1SG.SUB	ART	Agnes	ART	OBL	basket

'I gave a basket to Agnes.'

• Benefactive

(2) *Okanagan* (N. Mattina 1993: 265)

Mary ʕac-**xí**-t-s	iʔ	t	snkłc̓aʔsqáx̌aʔ	iʔ	ttẇit.
Mary tie-APPL-TR-3ERG	ART	CP	horse	ART	boy

'Mary tied the horse for the boy.'

• Malefactive

(3) *Thompson* (Thompson & Thompson 1980: 28)

ʔúqʷeʔ-**x**-cm-s	tə	tíy.
drink-APPL-TR:1SG.OBJ-3ERG	ART	tea

'She drank my tea up on me.'

• Possessor

(4) *Okanagan* (N. Mattina 1993: 265)

Mary ʕác-**ł**-t-s	iʔ	ttẇit	iʔ	kəwáp-s.
Mary tie-APPL-TR-3ERG	ART	boy	ART	horse-3GEN

'Mary tied the boy's horse (for him).'

In terms of their general syntactic characteristics, Salish languages have verb initial word order, head marking, and argument NPs are caseless. We can see the syntactic effect of the applicative suffix by comparing (5a) with (5b):

(5) *Halkomelem* (f.n.)

a.

niʔ	ləkʷ-at-əs	kʷθə	sc̓ešt.
AUX	break-TR-3ERG	DET	stick

'She broke the stick.'

b.

niʔ	ləkʷ-**əłc**-t-əs	tᶿə	swiẇləs	ʔə	kʷθə	sc̓ešt.
AUX	break-BEN-TR-3ERG	DET	boy	OBL	DET	stick

'She broke the stick for the boy.'

The verb in (5a) is transitive, and the verb is suffixed with the general transitive suffix *-t*. The third person transitive subject determines ergative agreement. The patient 'stick' is a direct object, and it appears as a plain NP. Example (5b) is the benefactive applicative. The verb is suffixed with the benefactive applicative *-əłc*. The benefactive 'boy' is the direct object and the patient 'stick' appears with an oblique marker. Gerdts (1988b) details the syntactic properties of this construction.

In relational applicatives, the verb stem is intransitive. The semantic role of the applied object is usually stimulus of a psychological or perceptual event, goal or direction of motion, goal of a speech act, source, or undergoer of an adverse event.

Psychological Event

(6) lháyel-**mɬ**t 'ashamed of' *Sechelt* (Beaumont 1985: 108)

(7) c–ləš-eš(-**s**)-wə́š-š 'angry at' *Tillamook* (Egesdal and Thompson 1998: 257)

Motion

(8) ṫək^{ʔ}ilx-**mn**-s 'run to' *Shuswap* (Kuipers 1992: 50)

(9) k^{w}ənəŋàt-**nəs**-áŋəs 'ran after' *Saanich* (Montler 1986: 168)

Speech Act

(10) q^{w}ay-**mi**-θi 'scold' *Sliammon* (Watanabe 1996: 53)

(11) yáʔš-**n**-ṅ 'tell' *Upper Chehalis* (Kinkade 1991: 170)

Transfer-Source

(12) k^{w}úłn-**ni**-t 'borrow from' *Squamish* (Kuipers 1967: 79)

(13) qáda-**di**-d 'steal from' *Lushootseed* (Bates, Hess & Hilbert 1994: 172)

Adversative

(14) č'əł-**ni**-θay-əm 'I got rained on.' *Sliammon* (Watanabe 1996: 334)

(15) tékł-**m**-t-i-t 'We get rained on.' *Thompson* (Thompson & Thompson 1992: 74)

We can see the syntactic effect of the relational applicative suffixes by comparing the intransitive clause in (16a) with the applicative in (16b):

(16) *Halkomelem* (f.n.)

a. ni^{ʔ} nem̓ k^{w}θə swiẇləs.
AUX go DET boy
'The boy went.'

b. ni^{ʔ} nəʔem̓-**nəs**-əs k^{w}θə John.
AUX go-DIR:TR-3ERG DET John
'He went up to John.'

(16a) is intransitive, shown by the lack of a transitive suffix and the 3rd person ergative marker, and 'John', the goal of the motion, is the object. (See Gerdts 1988b for discussion). Directional applicatives are marked with the suffix *-nəs* in Halkomelem.

There are twelve different applicative suffixes in Salish languages, and the reconstruction of proto-forms are done by Kinkade (1998): **-xi (-xi, -ši, -si, -yi), *-VmV (-ʔəm, -émt, -tmi), -as/-əs, -ɬ, -łc, -tułt, -tx^{w}t, *-mi (-min, -minʔ, -mis, -meʔ, -bi/-i, -əwi, -ŋiy), -m, *-ni (-di), *-nəs (-c/-s, -tas/-ts), -amk.* Each Salish language has from two to six applicative suffixes, and at least one redirective and one relational suffix as shown in Table 3.

Branch	Language	Redirective #: Relational #	Redirective	Relational
Bella Coola	Bella Coola	??1:1	?-amk	-m
Central Salish	Sliammon-Comox	1:2	-ʔəm	-mi, -ni
	Sechelt	1:2	-ém	-mí, -ni
	Squamish	1:2	-ši	-minʔ, -ni
	Clallam	1:2	-sí	-ŋə, -nəs
	Saanich	1:2	-si	-ŋiy, -nəs
	Halkomelem	2:2	-as, -łc	-meʔ, -nəs
	Lushootseed	1:3	-yi	-bi, -di, -c/-s
Tillamook	Tillamook	1:2	-ši	-əwi, -əs
Tsamosan	Upper Chehalis	3:3	-ši, -tmi, -tux^{w}t/-tx^{w}t	-mis/-mn, -ni, -tas/-ts
Northern Interior Salish	Lillooet	1:1	-xi	-min/-miṅ
	Thompson	1:1	-xi	-mi
	Shuswap	1:1	-x(í)	-m(í)
Southern Interior Salish	Okanagan	3:1	-xi, -ł, -túł	-min
	Spokane/Kalispel	2:1	-ši, -ł	-mi
	Coeur d'Alene	3:1	-ši, -ł, -túł	-mi
	Columbian	3:1	-xi, -ł, -túł	-mi

Table 3. Distribution of redirective vs. relational applicatives[5]

Relational applicative suffixes show up in all of the Salish languages. They are used for psychological events, as in (6) and (7), goals of motion, as in (8) and (9), goals of speech acts, as in (10) and (11), the source of transfer verbs, as in (12) and (13), and for the undergoer of adverse events as in (14) and (15). Table 4 summarizes how the various meanings of relational applicatives are expressed by the different suffixes. The forms are given from the Proto-Salish perspective, following Kinkade's (1998) reconstructions.

	Psychological Event	Motion	Speech Act	Adversative	Source
Northern Interior Salish	*-mi				Ø
Southern Interior Salish				Ø	Ø
Other Central Salish		*-nəs	*-ni		*-ni
Lushootseed			*-nəs	Ø	*-ni
Tillamook		*-mi	*-nəs	Ø	Ø
Upper Chehalis	*-ni, *-nəs		*-ni, *-nəs	Ø	Ø
Squamish	*-ni		*-ni	Ø	*-ni

Table 4. Salish relational applicatives

This paper focuses on one use of the relational applicative—its use to encode the stimulus of a psychological event. We see it is a general Salish pattern to use a relational applicative on a psychological predicate. For example, the following data in Table 5 show psych applicatives based on the root meaning 'afraid' in several languages:

Language	Psych Applicative	Source
Sechelt	čásx̌ém-**mí**-t 'be afraid of someone/ something'	Beaumont 1985: 102
Halkomelem	sí?si?-**me?**-t 'afraid of him/her/it'	f.n.
Lushootseed	xəc-**bí**-d 'afraid of him'	Hess 1967: 39
Lillooet	páq^{w}u?-**min** 'to be afraid of something.'	van Eijk 1997: 114
Shuswap	nx̌el-**mn**-s 'be afraid of'	Kuipers 1992: 50
Okanagan	nx̌íl-**mən**-ts-ən 'I got scared of you.'	A. Mattina 1994: 219
Coeur d'Alene	iy̓-n-x̌íɬ-**mən**-əm 'Thou art fearing him.'	Doak 1997: 178
Upper Chehalis	q^{w}án-**ts** 'afraid of'	Kinkade 1991: 113
Tillamook	qeš qe n-x̌^{w}ay̓əš-**əẇí**-n-i k s-qéx̌e? 'I am not afraid of dogs.'	Egesdal & Thompson 1998: 254

Table 5. Psych applicatives with 'afraid'

Thus, the evidence points towards the psych applicative being a very old construction within the Salish language family.

2 Halkomelem psych applicatives

In this section we turn to a case study based on original fieldwork on psych applicatives in one Salish languages, Halkomelem, a Central Salish language, currently spoken by around one hundred elders in southwest British Columbia.[6]

As illustrated in the previous section, Salish applicative constructions can be divided into two types—redirective and relational. Halkomelem has two suffixes of each type, and psych applicative suffix *-me?* is one of the two relational applicative suffixes—the directional suffix *-nəs* and the general relational applicative suffix *-me?*. We call *-me?* the general relational suffix, for want of a better term. It has a variety of uses: it appears when the applied object is the stimulus of a psychological predicate, the source of a verb of motion, the goal of a speech act, the sufferer of an adversative, or the benefactive of an intransitive verb.

(17) *-me?* general relational applicative

a. stimulus of psychological or cognitive predicate

łciws	'tired'	łciws-me?-t	'tired of him/her'
q̓el̓	'believe'	q̓el̓-me?-t	'believe him/her'
si?si?	'afraid'	si?si?-me?-t	'afraid of him/her'
x̌i?x̌e?	'ashamed'	x̌i?x̌e?-me?-t	'ashamed of him/her'

b. source of verb of motion

łəẇ	'run away'	łəẇ-mə-t	'run away from him/her'
kʷəl	'hide'	kʷel-me?-t	'hide from him/her'

c. goal of speech or expressive act

x̌e:m	'cry'	x̌e:x̌əm-mə-t	'crying over him/her'
qʷal	'speak'	qʷəl-mə-t	'lecture to, bawl out him/her'

d. adversative (often in passive)

θe?c	'get dark'	θe?c-me?-t	'get dark on him/her'
łəməxʷ	'rain'	θəməxʷ-me?-t-əm	'(he/she/it) get rained on'

e. benefactive of intransitive verb

kʷukʷ	'cook'	kʷukʷ-me?-t	'cook for him/her'
ya:ys	'work'	ya:ys-me?-t	'work for him/her'

The most common use of the suffix *-me?* (common in the sense that it appears on the greatest number of different predicates) is with psych applicatives.

To date we have found 27 examples of psychological, cognitive, or perceptual predicates that form applicatives.

Gloss	Halkomelem
afraid, frightened of	si?si?me?t
annoyed at	c̓iwəlmət (DR)
astonished, surprised at	c̓əq̓me?t
believe (lies)	q̓elme?t
dream about	?əl?əlyəmət (DR)
embarassed, shy of	x̌i:?x̌e?me?t
fed up with	kʷiłəme?t
forget about	mel̓qme?t
get full of	məq̓mi?t (DR)
happy for	hiləkʷme?t
happy for	?iyəsme?t
jealous of	wəẇistən̓əqme?t
lonely, sad for	səl̓səl̓qʷme?t
mad at	t̓et̓iyəq̓mət
miss	qəl̓me?t

respect	si?əm̓me?t
remember	hek̓ʷme?t
sad for	qiləsme?t
sad for	səẇsəẇme?t
sense	siwəlme?t
startled at	t̓ᶿəy̓k̓ʷme?t
suspicious of	k̓ʷelək̓ʷme?t
think, decide about	xʷθtiwənme?t
think that way about	štə?e:wən̓me?t
think about	xʷqʷələwənme?t
tired of waiting for	q̓səme?t
tired of	łciwsme?t

Table 6. Halkomelem Psych Applicatives

The relational suffix appears immediately following the verb stem, or it can follow a lexical suffix, as in the following example:

(18) š-tə?e:-wən̓-me?-t
NOM+LOC/INST-like.that-INSIDE-REL-TR
'thinking that way about it/him/her'

As part of our attempt to locate examples of psych applicatives, we took a list of psych predicates and tried to elicit them. We have found only a couple of potential predicates that do not allow the applicative suffix, and these are given in (19).

(19) *k̓ʷey̓k̓ʷəy̓-me?-t 'hungry for it'
*təx̌-me?-t 'make a mistake about it'
*hile:n̓əq-me?-t 'pretending about it'
*xʷen-me?-t 'relieved about it'

Although further research needs to be done on this topic, we conclude that almost all psych predicates form applicatives. This is quite a general, productive construction in Halkomelem.

2.1 Transitive psych constructions

Psych applicatives are not the only way to express psychological events. Most psych predicates also have transitive forms. Here the agent or causer that is directly responsible for the action is the subject and the experiencer is the object. We can see the difference in the two types of clauses by contrasting (20a) and (20b): the subject 'you' is the agent in (20a), but it is the experiencer in (20b).

(20) a. c̓q̓-ət č ce? kʷθə nəc̓əwməxʷ ?i ce? tecəl.
surprise-TR 2SUB FUT DET visitor AUX FUT arrive
'You will surprise the visitors when they arrive.'

b. c̓əq̓-me?-t č ce? kʷθə nəc̓əwməxʷ ?i ce? tecəl.
surprise-REL-TR 2SUB FUT DET visitor AUX FUT arrive
'You will be surprised at the visitors when they arrive.'

Some psych predicates form transitives with the causative suffix, as in (21a). Compare (21a) and (21b):

(21) a. ni? cən si?si?-stəxʷ kʷθə sməyəθ.
AUX 1SUB frighten-CS:3OBJ DET deer
'I frightened the deer.'

b. ni? si?si?-me?-θaṁš-əs kʷθə sməyəθ.
AUX frighten-REL-TR:1OBJ-3ERG DET deer
'The deer was frightened of me.'

The causer in (21a) is a direct, purposive agent and is expressed as the subject of the transitive. But the first person in (21b) is the stimulus. It is an indirect cause of the event. I might not even be aware that I am having an effect on the deer. The stimulus is expressed as the applied object in the psych applicative.

Thus we see that psych applicatives differ syntactically and semantically from transitive psych constructions.

2.2 Applied objects versus oblique NPs

There are two different ways of expressing a stimulus—as an applied object in a psych applicative (22) or as an oblique NP in an intransitive psych construction (23).

(22) ni cən si?si?-me?-t kʷθə sqʷəmeẏ̓.
AUX 1SUB frighten-REL-TR DET dog
'I was frightened at the dog.'

(23) ni cən si?si? ?ə kʷθə snəxʷəł.
AUX 1SUB frighten OBL DET canoe
'I was frightened at the car.'

This of course raises two questions: Are these really synonymous? What determines the choice between applied object and oblique NP?

In previous work, Gerdts (1988a, b) has suggested that animacy is at play. Applied objects are often animate, as in (24) while oblique NPs are often inanimate, as in (25).

(24) ni? cən q̓eɬ̓-me?-t kʷθə ləplit.
AUX 1SUB believe-REL-TR DET priest
'I believed the priest.'

(25) ni? cən q̓eɬ̓ ?ə kʷθə sqʷaqʷəɬ̓-s kʷθə ləplit.
AUX 1SUB believe OBL DET word-3POS DET priest
'I believed the priest's words.'

The speakers that Gerdts worked with in the 1970s had strong intuitions about this. They rejected (26), where the oblique NP is an animate.

(26) ?*ni? cən qeɬ ʔə kʷθə ləplit.
AUX 1SUB believe OBL DET priest
'I believed the priest.'

So, they dispreferred (27), where the applied object is inanimate.

(27) ??ni? cən qeɬ-meʔ-t kʷθə sqʷaqʷəɬ-s kʷθə ləplit.
AUX 1SUB believe-REL-TR DET word-3POS DET priest
'I believed the words of the priest.'

One speaker, Arnold Guerin, suggested (28) with an animate applied object, as a repair.

(28) ʔi cən qeɬ-meʔ-t kʷθə ləplit kʷis qʷaqʷəɬ.
AUX 1SUB believe-REL-TR DET priest DET:3SSUB talk(IMPERF)
'I believed the priest when he was talking.'

The speakers we work with today do not have such clear judgments and produce applicatives with inanimate stimuli and intransitives with animate obliques. However, person and animacy may still be factors in their choice. As a pilot study, we constructed a database from every sentence example of psych predicates we had in our fieldnotes. Also we used the data that appeared in the Cowichan dictionary of Hukari and Peter (1995). Each form in the dictionary is illustrated with a sentence. So between the two sources we quickly came up with approximately 200 sentences. We organized the data according to the person/animacy properties of the stimulus, as given in Table 7. It is clear from even this small sample that first and second person stimuli are usually expressed as applied objects.

	Applied object (with meʔ-t)		**Oblique**	
	#	%	#	%
1st and 2nd person	40	27	0	0
Proper noun	20	13	1	2
Other human	57	38	6	14
Animal	10	6	6	14
Inanimate	19	13	22	51
Clause	5	3	8	19
TOTAL	150	100	43	100

Table 7. Applied object vs. oblique NP

In Table 8, we give figures totaling all the animates versus the inanimates given from the point of view of each construction type.

	Animate	**Inanimate**
Applied object	87%	13%
Oblique	37%	63%

Table 8. Animacy of stimuli in psych clauses

We see that animacy does play some kind of role, though obviously we need to do further research on this topic.

Our impression is that what is involved is a general system of topicality or centrality rather than an actual grammatical condition. After all, first and second person and animates tend to be more central to the discourse. We find that a stimulus expressed in an applicative can play a central role, even if it is inanimate. For example 'the fog' is crucial in (29):

(29) ʔeʔət xʷiʔ siʔsiʔ-meʔ-t-əs tᶿə speʔxʷəm
AUX INCHO fightened-REL-3ERG DET fog
kʷs nem̓-s x̌əl̓im̓-t-əs tᶿə snəxʷəɬ-s.
DET:NOM go-3SSUB steer-TR-3ERG DET canoe-3POS
'He's scared of the fog when he drives his car.'

Sometimes the applicative can be used to highlight a participant of a complement clause. The importance to me of my quitting my job is highlighted by expressing me as the applied object, resulting in the reflexive in the following:

(30) ʔi cən wəɬ štəʔe:wən̓-meʔ-θət k̓ʷə-nə-s
AUX 1SUB PERF think-REL-TR:REFL DET-1POS-NOM
hay ʔə kʷθə nə-sya:ys.
finish OBL DET 1POS-job
'I was thinking about quitting my job.'

Similarly, when an intransitive construction with an oblique NP is used even when the stimulus is animate, there is a downplaying of the participation of the animate. For example:

(31) niʔ ʔə č wəɬ kʷiɬəm̓ ʔə kʷθə ʔi hiẇal̓əm̓ sx̌əl̓iqəɬ?
AUX Q 2SUB PERF fed up OBL DET AUX playing children
'Are you fed up with the playing children?'

After all, it is the disturbance made by the playing children that is annoying, not the children themselves.

In sum, the choice between using an applicative or not is one that can be manipulated by speakers to good effect. Further research may reveal some of the factors at play. We hope to collect a larger sample and to use texts or contextualized examples rather than elicited data in order to help clarify this issue.

3 Psych applicatives in cross-linguistic perspective

A quick look at the cross-linguistic literature suggests that psych applicatives are relatively rare in the languages of the world. Many languages use a dative subject construction or a transitive psych verb instead. English, for example, uses lexical means (like the verb *fear* in *"John fears me.")* rather than derivational means to express an experiencer and a stimulus.

Peterson (1999: 122) gives some general observations on the types of applicative constructions from a survey that he conducted based on data from fifty languages, as summarized in Table 9:

Type	% of languages
Benefactive/malefactive	80%
Comitative	60%
Locative	50%
Instrumental	40%
Circumstantial	20%

Table 9. Peterson's (1999) survey of applicatives in 50 languages

He observes that nine languages have "circumstantial" (aka causal) applicatives. These are: Caquinte, Chichewa, Halkomelem, Kalkatungu, Maasai, Tepehua, Tukang Besi, West Greenlandic, and Zoque. However, "circumstantial" is a cover term for several types of applicatives, including reason as well as stimulus. For example, in the circumstantial applicative in Tukang Besi (Donohue 1997: 416), the applied object is a reason, not a stimulus, and this language lacks psych applicatives per se:

(32) No-mate-ako te buti
3.R-die-APPL CORE fall
'They died in a fall.'

When we revisited Peterson's sample languages, we found that only Halkomelem and West Greenlandic had the psych use of the circumstantial applicative. Chichewa, Kalkatungu, Maasai, Tepehua, and Tukang Besi did not. We could not find enough data on Caquinte and Zoque to determine the nature of their circumstantial applicatives. However, it may be the case that in fact only two out of the fifty languages in Peterson's sample exhibit psych applicatives.

The relevant applicative in West Greenlandic has been discussed by Fortescue (1984: 89–90), who says: "The affix *ut(i)*...has a 'relation-shifting' function covering a range of semantic senses, roughly 'with/for/with respect to...'" Examples include:

(33)	nassarpaa	'he brings it along'	nassaappaa	'he brings s.th. along for/to him'
	tikippuq	'he has arrived'	tikiuppaa	'he has brought it'
	atuarpuq	'he read'	atuvvappaa	'he read (aloud) for him'
	kamappuq	'he is angry'	kamaappaa	'he is angry with him'

Notably the last example in (33) is a psych applicative.

The scarcity of psych applicatives in Peterson's data led us on a search for this construction in other languages. So far we have found two other examples. One of them is from the Muskogean language Chickasaw (Munro and Willmond 1994: 168, 171):

(34) ishtayoppa 'to be happy about, proud of'; cf. ayoppa 'to be happy'
ishtikimalhpi'so 'to be sad about, lonely for'; cf. ikimalhpi'so 'to be sad'

Also, some Austronesian languages apparently have applicative affixes which can be used for applied objects that are stimuli. For example, Bowden (n.d.) says: "Taba has two

applicative affixes which derive verbs with added non-Actor arguments. Applied arguments can have a variety of different semantic roles." And among the examples of each affix, we found some that could be considered psych constructions:

(35) Wangsi lkiuak baratci.
wang=si l=kiu-ak barat-si
child=PL 3PL=be.scared-APPL westerner=PL
'The children are scared of westerners.'

(36) Oci namaro Iswan.
Oci n=ha-mara-o Iswan
Oci 3SG=CS-be.angry-APPL Iswan
'Oci is angry at Iswan.'

So the notion of stimulus is one that is coded either in case systems or applicatives, depending on the devices at hand in a particular language.

In sum, our search has so far uncovered psych applicatives in four language families: Austronesian, Eskimo-Aleut, Muskogean, and Salishan. Although we are bound to find more examples of psych, it is apparent that this is not a common phenomenon. So Salish languages are important to the cross-linguistic picture, especially because psych applicatives are robustly attested in this family. All the Salish languages have them. And as we have seen in Halkomelem, psych applicatives are the most common use of the general relational applicative. Furthermore, almost all psychological predicates in Halkomelem form applicatives. This is apparently a productive process.

It is noteworthy that there is no unique morpheme to mark the psych applicative in any of the languages we have seen—Chickasaw, West Greenlandic, Taba, or Halkomelem and other Salish languages. The morpheme is always used for other meanings as well. So in a sense, the psych meaning is parasitic off of a more general applicative system. Furthermore, Kiyosawa (1999) shows that Salish languages exhibit the full range of applicatives discussed by Peterson (see Table 9), although comitative and instrumental applicatives are not common. It may be the case that psych applicatives arise only at the edge of an elaborate applicative system. Further work on the typology of applicative systems should shed light on this issue.

