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ABSTRACT

Papers in this volume include the following:
 "Evidence for Foot Structure in Hausa" (Ousseina Alidou); "Korean 'Tense' Consonants as Geminaes" (Dong-Ik Choi); "Gemination Processes: Motivation, Form, and Constraints" (Mamadou Niang); "Syllable 'Sonority' Hierarchy and Pulaar Stress: A Metrical Approach" (Mamadou Niang); "On the Condition of Adjunction in Barriers" (Hangyoo Khym); "The Logic of Reciprocity Revisited: On the Interpretations of a Reciprocal Construction in Taiwanese" (Jen-i Jelina Li); "A Descriptive Note on Malagasy Verbal Complementation and the Binding Hierarchy: With Special References to the Occurrence of the Complementizer 'fa'"; (Masuhiro Nomura); "Point of View and "Zibun": Toward a Unified Theory of the Japanese Reflexive" (Katsuhiko Yabushita); "The Reflexive Suffix -v in Hualapai" (Joong-Sun Sohn); and "An Ethnopoetic Analysis of a Traditional Kashaya Gambling Narrative" (Mary Swift). (JL)

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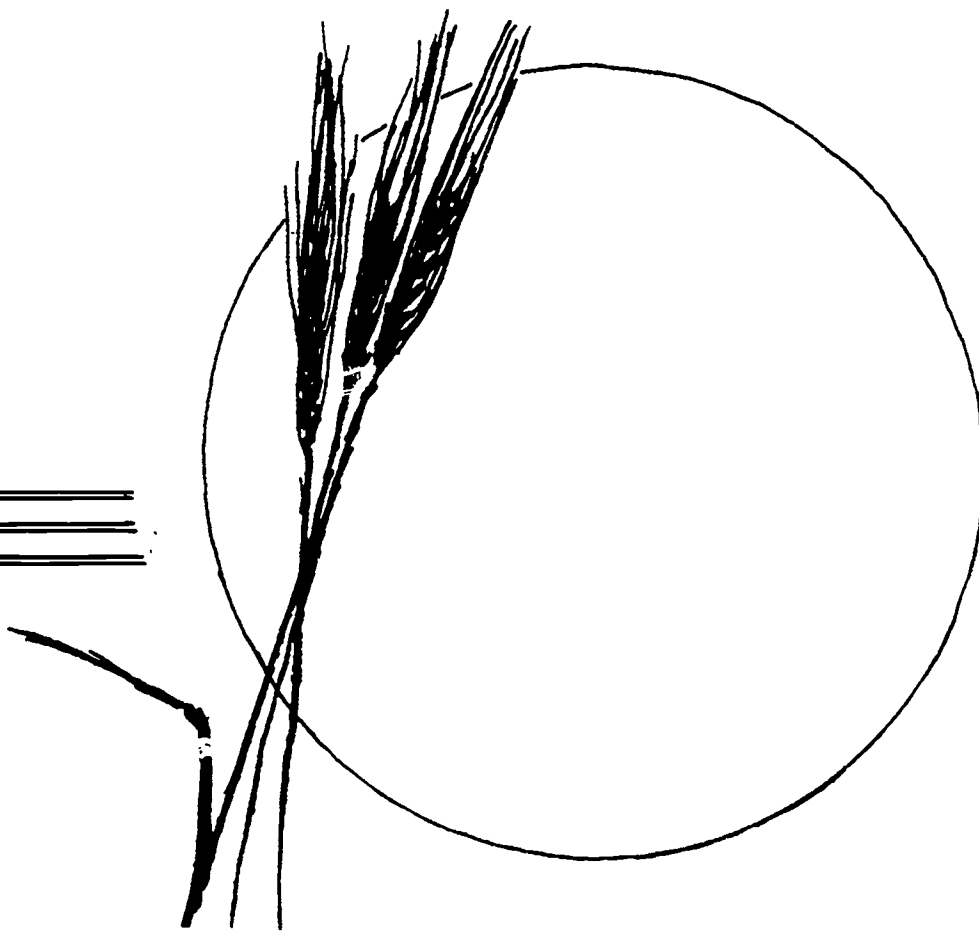
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Part I: General Linguistics

EVIDENCE FOR FOOT STRUCTURE IN HAUSA

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Abstract: McCarthy and Prince (1986, 1990) have put forward the Prosodic Morphology Hypothesis to account for morphological processes (such as reduplication and truncation) that typically require that their output conform to a particular shape of template. This hypothesis claims that morphological templates are analyzable in terms of prosodic units.