Notes

[1] Our research is part of an on-going SSHRC-funded project by Donna Gerdts and Tom Hukari to study classes of verb roots and how they combine with prefixes and suffixes. Also this is part of a pan-Salish study on applicatives that Kaoru Kiyosawa is writing as a dissertation. Versions of this paper were presented as Gerdts and Kiyosawa (2003a, 2003b) and we thank those audiences for their questions and comments. We also thank Tom Hukari and Charles Ulrich for suggestions and criticisms.

[2] This template is just a heuristic device—not a formal treatment of the morphology. After all, outer layer morphology often creates the right sort of base for

earlier morphology in the template, creating another "cycle" of suffixation. See Gerdts (to appear) for some examples of this.

[3] The concept of dividing applicatives into two types has now become generally recognized typologically (e.g. Payne 2000) and formally (e.g. McGinnis 2001 and references therein).

[4] The following abbreviations are used in glossing the data: APPL applicative, AUX auxiliary, BEN benefactive, CS causative, DET determiner, DIR directional, ERG ergative, FUT future, GEN genitive, IMPERF imperfective, INCHO inchoative, INST instrumental, LOC locative, NOM nominalizer, OBJ object, OBL oblique, PERF perfect, POS possessive, Q interrogative, REFL reflexive, REL relational, SG singular, SSUB subordinate subject, SUB subject, TR transitive.

[5] The key references that were consulted to ascertain the pan-Salish facts were: Bella Coola (Davis and Saunders 1997), Clallam (Montler 1996), Coeur d'Alene (Doak 1997), Columbian (Kinkade 1980, 1982), Halkomelem (Gerdts 1988b, Hukari and Peter 1995), Lillooet (van Eijk 1997), Lushootseed (Bates, Hess, and Hilbert 1994, Hess 1967), Okanagan (A. Mattina 1994, N. Mattina 1993), Saanich (Montler 1986), Sechelt (Beaumont 1985), Shuswap (Kuipers 1974), Sliammon/Comox (Watanabe 1996), Kalispel/Spokane (Carlson 1972, 1980), Squamish (Kuipers 1967), Thompson (Thompson and Thompson 1992), Tillamook (Egesdal and Thompson 1998), Upper Chehalis (Kinkade 1991). See Kiyosawa (1999, 2002) for more details.

[6] The data that we present here are based on our original fieldwork with speakers of the Island dialect (həl̓q̓əmín̓əm̓) and the Downriver dialect (hən̓q̓əmín̓əm̓). We label the latter data as (DR). Our field research has been funded by grants from Jacobs Fund, SFU, and SSHRC. We would like to thank the speakers who have worked with us on this data, including Arnold Guerin, Bill Seward, Theresa Thorne, and especially Ruby Peter. Errors remain our own responsibility.

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Pragmatics of word order in South Conchucos Quechua

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1 Introduction[1]

The Quechua language family is native to western South America. South Conchucos Quechua is spoken in central Peru by about a quarter million people.

Word order in the Quechua language family has traditionally been described as SOV, but order in main clauses is quite variable.[2] Greenberg, in his ground-breaking work in 1966, observed that Quechua exhibits many of the correlates of the SOV type, such as postpositions and preposed genitives. Many other linguists also report SOV word order for particular Quechua languages.[3] I am not aware of any other basic word order reported for Quechua.

2 Overview of the objectives and findings of this study

In the quantitative part of this study I show that if *frequencies* of the various word orders are considered, South Conchucos Quechua cannot be classified by Greenberg's traditional six-way typology.[4] In the small number of clauses with both a subject and an object in my data, various word orders are exhibited, but no one order stands out as being significantly more frequent than any other order.

In contrast with the traditional Greenberg typology, Dryer's (1997) four-way typology is based on two binary parameters, OV versus VO and SV versus VS. Dryer treats an order as basic in a language if it is at least twice as frequent as the order or orders it contrasts with. Dryer's typology does make it possible to determine "basic" word order for this language as SV&OV.[5]

In a study on meaning and pragmatics of word order in South American Indian languages, Payne (1993:282) gives her impression that Quechuan, along with several other South American languages, is particularly sensitive to discourse-pragmatic factors. I found this to be true for this South Conchucos Quechua. In addition to demonstrating what is basic word order for this language, in this paper I also want to try to answer the question Payne 1992 poses, "When there are several possible order patterns in a language, what is the communicative function of one, rather than another, order?" I will show that variant word order appears when:

1. a new participant is being introduced,
2. the speaker is calling the listener's attention to a certain referent,
3. the speaker is finishing what s/he wanted to say and is offering the floor to the listener for commentary,
4. something unfamiliar or contrary to expectation is being presented,
5. the speaker is searching for an appropriate word,
6. an argument is especially heavy.

3 Data

Data for this study were taken from transcriptions of recordings I made in Peru. Approximately half of the data consists of a conversation between a brother and sister in their late twenties. Stories, with some listener interaction, make up the other half of the data.

The clauses and the NPs were coded for a variety of features.[6]

I use S and O refer to the grammatical relations subject and object, which are core arguments of the verb V. This means that S is equivalent to the combination of S and A in the S-A-O framework. I did code separately for subjects of intransitive clauses and subjects of transitive clauses, but the word order counts came out very similarly. Hence, it was not necessary to present separate sets of statistics for the two kinds of subjects. 81% of the intransitive clauses have SV word order, while 82% of the ones that are transitive have SV word order.

Both independent and dependent clauses were included in the study.

4 Counts and comparison of typologies

4.1 Counts according to the traditional six-way typology

Counts were done using the six-way typology elaborated by Greenberg. In reference to Table 1, below, we see that only 66/998 clauses had both an independent subject and an independent object, which is 6.6%. Eliminating the cases where there was a pronoun as the subject or the object, the percentage drops to 3.8%. Only 38/998 clauses had both a lexical subject and a lexical object NP.

Table 1: Clauses in South Conchucos Quechua with both a subject and an object

Clauses with both an independent subject and an independent object	*66/998*	*6.6%*
Clauses with lexical NPs as both subject and object (excluding PNs)	*38/998*	*3.8%*

Dryer 1997 gives a number of arguments against the traditional word order typology. In one of these, he observes that clauses containing a noun subject and a noun object occur infrequently (1997:78). For South Conchucos Quechua, as for many other languages, clauses containing both a lexical NP subject and a lexical NP object are so infrequent that an analysis cannot be based on them. Nevertheless, I put a breakdown of the order of constituents for the 66 clauses in Table 2, below.

Table 2: Word Order in South Conchucos Quechua, traditional typology

SOV	*23/66*	*35%*
SVO	*21/66*	*32%*
OVS	*9/66*	*14%*
OSV	*7/66*	*11%*
VOS	*2/66*	*3%*
VSO	*0/66*	*0%*
Other	*4/66*	*6%*

In addition to the problem of having very few clauses left to work with, there is another drawback to counting according to the six-way typology. In comparing the top two word orders, we see that the percentages are very close. The percentage of SOV clauses is not significantly higher than the percentage of SVO clauses. There is a preference for S coming before V in these first two, but the order of O in relation to V cannot be determined from these numbers.

4.2 Counts according to Dryer's alternate typology

In this section I present the counts according to Dryer's alternate four-way typology (1997), which is based on the two binary parameters, OV versus VO and SV versus VS.

The left side of Table 3 has to do with clauses containing both an S and a V. There are 418 clauses which have either an NP or a pronoun as S. Of these clauses with subjects, in 82% of the cases, the S came before the V. In 18% of the cases, the S came after the V. As mentioned earlier, Dryer treats a particular order as basic in a language if it is at least twice as frequent as the order or orders it contrasts with. I refer to this as "Dryer's 2:1 ratio criterion". By basic, I believe he means the most common order, the unmarked order, from which there can be variation due to certain pragmatic factors. Following Dryer, the fact that 82% of subjects appear before the verb gives strong evidence that South Conchucos Quechua is an SV language.

On the right side of Table 3, the counts of clauses with both an O and a V are presented. There are 193 clauses which have either an NP or a pronoun as O. In 70% of the clauses, the O came before the V. In 30% of the clauses, the O came after the V. Following Dryer's 2:1 ratio criterion, South Conchucos Quechua is eligible to be classified as OV, though not strongly so.

Table 3: Word Order in South Conchucos Quechua, Dryer's typology

SV	*341/418*	*82%*	*OV*	*135/193*	*70%*
VS	*77/418*	*18%*	*VO*	*58/193*	*30%*

5 Clause types with a strong tendency for SV, OV, and SOV order

Some clause types have a stronger tendency towards SV than the 82% in Table 3, which includes all clause types, both independent and dependent. As well, some clause types have a stronger tendency towards OV than the 70% in Table 3. For instance, the clauses consisting of reported speech with both an S and a V have SV order 94% of the time. Adverbial clauses have SV order in 97% of the cases with an S and a V, and OV order in 94% of the cases with an O and a V.

Referencing work on several languages,[7] Bybee 2002 gives some good reasons why word order in subordinate clauses does not vary as much as the order in main clauses. One reason she gives is that main clauses are pragmatically richer, "containing the focused information and the possibility of setting off old from new information, while subordinate clauses tend to be pragmatically more even, replaying previously presented or supplementary material" (2002:14).

The data in my sample support Bybee's statement that main clauses are pragmatically richer. 29% of the main clauses had one or more of the pragmatic factors in the list at the top of page 2, while roughly only half that percentage, 16% of the subordinate clauses, was coded positively for one or more of those factors.

6 Pragmatic motivations for the contrastive VS and VO orders

In this section, the pragmatic motivations for the contrastive VS and VO orders are presented. When the core argument comes after the verb in the South Conchucos data, one or more of the following pragmatic motivations is present. The list below is similar to the one in section 2, but greater detail is provided here. The common thread for all these discourse motivations for variant word order is that there is something in particular the listener should notice about what is being said; something special is happening pragmatically.

1) A new participant is being introduced or re-introduced.
2) The speaker is calling the listener's attention to a certain referent.
3) The speaker is closing a segment of talk and is offering the floor to the listener.
4) Something unfamiliar, contrary to expectation or surprising is being presented.
5) The speaker may be searching for a word, and is indirectly asking the listener for help in verbalizing that word.
6) Dialogic syntax (see Du Bois 2001) may be employed, in which case sentence structure and vocabulary are repeated.
7) Very heavy NPs often appear after the V.

Some clauses have a distinct kind of variant order, OSV, in which both arguments appear before the verb, but the O appears before the S. This is also a marked order. It has the pragmatic function of calling attention to the O, of communicating in effect, "As for *that*..."

The next section provides examples demonstrating how each of the first four factors comes into play as speakers use the language to communicate.

6.1 Introduction or re-introduction of a participant

As has been documented for other Quechua languages,[8] generally speaking, new participants occur after the V. There were 33 instances of variant word order motivated by the introduction of new participants which were subsequently mentioned (tracked through the discourse).

There were 44 instances of SV or OV word order in which the referent was mentioned for the first time and was subsequently mentioned. In many of these cases, the referents could be said to be accessible,[9] even though they are being mentioned for the first time. For my data, these include members of the immediate family or people otherwise well known to the speaker and the listener. Mass nouns, (like water or gravel), or non-identifiable NPs (like 'somebody' or 'something') may also appear before the V. We can assume that very little mental energy is required of the listener in accessing these elements, the first two because these people are easily accessible, the second two because these are general kinds of things.

For this Quechua language at least, the new (or re-introduced) participants[10] which *do* appear after the verb are those may be harder for the listener to access – an unknown person, or someone not seen very often. When this kind of participant appears after the verb, the listener knows that the speaker has more in mind to say about it. In (1), the speaker mentions for the first time their cousin Tom, whom they rarely see. She then says more about him, that he stayed at their house, etc. At this first mention, the S comes after the V.

(1) New referent, subsequently mentioned, identifiable, new cognitive file needed, VS

V	S	
Sha-mu-ra-n	pri:mu-ntsi:	Tomas-pis
come-TRANS-PST-3	cousin-1PLPOSS	Tom-EVEN

'Our cousin Tom came too.' [GR, 34]

6.2 Contrast

Contrast is also a factor known to motivate variant word order. Various researchers studying word order variation have established this.[11]

In my data there are 34 instances of contrast. The speaker may specify a certain referent, may put emphasis on a certain referent, or focus on an infinitive complement of the verb. In (2), the speaker is specifying a certain referent.

In this language the S and/or the O are frequently not specified overtly, but the person of the argument(s) is marked on the verb. Hence, it is possible for people to become confused about who or what is being talked about. When two or more entities have just been mentioned and are active in the minds of the speaker and the listener, either one could be a possibility for the referent. The speaker needs to communicate, "Given the options, I'm talking about *this* one."

The following example is taken from the beginning of the Achikay story, which is an Andean Hansel and Gretel story. The story teller has just given the setting as 'during a time of poverty'. She also explains that there were many people living at that time, parents and children. Then she keys in to a certain family, and, beginning the story says, 'Because of the famine, they went to look for food, the parents.' If she had not specified which referent, it might not have been clear to the listener whether it was the parents or the children or both who went to look for food. The order is VS, with the correct candidate placed after the V.

(2) Specifying which referent, VS

```
Mama-n-kuna        wamra-n-kuna      atska ka-na:.
parent-3POSS-PLUR  child-3POSS-PLUR  many  be-PSTNAR

                                  V              S
...Tsay ashi-ku-q          aywa-ya:-na: mama-n-kuna-qa.
   so   look-REFL-PRMT     go-PL-PSTNAR parent-3POSS-PLUR-TOP

'There were many parents and many children.
 So the parents went to look (for food).' [AL, 603-604]
```

Sometimes, mentioning the referent is almost an "afterthought", as the speaker realizes the listener may not understand clearly who is being referred to. Marsch (1993:4) shows that this also happens in Margos Quechua.

6.3 Closing a segment of talk

Closing statements fit into the type of operation Payne (1993:286) refers to as "chunking of discourse," where variant orders may correlate with the opening, closing, peak of thematic units, or the beginning or end of event chains.

In the data base there are 42 closing statements. 37 of them have variant word order.[12] A closing statement often has information that needs to be marked in some way. It contains a key piece of information the listener needs to attend to, such as a summary, a conclusion or the main point of the discussion so far.

Also, it is interesting that closing statements tend to invite a response by the listener. Through the variant word order in the closing statement, the speaker indicates to the listener that for the moment s/he has come to a stopping point and wants some feedback. In the conversation, in 14/17, or 82%, of the instances of closing statements, the addressee responded orally with a comment, a question, or agreement.

Variant word order in closing statements also elicited feedback in the storytelling,

but to a much lesser extent. In the stories there was listener response to 5/20, or 25%, of the closing statements.

The next example is a concluding statement which invites a response. In the Achikay story, the witch convinces the boy to go upstairs to sleep, where she also sleeps. Then cries are heard from the boy in the night. The next part of the story is shown in (3), with the closing statement inviting a response in the first line.

(3) Concluding statement inviting a response

```
                                V                   O
L: ...I    u% chip     usha-ri-na:      ...wamra-ta-qa.
       and um totally  finish-PUNC-PSTNAR child-OBJ-TOP

E: Ima-nuy  usha-ri-na:?
   what-SIM finish-PUNC-PSTNAR

L: Miku-ri-na:
   eat-PUNC-PSTNAR

'L: And she completely finished the child.
 E: How did she finish him?
 L: She ate him.'  [LA, 688-690]
```

The next pragmatic reason for varying the constituent order has to do with introducing something unfamiliar, contrary to expectation or suspenseful.

6.4 Unfamiliar, contrary to expectation, suspenseful

Cumming and Ono (1997:116) state, "We expect information which is relatively accessible or predictable to be coded with less linguistic work; conversely, information which is relatively inaccessible or surprising should be coded with special, heavy or 'marked' linguistic mechanisms." This is just what happens in South Conchucos Quechua. Information which is unfamiliar or contrary to expectation is marked with variant word order. Information which is designed to produce suspense in the listener also fits into this category. There are 27 clauses in the data base of this type of information and each one exhibits variant word order.

The next example shows one of the features, information that is suspenseful.

In the *Achikay* story, the witch has arranged with her daughter to push the girl visitor into the cooking pot so that they could eat her for dinner. However, the girl who was visiting overheard the instructions. The O appears after the V, heightening the suspense in the story. The listener knows something interesting is going to happen, but does not yet know what.[13]

(4) Suspenseful, SVO order

```
          S         V                O
...I wamra-qa  wiya-na:    ...yacha-tsi-nqa-n-ta.
 and child-TOP hear-PSTNAR    learn-CAUS-NOM-3POSS-OBJ

'And the child heard what she instructed.' [AL, 712]
```

6.5 Numeric breakdown and summary of factors motivating variant word order

Table 4 presents a numeric breakdown of the factors motivating variant word order, showing how many clauses were coded positively for each of the factors.

Table 4: Factors motivating variant constituent order

Closing statement	*38*	*20%*
Contrast	*34*	*18%*
Introduction of new participant	*33*	*17%*
Heavy NP	*29*	*15%*
Unfamiliar, contrary to expectation	*28*	*15%*
Looking for a word	*20*	*10%*
"As for"	*7*	*4%*
Dialogic syntax	*2*	*1%*
Total	*191*	*100%*

There were 139 clauses in the data base with variant word order, compared with 406 with the non-variant SV, OV or SOV orders. The total, 191, in the table above is greater than 139, due to the fact that some clauses exhibited more than one of the factors.

The analysis accounted for all the 139 clauses exhibiting variant word order. In each of these, at least one of the factors in Table 4 serves to motivate variant word order.

In relation to the variation of word order due to pragmatic factors, Mithun (1992:58-59) proposes that in languages with syntactically-based constituent order, pragmatically-marked order 'is usually assumed to result in a theme-rheme order, with elements of lower communicative dynamism at the beginning of clauses, followed by increasingly more important or newsworthy elements.' This general principle, that the noteworthy element comes at the end of the clause for languages with syntactically-based order, holds true for SCQ. When an argument comes after the V in this language, something special is happening pragmatically in the clause, something the listener needs to notice.

Notes

[1] This paper consists of highlights from my MA thesis. I thank the members of my committee, (Sandra Thompson, chairperson, Marianne Mithun and Carol Genetti) as well as Dan Hintz and Kirk Miller for their helpful comments and input. Preliminary studies done on this topic, Diane Hintz 2002 and Dan Hintz 2002, are entitled "SV versus VS word order in South Conchucos Quechua" and "OV, VO and OVO in South Conchucos Quechua" respectively. Many insights from those unpublished manuscripts are included in my thesis and in this paper.

[2] Payne 1993, Weber 1989, Fuqua 1992.

[3] (i.e. Parker 1976:31, Adelaar 1977, Cole 1983:2, Cerrón-Palomino 1987:289, Fuqua 1992, Marsch 1993, Stewart 1987:8, Weber 1989:15.)

[4] (SOV, SVO, OVS, OSV, VOS, VSO)

[5] Both Weber 1989 and Fuqua 1992 show for other varieties of Quechua that only a small percentage of clauses actually exhibit SOV word order. Based on statistics presented in Weber (1989:16) on word order in Huallaga Quechua, Dryer (1997:83) argues that Huallaga word order is better described as SV and OV.

[6] Payne (1997:77ff) discusses several features known to be important in relation to constituent order. I coded for many of these features, as well as those which Dan Hintz and I found to be important in our initial studies. I also referred to Turk 2000 in choosing features to code for. Though the data was coded for many factors and subsequent queries were run on each factor, only the factors which were found to have an affect on constituent order are discussed in this paper. The Microsoft Access program was used to maintain the relational database.

[7] She reports that there are good examples of this in Old English, German, and Kru.

[8] See Fuqua 1992 for North Junín Quechua and Marsch 1993 for Margos Quechua.

[9] Chafe (1987:25) defines a semi-active, or accessible concept as 'one that is in a person's peripheral consciousness, a concept of which a person has a background awareness, but which is not being directly focused on'.

[10] Variant constituent order appears when the new mention is subsequently mentioned. If the argument is new, but not subsequently mentioned, it appears before the V unless there is some other discourse pragmatic motivation for variant order.

[11]See Mithun (1992:37), Payne (1993:289), Ono and Suzuki (1992:435), and Marsch (1993:4).

[12]The other 5 had SV word order. In examining the 5 instances of closing statements with SV word order, 4 of them are restatements of conclusions which had been stated previously. The other one was marked as a conclusion through heavy use of obliques and adverbial phrases. In the 4 instances of restatements of conclusions which had been given previously, (exhibiting SV word order) there is nothing that needs to be marked. There is nothing new that the listener needs to notice.

Of the 37 instances of closing statements exhibiting variant word order, 28 of them had no other discourse pragmatic reason to account for the variant word order. Frequently an utterance has more than one discourse pragmatic factor motivating variant word order. For instance, a concluding remark may also include an element of suspense.

[13] The visiting girl later pushes the witch's daughter into the cooking pot.

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APPENDIX I - Code to glosses

GENERAL

CAUS	-tsi	causative
NOM	-nqa	nominalizer (realis)
OBJ	-ta	object
PL	-ya:	pluralizer on verbs
PLUR	-kuna	pluralizer on nouns
PRMT	-q	proposition-motion
PSTNAR	-na:	narrative past
PUNC	-:ri/-:ra	punctilial
SIM	-no:/-nuy	similitude
TOP	-qa	topic
TRANS	-mu	toward here from a distance or occurring at a distance

PERSON

1PLPOSS	-ntsi:/-ntsik	first person plural inclusive possessive
3	-n	third person
3POSS	-n	third person possessive

APPENDIX II - Code to transcription symbols

...	pause
%	truncated word

The representation of oral literature and its role in language revitalization

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1 Introduction[1]

This paper examines the ways in which oral literature is edited for publication and the consequences of the editing process for language revitalization and maintenance. While the examples cited here come from Alaskan languages, the observations apply equally well to other small and endangered language communities. Dissemination of oral literature occurs in many forms, but two primary types of media are generally employed. Most commonly, oral literature is disseminated in written, transcribed form. While the degree to which the transcribed version faithfully represents the oral form varies widely in published materials, editing plays a significant role in all such materials. Oral literature may also be disseminated in recorded form, either with or without accompanying written transcription. These recordings likewise may involve a greater or lesser degree of editing.

The practice of editing written transcriptions for publication is well-established. It is thus possible to examine the editing process empirically by directly comparing published texts to the original audio recordings from which the transcriptions were made (to the extent such recordings are available). However, the practice of audio editing, while long established in the broadcast and media production fields, has received scant attention from linguistics. Yet with the ready availability digital audio editing software, it is now potentially no more difficult to edit an audio recording than it is to edit the written transcription of that recording. The new feasibility of audio editing poses interesting questions for the field of linguistics, and these questions may highlight a potential conflict between the goals of language documentation and the goals of language maintenance and revitalization.

The remainder of this paper is organized as follows. Section 2 reviews some of the theoretical issues in the representation of oral literature. Section 3 surveys some existing transcribed texts, comparing them directly with transcriptions of original recordings from which the published transcriptions were made. Section 4 discusses the process of audio editing, citing examples from published sources and from materials currently being prepared for publication. Finally, section 5 concludes with a discussion of the outlook for the role of editing in the publication and appreciation of oral literature.

2 Role of oral literature in language revitalization

The importance of texts in language documentation has been widely acknowledged, yet texts represent only a small percentage (roughly one tenth) of existing language documentation materials (Himmelmann 1998). Though it is perhaps a moot point, I will here take it as uncontroversial that the recording and transcription of oral literature should be an important part of any language documentation effort. A perhaps more controversial

point is that oral literature also has an important role to play in language revitalization and maintenance.

Literacy and literary culture may in fact be crucial to language survival (cf. Bernard 1997). Whether or not this is the case, I see at least two primary means by which oral literature can aid language revitalization efforts. First, oral literature can provide a written model which may encourage the development of written literature. This appears to be the goal of most published transcriptions of Alaskan oral literature. The text is often intended to be readable, in order to encourage reading and serve as a model for writing. That publishing encourages literacy is perhaps a tautology. An important Alaskan example is found in the late-nineteenth century publication of religious materials in Gwich'in. By some reports at the turn of the twentieth century most Gwich'in adults were literate in the Tukudh orthography (Ritter 1986). Whether modern publication of oral literature can have a similar effect remains a moot point, but the power of literacy in language maintenance is considerable.

Oral literature can also be appreciated as an art form in its own right. This can be difficult if one works only with transcriptions, for the written word rarely does justice to the spoken (see section 3.2 below). However, with the inclusion of audio recordings oral literature can be experienced aurally as it was originally intended. An obvious additional advantage to this approach is that it does not rely on widespread literacy. By providing a means of listening to and appreciating oral literature, audio recordings can provide new venues for using language.

3 The representation of oral literature

If we accept the premise that oral literature has at least some role to play in language revitalization and maintenance, then the question of how oral literature should be represented becomes particularly relevant. I consider two aspects of this question: the publication format of oral literature and the faithfulness of oral literature to the original performance.

3.1 Format for disseminating of oral literature

Literature, once created, can be passed on from one person to another. This is true of both written and oral literature. Written literature is most typically disseminated in written form, though it is also common for written literature to be disseminated orally, through dramatic reading—a practice perhaps more common in societies with low literacy rates. Oral dissemination continues through the publication of audio books, or "books on tape". The creator of written literature does not usually interact directly with her audience. Rather, this communication is mediated by an editor. A given piece of literature may appear in multiple versions, each reflecting different editing choices.

Oral literature is also passed on from one person to another. However, with oral literature the creator, or speaker, traditionally serves as both author and editor. That is, with each retelling of an oral narrative, the speaker/editor may reshape the text to suit the audience and context. Each retelling represents another version, another edition of the

text. The representation of multiple fluid retellings challenges the current methodology of documentary linguistics, which is much better equipped to represent a handful of verbal (i.e., recorded) snapshots of particular retellings of oral narratives.

Yet there are still choices to be made regarding the format for disseminating these verbal snapshots. The most obvious choice is between an audio (and video) recording or a written transcription. Audio and video recording is by far the most universal means for documenting oral narratives, but it is not necessarily the most common means of disseminating such texts. Among the linguistic community oral literature is much more likely to be disseminated in written form, as an (edited) transcription of a recording. Here one can discern a marked difference between linguistic and indigenous approaches.

3.1.1 Linguistic approaches

A simple metric of the format for disseminating oral literature can be obtained by examining the current Alaska Native Language Center (ANLC) publication list. In spite of the availability of reliable audio recording equipment and techniques for at least half a century, the vast majority of Alaska Athabascan oral literature is available in written transcription rather than audio recording. That is, oral literature is represented by written transcription. An informal survey of ANLC publications illustrates this point. Of the 162 publications currently in print, only four represent transcribed oral literature with an accompanying audio recording (these are: Krauss 1982; Mishler 2001; Woodbury 1984; Bergsland & Dirks 1990).

(1) Types of publications in current ANLC catalog

Transcribed oral text w/o audio	44
Transcribed oral text with audio	4
Audio recording w/o transcription	0
Written text	3
Written text read aloud	1
Others	110
Total	162

As for the 44 ANLC publications of oral texts which do not include accompanying audio recordings, one assumes that the original recordings from which the transcriptions were made are exist in some format, either in the possession of the creator or editor or on deposit with an archive. However, in practice these original recordings can be difficult or impossible to locate.[2] For example, in 1980 ANLC published a short collection of Tanacross texts spoken by Gaither Paul and transcribed by Ron Scollon (G. Paul 1980). After several years of searching, I have not been able to locate the original recordings.[3] The tendency to publish only written transcriptions of oral literature and the difficulty of locating recordings of transcribed oral literature reflect a clear bias toward written representation. The transcribed text is usually held up as the primary product, the primary publication. The original recording is regarded as secondary, a mere tool for the creation of the written product. In many cases these original recordings are ignored or misplaced or forgotten to the point that they may be unrecoverable.

3.1.2 Indigenous approaches

A somewhat different approach to dissemination has been taken within the Native community. Most indigenous approaches focus on recordings rather than transcriptions. In contrast to the linguistic approach, the recording is tacitly considered to be the primary artifact, and this recording is often disseminated without an accompanying written transcription. Although I am unaware of any study of the extent of such dissemination, the practice appears to be widely established. While most such dissemination occurs on an informal basis, there is also an established tradition of indigenous publication of recordings of oral narratives (e.g., J. Paul 1968).[4]

The growing popularity of books on tape in the popular press may be an indirect testament to the viability of a recording-only approach to the dissemination of oral literature. Technically, books on tape do represent oral literature, but they are a form of written literature which is performed orally. A Native language example of the books-on-tape approach is Anna Jacobson's *Yup'ik Stories Read Aloud* (Jacobson 1998). It may well be that oral literature will be best appreciated not in its transcribed form but in its oral, recorded form.

3.2 Faithfulness and the representation of verbal art

Whether oral literature is disseminated in oral or written form, a fundamental issue in the representation of oral literature is the faithfulness with which the publication corresponds to the original recording. The editing process which mediates between the creator and audience is an interpretive one. Faithfulness is usually discussed as a measure of how closely a written transcription corresponds to an original recording. Here I will also use the term faithfulness to describe how closely an edited audio recording corresponds to an original, unedited recording. The editing choices and the theoretical justifications given for them are essentially the same, so I will focus here on transcription.

Faithfulness in the representation of Native American oral literature is often discussed by folklorists with reference to the importance of translation style, in an effort to capture the essence of the Native text in English translation. While not wholly without merit, such efforts are clearly not directly relevant to language revitalization, for they emphasize English translation rather than an appreciation of Native language literature.

The way in which faithfulness is relevant to language revitalization is with regard to the way the transcribed text faithfully represents the oral text. But here the relationship between faithfulness and language revitalization is not intuitively obvious. The most faithful transcriptions—while exalted as the pinnacle of documentary linguistics—are not necessarily those which contribute most to language revitalization. Said another way, faithful transcriptions are not easy to read. Therefore, faithful transcriptions generally do not promote literacy.

Perhaps the most significant discussion of faithfulness comes from the ethnopoetic tradition advocated by folklorists such as Hymes and Tedlock (cf. Hymes 1981). The ethnopoetic tradition advocates the creation of a transcription which

represents the oral features of an oral text as faithfully as possible. One way in which this is achieved is through the use of measured lines which either correspond to structured verse (Hymes) or to breath units (Tedlock). The result of these efforts is the archetypal facing-page bilingual text, in which each line of the Native text is represented on one side of the page with corresponding English lines on the other side. Editors of such texts must make constant choices about line breaks and phrasing, often balancing the competing goals of creating verse and preserving spoken phrase structure. The former is easier to read, but less faithful to the spoken word; the latter is more difficult to read but more closely represents the spoken word.

Editors also make a variety of choices in transcription order to create a more readable, a more *literate* transcribed oral literature. The ethnopoetic tradition maintains that features such as disfluencies, repetitions, false starts and pauses are an integral part of the verbal art form and should hence be preserved in the written representation of the text. Many recent linguistic publications do indeed strive toward the ethnopoetic ideal of a faithful transcription (cf. Mithun 1996). Yet in spite of Hymes' exhortations, in practice many editors of popular publications edit such features out, though they are rarely explicit about the details of the editing process.[5]

Linguists have a tendency to view such mismatches between spoken and transcribed speech as (perhaps unconscious) errors in transcription. After all, the ethnopoetic goal is the faithful representation of oral literature, thus the transcribed speech should mirror the spoken word as closely as possible. I will offer here another view. In many cases redaction of transcription is done in a deliberate attempt to make oral texts more readable to an audience under-appreciative of the ethnopoetic tradition, or to compensate for verbal and visual cues not easily transferable to paper. Bernard (1997) may or may not be correct in his assertion that publishing can save a language, but it is certainly true that ethnopoetics has done little to aid language revitalization.

4 Survey of editing techniques in published texts

In most cases it is not possible to actually compare the original recording to the published transcription, because the recording is not often readily available (as noted above). However, in a few cases recordings are available, and these provide interesting insights into transcription techniques and presentation choices. One important Alaskan case is a collection of stories transcribed from recordings of Gwich'in speakers Johnny and Sarah Frank (Mishler 2001). The second edition of the book is notable in that it may be obtained with an accompanying CD containing excerpts from seven audio recordings to accompany the written transcriptions in the book. As Mishler notes in the introduction, "the complex process of transcribing and translating, moving from the oral to the written, is not a simple mechanical reproduction of what can be heard on the tapes, but an expressive and critical interpretation" (p. xxiii). Thus Mishler acknowledges that the editing process is not a passive one, but rather an act of interpretation.

Another example is a short collection of Lower Tanana narratives spoken by Teddy Charlie and recorded and transcribed by Michael Krauss in 1961. These texts were

later edited by James Kari and published by ANLC (Charlie 1992).[6] The Charlie texts are presented as an extremely faithful representation of the spoken words on tape. In contrast to Mishler, Krauss notes in the forward to the Charlie texts that "the texts were so well composed and so well organized, and Teddy was so good at repeating them back to me this way, not needing to change things, that by the end of those weeks we had this remarkable group of recorded texts transcribed just as they were told on tape" (p. viii). While the published Charlie texts do not include accompanying audio, the original 1961 recordings can be found in the ANLC archive, permitting an examination of the editing choices made by the original editor and transcriber.

In the next few sub-sections I will provide examples of some of the editing choices made in the Frank and Charlie texts. The types of things which fall under the editors knife are not surprising. In fact, they are almost entirely predictable from the types of things the ethnopoeticists have warned us not to do. That is, while publishers of these Athabascan texts have borrowed the verse or breath-unit presentation style from the ethnopoets, they have almost completely ignored the restrictions on editing. And with good reason, I think. But more on that later.

In a way, this body of oral literature represented in transcription without an accompanying audio recording represents a new art form—what might be called "transcribed oral literature". This form of literature often begins with an audio recording as a point of departure, but is critically shaped by the transcription and editing process. The importance of transcribers and editors can not be underemphasized in this type of literature. In fact, most publications explicitly acknowledge this by attribution: the primary author of a published transcribed oral text is very often the editor or translator, not the original speaker of the story. While some might cite this practice as an example of cultural imperialism, it may also in part represent the reality that such texts are in fact co-constructed.

While there are many types of editing processes found in transcribed oral literature, due to space considerations I will limit my examples to just a few features which are affected by the editing process: repetition, word order, code-switching, and disfluencies.

4.1 Repetition

One commonly edited feature is repetition. Often repetition is simply eliminated from the transcription. This is the case in the following Gwich'in example from *Neerinhiinjik*. The original published transcription is shown here on the left (tone is not marked); the right side contains the original English translation.

(2) Sarah Frank, original transcription (Mishler 2001)

Nizhik dąį' hee, shyaaghan than adahzhrįį gwich'ii. Aii ts'ą' zhik gwa'an tthaa eenjit diintl'ii ts'ą' tthaa khat gwich'įį'.	*A long time ago, an old woman was living alone in the woods.* *She snared for ground squirrels and was living on them.*

Example (3) is a closer transcription of the original audio recording corresponding to the segment in (2). Sections deleted from the original are shown in double parentheses. Sections inserted into the transcription which do not appear in the original recording are shown in square brackets. Numbers in parentheses refer to pause lengths in seconds.

(3) Close transcription of (2)
((Nizhik dąį' hee,))
...(4.1) nizhik dąį' hee,
((... shyaaghan,))
... shyaaghan than adahzhrįį gwich'ii.
... aii ts'ą',
...(1.6) zhik gwa'an,
((... tthaa eenjit,))
... tthaa eenjit gyah diintl'ii ts'ą' tthaa [khat] gwich'įį'.

This example also contains an insertion. The word *khat*, which appears as the second to last word in the second line of the published transcription does not appear on the recording. Repetition is also often edited in another way. Rather than deleting repeated words, the words are expanded to full sentences so that full sentences are repeated.

(4) Sarah Frank (Mishler 2001: 216) *repetition expanded to full sentence*

Aii ts'ą' jyaa dii'in gwiizhik zhik dinjii gǫǫlįį gaa aii zhik gwa'an tthak neegihiidal gwizhrįh. Aii tthak neegihiidal gwizhrįh.	*While she was doing that, the rest of the people traveled around looking for food to eat.* *The old woman had a problem walking.*

Closer transcription, shown below, reveals that in the original recording only the single word *neegihiidal* is repeated.

(5) Closer transcription of (4)
...(2.2) Aii ts'ą' .. jyaa dii'in,
.. gwiizhik zhik,
dinjii gǫǫlįį gaa aii zhik gwa'an tthak neegihiidal-
negihiidal gwizhrįh.

In this case rather than delete the repeated word the editor has expanded the repetition to a full phrase *tthaak neegihiidal gwizhrįh.*

4.2 Word order

Editors often impose a sense of proper word-order, and they will freely change the order of words to suit a prescriptive sense of syntax. Thus in (6) the phrase *izhik it'ee dąį'* 'back then' is rearranged to *izhik dąį' it'ee.*

(6) Sarah Frank (Mishler 2001: 236)

Izhik dąį' it'ee łyaa vagǫǫlįį giyahnyaa t'inchy'aa, nah'ąą.	*They say there were really lots of them around then, you see.*

(7) Closer transcription of (6)
Aii ts'ą' aii,
izhik it'ee
dąį' łyaa vagǫǫlįį
giyahnyaa t'inchy'aa, nah'ąą.

4.3 Code-switching/borrowing

To my knowledge all speakers of Alaska Athabascan languages are bilingual in English. This has been the case for many years now. Even the 1961 Teddy Charlie recordings contain many English words. Whether the use of English in these narratives represents code-switching or borrowing is a moot point, but in any case editors often replace English words with Native ones. However, the process is very ad hoc. Thus, in the following example, the English word 'village' in the original recording is replaced with its Lower Tanana equivalent *kayex* in the published transcription, yet the English word 'school' is retained without translation.

(8) Teddy Charlie (1992, chap 1, first lines)

Tthaxw menhti kayex xwtadletsinh de'onh, yex xodeghondenh jonhts'eba tr'anił'o.[7]	*When Minto village first began, there used to be a grave of spruce where the houses are built'*
Dexeghoda lo jonh kayex nixwdalnenh.	*That's why there was a village there.*
K'wda k'odit school xa'ał k'w nixunidak.	*Now a school also has been built.*

(9) Closer transcription of (8)
Tthaxw.
...(1.7) Menhti **village**,
... xwtadletsinh .. de'onh.
...(4.7) Yex xodeghondenh,
...(4.0) jonh .. ts'eba tr'anił'o.
... Dexeghoda lo,
...(3.2) jonh kayex nixwdalnenh.
...(4.9) K'wda .. k'odit,
...(1.6) school,
.. xa'ał k'w,
.. nixunidak.

The process of translating into Native language may even by subconscious, for while the reference to 'village' in the first line of (8) is transcribed as *kayex*, the same word elsewhere in the text is transcribed in English (e.g., chap. 2, first line).

4.4 Disfluencies

Spoken language is full of things which don't appear to be words when transcribed on paper. These have been called by many names, including false starts, disfluencies, hesitations, and "unfinished or garbled pieces, which everyone's unrehearsed speech is full of in actual performance" (Krauss 1982: 21). These are omitted from transcribed oral texts almost without comment. Some examples are given below.

(10) Teddy Charlie (1992(1961):13)

bek'ah dotr'edli ts'e k'w denaghwnh niyoyh.	*we imitate its call and it comes to us.*
Iga' k'w tr'edhełghayh.	*And then we kill it.*

(11) Closer transcription of (10)
bek'ah do- dotr'edli.
Ts'e k'w denaghwnh niyoyh.
Iga' k'w ba- tr'edhełghayh.

The false-starts *do-* and *ba-* are removed from the edited version in (10).

(12) Johnny Frank (Mishler 2001: 236)

Aii than hee vigii nąįį tthak, vakąį' haa datthak an dhidlit, googaa łyaa nįįzhuk nankak gwandaii varahnyaa.	*Her husband and all of her children died, but she lived on alone for a lone time*

(13) Closer transcription of (12)
Aii than vigwit-
.. vigii-
.. vigii nąįį tthak vakąį'.
...(1.1) Haa datthak an dhidlit googaa.
Łyaa nįįzhuk nankak gwandaii varahnyaa.

Here the false starts *vigwit-* and *vigii-* are removed from the edited version in (12).

4.5 Other types of editing

Many other types of editing occur. Editors insert punctuation into the written form based on an intuitive sense of syntax. And editors often insert, delete, or reorder words and morphemes in order to suit prescriptive grammatical rules.

5 Audio editing

Interestingly, the availability of accompanying audio reveals that existing transcriptions may not be as faithful as might be thought. Editors and transcribers have often felt free to "clean up" the text as needed. While this is sometimes done without much thought, it is perhaps equally as often done reluctantly, with a pragmatic recognition of the exigencies

of publication. The editor can in any case retain an unedited version of the transcribed text. And the original audio recording is always available as a reference.

At least one assumes that an unedited audio recording is available. With the advent of digital audio it is now almost as easy to edit an audio recording as it is to edit a written document. New technology offers the possibility to "clean up" the audio along with the text. And yet to most researchers such a suggestion borders on the profane. Recently a colleague of mine mentioned the need to clean up a transcription because the speaker had complained that "the writing makes me sound illiterate". When asked if he would also clean up the audio, he responded with an immediate and unequivocal "no". Within the academic community the primacy of the (recorded) spoken word is unquestioned.

This attitude seems to be motivated by the greater documentary value of the recordings. And yet, if we are to encourage the publication of oral recordings we must recognize that speakers may want the recordings to be cleaned up as well. In fact, such audio editing is already occurring. In what follows I will provide some examples of audio editing. After this I will discuss some implications of the practice of audio editing.

5.1 Examples of audio editing

My first experience with audio editing for publication came while assembling a collection of Tanacross narratives. We intended to present a collection of transcriptions of the original stories with accompanying audio. The stories would also be accompanied by transcriptions of English retellings of them. While going through the recordings and transcripts, the original speaker asked if it were possible to leave the audio out of the publication. She was concerned about a number hesitations, pauses, and false starts in the recording. I noted then that it was possible to simply remove these features from the audio file. In just a few minutes we worked through the first file, deleting as needed, smoothing here and there, and finally producing a recording which the speaker was happy with. In the examples below the double parentheses indicate not merely the deletion of words from the transcript but rather the deletion of corresponding audio from the original recording.

(14) Deleted corrections

Ey eł ey((, ch'etey, oh- ey)) dendeh. ((aa,))	And that man

(15) Deleted false starts

sheg' taatheth shax nighahtth'ih de'.
((aa-
nin-
xuh-))
dii t'eey sụ'ụ .. datdultth'iig

(16) Deleted hesitations

((Ah,))	
.. k'ahdu',	Now,
((ah ..)) nondleed eł naxogdeg.	I'm going to talk with this whiteman
Stsųų .. Eva gha ch'e naxogdeg.	I'm going to talk about my grandma Eva.
Eva Esau.	Eva Esau.
((Ah ..)) nahdog Chicken tah eedaax.	She was living down around Chicken.
((An ..)) Shundaagh' chih xuh tah eł eedah.	My brother was also living there.
Gha tl'aan eł,	And,
((ah ..)) k'od naxtetdeetl ts'į'	they were about to go
yaadog Ketchumstuck ch'e naxiytdeetl.	they were about to go to Ketchumstuck.
Ey gha tl'aan eł,	And,
((.. nah-)) nahdez .. k'od naxtetdel eł.	they were about to go.
shi' eł xetl shii ehłeey eł,	when grandma put meat in the sled.
-- ena' sụ'ụ ey sh- shi' xetl shii ghunłeel!	--no don't put that meat in the sled!
nandaa ... nach'udah'ę'ę eedaay sixunt'eh.	There's a game warden staying over there.
Shi' k'a t'eey nuhxedl' shii xnih'iil--	Don't let him find me in your sled!--
xenih.	he said.

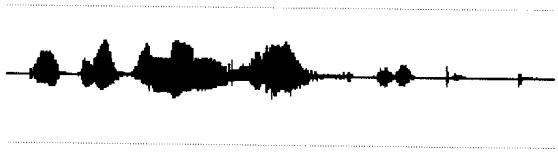
This type of audio editing is quite straightforward and can be readily accomplished using inexpensive software available for many desktop computers. It is well within the ability of most linguists and field workers. In a way, audio editing of this type can be viewed as an attempt to make the transcription more faithful. Rather than editing the transcription to more faithfully reflect the recording, the recording itself is edited to more faithfully reflect the desired transcription. Before reflecting further on this process I will discuss some more sophisticated approaches to audio editing.

5.2 More sophisticated audio editing

Simple deletion of audio segments is actually just one type of digital audio editing which is possible. In fact, much more elaborate editing is possible. The following Central Yup'ik examples were edited for publication by ANLC. The first is an example of a repair of a grammatical error, in this case the third-person indicative ending *-uq* in (17) is repaired to the "correct" first-person form *-ua* in The insertion is clearly visible in at the end of the waveform corresponding to this segment.

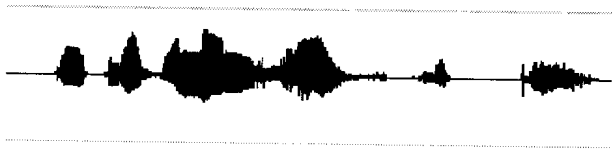
(18). The repair is achieved by simply copying the desired ending from another section of the recording.

(17) Waveform of original form *ayagciquq* (Steve Jacobson, p.c.)



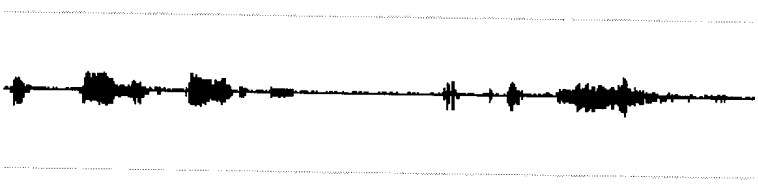
The insertion is clearly visible in at the end of the waveform corresponding to this segment.

(18) Waveform of altered form, now *ayagciqua* (Steve Jacobson, p.c.)



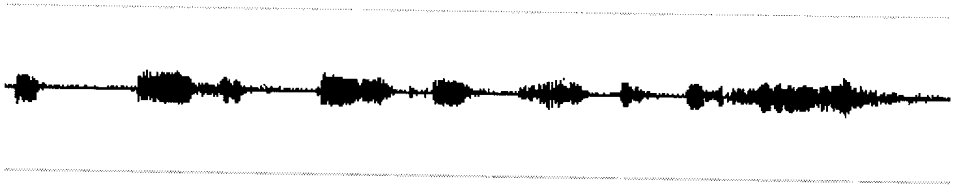
In the next example, the original cassette recording had broken and had been spliced back together. The splice left a missing segment in the tape. By copying syllables from elsewhere in the recording, the editor was able to insert the missing sequence *-ciiq-*.