In this paper I will show that Hausa nominal reduplication and nickname formation are best analyzed as involving the specification of a foot template. Thus, these two processes provide supporting evidence for McCarthy and Prince's Prosodic Morphology Hypothesis.

1. Introduction

McCarthy and Prince (1986, 1988 and 1990) have observed that a variety of morphological processes in different languages require that their output conform to a particular shape of template. They refer to such phenomena as shape invariant morphology: The types of morphological processes that typically require the specification of a particular template include reduplication and truncation.

In reduplication, what reduplicates normally is specifiable by a specific template, and, in many truncation processes the output also conforms to a specific shape. In order to account for such morphological processes McCarthy and Prince (1986, 1988 and 1990) have put forward the **Prosodic Morphology Hypothesis**. This hypothesis claims that morphological templates are analyzable in terms of prosodic units which can be defined as a syllable (and various types of syllables, such as light syllable or heavy syllable).

In this paper I show that Hausa has morphological processes that make use of an invariant foot template. I specially consider nominal reduplication and nickname formation and show that these are best analyzed as involving the specification of a foot template. Thus, these two processes provide supporting evidence for McCarthy and Prince's **Prosodic Morphology Hypothesis**.

This paper is organized as follows: Section 2 reviews previous account of Hausa nominal reduplication; section 3 presents the analysis of the same process within McCarthy and Prince's prosodic morphology framework; section 4 discusses the limitation of a CV-template account of the Hausa nominal reduplication; section 5 looks at other evidence besides reduplication for the role of foot in templatic morphology in Hausa, focusing on nickname formation; and section 6 presents the conclusion summarizing the results of my analysis.

2. Previous Studies on the Hausa Nominal Reduplication

This section deals with the analysis of a large class of a reduplicative nouns in Hausa, a Chadic language spoken in West Africa. In this language reduplication is of the inherent structure of the monomorphemic nouns presented in Newman (1986) as well as the class 2 nominal plurals discussed in Davis (1988).

The most intensive and insightful study of the process of reduplication has been provided by Newman (1986) and his subsequent research on the subject. But prior to Newman's account of reduplicative nouns in Hausa was Gouffé's (1975) analysis of the reduplication process in the language. Davis (1988) also provided an analysis of Hausa reduplicative nouns within Marantz (1982) framework. Three proposals quite divergent from one another emerged from the tree studies.

Gouffé suggested that the Hausa nominal reduplication involves in some cases prefixation of the CVC-sequence -- a copy of the initial string of the base -- to the base and in other case reduplication of the last consonant of the base and the initial vowel and consonant of a plural suffix. In (1) an example of the stem initial CVC reduplication for deriving nominal plural is illustrated with the word *KaRfii*, whose plural is *KaRKaRfaa*, and in (2) the stem final consonant /k/ and -un- from the plural suffix are reduplicated between the nominal stem and the plural suffix for deriving *jakunkunaa* from *jakaa*.

- (1) *KaRf-ii* 'strength' --> *KàR-KaRf-aa
 --> KaK-KaRf-aa
 'strengthening'
- (2) *jak-aa* 'bag' --> *jak-un-k-unaa* 'bags'
hak-ii 'grass' --> *hak-uw-k-uwaa -->
hak-uu-k-uwaa 'grasses'