(19) Waveform of original recording of *watua nutaan teki__uk kingunemnun* (Steve Jacobson, p.c.)



Here again, the inserted material is visible in the edited waveform in (20).

(20) Waveform of altered form, now *watua nutaan tekiciiquk kingunemnun* (Steve Jacobson, p.c.)



5.3 Publishing edited audio

More than any written presentation technique, audio can best convey the oral nature of transcribed oral literature. The benefit of edited audio is that it makes possible publications of transcribed oral literature which include an accompanying audio. When publishing is not possible due to objections from speakers or to the poor quality of the

original recording, audio editing may enable publication. While it would be possible to include an audio recording of a dramatic reading of a text as an alternative, such readings rarely capture the original flavor of the oral story.[8] Perhaps this is due to the fact that few good story tellers are literate. In any case, the verbal art is best reflected in the original recording. If these recordings are more acceptable when cleaned up, then what harm is done?

6 Outlook

One harmful effect of audio editing is the potential for loss of original data. Shifting technologies, unstable storage media, and evolving digital standards conspire to create an environment in which it can be difficult to preserve and identify original recordings. In many cases it can be difficult to distinguish between original and edited digital audio files. As we move toward an era of digital recording and digital editing which leaves no trace, we must be careful to ensure the integrity of original materials for documentary purposes.

I take it as incontrovertible that the original recording is of utmost value to language documentation. However, we must also be realistic about the implications of the practice of editing for the field of linguistics. It is in theory possible to publish different versions of transcribed oral texts for different audiences. An edited version with clean audio and readable line structure may be most appropriate for the development of indigenous literature, while a faithful transcription with unedited audio may be more appropriate for a linguistic audience. But the fact remains that most publications only appear in one version. And these are almost always heavily edited. This is true, for example, of all of the ANLC publications of transcribed oral literature.

Do we leave a "corrupt" legacy by creating edited transcriptions and recordings? Comparison of existing published transcriptions and original recordings clearly indicates that the practice of editing transcribed oral literature is already well-established. It is thus not unreasonable to ask why a different approach should be taken to the editing and presentation of audio recordings. We have a tendency to view a recording as so intrinsically primary as to be inalterable. This view is perhaps misguided, in that it is the speech event, not the recording of it, which is primary. Recording is merely an attempt to record the speech event. Unless we are able to invent a machine which allows us to rewind time and relive a speech event, recording and transcription will remain important tools. And perhaps just as we refine transcriptions we should refine recordings.

If in doing so we help to engender an appreciation for oral literature, then we have done a service to indigenous literacy and to the development of indigenous literary culture. If in hesitating to publish edited audio recordings we discourage readers and listeners, then we have merely objectified language as an object of study. I hope that in discussing these potentially controversial techniques I will stimulate further discussion of the representation of oral literature and its role in language revitalization.

Notes

[1] This paper benefited from numerous discussions with my colleagues both within and outside Alaska. I am especially grateful to Steven Jacobson, Wallace Chafe, and the students in the Spring 2003 *Community Language Documentation* class. Participants at the WAIL meeting also provided helpful feedback. Of course, none of these persons is to be blamed for the resulting text.

[2] Even if located, recordings may be difficult to access to copyright and intellectual property issues.

[3] This tendency to discard the audio in favor of the transcription may be part of a larger trend toward English translation. Although the Paul texts were first presented in bilingual transcription, one of the texts recently appeared in a collection in English translation only. First the recording is discarded; then the Native language transcription is discarded. We are left then only with a heavily redacted English translation.

[4] Recordings such as these are not devoted exclusively to oral literature. J. Paul include a few tracks of narratives on an album devoted primarily to recordings of religious songs in Yup'ik and English.

[5] One notable exception is Krauss (1970), whose transcription of Eyak texts indicates insertions with square brackets and deletions with parentheses. These editing marks are not included in the published version of the texts (Krauss 1982).

[6] While Kari's editing introduced line breaks and sentence punctuation not found in the original transcription, the sequence of words in the published edition are virtually identical to those in Krauss' 1961 transcription.

[7] In the Lower Tanana orthography <w> represents the lower high back rounded vowel [ʊ].

[8] Dramatic readings do have certain advantages. For example, a dramatic reader may be able to better compensate for missing visual cues. (Thanks to Steven Jacobson for pointing this out.)

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Syntactic and Semantic Development of Body Part Prepositions in Valley Zapotec Languages

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0. Introduction

This paper examines the syntactic and semantic development of body part prepositions in the Zapotec languages of the Tlacolula Valley, drawing data from three languages: Tlacolula de Matamoros Zapotec[1] (TMZ), San Lucas Quiaviní Zapotec[2] (SLQZ), and San Juan Guelavía Zapotec[3] (SJGZ). I argue that the body part (BP) terms used in locative expressions, though identical in form to the nouns for body parts, are not syntactically nouns. I present evidence that these BP terms have been reanalyzed and grammaticized as prepositions and propose a possible series of semantic changes and a syntactic reanalysis to account for this development.

Zapotec languages belong to the Oto-Manguean stock and are spoken in Oaxaca, Mexico, and by many immigrants in the greater Los Angeles area. I will be referring to the language group that contains SLQZ, SJGZ, and TMZ as Valley Zapotec (VZ). The VZ language group contains the languages classified by the Ethnologue (Grimes et al. 1996) as San Juan Guelavía Zapotec (Western Tlacolula Zapotec, Guelavía Zapotec; code ZAB).

Although all VZ languages should be considered endangered, TMZ seems to be the most critically endangered of the languages presented here. There are at most a few hundred speakers of the language, the youngest speakers of which are probably in their 50s.

Zapotec languages are head initial languages and most sentences have the constituent order VSO, although the order SVO is also very common, especially for TMZ. Consistent with head initial typologies, possessed noun phrases precede their possessor (1a), and prepositions precede their objects (1b).

(1) a. **Ni'ih me'es** guùi'ch.
foot table PERF.break
The leg of the table is broken.

b. Bèe'ecw ca-cabiecy **cààan gezhi'iilly**.
dog PROG-run around chair
'The dog is running around the chair.'

1. The Phenomenon: Body Part Terms in Locative Constructions

The use of body part terms in locative expressions is an areal feature of Meso-American languages. (2-3) below give a few examples[4] from TMZ[5] where the same word is used to refer to a body part in the examples labeled (a) and in a locative construction in the ones labeled (b). (Where I have glossed BP terms in all capital letters,

I mean to abstract away from the syntactic category in the gloss. For example *dehts* glosses as 'back' means the BP noun; glossed as 'behind' means the preposition; glossed as BACK means that for that particular gloss, I have not specified whether the word is syntactically a preposition or a noun.)

(2) a. R-ahcnah lù[6]=a'.
HAB[7]-hurts FACE=1s
'My face hurts.'

b. Nàa're' zòob=a' loh me'es.
I NEU.sit=1s FACE table
'I am sitting on the table.'

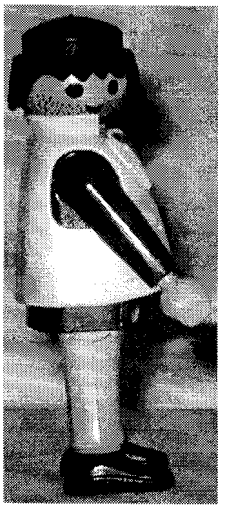
(3) a. R-ahc làa'iny=a'.
HAB-hurts STOMACH=1s
'My stomach hurts.'

b. Nàa're' zòob=a' làa'iny co'ch.
I NEU.sit STOMACH car
'I am sitting in the car.'

The body parts which can be used as both BP nouns and locatives in TMZ are presented in Figure 1.

Figure 1. Body Parts in TMZ

guë'ëhcy 'head'
dehts 'back'
cwe'eh 'side'
zh:ààa'n 'buttocks'
ni'ih 'feet'



lohoh 'face'
ru'uh 'mouth'
têë'ix 'chest, torso'
làa'iny 'stomach'
nnaàa' 'hand'

In this paper I will address the following questions: What is the syntactic status of BP terms used as locatives (as in the (b) examples above)? What is the relationship between these terms and other BP terms?

All of the VZ languages considered here also have prepositions borrowed from Spanish and some native non-body part prepositions. The tables below give examples of each type, respectively, from SLQZ.

Table 1. Spanish Prepositions in SLQZ

	meaning	Spanish origin
cëhnn	with	con
co'nnr	against	contra
dehsdeh	to; since	desde
pohr	for; because of	por
sihnng	without	sin
tráhsdeh	in back of	tras de

data from Munro 1998, p.c., Munro, Lopez, et al. 1999

The native prepositions, including the BP prepositions discussed in this paper and the prepositions in Table 2, take as their object either an overt nominal or a bound pronominal clitic. In this way they differ from the prepositions which have been borrowed from Spanish, like those in Table 1, which require either a free pronoun or an overt nominal as their object (Munro, Lopez, et al. 1999, 24).

Table 2. Native Non-Body Part Prepositions in SLQZ

càa'nta'	along, by
gagyèe'i	around
gahx:	near, close to
gayààa'	along the edge of, around
làì'	through (a group); among; into the middle of
x:tèe'n	of, about, for

data from Munro 1998, p.c., Munro, Lopez, et al. 1999

2. Methodology

The locative data is this paper was collected using a method I found to be very useful. In consult with Pamela Munro, I used a collection of children's toys to model various locative relationships. I would set up a locative relationship with the toys and ask my consultants to describe the scene. Often times my consultants would also alter the relationships between the toys and describe the new scene they created. All of the consultants I worked with seemed to enjoy this methodology, and it sometimes seemed to dramatically engage speakers and produced very interesting data that I would not have gotten through an elicitation task. Moreover, working in this way I could be sure that my consultants and I were discussing the same locative relationship, since it was displayed while we were working. Throughout this paper, I have included photographs of some of these scenarios as examples.

3. The Debate

Some linguists studying Zapotec languages have assumed that BP locatives are syntactically nouns and that the locative meaning is derived through metaphorical extension, (MacLaury 1989, Jensen de López 2002) while others have asserted that these words are indeed syntactically distinct from nouns, when used in locative constructions (Munro, Lopez, et al 1999, Stubblefield and Stubblefield 1991).

In a paper discussing the metaphorical system employed in the use of body parts as locatives, MacLaury (1989) says of a non-Valley Zapotec language, Ayoquesco Zapotec [8]:

> [the] body-part locatives are not prepositions, because there is no justification for setting them apart from their primary classification as nouns. Unlike English prepositions, they are identical in form to the nouns applied to body organs, their use in syntax is optional, they only add specificity to other locative expressions, they do not complicate syntax, they do not denote direction, and they do not mark grammatical relations as do case markers (120).

However, the grammatical status of the BP locatives is not the focus of his paper, and he mentions the above in a footnote only.

Other linguists have commented on the semantic variation of these words in their dictionaries. Munro, Lopez, et al (1999) say of SLQZ that:

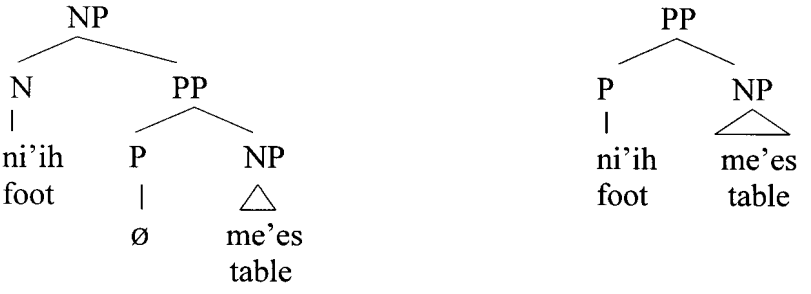
> There are two classes of Zapotec prepositions. Many basic prepositional ideas are expressed with body part words...; the prepositional object is expressed either with a possessive pronominal agreement clitic or with an overt noun following the preposition. Such prepositions... are identified in the Dictionary as "prep." (24).

To my knowledge, there has been no work done directly on the categorial status of these words in Valley Zapotec languages apart from my previous research (Lillehaugen 2003). Consistent with head initial typologies, possessed noun phrases precede their possessor, and prepositions precede their objects. Because of this, the string *ni'ih me'es* is potentially ambiguous between a possessed NP 'the foot of the table' (4a) and the PP 'under the table' (4b).

(4)	a.	**ni'ih**	**me'es**	
		foot	table	
		Possessed NP	Possessor NP	'the foot of the table'
	b.	**ni'ih**	**me'es**	
		under	table	
		P	NP	'under the table'

Although string ambiguous, (4a) and (4b) would have distinct syntactic structures, as represented in Figure 2 below.

Figure 2. Syntactic Structures for NP and PP



I will argue in this paper that BP terms used in locative expressions are indeed prepositions and not possessed nouns. Classifying these terms as prepositions in the syntax of these languages provides for the simplest account of their syntactic distribution. I contend, therefore, that although these words historically developed from the body part nouns, synchronically they are syntactically distinct.

4. Syntactic Evidence of the Categorial Status of Body Part Locatives

There is syntactic evidence from adjunction in intransitive sentences, categorial selection for locational verbs, and coordination of like constituents that the BP terms used in locative expressions are not nouns. First consider intransitive verbs, which by definition do not take complements (excluding cognate objects, e.g. 'I sing a song'). As can be seen below intransitive verbs require no complement (5a), PP adjuncts are allowed (5b), but NP adjuncts (5c) are not. (I will be using * to mark sentences which are syntactically ungrammatical, and # to mark sentences which, though syntactically well-formed, are semantically infelicitous.)

(5) a. Ca-yu'ul=na'.
PROG-sing=3dist
'He is singing.'

b. Ca-yu'ul=na' làa'iny yu'uh.
PROG-sing=3dist STOMACH house
'He is singing in the house.'

c. *Ca-yu'ul=na' yu'uh.
PROG-sing=3dist house

The difference in grammaticality between (5b) and (5c) suggests that *làa'iny yu'uh* 'in the house' and *yu'uh* 'house' are not of the same syntactic category in sentences like those above. *Làa'iny yu'uh* 'in the house' can function as an adjunct in the sentence while *yu'uh* 'house' cannot.

Another piece of syntactic evidence that the body part locatives are prepositions comes from categorial selection (c-selection) of verbs. The ability of verbs to require the complement they select to be of a certain grammatical category is referred to as c-

selection. The difference in grammaticality between (6b) and (6c) suggests that *ni'ih me'es* 'under the table' and *me'es* 'table' are not of the same syntactic category in sentences like those below.

(6) a. *Bèe'ecw nu'uh.
dog NEU.be.loc

b. Bèe'ecw nu'uh ni'ih me'es.
dog NEU.be.loc FOOT table
'The dog is under the table.'

c. *Bèe'ecw nu'uh me'es.
dog NEU.be.loc table

Finally, it is a syntactic characteristic that only like constituents can be coordinated. The fact that *làa'iny me'es* can be conjoined with *cààan gezhi'iilly*, suggests that *làa'iny me'es* must be of the same syntactic category as *cààan gezhi'iily* in constructions like these. *Cààan* 'around' is a non-body part preposition, like those presented in Table 2.

(7) a. Bèe'ecw ca-cabiecy cààan gezhi'iilly.
dog PROG-run around chair
'The dog is running around the chair.'

b. Bèe'ecw ca-cabiecy làa'iny me'es ne cààan gezhi'iilly.
dog PROG-run STOMACH table and around chair
'The dog is running under the table and around the chair.'

5. Semantic Evidence of the Categorial Status of Body Part Locatives

This section presents arguments for an analysis of BP locatives as syntactic prepositions that appeal to the semantics of the body part terms when used in locative constructions.

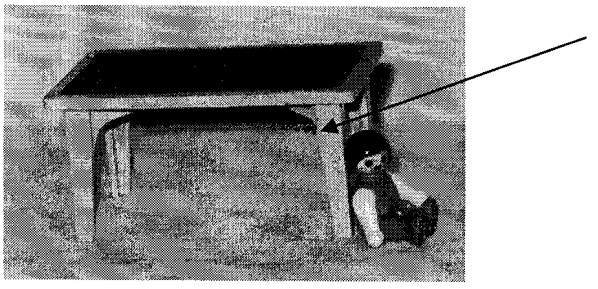
5.1 Mismatch between Location of Figure and BP of Ground

Usually, which a figure is located on top of an object, it can metaphorically be seen as located at the head of that object. This is not always the case, however, and some interesting characteristics of BP prepositions can be observed when the location of the figure does not in fact correspond with the BP of the ground. (Henceforth I will refer to the two objects involved in the locative relationship as the *figure* and the *ground*. The figure is the object that is located in relation to another object, which is referred to as the ground. In the sentence *the cat is on the table*, *cat* is the figure and *table* is the ground. There is a one-to-one correspondence between these terms and another pair of terms sometimes often used in the field: trajectory (figure) and landmark (ground).)

Consider Scenario I, presented in Figure 3 below. The baby is sitting against the leg of the table (*ni'ih me'es*). However (8a), which attempts to use *ni'ih me'es* 'the leg of

the table' as a location for the baby is not appropriate to Scenario I. Although as a noun *ni'ih* means 'foot', as a preposition it means 'under', and the baby is not under the table in this scenario, although she is sitting against the table's leg. Both sentences (8b) and (8c) could be used to describe this situation.

Figure 3. Scenario I: Baby Beside Table



ni'ih me'es
foot table
'the leg of a table'

(8) a. #Mi'iny zòob ni'ih me'es.
baby NEU.sit FOOT table

b. Mi'iny zòob ni'ih me'es.
baby NEU.sit under table
'The baby is sitting under the table.'

c. Mi'iny zòob cwe'eh me'es.
baby NEU.sit beside table
'The baby is sitting beside the table.'

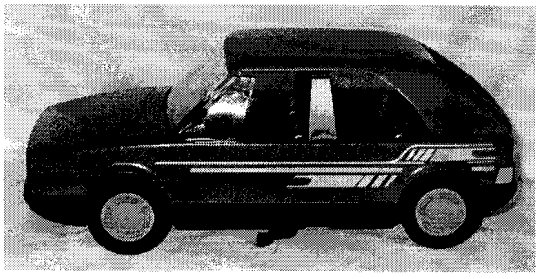
So, while it's true that the baby is sitting by the leg of the table, it is false that the baby is under the table, which is what (8a) asserts, as seen below in (9):

(9) Mi'iny zòob ni'ih me'es.
baby NEU.sit under table
'The baby is sitting under the table.'

5.2 Semantically Infelicitous Possessed Body Parts

If one were to argue that BP terms used in locative constructions are nouns, one would assume that there must be a referent for every NP that arises through this construction, and the locative meaning of this NP would be derived through metaphorical extension. If the phrase is a NP, then it should be a possible NP even when not used in a locative construction. However, this is not the case, as can be seen in example (10) below, which refers to Scenario II, presented in Figure 4. Although *ni'ih* is used in the locative expression in (10a), there is no such referent as *ni'ih ca'rr* 'the car's foot/feet' (10b). Speakers also rejected the possibility that the wheels or tires might be called *ni'ih ca'rr*; I was told that those are not 'the car's feet' (10b), but are called *ya'annt* 'tires' (10c).

Figure 4. Scenario II: Snake Under Car



(10) a. N-u'u bèe'elld ni'ih ca'rr. (SJGZ)
NEU-be.loc snake FOOT car
'The snake is under the car.'

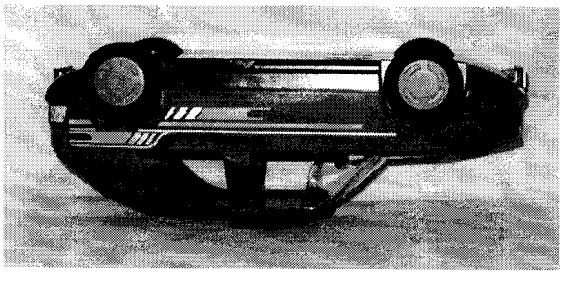
b. #ni'ih ca'rr (SJGZ)
foot car
'the car's foot'

c. ya'nnt ca'rr (SJGZ)
tire car
'the car's tires'

In Scenario II it is true that the snake is under the car, but it cannot be true that the snake is located by the car's foot, since the car does not have a foot.

Even if tires could be considered 'feet', consider Scenario III and (11) below. In fact, the word *ni'ih* in (11) is not used to refer to any part of the ground, but is used to express the relationship between the figure and the ground, namely that the snake is under the car.

Figure 5. Scenario III: Snake Under Upside-Down Car



(11) N-u'u bèe'elld ni'ih ca'rr. (SJGZ)
NEU-be.loc snake FOOT car
'The snake is under the car.'

5.3 Summary

BP terms in locative constructions do not behave syntactically as nouns, as shown in Section 4. Furthermore, in this section I have shown that BP terms in locative constructions have the semantics of prepositions: they refer to the relationship between the figure and the ground. In the Section 6 I will explore the relationship between BP prepositions and BP nouns.

6. Development of Body Part Prepositions

The meanings of BP terms as both nouns and prepositions can be accounted for through semantic change and syntactic reanalysis. BP locatives, though derived from purely lexical morphemes referring to concrete objects, have developed into functional morphemes through metaphoric and metonymic extensions and a syntactic reanalysis facilitated by word order and available analogy to non-body part prepositions already extant in the grammar of the language.

Following Hollenbach (1995), I categorize the meanings of BP terms into three types: basic meaning, meanings derived from metaphorical extension, and meanings derived through "projecting space" extension; these are described below. Hollenbach (1995) provides an extremely useful model, using these types of change to account for all of the nominal and prepositional meanings of BP terms in Mixtecan.

The "basic meaning" of all the BP terms in Valley Zapotec languages seems to be the human body part, which seems most basic for two reasons: all the other meanings are explainable with the body part as the original source of the noun, and speakers define these terms (when presented in isolation) as body parts.[9]

6.1 Metaphorical Extension of Noun Meaning

Other nominal meanings for the body part terms have resulted from metaphorical extension. The human body is projected onto inanimate objects, so that tables can have faces, feet, and mouths (Figure 6) and cars can have faces, backs, sides, and noses (Figure 7). This process accounts for all the nominal meanings of BP terms beyond the basic meaning.

Figure 6. Body Part Nouns Extended to Parts of Tables

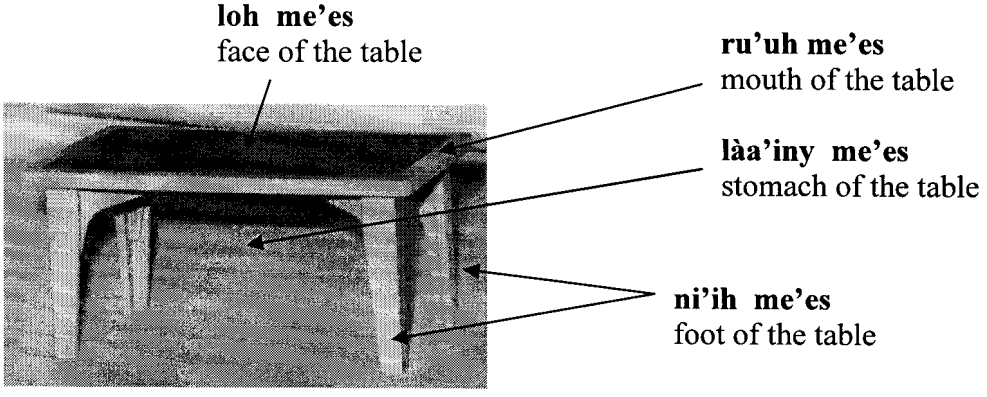
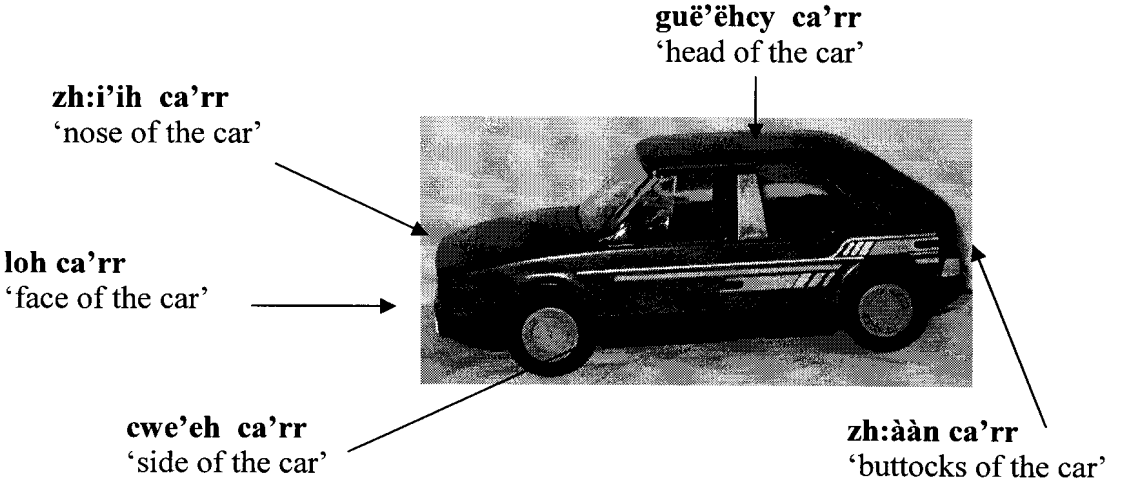


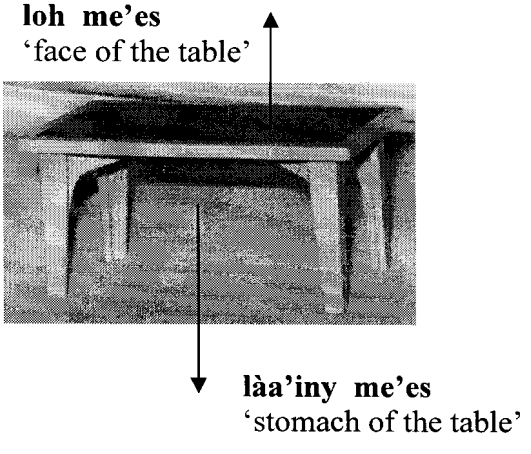
Figure 7. Body Part Nouns Extended to Parts of Cars



6.2 Metonymic Extension

The metonymic extensions of projecting space, as shown in Figure 8, account for most of the prepositional meanings of BP terms in these languages. This process, along with syntactic reanalysis, can be used to explain the development of the BP terms into grammatical prepositions. Projecting space extends the meaning of the terms from the part of the object to the area "projected" by that part of the object. This seems to be a metonymic extension: "the use of a word for something associated with its original meaning" (Hollenbach 171). For example, *lohoh* has a basic meaning of 'face'. Through a projecting space extension it could also come to mean the area of space in front of a face; and *lohoh* 'face' could undergo a metaphorical extension to mean 'top (of a table)'; this meaning could then undergo a projecting space extension such that *lohoh* could also refer to the area above the top of the table, i.e. the area projected from the top of the table.

Figure 8. Projecting Space Exemplified by the Table



6.3 Syntactic Reanalysis

The meaning changes described above are not sufficient to account for the development of prepositions. However, these types of change produce a situation that lends itself to syntactic reanalysis, especially since VZ languages are head initial. The syntactic reanalysis of a possessed-possessor phrase as a prepositional phrase seems especially likely given that they could be string identical to each other.

If the prepositional phrases were originally possessed noun phrases, it also seems likely that the verb carried some locative information and c-selected for an NP complement, as in (12) below. (I use << >> to enclose hypothetical sentences. These are forms that I am conjecturing may have existed at some previous stage of the language, but are not attested.)

(12) Stage 1

a. <<Bèe'ecw nu'uh me'es.>>
dog be.loc.AT table
'The dog is by the table.'

b. <<Bèe'ecw nu'uh ni'ih me'es.>>
dog be.loc.AT foot table.
'The dog is by the foot of the table.'

There are a few verbs in modern VZ languages that do this. For example *rbèez* 'resides in' (SLQZ), which takes an NP complement (Munro, Lopez, et. al 1999). This verb cannot take a PP complement, and a potentially ambiguous phrase such as *làa'iny Sann Lu'uc*, which out of context can either mean 'in San Lucas' or 'Saint Luke's stomach' will be interpreted as an NP when it is the complement of the verb *rbèez* even if the semantic context favors the PP, as in (13b) below.

(13) a. Rbèez=a' Sann Lu'uc. (SLQZ)
reside.in=1s San Lucas
'I live in San Lucas.'

b. Rbèez=a' làa'iny Sann Lu'uc. (SLQZ)
reside.in=1s stomach Saint Luke
'I live in Saint Luke's stomach.'
*'I live in San Lucas.'

However, with the syntactic reanalysis of the possessed nouns as prepositions, perhaps partially on analogy with non-BP prepositions such as *cààan* 'around' (7), it seems likely that the locative information shifted from the verb to the newly available grammatical morpheme, and could then be analyzed as in (14), in which the BP locatives have been reanalyzed as prepositions, and the locative verbs c-select for PPs.

(14) Stage 2: Modern Language

a. *Bèe'ecw nu'uh me'es.
dog be.loc.AT table
'The dog is by the table.'

b. Bèe'ecw nu'uh ni'ih me'es.
dog be.loc under table.
'The dog is under the table.'

I summarize the stages of this possible syntactic development in Figure 9. In Stage 1, the semantically bleached locational preposition is part of the meaning of the verb, while in Stage 2, that functional locative head (AT) has been reanalyzed as a separate functional head and the BP noun reinterpreted as the prepositional head.

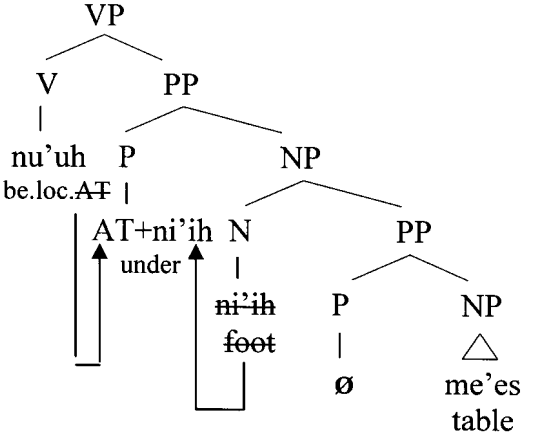
Figure 9. Syntactic Reanalysis

Stage 1

<<Bèe'ecw nu'uh ni'ih me'es.>>
dog be.loc.AT foot table.
'The dog is located by the foot of the table.'

Stage 2: Modern Language

Bèe'ecw nu'uh ni'ih me'es.
dog be.loc under table.
'The dog is under the table.'



7. Conclusions

In this paper I have argued that the BP terms used in locative constructions in VZ languages have been grammaticized as prepositions. I have shown that BP terms used in locative constructions function differently in the syntax than nouns, and that they function like other non-BP prepositions. BP terms in locative expressions also behave semantically as prepositions, referring to the relationship between the figure and the ground, and need not refer to a location on the ground. Furthermore, the path of syntactic and semantic change that would be necessary to develop this system can be accounted for

using already existing and well established types of change such as metaphor and metonymic extension.

Notes

[1] All of the TMZ data comes from my field notes. I owe Roberto Antonio, my TMZ language consultant, my gratitude for his patience and generosity in sharing his time and his beautiful language. This paper is closely based on my master's thesis (Lillehaugen 2003).

[2] SLQZ has been described in a dictionary by Pamela Munro and Felipe Lopez (Munro, Lopez, et al. 1999), dissertations by Felicia Lee (1999) and Michael Galant (1998), a thesis by Olivia Méndez [Martínez] (2000), as well as many articles by Munro (1996, 1998, 2002). The SLQZ data in this paper come both from the dictionary and from Munro's and my unpublished field notes on this language. I appreciate the help of Felipe Lopez, Silvia Lopez, and Rodrigo Garcia for working as language consultants on this project.

[3] The New Testament has been translated into SJGZ by Ted Jones (Liga Bíblica 1995) and he and his colleagues have written on its phonology (Jones and Knudson 1977) and pronoun system (Jones and Church 1985). Olivia Martínez is currently doing extensive fieldwork on this language at UCLA (Martínez in progress). All of the SJGZ data in this thesis come from Martínez's, Munro's, and my unpublished field notes. Special thanks to Cecilia Lopez, our wonderful SJGZ consultant.

[4] All of the VZ data is presented in orthographies based on the one developed for SLQZ by Munro and Lopez, et al. (1999).

[5] All of the data is this paper is from TMZ unless otherwise stated.

[6] Valley Zapotec language exhibit complex phonological alternations in verb and noun paradigms, of which this change is typical. I will not discuss these in this paper.

[7] The following abbreviations are used in the glosses: 1s: first person singular; 3: third person; AT: semantically bleached locational preposition; dist: distal; HAB: habitual aspect; loc: located; NEU: neutral aspect; PROG: progressive aspect.

[8] Ayoquesco Zapotec is spoken in "Santa María Ayoquesco de Aldama, District of Zimatlán, Oaxaca, Mexico... in the southern extreme of the Valley of Oaxaca" (MacLaury 1989, pg 119). This language is not a VZ language.

[9] However, it may be the case that it is easier to define a noun out of context than it is a preposition, so perhaps the task of defining a word in isolation lends itself to receiving the noun definition.

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Investigating Focus in Noun Phrases

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1. Introduction

This paper reports on an investigation of focal structure in noun phrases from six typologically varied languages.[1] Our research had two goals: to begin exploring the typology of focal structure in noun phrases and to test a methodology for that exploration.

By focal structure, we mean the division within a noun phrase between content which is in focus, or asserted, and that which provides a background, or dominion, for that focus. Sometimes, even typically, none of the content of a noun phrase is asserted (this is true in English of many subject noun phrases). And sometimes all of its content is asserted (for instance, with one word predicate nominals in English). But at other times, assertion is split, so (1), for example, has an interpretation of the object noun phrase where *smooth* is asserted and *square* is background: among square blocks, they prefer smooth ones. A different reading has *smooth square* asserted: among blocks, they prefer smooth square ones.

(1) *They prefer smooth square blocks.*

The two readings differ in what we call focal structure.

In English, focal structure can be reflected in such parameters as distance from the head noun, prenominal vs. postnominal modification, intonation, and perhaps syntactic category membership. Gorbet (2003) shows that these factors, while not unambiguously coding focal structure, do limit the possible focus (vs. background) within a given noun phrase. For example, without contrastive stress, the focus in (1) cannot be either blocks or square blocks.

We wanted to see how assertion versus background is signaled in other languages, so we investigated speakers' strategies for communicating focus on different "adjectival" modifiers in six indigenous languages of the U.S. and Mexico with a range of basic word orders — SOV (Chickasaw, Lakhota, Creek), VSO (two Zapotec languages), and highly variable (Pima).

In order to look at focal structure in these languages, methodological obstacles needed to be addressed. The distinctions that define focal structure are difficult to characterize without a rather esoteric metalanguage, and focal structure is seldom evident from sentences in isolation. What we chose to try was a simulated conversational method intended to create pragmatic and discourse bases for the use of noun-phrase internal focal structure of the sorts we wished to study.

We asked speakers to participate in simulated conversations with a child (either a real young relative of the speaker or a pretended younger version of someone else the speaker

knew) who incorrectly responds to commands and is then corrected. The commands (in the target language) contained nouns with two modifiers; we varied which modifier was responded to incorrectly. This facilitated variation in focal structure.

Props for this experiment were simple paper cut-outs: big balls, little balls, big flowers, and little flowers, all in both green[2] and red. Each simulated scenario involved asking the child (in the target language) for one or more items from one of the eight sets, with the child responding incorrectly, after which the speaker's suggestion of an appropriate way to correct the child was recorded. The basic assumption was that material shared between the correct and incorrect items would be background and material that differed would be asserted.

We should note something we are not doing here. We are not considering intonation, which clearly is another important factor. Actually, however, in the languages considered here whose intonation has been studied carefully, focus intonation appears to play a less important role than in English (see Brown 2001 for Pima, Esposito 2002 for Santa Ana del Valle Zapotec, Gordon 2003 for Chickasaw). But this is clearly a significant area that warrants further investigation.

2. Hypotheses

We began with two notions about how languages would order modifiers within noun phrases, which can be stated as the following two principles:

(2) FOCUS-BASED ORDER

If one modifier in a noun phrase is asserted, while the other is background, then the modifier whose linguistic distance from the head noun is greater will be asserted.

(3) TYPE-BASED ORDER

If one modifier of a noun is a color and the other is a shape or size, the color modifier will be placed closer to the noun.

Principle (3) is a special case of a general principle about the ordering of modifiers (cf. e.g. Dixon 1977).

The results of Croft and Deligianni (2001) and Gorbet (2003) suggest that an asserted modifier will have greater linguistic distance from the head noun than a background one. The linguistic distance[3] between two elements in a construction, such as a modifier and a noun, is greater if there is another morpheme between the two elements. If there are two modifiers on the same side of the head noun, the one farther from that noun will have greater linguistic distance from it than the other. If there is one modifier before the noun and a relative clause containing a second modifier after the noun, the modifier separated from the noun by the relative morphology will have greater linguistic distance from that noun.[4]

There is clearly a tension between principles (2) and (3), since when a color modifier is

asserted, it cannot be closer to the modified noun (as type-based order would predict) under focus-based order.

3. Results

The languages we examined fall into two groups: languages which generally show focus-based order (following principle (2)), even when this entails some violations of type-based order (principle (3)), and languages which show type-based order even when this would go against the principle of focus-based order.

Crucially, there were no languages that had non-color modifiers closer to the noun asserted, or which had prenominal rather than postnominal modifiers asserted.

As the examples below will make clear, speakers had quite different ideas of how to structure their responses to the child's incorrect choices. Responses were most illuminating when the speaker used a 'not X but Y' structure, but we tried not to bias the results by pushing for particular constructions. Speakers employed both adjectival and relative clause modifiers. In our translations of the examples, we will use relative clause translations for relative clauses even though adjectival translations might correspond more naturally to English, and we will use translations like 'red round' even when 'round red' would be much more natural in English.

We encourage other scholars to replicate our experiment. Doing this can teach you things even about languages you know very well. For example, though many speakers resist stacking adjectives on a noun (as in (1) above) in a simple elicitation context, this usually proves to be possible in the appropriate discourse setting.

3.1. Languages that show only Type-Based Order

Some languages consistently conformed to the tendency for color modifiers to appear next to the noun (principle (3)), regardless of assertional structure. These languages were Lakhota and Santa Ana del Valle Zapotec (SAVZ).

3.1.1. Lakhota

Lakhota is a Siouan language spoken in South Dakota.[5] It has SOV word order, with postnominal adjectival verbs[6] and internal-head relative clauses. In one of our mock conversations, the child Baby Marcus was asked for big red balls, but instead selected little red balls. The adult speaker, Mary Iron Teeth, corrected him as in (4). (In this example, as in others in this paper, we boldface the modifier that context shows to be asserted.)

(4) *Thápa shashá cikcík'ala hiná wa-chín shni, thápa shashá*
ball R.be.red R.be.little those 1sI-want neg ball R.be.red
thankínkiyan *hiná icéla wa-chín.*
R.be.big those only 1sI-want
'I don't want those little red balls, I only want those **big** red balls'[7]

(4) could be seen as following either focus-based order, with the asserted modifier farther from the noun, or type-based order, with the color modifier closer to the noun. The crucial cases, of course, are those in which the color modifier is asserted. In such cases, exactly the same structure was used, with the asserted modifier closer to the noun — so Lakhota may be viewed as allowing only type-based order. Thus, in (5), Baby Marcus produced big green balls when asked for big red ones, and Ms. Iron Teeth responded,

(5) *Thápa thothó thankínkiyan hiná wa-chín shni,* ***shashá***
ball R.be.green R.be.big those 1sI-want neg R.be.red
thankínkiyan hiná icéla wa-chín.
R.be.big those only 1sI-want
'I don't want those big green balls, I only want those big **red** ones'

Thus in Lakhota, we see a consistent NOUN COLOR SIZE order, regardless of assertional structure. Stress might be a factor, but we have no data on that at present.

3.1.2. Santa Ana del Valle Zapotec (SAVZ)

SAVZ is a Valley Zapotec language spoken in central Oaxaca, Mexico.[8] It almost certainly has a basic VSO word order (though SVO is a frequent variant), with postnominal adjectives and relative clauses. Fantino Aquino, our SAVZ consultant, used a variety of corrections, all consistent with the NOUN COLOR SIZE type-based order (3).

Often, the suggested correction was a simple repetition of the original command, as in (6), when Baby Argelia offered the little red flower instead of the requested little green flower:

(6) *Ba-nìi'idzh nàa' gyìa'* ***be'rd*** *bi'chi'ih.*
perf-give me flower green little
'Give me the little **green** flower'

Alternatively, Mr. Aquino sometimes used one of several fuller structures that contrasted the incorrect and desired items. (7), where Baby Argelia produced the big red ball instead of the little red ball, is typical:

(7) *Nih ca-unìi'idzh=ùu' nàa're' nàa pelo'ty xnia ròo'oh, ba-nìi'idzh*
rel prog-give=2s.inf me be ball red big perf-give
nàa'pelo'ty xnia ***bi'chi'ih.***
me ball red little
'The one you're giving me is the big red ball, give me the **little** red ball'

Esposito (2002) found little evidence for distinctive focus intonation in SAVZ, a tone language. But in fuller sentences like (7), the juxtaposition of contrasting clauses creates sufficient implicit focus on the differing elements of the requested action even when focus-based order (2) is not used.

3.2. Languages that show Focus-Based Order

Pima, Creek, San Lucas Quiaviní Zapotec (SLQZ), and Chickasaw generally used focus-based order. Even in these languages, however, type-based order was sometimes used.

3.2.1. Pima

The basic word order of Pima, a Uto-Aztecan language of central Arizona, is somewhat controversial, but adjectives precede the noun, and relative clauses generally follow it. [9] In one scenario, Baby Marcus was asked for big red balls, but gave big green balls instead. The adult speaker, Virgil Lewis, corrected him as shown in (8).

(8) *Pi 'a=ñ sha'i ha=tatcua hegam ge'eged: bols m=o ge*
neg aux=1s at.all 3pO=want those R.big balls cp=aux foc
s=cehed:dagi; hegam ge'eged: bols ***m=o*** ***s=vepegi*** *'a=ñ*
stat=R.be.green those R.big balls cp=aux stat=R.be.red aux=1s
'am ha=tatcua.
dist 3pO-want
'I don't want those big balls that are green; I want those big balls **that are red**'

In another case, Baby Marcus was again asked for big red balls, but instead gave little red balls, so Mr. Lewis said,

(9) *Pi 'a=ñ sha'i ha=tatcua hegam s=vepegi bols m=o 'al.haha'asig;*
neg aux=1s at.all 3pO=want those stat=R.red balls cp=aux R.be.little
hegam s=vepegi bols ***m=o*** ***ge'egd:aj***[10] *'a=ñ 'am ha=tatcua.*
those stat=R.red balls cp=aux R. be.big aux=1s dist 3pO=want
'I don't want those red balls that are little; I want those red balls **that are big**'

In these examples, the background modifier is expressed as a prenominal adjective and the asserted modifier is expressed as a postnominal relative clause, thus following focus-based order (2).

Mr. Lewis also used a second style of correction. For example, when Baby Marcus was asked for little green flowers, but instead gave big green flowers, Mr. Lewis said,

(10) *Pi 'a=ñ sha'i ha=tatcua hegam ge'eged: s=cehed:dagi hiohosig,*
neg aux=1s at.all 3pO=want those R.big stat=R.green R.flower
hegam ***'al.haha'as*** *s=cehed:dagi hiohosig 'a=ñ 'am ha=tatcua.*
those R.little stat=R.green R.flower aux=1s dist 3pO=want
'I don't want those big green flowers, I want those **little** green flowers'

When Baby Marcus, asked for little green flowers, instead gave little red flowers, Mr. Lewis said,

(11) *Pi 'a=ñ sha'i ha=tatcua hegam s=vepegi 'al.haha'as hiohosig,*
neg aux=1s at.all 3pO=want those stat=R.red R.little R.flower
hegam ***s=cehed:dagi*** *'al.haha'as hiohosig 'a=ñ 'am ha=tatcua.*
those stat=R.green R.little R.flower aux=1s dist 3pO=want
'I don't want those red little flowers, I want those **green** little flowers'

In examples (10-11), there are two prenominal modifiers, with the first being asserted, following the focus-based order principle (2). However, showing assertional structure through word order was not required: the following alternative to (11), with English-like word order, was also judged fully acceptable:

(12) *Pi 'a=ñ sha'i ha=tatcua hegam 'al.haha'as s=vepegi hiohosig,*
neg aux=1s at.all 3pO=want those R.little stat=R.red R.flower
hegam 'al.haha'as ***s=cehed:dagi*** *hiohosig 'a=ñ 'am ha=tatcua.*
those R.little stat=R.green R.flower aux=1s dist 3pO=want
'I don't want those little red flowers, I want those little **green** flowers'

Here, adherence to the type-based order principle (3) results in the asserted color modifier being closer to the noun than the background size modifier. Focal structure is recoverable from the contrast between the two clauses in (12). (Intonation, however, does not seem to be a factor; Brown (2001) found little evidence for distinctive focus intonation in Pima.)

3.2.2. Creek

Creek is a Muskogean language spoken in central Oklahoma and Florida. [11] Its basic word order is SOV, with postnominal adjectives and internal-head relative clauses. Because 'big' and 'little' are indicated by augmentative and diminutive compounds in Creek, a slightly different paradigm was improvised from available kitchen items.[12] In our simulated conversation, Baby Skyler was asked to pick out one plastic container lid from a set of lids of two shapes and two colors. When he selected the round red lid instead of the square red one, the adult speaker, Juanita McGirt, corrected him as in (13):

(13) *Mohránka cáat-aat* ***satáah-an*** *óhk-ey-s, polóks-aat tóokoo-n*
lid red-emph square-emph.acc mean.H-1sI-ind round-emph not.ptc-ds
'I meant the **square** red lid, not the round one'

When Baby Skyler, asked for the round red lid, offered the round black one, Mrs. McGirt said,

(14) *Mohránka polóks-aat* ***cáat-an*** *óhk-ey-s, lást-aat tóokoo-n.*
lid round-emph red-emph.acc mean.H-1sI-ind black-emph not.ptc-ds
'I meant the **red** round lid, not the black one'

As these examples show, Creek postnominal modifiers are ordered so that the asserted one is last, farthest from the noun and thus showing focus-based order (2).

3.2.3. San Lucas Quiaviní Zapotec (SLQZ)

SLQZ is a Valley Zapotec language spoken in central Oaxaca, Mexico. [13] Word order is VSO, with postnominal adjectives and relative clauses.