Though Newman has given credit to Gouffé for having provided an extensive and accurate description of the general process of reduplication in Hausa, he also criticized Gouffé's work for having failed to make some generalization about the reduplication process involved. Furthermore, Newman argues against CVC-prefix of reduplication postulated by Gouffé's for nominals, and suggests that synchronically what reduplicates in Hausa reduplicated nouns is disyllabic suffix which is a copy of the two rightmost syllables of the root. Following the affixation directionality postulated in Wilbur (1973) and Marantz (1982) Newman argues that the suffixation of the reduplicative affix to the stem directionality is from right-to-left, as illustrated below:

(3) *biri + Copy 2\$ --> biri-biri --> birbirii
'fruit pigeon'

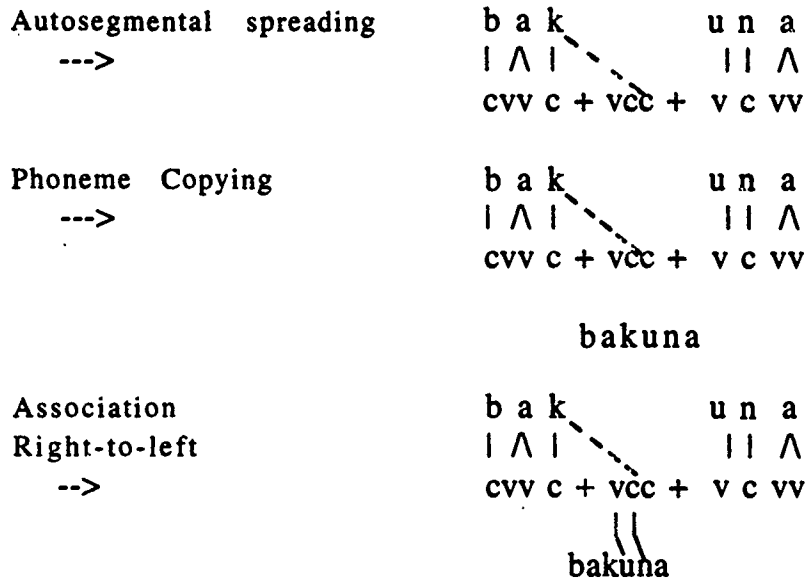
daaguraa + Copy 2\$ --> daaguraa-guraa --> daagurguraa
'pl. act. gnawing'

In (3) above, the vowel of *birbirii* 'fruit pigeon' is lengthened because synchronically Hausa has the tendency to lengthen nominal final vowels.

In Newman's proposal reduplication proceeds by reduplicating the last two full syllables of the stem and after that a regular rule of syncope applies to delete the stem-final vowel when it is in final position in the word.

Davis (1988) proposed an analysis of nominal plurals reduplication in Hausa in Marantz's CV-template approach to reduplication. Davis argues that the Hausa reduplicative template is an interfix --a type of empty morpheme usually beginning with a vowel followed by one or two consonant (i.e, a rhyme plus an onset) which does not add new meaning to the word and which is inserted between the (nominal) stem and the (plural) suffix. In Marantz framework reduplication is viewed as a normal affixation process whereby a phonemic empty reduplicative CV-template is specified as an affix and it acquires its melodic content from the stem through a phoneme copying process. The phonemes then associate one-to-one to the CV-template. The following example illustrates the account by Davis of the reduplication in which there is autosegmental spreading in addition to the phoneme copying process:

(4)	b a k u n a		b a k		u n a
	Λ Λ	Interfixing	Λ		Λ
	cvv c v c vv	-->	c vvc + vcc +		v c vv



(4) shows that [bakunkunaa] is derived from [baakunaa] by inserting the reduplicative interfix *-unk-* between the stem and the plural suffix *-unaa*. The interfix acquires its phonemic content by autosegmental spreading of the stem final consonant and copying of the phonemes of the plural suffix before the final vowel with a right-to-left association.