Many of the constructions used in our simulated SLQZ conversations are more complex syntactically than those we described for Pima and Creek (or, generally, English). For example, Baby Vanesa, asked for little red flowers, selected big red flowers. The adult speaker, Felipe Lopez, responded,

(15) *M-nnìi'izh nih nàa **bi'chi'ih(=ru')** nàa' nih nàa xniaa.*[14]
perf-give rel be little=more me rel be red
'Give me ones that are **little(r)** that are red'

When Baby Vanesa offered little green flowers in place of the requested little red flowers, Mr. Lopez said,

(16) *M-nnìi'izh nih nàa **xniaa** nàa' nih bi'chi'ih.*
perf-give rel be red me rel little
'Give me ones that are **red** that are little'

Both the shape and color modifiers appear in postnominal relative clauses in (15) and (16). In terms of surface order, the background modifiers appear after the asserted modifiers (and hence at a seemingly greater linguistic distance from the noun), in an apparent violation of focus-based order (2). However, the background modifiers in these sentences have been extraposed (after the dative object *nàa'* 'me'), so within the simple clause the asserted modifier is final (the only modifier is the asserted one).

(17) illustrates a different strategy. Baby Vanesa was asked for the big red flower, but gave the little red flower. Mr. Lopez's response was

(17) *A'ti' nih bi'chi'ih=dya', gyèe'ts xniaa nih nàa bèi'nycwe'enn*
not rel little=pt paper red rel be like
*gyìia' **nih** **bròo'oh** nìi y-nìi'izh=ùu' nàa'.*
flower rel big rel irr-give=2s.inf me
'It's not the little one, the red paper that's like a flower **that's big** is the one you should give me'

The complex phrase specifying the desired item (underlined here) has a different structure than we've seen before, Noun Adjective Relative Clause Relative Clause, with, again, the size modifier farther from the noun than the color modifier, in the "natural" type-based order (3) but not the expected focus-based order (2). (This example isolates the contrasting item in the initial phrase ('it's not the little one'), thus creating an even stronger indication of focus than in similar examples seen previously.)

As (17) suggests, Mr. Lopez felt strongly that the paper "balls" and "flowers" should not be referred to by those names. Thus, 'round paper' is 'ball', and (18) includes a sequence

of three adjectives following the noun, the last of which, following focus-based order (2), is asserted. Baby Vanesa had produced the big green ball instead of the little green ball, and the response was

(18) *Nìi'izh gyèe'ts ngàa' rdoon* ***bi'chi'ih=rù=ih*** *nàa'.*
give paper green round little=more=that me
'Give me that **littler** round green paper'

However, (19), which Mr. Lopez felt was fully equivalent to (18) in this context, is problematical:

(19) *Nìi'izh gyèe'ts ngàa' rdoon nàa'* ***nih*** ***bi'chi'ih=rù=ih.***
give paper green round me rel little=more=that
'Give me that round green paper **that's littler**'

In (15-16), we saw the background modifier extraposed following the dative 'me', but in (19) it is the asserted modifier that is extraposed. Thus, (19) again shows type-based order (3).

3.2.4. Chickasaw

Chickasaw, a Western Muskogean language of south-central Oklahoma, has SOV word order, with postnominal adjectival verb modifiers and internal-head relative clauses.[15] Chickasaw sometimes follows focus-based order (2), but seems to be more faithful to type-based order (3) than the other languages we discussed in this section.

Thus, there are sentences with NOUN COLOR SIZE order, with either the color or size being asserted (violating focus-based order, consistent with type-based order), such as (20), in which speaker Catherine Willmond corrects Baby Loraine's offer of three little green and one big green flower, when little green flowers had been requested:

(20) *Nampakali'* *okchamali-kat*[16] ***sawa'si*** *bíyya'ka-ho*[17] *sa-banna-tok.*
flower be.green-cp.ss be.little.p be.all.over-foc.ds 1sII-want-pt
'I wanted all **little** green flowers'

When, again, Baby Loraine was asked for little green flowers but produced three little green and one little red flower, Mrs. Willmond said,

(21) *Nampakali'* ***okchamali-kat*** *sawa'si* *bíyya'ka-ho* *sa-banna-tok.*
flower be.green-cp.ss be.little.pl be.all.over-foc.ds 1sII-want-pt
'I wanted all little **green** flowers'

Critically, (20) and (21) are identical, both with the NOUN COLOR SIZE order, despite having different asserted modifiers.

(20) and (21) look like the Lakhota sentences in section 3.1.1, but unlike Lakhota, Chickasaw also has sentences where the order is NOUN SIZE COLOR, in which the asserted status of the color modifier is indicated by its greater distance from the noun, in violation of

type-based order (3), but consistent with focus-based order (2). For example, when asked for big red balls, Baby Loraine gave three big red and one big green balls, and Mrs. Willmond responded,

(22)	*To'wa'*	*hichito-kat*	***homma***	*bíyyi'ka-hǫ*	*sa-banna-tok.*
	ball	be.big.p-cmp.ss	be.red	be.all.over-foc.ds	1sII-want-pt
	'I wanted all **red** big balls'				

And when Baby Loraine gave three little green and one little red flower after a request for little green flowers, Mrs. Willmond's response was

(23)	*Nampakąli'*	*sąwa'si-kat*	***okchamali***	*bíyyi'ka-hǫ*	*sa-banna-tok.*
	flower	be.little.pl-cp.ss	be.green	be.all.over-foc.ds	1sII-want-pt
	'I wanted all **green** little flowers'				

Focus intonation in Chickasaw, a pitch-accent language, is not yet fully understood, but it appears to be more subtle than in English.[18]

4. Conclusions

Our investigations clearly show the effects of even a rather minimal context on focus. Focus need not always be explicitly marked at all (or perhaps in some cases, as in English, is marked with intonation, which we did not investigate). Instead, syntagmatic contrast within the utterance — essentially 'you did *this*, but I *want* you do to do *this*' — may convey assertional structure quite well without syntactic marking.

Our results raise some questions we did not consider here. The general effects of extraposition on focus need a lot more investigation as does, perhaps, the variable choice of adjectival versus relative clause modifiers.

Both principles (2) and (3) play a role in the data we have examined:

(2) FOCUS-BASED ORDER

If one modifier in a noun phrase is asserted, while the other is background, then the modifier whose linguistic distance from the head noun is greater will be asserted.

(3) TYPE-BASED ORDER

If one modifier of a noun is a color and the other is a shape or size, the color modifier will be placed closer to the noun.

In two of the six languages we examined, only type-based order was relevant. Focus-based order was supported in each of the other four languages, all languages in which variable modifier orderings were allowed. [19]

No languages showed any results counter to both principles. If a language shows a

violation of type-based order, it is always the case that the color modifier is asserted. That is, there are no examples with NOUN SIZE COLOR or COLOR SIZE NOUN order where the size modifier is asserted.

The reasons for these patterns probably lie in some aspect of the broader parallelism between linguistic distance and conceptual distance (cf. Haiman 1983). A single modifier which constitutes the entire focus of a noun phrase, against the background of the noun plus a second background modifier, cannot have such conceptual closeness factors as inseparability from the noun or being perceived as a unit with it, since the entire noun phrase as uttered contrasts with otherwise identical noun phrases which differ only in having different modifiers. The focus-based order principle (2), then, holds because the asserted modifier is intrinsically conceptually distant from the head noun.

Notes

[1] Great thanks to Fantino Aquino, Mary Iron Teeth, Virgil Lewis, Felipe Lopez, Juanita McGirt, and Catherine Willmond, who graciously provided the data cited below and patiently spent a lot of effort thinking about it; to Jack Martin, who provided enormous help with the Creek data; to Marcus Smith and Argelia Andrade, who cheerfully allowed the pretense they were baby dunces (as well as to Loraine, Skyler, and Vanesa, who aren't dunces either, but who didn't know we were talking about them); to everyone who has contributed to understanding of the languages from which data is presented here; and to the members of the UNM Seminar in Advanced Cognitive Grammar and the UCLA American Indian Seminar, as well as the WAIL audience, for helpful discussion. The support of the Academic Senate and Department of Linguistics of UCLA is also gratefully acknowledged.

[2] We ignore the fact that in a number of these languages the word translated as 'green' also means 'blue'.

[3] We omit here elements of Croft and Deligianni (2001)'s notion (cf. also Haiman 1983) that are not relevant to the data considered here.

[4] Following Gorbet (2003), we would extend (2) to cover also cases where the same modifier could occur either before or after a noun: here, we would hypothesize that the postnominal modifier will be asserted. However, there are no such cases in the data we examine here.

[5] The orthography used is that of the 1999 UCLA Lakhota group.

[6] The glosses assume that these are, in fact, verbs (of (reduced) relative clauses) rather than adjectives, though other analyses might be possible (cf. e.g., MacBride 1999).

[7] Abbreviations used in the examples include acc : accusative, aux : auxiliary, cp : complementizer, dist : distal, ds : different subject, emph : emphatic, foc : focus, H : h-grade, ind : indicative, inf : informal, neg : negative, O : object, perf : perfective, pt : point, ptc : participle, R : reduplication, ss : same subject, stat : stative. 1, 2, 3 are used for first, second, and third persons; s and p are used for singular and plural; and I and II identify inflectional classes in Chickasaw, Creek, and Lakhota. A period separates elements of a complex gloss; an equals sign indicates a clitic boundary. For ease in reading the examples, we have not segmented every morpheme we know about.

[8] SAVZ is very closely related indeed to SLQZ (section 3.2.3 below), though much is still unknown about its grammar. The orthography used here is an adaptation of the SLQZ orthography of Munro and Lopez et al. (1999).

[9] Pima is written here in the orthography of the UCLA Pima Group. Note that *d:* is a voiced (lenis) alveolar stop and *e* is a high, back, unrounded vowel.

[10] The variation in form between predicative and modifying uses of 'big' and 'little' is mysterious. All predicative adjectives are glossed with 'be' here (they never are used with a

copula).
[11] Creek is written here in the standard linguistic orthography (*r* indicates the voiceless lateral fricative).
[12] Thanks to Jack Martin for both analytical and practical help here.
[13] The orthography used here is described in Munro and Lopez, et al. (1999).
[14] SLQZ predicate adjectives vary considerably in whether they obligatorily or optionally require a copula. We are assuming, however, that they are indeed all adjectives and have glossed them accordingly.
[15] The orthography used is that of Munro and Willmond (1994). As in Lakhota, it is not completely clear whether a noun followed by an adjectival verb should be regarded as a noun + modifier or a (reduced) relative clause.
[16] A same subject switch-reference marker is used on the first of two modifying adjectival verbs in these sentences. Mrs. Willmond periodically omitted this marker, but always said it could/should be there, so it is included everywhere for consistency.
[17] Noun phrases that include an adjectival modifier are often followed by the focus switch-reference (or case marker) suffix.
[18] Gordon (2003) studies focus intonation in Chickasaw sentences that employ the contrastive nominal suffix *–ako,* finding that intonational cues to contrastive focus exist but are less robust than in English. It's not known, however, how Gordon's observations can be extended to nominals that are semantically focussed without contrastive marking, as in our data.
[19] We have not cited Creek examples that prove this, but preliminary work suggests that sentences following the type-based order (3) are used in that language as well.

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Inverse Agreement, Argument Structure, and Hierarchy-Driven Phenomena in Ojibwe*

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1 Introduction

1.1 Overview

Competing grammatical theories have given opposing explanations for the phenomenon of inverse agreement, particularly in the Algonquian languages. Most of these discussions are restricted to exploring the interaction between the two domains of semantic role and grammatical function. Some of them mention the influence of hierarchies of person, animacy, and /or obviation, but few give these hierarchies more than passing significance. The exception is Aissen 1999, in which alignment of semantic role with dimensions like person, obviation, and animacy is said to be the main factor yielding the direct and inverse functions. No analysis that I am aware of has yet made an attempt to incorporate such hierarchies into a formal system. This paper undertakes that project, providing a Head-Driven Phrase Structure Grammar (HPSG) analysis of Ojibwe inverse agreement, drawing heavily on the insights of Dahlstrom 1991 and Aissen 1999. I show that in Ojibwe a topicality hierarchy (Valentine 2001) plays the pivotal role in determining verbal agreement, and that the directional marking system (i.e. inverse or direct agreement) determines the mapping between semantic role and position on the hierarchy, while the mapping between semantic role and grammatical function remains unchanged.

In this paper I first provide an overview of the phenomenon of inverse agreement in Ojibwe, and began to build the necessary components of an analysis in the framework of (HPSG). In section two, I examine the 'structural inversion' approach to analysis of this construction, and in section three, I examine a different approach, the 'morphological' account. Section four looks at other linguistic phenomena in other languages which crucially involve notions of hierarchy, and section five implements a prominence hierarchy in the HPSG analysis.

1.2 Inverse agreement

Ojibwe is a head-marking language with essentially free word order[1], and as such is known for its very complex verbal morphology. Ojibwe verbs are divided into four classes. This paper deals with only one of the four verb classes – namely, transitive animate (TA) verbs, which are those transitive verbs in which the patient of the action is grammatically animate. (See the appendix for further information.) I also deal with only one of the three inflectional orders in Ojibwe – the indicative order, which is the order of simple sentences and matrix clauses. TA verbs obligatorily inflect for agreement with their two arguments. Overt nominals in these clauses are optional, and the agreement morphemes occur with or without overt nominals. Yet the person-agreement morphemes

alone are not sufficient to indicate which argument fills which semantic role. For now I will use the terms 'subject' and 'object' to refer to the two NP arguments of the transitive verb. Later we will examine whether these terms are the most appropriate, or if we should rather refer directly to the agent and patient of the verb. Consider the examples below. (Unless otherwise indicated, all data is from Valentine's 2001 *Nishnaabemwin Reference Grammar*. I use Valentine's representation of the underlying morphology.)

Underlying morphology	Translation	Surface form
(1a) gi – waabam – iN	'I see you (sg).'	gwaabmin
(1b) ni – waabam – aa	'I see him/her/it.'	nwaabmaa
(1c) ni – waabam – igw	'He/she/it sees me.'	nwaabmig

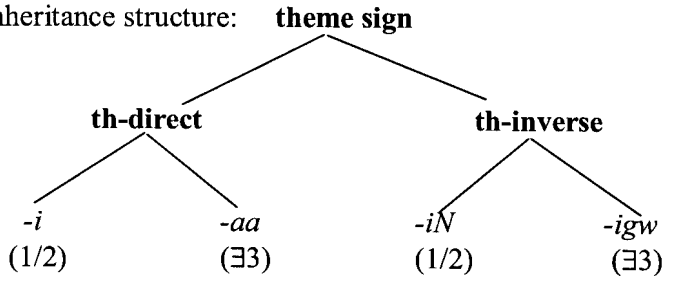
(V: pp 267-272)

At first glance, we might want to call the morpheme *gi-* at the left edge of the word a first-person subject morpheme. But in (1b) we have again a first-person subject but a different morpheme (*ni-*) at the left edge of the word. And in (1c) we again have the morpheme *ni-* but now the first-person participant is the object rather than the subject. Clearly, there is not a direct, unmitigated mapping from a single participant/semantic role to the morpheme at the left edge of the word.

1.3 Theme signs

Ojibwe TA verbs have a position (the right edge of the word in the examples given above) for a morphological marker called the theme sign. There are four possible theme signs in Ojibwe, two of the class called 'direct', and two 'inverse'. The direct theme signs indicate that the leftmost inflectional affix on the verb[2] refers to the person of the agent of the action, and the inverse theme signs indicate that the leftmost inflectional affix refers to the patient of the action. The diagram in (2) is an inheritance structure for the theme signs in Ojibwe, with the particular lexical items which occur in the Nishnaabemwin dialect. The types **th-direct** and **th-inverse** specify unification information which is inherited by the subsorts (i.e. the particular morphemes).

(2) inheritance structure:



The theme signs *–i* and *–iN* are used when there are no third person arguments[3], and *–aa* and *–igw* are used only if there is at least one third person argument. To show the influence of the theme signs, the previous examples are repeated below, now with complete glosses[4].

(1a')	gi – waabam – iN 2p – see – 1p/2p th-inv	'I see you (sg).'	gwaabmin
(1b')	ni – waabam – aa 1p – see – 3p th-dir	'I see him/her/it.'	nwaabmaa
(1c')	ni – waabam – igw 1p – see – 3p th-inv	'He/she/it sees me.'	nwaabmig

The inverse theme sign *–iN* in (1a') indicates a first-person agent acting on a second-person patient, with the morpheme representing the **patient** appearing at the left edge of the word. The direct theme sign *–aa* in (1b') indicates a first-person agent acting on a third-person patient, with the morpheme representing the **agent** appearing at the left edge of the word. Finally, the inverse theme sign *–igw* in (1c') indicates a third-person agent acting on a first-person patient, with the morpheme representing the **patient** appearing at the left edge of the word.

1.4 Hierarchy and morpheme selection

Given this system, which is regular and productive, we would expect certain other possibilities for the expression of the above meanings, some of which are not available in Ojibwe. Some of the ungrammatical options are shown below.

(3a)	*ni – waabam – i 1p – see – 1p/2p th-dir	'I see you (sg.).'
(3b)	*o – waabam – igw 3p – see – 3p th-inv	'I see him/her/it.'
(3c)	*o – waabam – aa 3p – see – 3p th-dir	'He/she/it sees me.'

The ungrammaticality of these is due to the influence of a topicality hierarchy on the placement of morphemes within the verb-word. The leftmost affix on the transitive verb always represents the participant highest on the topicality hierarchy discussed below. **Direct** theme signs therefore indicate that $\textbf{PERSON}_{\textbf{AGENT}} > \textbf{PERSON}_{\textbf{PATIENT}}$, and **inverse** theme signs indicate that $\textbf{PERSON}_{\textbf{PATIENT}} > \textbf{PERSON}_{\textbf{AGENT}}$.

For certain inflectional phenomena, including agreement on TA verbs, Valentine 2001 develops a topicality hierarchy in Ojibwe. This hierarchy is also reflected in, for example, the selection of prefix for the first-person inclusive and exclusive forms. The first-person inclusive is represented by the second-person morpheme *g-* because second-person is the most prominent on the hierarchy. Valentine's hierarchy combines separate hierarchies of person, animacy, and discourse saliency.

(4) One prominence hierarchy: Valentine's topicality hierarchy

$2 > 1 > X > 3 > 3' > 0$

X : unknown argument (as in passive constructions)

3 : third person proximate argument

3': third person obviative argument
0 : inanimate argument

1.5 A brief excursus on theoretical approaches

Various syntactic analyses have been suggested for inverse agreement in Ojibwe. The common component of one approach (e.g. Rhodes 1976, Rhodes 1994, McGinnis 1999, among others) is the claim that inverse forms involve a reversal of the surface grammatical relations. An alternate approach (e.g. Dahlstrom 1987, Anderson 1992) claims that the surface grammatical relations are the same in both direct and inverse forms, and that the difference between the forms is a matter of morphology rather than of syntax. For clarity, I will refer to the first approach as the 'structural inversion' approach, and to the second as the 'morphological' approach. These labels are meant simply to be descriptive, and I intend no theoretical statements by my choice of terminology.

2 'Structural inversion' accounts

In this approach, the role of the theme sign is essentially to change the mapping between grammatical function and semantic role, with the subject construed roughly as 'the thing that comes first'. This treatment of the inverse is similar to some accounts of the English passive, for example. Under this analysis, the higher participant on the topicality hierarchy is always the subject, and the choice of theme sign indicates the relation between subject/object and agent/patient. When a direct theme sign is used, the subject is mapped to agent and the object is mapped to patient. When an inverse theme sign is used, the subject is now mapped to patient, and the object becomes the agent.

2.1 A movement-based approach

One account along these lines appears in McGinnis 1999. This analysis calls inverse agreement a case of syntactic inversion, and says that syntactic inversion is required whenever the subject is ranked below the object on a simple hierarchy (2>1>else). McGinnis' hierarchy, though its basic structure follows that of Valentine's hierarchy, does not handle cases in which more than one third-person participant is involved.

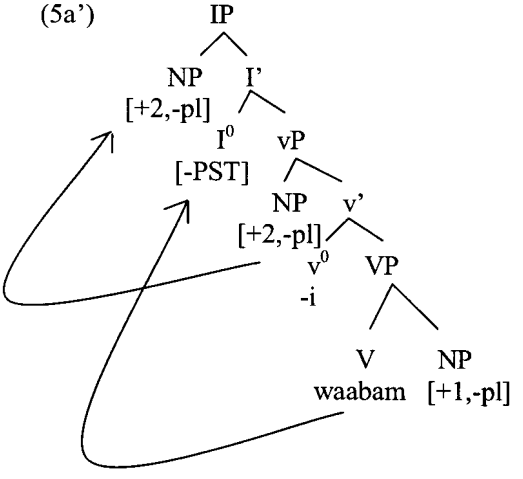
The trees on the next page reflect the basic idea of the analysis in McGinnis1999. In (5a), the direct agreement construction, the object remains in place, and the subject moves up to get case. In (5b), the inverse agreement construction, the underlying subject gets a sort of special case, and the underlying object raises to subject position for case reasons.

There are potentially some questions as to the technical aspects of the movement in this account. First, the syntax has to 'know' whether inversion has taken place in order to determine the morphological realization of the theme sign. Second, case assignment happens differently depending on whether or not inversion has occurred. Nevertheless, the main issue is that this type of account does not adequately capture the importance of the hierarchy. Without explicitly including the hierarchy in the grammar, there is no

principled explanation for why these differences should occur. Neither is there an explanation for how the derivation process determines that inversion has occurred and therefore makes the changes supposedly triggered by inversion.

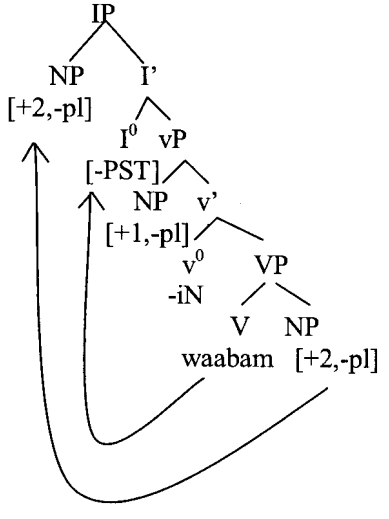
Direct agreement construction: (5a) gi - waabam - i
2p see 1p/2p th-dir
'You (sg) see me.'

(5a')



Inverse agreement construction: (5b) gi - waabam - iN
2p see 1p/2p th-inv
'I see you (sg).'

(5b')



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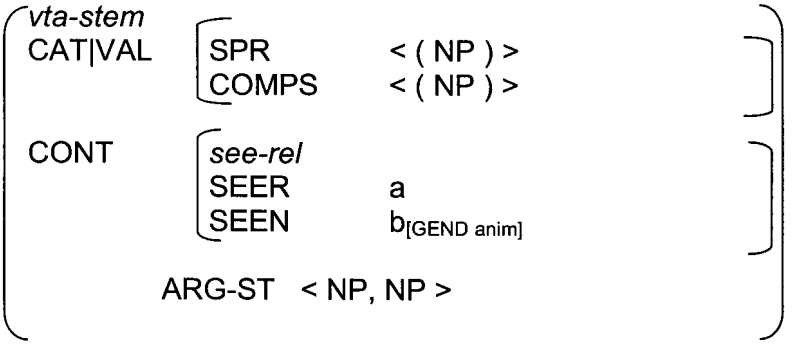
2.2 A lexical approach

This same syntactic inversion analysis can be captured in a unification-based system. We can use HPSG's ARGUMENT-STRUCTURE (ARG-ST) feature to neatly represent the

structural-inversion account. ARG-ST is a list-valued feature found only in lexical heads. Traditionally the ordering of the elements in its value establishes a ranking on the phrases in the phrase structures which correspond to those elements.[5]

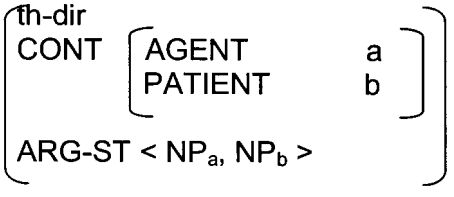
(6) lexical entry for *waabam* – vta-stem 'see'[6]



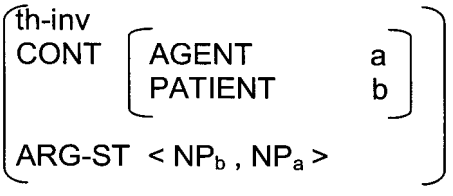
The attribute-value matrix (AVM) above says nothing about the mapping between ARG-ST and the arguments of the verb. This AVM can be seen as an underspecified structure which will depend on the theme sign lexical entry to declare that relationship through unification.

(7) lexical entries for th-dir and th-inv

a.



b.



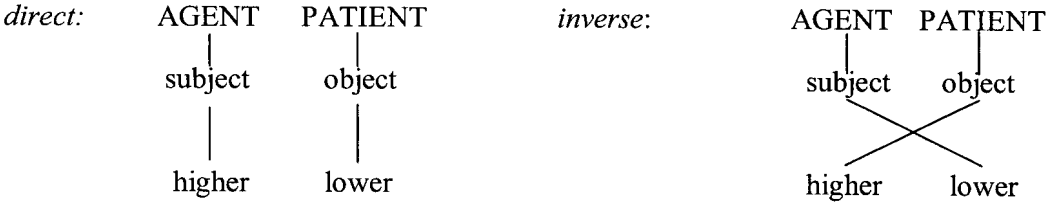
The AVM (7a) maps the subject (i.e. the first element on ARG-ST) to agent and the object to patient. The AVM (7b), representing the inverse theme sign, maps the subject to patient and the object to agent. This analysis also requires the statement of an Argument Hierarchy Constraint (AHC).

AHC for Ojibwe TA verbs: arguments must appear on the ARG-ST list in order of their prominence on the topicality hierarchy

Again, hierarchy is not represented explicitly in the grammar but rather as a principle influencing the verb's ARG-ST list.

3 One 'morphological' account – Dahlstrom 1987

In this approach, a piece of morphology (the theme sign) applies to the verb stem and affects the semantic roles. Whether agreement is direct or inverse, the agent is the subject of the verb and the object is the patient. Because the leftmost inflectional affix is always determined by the participant highest on the topicality hierarchy, the position of the arguments on the hierarchy plays the pivotal part in linking participant to semantic role. The direct theme sign carries the information that the agent is more prominent than the patient, and the inverse theme sign carries the information that the patient is more prominent than the agent. The mapping between semantic role, grammatical function, and hierarchical prominence is represented below.



Dahlstrom assumes that person inflections do not inherently specify grammatical function. As cited in Bresnan 2001: 'the theme markers fix the person of one of the functions, allowing the others to be deduced by the general principles of uniqueness, completeness, and coherence.' The key to making Dahlstrom's analysis sound and principled is to incorporate the notion of hierarchy into the grammatical mechanisms of the language. In the next section, I examine evidence that such a step is motivated by other data, from varying languages and varying linguistic phenomena.

4 Other prominence hierarchies

In many languages, linguistic phenomena rely crucially on invoking hierarchies of various sorts. A few examples are sketched below.

4.1 Hierarchy and inverse function in Tzotzil

Traditional analyses have treated agent focus (AF) verbs in the Mayan language Tzotzil as a sort of antipassive, making reference to argument demotion in terms of argument structure. Aissen 1999[7] rejects these analyses, and instead explains AF verbs in Tzotzil as representing the inverse function, which she defines as the situation when the patient is more prominent than the agent, precisely the situation represented in section 3 above. In Tzotzil prominence is measured by a hierarchy in the domain of obviation.

4.2 '3rd person topicality'[8] (yi-/bi-) in Navajo

This well-known alternation has been analyzed in various manners, all of which appeal in one manner or another to some kind of ranking or hierarchy. Bresnan 2001 explains that for a third-person participant to be the topic of a sentence, its referent must be of equal or

higher rank on the animacy hierarchy than other referents of third-person arguments in the clause. Aissen 2000 relates this phenomena to an obviation hierarchy very similar to that found in the Algonquian languages, and formalizes this through the implementation of an obviation tier as a dimension of linguistic structure.

Willie 1998 and others analyze this grammatical process as interacting with the domain of information structure, with the alternation triggered by the topic/focus status of the patient.

4.3 Stressability hierarchy in Nanti

Crowhurst and Michael 2003 provides an Optimality Theoretic (OT) analysis of stress patterns in Nanti. In their analysis, the distribution of stress in Nanti 'is dictated by a scale that grades syllables as to their "stressability".' Roughly speaking, the stress harmony scale they describe comes from the interaction of vowel quality, syllable weight, and syllable structure. Their analysis relies crucially on OT constraints that encode the following hierarchy:

(9) Nanti secondary stress harmony scale (syllable rhymes)

aaC, aiC > { eeC, eiC; ooC, oiC; uuC, uiC } > iiC > aa > { ee; oo; uu } > ii > aC > { eC; oC; uC } > iC > a > e, o, u > i

In this case, distribution of stress is dictated by a hierarchy of stressability.

5 Implementing a prominence hierarchy in HPSG

To implement a prominence hierarchy in HPSG, I propose a feature called HIERARCHICAL STRUCTURE (HIER-ST) to parallel the ARG-ST list already found in HPSG.

While ARG-ST places conditions on the structural ordering of elements within a phrase, HIER-ST is a list ordered according to the prominence on a language-specific hierarchy. The order of the elements in HIER-ST reflects the ranking of those elements according to the relevant hierarchy. The order of the elements on the list influences hierarchy-sensitive syntactic, morphological, prosodic, or other linguistic phenomena.

In the case of Ojibwe inverse agreement, HIER-ST is implemented as a feature of the lexical entries for the theme signs, which will be revised as shown below.

(10) revised lexical entries for th-dir and th-inv

a.
$$\begin{bmatrix} \text{th-dir} \\ \text{CONT} \begin{bmatrix} \text{AGENT} & a \\ \text{PATIENT} & b \end{bmatrix} \\ \text{ARG-ST} < [1]\text{NP}_a, [2]\text{NP}_b > \\ \text{HIER-ST} <[1]\text{NP}, [2]\text{NP} > \end{bmatrix}$$

b.
$$\begin{bmatrix} \text{th-inv} \\ \text{CONT} \begin{bmatrix} \text{AGENT} & a \\ \text{PATIENT} & b \end{bmatrix} \\ \text{ARG-ST} < [1]\text{NP}_a , [2]\text{NP}_b > \\ \text{HIER-ST} < [2]\text{NP}, [1]\text{NP} > \end{bmatrix}$$

The AVM for the direct theme sign (10a) uses tags to ensure that the first (and therefore most prominent) member of HIER-ST is mapped to the subject position, and from there it is co-indexed with the agent role. In the AVM for the inverse theme sign, the most prominent argument is mapped to the object position, and from there co-indexed with the patient role. The mapping between grammatical function and semantic role remains unchanged. The direct and inverse theme signs are responsible for determining the relationship between position on the hierarchy and semantic role/grammatical function.

The AVM given in (11) is a complete HPSG analysis for *gwaabmin*, 'I see you'. In this we can see the workings of the lexical entries discussed above.

(11) HPSG analysis for
(1a) *gwaabmin* 'I see you.' (inverse agreement)

$$\begin{bmatrix} \textit{vta-verb} \\ \text{MORPH} \;\; \text{F ([1], [2], [3], [4])} \\ \text{HEAD} \;\; \text{verb} \\ \text{VAL} \begin{bmatrix} \text{COMPS} < > \\ \text{THEME} \begin{bmatrix} \textit{th-inv} \\ \text{PHON} < \textit{-iN} > \\ \text{CONT [3]} \begin{bmatrix} \text{AGENT} & [1] \\ \text{PATIENT} & [2] \end{bmatrix} \\ \text{ARG-ST} < [1]\text{NP}, [2]\text{NP} > \\ \text{HIER-ST} <[2]\text{NP}_{[\text{PERS 2, GEND anim}]} , [1]\text{NP}_{[\text{PERS 1, GEND anim}]} > \end{bmatrix} \end{bmatrix} \\ \text{STEM} \begin{bmatrix} \textit{vta-stem} \\ [4]\text{PHON} < \textit{-waabam-} > \\ \text{CAT|VAL} \begin{bmatrix} \text{SPR} & < (\text{NP}) > \\ \text{COMPS} & < (\text{NP}) > \end{bmatrix} \\ \text{CONT} \begin{bmatrix} \textit{see-rel} \\ \text{SEER} & [1]\text{NP} \\ \text{SEEN} & [2]\text{NP}_{[\text{GEND anim}]} \end{bmatrix} \\ \text{ARG-ST} <[1]\text{NP}, [2]\text{NP}> \end{bmatrix} \end{bmatrix}$$

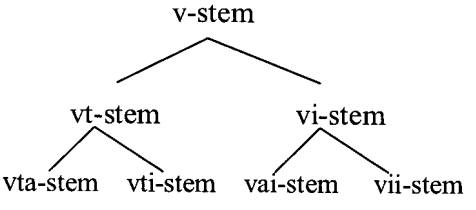
6 Conclusion

Phenomena which depend crucially on configurationally-described argument structure are well known, and this paper has examined a phenomenon in which hierarchical structures play the crucial role. The analysis in (11) has ARG-ST functioning as little more than a trivial intermediary between semantic role and hierarchical position, begging the question of whether we still need this ARG-ST feature. Could we simply replace ARG-ST with HIER-ST *for this language*? To do so would sanction an approach in which the elements of a grammatical system are hand-selected according to the language in question, which is certainly an available approach. Alternately, could we simply redefine ARG-ST *for this language* in order to include notions of hierarchy? This alternative seems to work (section 2.2), but it does not capture the notion that hierarchy is a crucial component of the grammar in its own right.

ARG-ST and HIER-ST have in common that their functions vary cross-linguistically. In Balinese, for example, agentive voice verb forms *do* reorder the ARG-ST list, changing the mapping from semantic role to grammatical function (Wechsler 1999). It will be interesting to see if future investigations may uncover grammatical phenomena which arise from an interaction of argument structure with hierarchical structures, thus giving strong data to support inclusion of hierarchy is a separate component of the grammar.

7 Appendix – "Extras"

7.1 HPSG inheritance structure for verb stems



vta: transitive verbs – AGENT is animate
vti: transitive verbs – PATIENT is inanimate
vai: intransitive verbs – AGENT is animate
vii: intransitive verbs – AGENT is inanimate

7.2 Paradigm for waabam (taken directly from Valentine p.170)

Form	Gloss	Actor	Goal	Theme	Prefix
gwaabam	'you (sg.) see me'	2	1	*i*	<<g>>
gwaabmimin	'you (sg.) see us'	2	1p	*i*	<<g>>
gwaabmin	'I see you (sg.)'	1	2	*iN*	<<g>>
gwaabminim	'I see you (pl.)'	1	2p	*iN*	<<g>>
nwaabmaa	'I see ANsg'	1	3	*aa*	<<n>>
gwaabmaa	'you see ANsg'	2	3	*aa*	<<g>>
wwaabmaan	'ANsg sees ANobv'	3	3'	*aa*	<<w>>
nwaabmig	'ANsg sees me'	3	1	*igw*	<<n>>
gwaabmig	'ANsg sees you'	3	2	*igw*	<<g>>
wwaabmigoon	'ANobv sees ANsg'	3'	3	*igw*	<<w>>
wwaabmigon	'INsg sees ANobv'	0	3	*igw*	<<w>>

ANsg – singular animate entity; INsg – singular inanimate entity; ANobv – animate obviative entity

Recall *–i* and *–aa* are direct theme signs, and *–i* and *–iN* are inverse theme signs. <<g>> is the second person prefix, <<n>> is the first person prefix, and <<w>> is the third person prefix.

Notes

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[1] Quite a bit of work has been done on the discourse information conveyed by word order in Ojibwe. See for example Tomlin and Rhodes 1979, Fuller 1981, Dahlstrom 1995, and others.

[2] The phrase 'leftmost inflectional affix' is a consistenly accurate description only for the simple verb forms under discussion here, as more complex forms place other affixes to the left of the person agreement affix in question. Nevertheless, I will use the phrase throughout to refer to that particular person agreement affix.

[3] Reflexive forms are not part of this paradigm. They use the 'detransitivizing' reflexive suffix *–idizo*.

[4] A larger paradigm of the TA verb *waabam* is given in the appendix.

[5] In English, ARG-ST is said to obey the Argument Realization Principle (ARP) which says that the elements of ARG-ST appear such that the specifier comes first, followed by any complements. This version of the ARP is clearly not applicable in Ojibwe.

[6] Roughly speaking, the CAT|VAL feature represents structural information about the verb, and the CONT feature represents the semantic content.

[7] See also Aissen 2002 for the use of harmonic alignment of prominence scales in an OT approach to a typology of differential object marking.

[8] I take the term '3rd person topicality' from Bresnan 2001.

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On the Syntax and Semantics of Content Questions in Yucatec Maya

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The aim of this paper is to describe and give a preliminary account of the syntax and semantics of content questions in Yucatec Maya, a Mayan language spoken by approximately 800 000 people on the Yucatan peninsula of Mexico and some regions in Guatemala and Belize. Content questions in Yucatec Maya are formed with a closed set of sortally restricted nominals, namely *máax* 'person', *ba'ax* 'thing', *tu'ux* 'place', *bix* 'manner' and *buka'an* 'quantity'. These nominals are not inherently interrogative, as indicated by their glosses. In pre-verbal position, they receive an interrogative interpretation, as illustrated in the examples in (1).[1]

(1) a. **Máax** il -ik -ech?
person see.AF -INC -B2sg
'Who sees you?'

b. **Ba'ax** k- a jant -ik -Ø?
thing IMPF- A2 eat -INC -B3sg
'What are you eating?'

c. **Tu'ux** k- a bin?
place IMPF- A2 go
'Where are you going?'

d. **Bix** a k'aaba?
manner A2 name
'What (lit. how) is your name?'

e. **Buka'an** a k'aat -Ø a maan -eh -Ø ?
quantity A2 wish -B3sg A2 buy -SBJ -B3sg
'How many would you like to buy?'

In section 1 of this paper I demonstrate that the (bold-faced) nominals in (1) are not inherently interrogative: I illustrate a variety semantic types of nominal phrases that they participate in, and identify the structural and semantic conditions under which they receive an interrogative interpretation. The remainder of the paper (sections 2 and 3) is concerned with the licensing of interrogatives in Mayan languages. In section 2 I discuss content questions in Tzotzil, another Mayan language, and Aissen's 1996 syntactic licensing account. Based on a comparison of Tzotzil possessor questions (cf. Aissen 1996) and those of Yucatec Maya, I argue that the syntactic licensing account is not suitable to account for the Yucatec Mayan data and hence to provide a general theory of content questions in Mayan languages. In section 3 I present a semantic licensing account for content questions in Mayan languages. Section 4 concludes the paper. The remainder of this section introduces the relevant features of Yucatec Mayan morphosyntax.

Yucatec Maya, like all Mayan languages, is a head-marking language: in transitive clauses, the A-argument is cross-referenced on the verbal predicate with a pre-verbal clitic and the O-argument is cross-referenced by a suffix. (I use 'S' for the single argument of an intransitive predicate and 'A' and 'O' for the two arguments of transitive predicates, cf., e.g., Dixon 1994.) In the verbal clause in (2), the pre-verbal clitic *in* 'A1sg' cross-references the A-argument of the transitive predicate *chuk* 'catch' and the suffix *–ech* 'B2sg' cross-references the O-argument. (See below for an explanation of the glosses of the cross-reference markers.) Following Bohnemeyer 1998, a verbal clause like (2) is furthermore constituted by an aspect/mood marker which precedes the pre-verbal clitic that cross-references the A-argument (*t-* 'perf(ective)' in (2)) and by a status inflectional suffix (cf. Kaufmann 1990:71) which is *–ah* 'completive' in (2).

(2) T- in chuk -ah -ech.
PERF- A1sg catch -CMP -B2sg
'I caught you.'

Following the convention among Mayanists, the two sets of cross-reference markers that identify the transitive A and O are referred to as 'set A' and 'set B', respectively; e.g., 'A1sg' in (2) identifies the first person singular set A marker. The two sets of cross-reference markers of Yucatec Maya are given in Table 1.

set A:

	sg	Pl
1	in (w)	k/in(w)...-o'on
2	a (w)	a(w)...-e'ex
3	u (y)	u (y) ...-o'ob

set B:

	sg	pl
1	-en	-o'on
2	-ech	-e'ex
3	-Ø	-o'ob

Table 1: Cross-reference markers in Yucatec Maya

The cross-reference markers cannot be associated with a particular semantic role or grammatical function because both sets are used to cross-reference the single S-argument of intransitive predicates. Yucatec Maya is one of the languages which exhibit a fluid-S system that is conditioned by overt aspect (Bohnemeyer, to appear): the S-argument of intransitive predicates is cross-referenced by a set A marker when the predicate is marked with incompletive status and it is cross-referenced by a set B marker when the predicate is marked by completive or subjunctive status. For example, the intransitive verbal predicate *suut* 'return' in (3a) is marked for incompletive status (which is phonologically empty for intransitive active verbs), and therefore cross-references the S-argument by a set A marker (*in* 'A1sg'). In (3b), where the verb is marked by completive status *–nah* 'CMP', the S-argument is cross-referenced by a set B marker (*-en* 'B1sg').

(3) a. K- in suut -Ø.
IMPF- A1sg return -INC
'I return/am returning.'

b. H- suut -nah -en.
PERF- return -CMP -B1sg
'I returned.'

1 Bare singular nominals in Yucatec Maya

The examples in (1) illustrate the closed set of sortally restricted bare singular nominals that are used to form content questions in Yucatec Maya, namely *máax* 'person', *ba'ax* 'thing', *tu'ux* 'place', *bix* 'manner' and *buka'an* 'quantity'. In this paper, I refer to this particular set of nominals as 'general' bare singular nominals. The aim of this section is to illustrate the range of interpretations that 'general' bare singular nominals can receive and compare their use to that of the other, i.e., non-'general', bare singular nominals (henceforth referred to as 'general' and non-'general' nominals). A first difference between 'general' and non-'general' nominals concerns their interpretation in pre-verbal position. In contrast to the 'general' nominals, which receive an interrogative interpretation in pre-verbal position, non-'general' nominals result in a focus interpretation when realized pre-verbally. This is illustrated by the example in (4) where the non-'general' nominal *kay* 'fish' receives a contrastive focus interpretation.[2]

(4) Ma' k'eek'en -i', **kay** -Ø t- in maan -ah -Ø.
NEG pig -D4 fish -B3sg PERF- A1sg buy -CMP -B3sg
'It's not pork, it's fish that I bought.'

The second difference between 'general' and non-'general' nominals concerns their interpretability in post-verbal position. As illustrated in the examples in (5), the nominal *peek'* 'dog' in (5a) may occur in post-VC position where it contributes to the habitual interpretation of the utterance. The 'general' nominal *ba'ax* 'thing', however, is ungrammatical in post-verbal position, as illustrated in (5b).[3]

(5) a. Taan in maan -ik -Ø **peek'**.
PROG A1sg buy -INC -B3sg dog
'I buy dogs.'
b. *Taan in maan -ik -Ø **ba'ax**.
PROG A1sg buy -INC -B3sg thing
(int: I buy things.)

While 'general' nominals cannot occur in post-verbal position by themselves, they are grammatical in post-verbal position when additional content is provided, e.g., by a relative clause. This is illustrated by the examples in (6) where (underlined) verbal clauses are followed by (bold-faced) 'general' nominals. For instance, *ba'ax* 'thing' in (6b) is grammatical in the post-verbal position of the verb *beet* 'do' since it heads the relative clause *k-aw a'al-ik* 'you say it'.

(6) a. Taan in máan in kax **máax** ka'ans –ik -en meyaj.
PROG A1sg pass A1sg search person teach –INC -B1sg work
'I am looking for somebody to teach me how to work.' (AMI:237)
b. Beet -Ø **ba'ax** k- aw a'al -ik -Ø.
do.IMP -B3sg thing IMPF- A2 say -INC -B3sg
'Do what you say.'
c. Ko'ox. Bis -en **tu'ux** t- a bis -aj -o'ob.
lets.go take -B1sg place PERF- A2 take -CMP -PL
'Let's go! Take me to where you took them.' (AMI:95)
d. Beet -Ø **bix** uch in wa'ala -ik tech -o'
do.IMP-B3sg manner REM A1sg say -INC pron.2sg -D2
'Do as I told you!'
e. Maan -Ø **buka'an** k'aat -a'a tech -o'!
buy.IMP -B3sg quantity wish -PSV pron.2sg -D2
'Buy the quantity that they asked you for!'

A third difference between 'general' and non-'general' nominals concerns free-choice interpretations. 'General' nominals receive a free-choice interpretation in the context of *he'en...-ak*, as illustrated in the examples in (7).

(7) a. He'en **máax** -ak h- u beital u bin ich kool
person PERF- A3 can A3 go into milpa
meyah -ej.
work -TERM
'Anybody can go work in the milpa.'
b. Bi'in ken inw uk' -Ø he'en **ba'ax** -ak -eh.
PRED SR.IRR A1 drink -SBJ thing -D3
'I will drink anything.'
c. H- u beital bin he'en **tu'ux** -ak -eh.
PERF- A3 can go place -D3
'I can go anywhere.'
d. He'en **bix** -ak -e' yan in bin baaxa.
manner -D3 OBL A1sg go play
'In any way/whatever happens, I will go to play. '
e. He'en **buka'an** -ak -e' yan in maan -ik tech.
quantity D3 OBL A1sg buy -INC pron.2sg
'No matter how much (it costs), I will buy it from you.'

Non-'general' nominals cannot co-occur with *he'en...-ak*. To create a free-choice nominal headed by a non-'general' nominal *makamaak* together with *he'en* is used, as illustrated in the example in (8a) with the non-'general' nominal *xch'uup* 'woman'.

Without *he'en, makamaak* receives an interpretation comparable to the English 'which', as illustrated by the example in (8b) which is felicitous in a context with an established set of women. The exact contributions of *he'en, makamaak* and *–ak* to the free-choice interpretations are unclear but these examples, too, demonstrate that 'general' and non-'general' nominals are associated with distinct lexical semantic features.

(8) a. He'en makamaak **xch'uup** h- u beital u meyah -eh.
woman PERF- A3 can A3 work -TERM
'Any woman can work.'
b. Makamaak **xch'uup** h- u beital u meyah -eh?
woman PERF- A3 can A3 work -TERM
'Which woman can work?'

A fourth difference between 'general' and non-'general' nominals concerns indefinite interpretations. 'General' nominals form unspecific indefinite noun phrases with the marker of alternatives *wáah* 'ALT', as illustrated in (9).

(9) a. In k'aat ts'o'ok -ok in beel yeetel wáah **máax**.
A1sg wish finish -SBJ A1sg path with ALT person
'I want to marry somebody.'
b. In k'aat in jant -Ø -Ø wáah **ba'ax**.
A1sg wish A1sg eat -SBJ -B3sg ALT thing
'I want to eat something.'
c. In k'aat bin wáah **tu'ux**.
A1sg wish go ALT place.
'I want to go somewhere.'
d. Wáah **bix** -e' in k'aat in maan -eh.
ALT manner-D3 A1sg wish A1sg buy -SBJ
'In some way, I wish to buy it.'
e. In k'aat k- a koon wáah **buka'an** -i'
A1sg wish IMPF- A2sg buy ALT quantity -D4
'I want you to sell some (quantity).'

I refer to *wáah* as a marker of alternatives because in a variety of contexts *wáah* serves to indicate that alternatives are available. In (10a), where *wáah* coordinates two nominal phrases, *wáah* is interpreted as a marker of referential alternatives, comparable to English 'or'. In (10b), *wáah* embeds a proposition: it indicates the availability of propositional alternatives, which results in a conditional interpretation. Finally, *wáah* can cliticize to the main predicate of a proposition in which case it serves as a question/focus marker (cf. also Bohnemeyer 1998:182). This use of *wáah* is illustrated in (10c) where it cliticizes to the predicate *yan* 'exist'.

(10) a. A k'aat le ha' -o' **wáah** le cerveza -o'?
A2sg wish DEF water -D2 ALT DEF beer -D2
'Do you want the water or the beer?'
b. **Wáah** yan ka'ach u na'ate', ayik'al -Ø -eh.
ALT exist formerly A3 intelligence, rich -B3sg -TERM
'If he were intelligent, he would be rich.'
c. Yan **wáah** máak t- aw il -ah -Ø?
exist ALT person PERF- A2sg see -CMP -B3sg
'Did you see somebody?'

Non-'general' nominals cannot occur with *wáah.* Rather, these nominals form unspecific and specific indefinite noun phrases with the indefinite article *jun* 'one', as illustrated in (11).

(11) In k'aat in ts'o'ok -ok in beel yeetel jun -p'e xch'uup.
A1sg wish A1sg finish -SBJ A1sg path with a -CL woman
'I want to marry some woman.'

The results of the uses of 'general' and non-'general' nominals are summarized in Table 2. Although the details of the interpretation of several of the noun phrases that I have illustrated above are still unclear and left to future research, this discussion has two important results. First, 'general' nominals are not inherently interrogative but can participate in a number of semantic types of noun phrases. Second, 'general' and non-'general' nominals differ in their lexical semantic specifications.

nominal	interpretation in pre-verbal position	availability in post-VC position	indefinite interpretation	free-choice interpretation
'general'	interrogative	only with relative clause	*wáah* 'ALT'	*he'en...ak*
non-'general'	contrastive focus	OK	*jun* 'one'	*he'en makamaak*

Table 2: The interpretations of 'general' and non-'general' nominals

I have established above that 'general' nominals are not inherently interrogative. A necessary condition for an interrogative interpretation is their realization in pre-verbal position (cf. examples in (1)). However, this condition is not sufficient. Additionally, the 'general' nominal may not be in the scope of a semantic operator. For instance, the 'general' nominal *máax* 'person' in (7a) occurs in pre-verbal position but does not receive an interrogative interpretation because it is embedded by *he'en...ak.* Similarly, in (9d), *bix* 'manner' is realized in pre-verbal position but co-occurs with *wáah* 'ALT' and hence receives an indefinite rather than an interrogative interpretation. The examples in (12) illustrate further semantic operators that prevent a 'general' nominal

from receiving an interrogative interpretation. In (12a), *ba'ax* 'thing' occurs in the scope of the positive existential predicate *yan*. In (12b), the 'general' nominal *bix* 'manner' is in the scope of negation *ma'*. Finally, in (12c), the 'general' nominal *buka'an* 'quantity' heads a nominal phrase that is embedded by the definiteness construction *le...-o'*.

(12) a. Yan **ba'ax** t- u beet -ah -Ø.
exist thing PERF- A3 do -CMP -B3sg
'There's something (bad) he did.' (AMI:37)

b. Ma' bey -o' **bix** he'l in beet -ik -ej.
NEG so -D2 manner ASS A1sg do -INC -ASS
'That's not how I did it.'

c. Le **buka'an** t- in maan -ah -o' chuka'an tia'a
DEF quantity PERF- A1sg buy -CMP -D2 sufficient for
le janal -o'.
DEF food -D2
'The quantity that I bought is sufficient for the food.'

Concluding, 'general' nominals are a subset of the nominals with particular lexical semantic properties (cf. Table 2). In order for a 'general' nominal to receive an interrogative interpretation it must be realized in pre-verbal position and may not be in the scope of a semantic operator.

2 Aissen's 1996 syntactic licensing account

Aissen 1996 presents a syntactic licensing account for interrogative phrases in Tzotzil, another Mayan language. Tzotzil content questions are formed with four *wh-* roots (cf. Aissen 1996:452): *buch'u/much'u* for persons, *k'u(si)* for things, *bu(y)* for locations and situations, and *jay-* for quantities. Just like in Yucatec Maya, these roots must be realized in pre-verbal position in order to receive an interrogative interpretation and at least *k'usi* is ungrammatical by itself in post-verbal position, as illustrated in (13a) and (13b), respectively. It seems that the Tzotzil *wh*-roots can also participate in other semantic types of noun phrases: (13c) illustrates *k'usi* with the Tzotzil free-choice suffix *–uk*. However, at this point it is unclear whether Tzotzil *wh*-roots are as productive as the 'general' nominals of Yucatec Maya in realizing other types of noun phrases. (I reproduce Aissen's examples with her glosses.)

(13) a. K'usi a-man?
what A2-buy
'What did you buy?' (Aissen 1996:453, ex (16a))

b. *A-man k'usi? (Aissen 1996:453, ex (16b))

c. K'us[i] -uk nox k-uch'.
what -ANY just A1-drink
'I'll drink anything.' (Aissen 1996:475, ex. (77))

In order to account for the fact that Tzotzil *wh*-roots must be realized in pre-verbal position, Aissen proposes (following, e.g., Fukui 1986 and Kuroda 1988) that the *wh*-root must be realized in a position that Agrees with the functional head C which carries the semantic feature [+WH]. This is formulated in her *wh*-Criterion (Aissen 1996:453).

(14) *wh*-Criterion for Tzotzil
a. C[+WH] must Agree with a [+WH] phrase.
b. A [+WH] phrase must Agree with C[+WH] (to be interpreted as interrogative)

Agreement, according to Aissen, is a transitive relation that exists between a head and its specifier and between a head and its projections. Hence, in simple content questions like (13a) the *wh*-root is realized in SpecCP, which is the pre-verbal position that Agrees with C[+WH]. (13b) is ungrammatical since the post-verbal subject position does not Agree with C[+WH].

The assumption that *wh*-roots do not have to be realized directly in SpecCP but in a position that Agrees with C[+WH] is crucial for Aissen in order to account for possessor questions in Tzotzil: in these constructions the *wh*-root is not directly realized in SpecCP but is embedded within a phrase that is realized in SpecCP. Non-*wh* possessors in Tzotzil are realized in post-nominal position. This is illustrated by the example in (15a) where the possessor *li Xun* 'the Xun' is realized after the possessed nominal *s-tot* 'his father'. In order to question the possessor, the phrase that contains the questioned possessor is realized in pre-verbal position, as illustrated in (15b) where *buch'u s-tot* 'whose father' is realized in SpecCP, according to Aissen's analysis. Note that the questioned possessor is realized in a pre-nominal position. As illustrated in (15c), it is ungrammatical in Tzotzil to leave the questioned possessor in the post-nominal position in which non-wh possessors are realized.

(15) a. I-k-il-be s-tot li Xun-e
CP-A1-see-IO A3-father the Xun-ENC
'I saw Xun's father.' (Aissen 1996:456, ex (31a))
b. [Buch'u s-tot]$_i$ av-il-be t_i?
who A3-father A2-see-IO
'Whose father did you see?' (Aissen 1996:457, ex (34))
c. *[S-tot buch'u]$_i$ av-il-be t_i?
A3-father who CP/A2-see-IO
(Whose father did you see?) (Aissen 1996:458, ex (36))

The ungrammaticality of (15c) is accounted for by Aissen's *wh*-Criterion since a wh-word that is realized in the post-nominal position of the fronted phrase does not Agree with C[+WH]. The *wh*-root in (15b) on the other hand is correctly licensed by (14) since SpecDP Agrees with C[+WH]. Prepositional possessor questions further support

Aissen's analysis of Tzotzil. As illustrated in the example in (16b), the prepositional phrase that contains the questioned possessor is realized in pre-verbal position. Again, the questioned possessor is realized not in the post-nominal position but in the specifier position of the fronted prepositional phrase, i.e., in a position that Agrees with C[+WH]. The constructions in which the *wh*-root is realized in the post-nominal or in the specifier position of the embedded DP are ungrammatical, as illustrated in (16c) and (16d), respectively. This is correctly predicted by (14) since these positions do not Agree with C[+WH].

(16) a. I-kom ta s-na.
CP-remain P A3-house
'He remained at his house.' (Aissen 1996:468, ex (58a))
b. Buch'u ta s-na ch-a-bat?
who P A3-house ICP-B2-go
'To whose house are you going?' (Aissen 1996:470, ex (63))
c. *Ta s-na buch'u ch-a-bat?
P A3-house who ICP-B2-go
(Whose house are you going to?) (Aissen 1996:470, ex (65))
d. *Ta buch'u s-na ch-a-bat?
P who A3-house ICP-B2-go
(Whose house are you going to?) (Aissen 1996:472, ex (69))

Aissen's analysis correctly and elegantly accounts for the Tzotzil data. Unfortunately, it is not equally suited to account for the licensing of content questions in Yucatec Maya as I argue in the remainder of this section. First, consider possessor questions in Yucatec Maya. Just like in Tzotzil, non-questioned possessors are realized in post-nominal position: in (17a), the possessor *Pedro* is realized post-nominally and is cross-referenced on the nominal with the set A marker *u* 'A3sg'. In order to question the possessor, the phrase containing the question word has to be realized in pre-verbal position. As illustrated in (17b) and (17c), there are two ways to form possessor questions in Yucatec Maya. In (17b), the complex possessive phrase *u yaal máax* 'whose son' is realized in pre-verbal position and the questioned possessor is realized in the post-nominal position, i.e., the same position in which a non-questioned possessor is realized. (Recall that this construction is ungrammatical in Tzotzil, cf. example (15c).) The example in (17c) illustrates the second way in which possessor questions can be formed in Yucatec Maya: here, the questioned possessor is realized in pre-nominal position and the nominal is marked with the relational suffix *–il*. Note that the possessor in (17c) is not cross-referenced on the nominal predicate with a set A marker.

(17) a. H- luub -Ø [u yaal Pedro].
PERF- fall -B3sg A3sg son Pedro
'Pedro's son fell.'

b. [U yaal máax] h- luub -Ø -ih?
A3sg son person PERF- fall -B3sg -TERM
'Whose son fell?'
c. [Máax yaal -il] h- luub -Ø -ih?
person son -REL PERF- fall -B3sg -TERM
'Whose son fell?'

The 'general' nominals *máax* 'person' in both (17b) and (17c) receive an interrogative interpretation although they do not occupy the same structural position within the fronted nominal. Parallel data exist for questioned possessors that are embedded in prepositional phrases. The prepositional phrase in (18a) is headed by the preposition *yeetel* 'with' which takes the nominal phrase *u kiik Pedro* 'Pedro's sister' as its argument. In order to question the possessor that is embedded in the prepositional phrase, the whole phrase is realized pre-verbally, as illustrated in (18b) and (18c). Note that the questioned possessors in these constructions are not realized in the specifier position of the prepositional phrase (unlike in Tzotzil, cf. (16b)), but are again either realized in the post-nominal position (18b) or in a pre-nominal position (18c).

(18) a. K- in baaxt -ik football [yeetel [u kiik Pedro]$_{NP}$]$_{PP}$.
IMPF- A1 play -INC football with A3 sister Pedro
'I play soccer with Pedro's sister.'
b. [Yeetel [u kiik máax]$_{NP}$]$_{PP}$ k- a baaxt -ik football?
with A3 sister person IMPF- A2 play -INC football
'With whose sister do you play football?'
c. [Yeetel [máax kiik -il]]$_{PP}$ k- a baaxt -ik football?
with person sister -REL IMPF- A2 play -INC football
'With whose sister do you play football?'

Thus, Yucatec Mayan and Tzotzil possessor questions both require the phrase that contains the questioned possessor to be realized in pre-verbal position. However, within the pre-verbal phrase, the questioned possessor is realized in distinct structural positions in the two Mayan languages. This poses a problem for Aissen's structural account for the licensing of *wh*-roots since it assumes that the *wh*-root has to stand in a particular structural configuration with the functional head C[+WH] in order to receive an interrogative interpretation. Aissen's structural licensing account, as it stands, cannot license Yucatec Mayan interrogative phrases and, hence, is not a general account for content questions in Mayan languages.

With respect to Yucatec Maya, a second drawback of Aissen's syntactic licensing account is that it does not take into consideration the lexical semantic properties that distinguish 'general' from non-'general' nominals (recall from above that it is not clear at this point whether Tzotzil wh-roots can participate in the same variety of nominal phrases). This criticism refers to Aissen's 1996 assumption that focused phrases are

realized in a different position than interrogative phrases: Aissen assumes that focused phrases are licensed in a position that Agrees with the functional head I, which is associated with the focus feature [+F]. What this means for Yucatec Maya is that 'general' and non-'general' nominals receive distinct interpretation because they are realized in distinct structural positions. However, if there are particular lexical semantic properties that distinguish 'general' and non-'general' nominals, it does not seem necessary to assume that the two types of nominals are realized in distinct pre-verbal positions in order to derive or license their distinct interpretations. The proposal that 'general' and non-'general' nominals are realized in the same pre-verbal position finds support in Yucatec Maya. First, both in content questions and focus constructions the nominal that receives the interrogative or focus interpretation, respectively, must be realized in the position that immediately precedes the verbal clause. The content question in (19a) is grammatical since *ba'ax* 'thing' immediately precedes the verbal clause and the agent argument *Maria* is realized in post-verbal position. (19b), however, where *Maria* is realized between the question word *ba'ax* 'thing' and the verbal clause is ungrammatical.

(19) a. Ba'ax t- u jant -ah -Ø Maria?
thing PERF- A3 eat -CMP -B3sg Maria
'What did Maria eat?'
b. *Ba'ax Maria t- u jant -ah -Ø?
thing Maria PERF- A3 eat -CMP -B3sg

Similarly, the focus construction in (20a) where *Maria* is realized post-verbally is grammatical but (20b) where *Maria* is realized between the focused nominal *bu'ul* 'beans' and the verbal clause is ungrammatical.

(20) a. Bu'ul k- u jant -ik -Ø Maria.
beans IMPF- A3 eat -INC -B3sg Maria
'Beans is what Maria eats.'
b. *Bu'ul Maria k- u jant -ik -Ø.
beans Maria IMPF- A3 eat -INC -B3sg

Thus, both 'general' and non-'general' nominals are realized in the position that immediately precedes the verbal clause. The assumption that 'general' and non-'general' nominals are realized in the same pre-verbal position finds further support in the fact that an interrogative and focused phrase cannot co-occur: a predication may either realize a content question or a focus construction but not both at the same time, even if this is contextually supported. For instance, consider a context in which Kim and Maria are eating something and we have just asked what it is that each of them is eating. We have been told that Kim is eating tortillas but not what Maria is eating. Thus, our next question, i.e., *What does MARIA eat?*, focuses on Maria and contrasts her with Kim. Even in this context, (19b) is ungrammatical.

Concluding, I assume that the nominals in content questions and focus constructions are realized in the same pre-verbal clause position in Yucatec Maya, thus accounting for the observed co-occurrence restriction. As illustrated in Figure 1, content questions and focus constructions instantiate the same basic structure, consisting of a predicative (e.g., nominal) phrase that immediately precedes the verbal clause. Content questions are henceforth regarded as a subtype of focus constructions since they are formed with a subset of the bare singular nominals, namely the 'general' nominals.

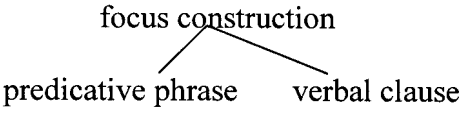

Figure 1: Focus constructions in Yucatec Maya

3 A preliminary account for content questions in Mayan languages

I established in section 1 that 'general' nominals in Yucatec Maya are not inherently interrogative. In this paper, I assume that 'general' nominals like other nominal predicates receive an interpretation as indefinites (cf. Kamp 1981, Heim 1982): they contribute a variable and a descriptive content, and their interpretation depends on the semantic, pragmatic and information-structural properties of the structures they occur in. Why then do 'general' nominals receive an interrogative interpretation in the context of focus constructions (while non-'general' nominals receive a focus interpretation)? I argue here that this is a consequence of (i) the particular lexical semantic features that characterize 'general' nominals, and (ii) the semantic/pragmatic and information-structural properties of focus constructions.

I argue that, information-structurally, focus constructions have a cleft-like structure: the material in the verbal clause of a focus constructions is presupposed while the predicative phrase is focus, i.e., it provides the information that "cannot be taken for granted at the time of speech. It is the UNPREDICTABLE [...] element in an utterance" (Lambrecht 1994:213). For instance, the focus construction in (21a) is appropriate in a context in which the speaker can assume that the hearer knows that 'She is eating something', i.e., the material of the verbal clause of (21a). The presupposition of a focus construction can be modeled as the question that the focus construction provides an answer to, i.e., (21a) is appropriate in a context in which the question 'What is she eating?' is under discussion. Formally, this can be represented as ?x.eat(she,x), or, generally, ?x.VC(x) where x corresponds to the variable that is introduced by the cross-reference marker of the verbal clause (VC) that corresponds to the pre-verbal nominal predicate. The information-structural properties of focus constructions differ crucially from those of the corresponding non-focus constructions (where the nominal predicate is realized in post-verbal position). This can be illustrated

by the following question/answer-pairs: the assumption is that the suitability of an utterance as an answer to a particular question depends on whether its information-structural properties match those of the question. For instance, consultants judge the focus construction (21a) an appropriate answer to the question in (22a) but not to the question in (22b). On the other hand, the corresponding non-focus construction (where the nominal *bu'ul* 'beans' is realized post-verbally) is accepted by consultants as an answer to (22b) but not to (22a).[4] These judgements are accounted for if we assume that the information-structural properties of the focus construction in (21a) differ from those of the non-focus construction in (21b); in particular, if we assume that the (underlined) nominal predicate is in focus in (21a) while it is the entire (underlined) construction in (21b) which is in focus. The questions in (22) (being focus construction, too) also differ in their information-structural properties: in (22a), the question under discussion is 'What is Maria eating?', or ?x.eat(maria,x), while it is 'What is Maria doing?', or ?x.do(maria,x), in (22b). Consequently, the presupposition of the focus construction in (21a) matches the question in (22a) but not the question in (22b) (and vice versa for (21b)).

(21) a. Bu'ul -Ø k- u jant -ik -Ø.
beans -B3sg IMPF- A3 eat -INC -B3sg
'Beans is what she is eating.'
b. Tun jant -ik -Ø bu'ul.
PROG:A3 eat -INC -B3sg beans
'She is eating beans.'

(22) a. Ba'ax -Ø k- u jant -ik -Ø Maria?
thing -B3sg IMPF- A3 eat -INC -B3sg Maria
'What is Maria eating?'
b. Ba'ax -Ø k- u beet -ik -Ø Maria?
thing -B3sg IMPF- A3 do -INC -B3sg Maria
'What is Maria doing?'

Having established the information-structural properties of focus constructions (including content questions), the lexical semantic differences between 'general' and non-'general' nominals can be taken to determine whether the construction receives a focus or an interrogative interpretation. In focus constructions proper, the non-'general' nominal provides the new/unexpected information to the discourse and answers the question under discussion. For instance, *bu'ul* 'beans' in (21a) answers the question under discussion and hence receives a focus interpretation. For the focus construction in the question/answer-pair (21a/22a), the question under discussion is explicit, but note that the question under discussion can also be implicit in a discourse context. This is the case for content questions, which are appropriate in contexts in which the question under discussion has not yet been uttered (or otherwise it would make no

sense to utter the question). Nevertheless, content questions, too, are only suitable in those contexts in which the material in the verbal clause is presupposed. For instance, the content question in (22a) is felicitous in a discourse situation in which the speaker has reason to believe that the hearer, too, knows that Maria is eating something. Hence, the implicit question under discussion is 'What is Maria eating?', or ?x.eat(maria,x). The speaker utters (22a) in order to make explicit the question under discussion, i.e., to inquire what it is that Maria is eating. The lexical semantic properties of 'general' nominals are ideally suited to make explicit the question under discussion without answering it: they are semantically less contentful than non-'general' nominals but provide sortal information that determines whether the question inquires about things (with *ba'ax*), persons (with *máax*), places (with *tu'ux*) and so on. Hence, if a 'general' nominal is realized in or as the phrase that heads a focus construction (and is not in the scope of a semantic operator), it receives an interrogative interpretation. Since this analysis does not require the 'general' nominal to stand in a particular structural configuration to the functional head C, it also licenses the interrogative interpretation of *wh*-roots in Tzotzil in pre-verbal position.

4 Conclusions

I have argued that the 'general' nominals that are used to form content questions in Yucatec Maya are not inherently interrogative. These nominals receive an interrogative interpretation in focus constructions because of the particular lexical semantic properties that characterize these nominals as well as the semantic/pragmatic and information-structural properties of focus constructions. The advantage of this semantic licensing account of interrogatives is that it accomodates structural differences between Yucatec Mayan and Tzotzil content questions. Further development of the account is needed in order to account for the language-particular constraints on the position of the interrogative element: as it stands, the analysis does not predict the structural differences between Yucatec Mayan and Tzotzil possessor questions. Finally, the semantic properties of 'general' nominals/*wh*-roots in Yucatec Maya, Tzotzil and other Mayan language deserve further investigation.

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Notes

1. The data in this paper was collected during my fieldwork or taken from Andrade and Máas 1999 (AM1). The following glosses are used, besides those explained in the text: AF=agent focus voice; ASS=assurative aspect/mood; CL=classifier; CMP =completive status, D1/2/3/4=deictic markers; DEF=definite; NEG=negation; IMP=imperative; IMPF=imperfective aspect; INC=incompletive status; OBL= obligative aspect/mood; PERF=perfective aspect; PL=plural, PRED=predicative aspect/mood; PROG=progressive aspect; PSV=passive; REL=relational; REM= remote past; SBJ=subjunctive status; SR.IRR=irrealis; TERM=terminative marker.
2. Following Tonhauser (to appear, a), I assume that the nominal predicate *kay* 'fish' is the main predicate of this focus construction, hence glossed as *kay –Ø* 'fish –B3sg' (cf. section 2.2 and 3). For simplicity, only relevant content questions and focus constructions are glossed according to this analysis in this paper.
3. The 'general' nominals *ba'ax* 'thing' and *máak* 'person' have non-'general' counterparts *ba'al* and *máak*, respectively.
4. The fact that (21a) and (21b) feature distinct aspect/mood markers can be neglected here. Both utterances are interpreted as progressives in the appropriate context.

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