3. Hausa Nominal Reduplication: Analysis within McCarthy and Prince's Framework

In the following sections I analyze the set of data provided by Newman (1986) regarding the monomorphemic reduplicated nouns as well as the data on nominal reduplicative plural given in Davis (1988) within McCarthy and Prince's (1986, 1988 and 1990) theory of prosodic morphology. The main claim of McCarthy and Prince's theory regarding the reduplication process is that a reduplicative template is analyzable as some sort of invariant prosodic unit which must be structurally a licit prosodic constituent of the language under consideration. They posit that a prosodic constituent can either be a prosodic word (Wd) which is the minimal word in the language, a foot (F) which consists of up to two syllables; a light (monomoraic) syllable (μ) which is a syllable with a short

vowel; a heavy bimoraic ($\mu\mu$) that is a syllable with a long vowel or ending with a consonant ; and a core syllable which is a light syllable in which only one consonant can precede the vowel. According to McCarthy and Prince the reduplicative-template gains its melodic content by a process which will first copy the phonemic content of the stem and then associate one-to-one the copied phonemes to the prosodic template. The direction of the mapping is left-to-right for prefixation, right-to-left for suffixation, and variable for infixation. An example illustrating how the theory works is shown below for Mokilese in which progressive aspect reduplication involves prefixation of an invariant heavy syllable template. Consider the sample data below from the Mokilese language taken from McCarthy and Prince (1988: 21):

(5)	pOdok	pOd-pOdok	'plant'
	pa	paa-pa	'weave'
	di.ar	dii-di.ar	'find'
	caak	caa-caak	'ben'

(6)	pOdok -->	$\sigma +$	$\sigma \sigma$	$\sigma +$	$\sigma \sigma$	$\sigma +$	$\sigma \sigma$
		$\backslash \ /$	$\backslash \ /$	$\backslash \ /$	$\backslash \ /$	$\backslash \ /$	$\backslash \ /$
		pO dok	pOdok	pO dok	pOdok	pO dok	pOdok
	a-/pOdok/	b-prefixation	c-phoneme copying	d-Association	=[pOdpOdok]		

(7)	pa -->	$\sigma +$	σ	$\sigma +$	σ	$\sigma +$	σ
		\backslash	\backslash	$\ / \ /$	$\ /$	$\ / \ /$	$\ /$
		pa	pa	pa	pa	paa	p a
	a-/pa/	b-prefixation	c-phoneme copying	d-Association	[paapa]		

Data: The sample of data below for nominal reduplication in Hausa comes from Gouffé (1975), Newman (1986) and Davis (1988). (10) represents the set of data which Newman refers to as the synchronically frozen reduplicated nouns, and (11) the nominal plural reduplication discussed in Gouffé and Davis.

(10) Synchronically frozen reduplicated nouns (Newman 1986)

wárwáróo	'thin metal bracelet'
bílbílóo	'butterfly'
zánzánáa	'small pock marks'
túntúmfi	'sacre while ibis'
tántáaníi	'membrane'
bálbéelàa	'cattle egret'
KyâKKéegàa	'lame excuse'
gáRgádáa	'mange of goat'
kwâRkwáasàa	'drive ant'
díddígfíi	'investigation'
kúkkúBáa	'cracked cooking pot'
?àdíndínáa	'female grasshopper'

(11) Class 2 plurals (Gouffé 1975 and Davis 1988)

bàkúnkúnàa	'months'
tùdúndúnàa	'high ground'
jàkúnkúnàa	'bags'
bàtúttúkàa	'matter'
gàrúurúwàa	'towns'

The above set of data seem to show two kinds of reduplication patterns in Hausa. While in (10) it seems that the pattern involves for the most part, the reduplication of a prefix which is the initial syllable of the (nominal) stem, in (11) the reduplicative affix looks like a heavy syllable infix.

Analysis: A Prosodic Morphology Account: I argue that the apparent varied patterns of reduplication in Hausa shown in these two sets of data above can be captured by a single

generalization in McCarthy and Prince's prosodic morphology theory. The claim is what reduplicates in nominal reduplication in Hausa is a suffix whose prosodic target is a foot ($\sigma \sigma$). The copied phonemes are mapped right-to-left to the nominal stem as exemplified below:

(12) a- base b- suffixation c- phoneme copying

		F ^			F ^	
σ	σ	\rightarrow	σ	$\sigma + \sigma$	σ	σ
\	/\		\	/\	\	/\
wa	roo		waroo		wa	roo
					waroo	

d- Stem final vowel
deletion

		F ^
σ	$\sigma +$	$\sigma \sigma$
\		
wa	r	waroo

e- coda rule

	F ^
σ	$+ \sigma \sigma$
/\	
war	waroo

f- Association

	F ^	
σ	$+ \sigma \sigma$	
/\	^ /\	
war	waroo	
		= [warwaroo]

(13) a- Base b- Suffixation c- Phoneme copying

		F ^			F ^		
σ	σ	σ	\rightarrow	σ	σ	$\sigma +$	$\sigma \sigma$
\	\	/\		\	\	/\	
?adimaa				?adimaa			?adimaa
							?adimaa

d- Stem final vowel deletion

$$\begin{array}{c} F \\ \wedge \\ \sigma \sigma \sigma + \sigma \sigma \\ \backslash \backslash | \\ ?adim \quad ?adimaa \end{array}$$

e- Coda rule

$$\begin{array}{c} F \\ \wedge \\ \sigma \sigma \sigma + \sigma \sigma \\ \backslash \backslash | \quad \backslash \backslash \\ ?adim \quad ?ad i maa \end{array}$$

f- Association

$$\begin{array}{c} F \\ \wedge \\ \sigma \sigma \sigma + \sigma \sigma \\ \backslash \backslash | \quad \backslash \backslash \\ ?adim \quad ?adi maa \end{array}$$

f- Stray Erasure (Itô 1986): deletion of unassociated segments

$$\begin{array}{c} F \\ \wedge \\ \sigma \sigma \sigma + \sigma \sigma \\ \backslash \backslash | \quad \backslash \backslash \\ ?adim \quad d i maa \end{array}$$

h- Homorganic nasal assimilation

?àdímdímáa --> [?àdíndímáa]

The above derivations require some comments. In (12d) and (13d) I assume that the output of the stem final vowel deletion rule is subjected to Haye's (1989: 268) **Parasitic Delinking Principle** which he formulates as follows: 'Syllable structure is deleted when the syllable contains no overt nuclear segment.' The result of this principle is that when a vowel is deleted from a syllable node as in (12d) and (13d), the syllable node is automatically deleted as well. The stranded consonant is reassociated leftward to a preceding syllable as coda. It is the syllabification of the stranded consonant into a coda position I refer to as coda rule in the derivation.

Following Itô (1986), I assume in (13g) the application of the **Stray Erasure Principle** which requires the deletion of unassociated segments throughout the derivation process. Thus, in (13g) the base initial syllable must be erased because it is not incorporated in the foot affix. Finally I adopt the view that there is no fixed ordering between phonological rules and morphological processes. Some phonological rules may apply before morphological rules and vice-versa.

To sum up, we see that McCarthy and Prince's framework offers a straightforward account of nominal reduplication in Hausa that involves a suffixation of a foot template to the nominal stem.

In the remainder of this section I look at both the account of Hausa nominal reduplication that involves a prefixation process as well as the one that involves infixation. I show that both of these approaches have difficulties in accounting for the data in (10) and (11) in a unified way. This suggests the superiority of the suffixal foot analysis presented in the previous section.

Consider first the prefixation analysis for the derivation of *wárwáróo*, and *bàakúnkúnàa* within McCarthy and Prince's type framework as shown below.

(14) a-Base	b- Prefixation	c- Phoneme copying
$\sigma \quad \sigma \quad \text{-->} \quad \sigma$	$+ \quad \sigma \quad \sigma \quad \text{-->}$	$\sigma \quad + \quad \sigma \quad \sigma$
$\backslash \quad / \backslash$	$\quad \quad \backslash \quad / \backslash$	$\quad \quad \quad \quad \backslash \quad / \backslash$
waroo	wa roo	waroo waroo
d- Association	e- Coda rule	
$\text{-->} \quad \sigma \quad + \quad \sigma \quad \sigma$	$\text{-->} \quad \sigma \quad + \quad \sigma \quad \sigma$	
$/ \backslash \quad \quad \quad \backslash \quad / \backslash$	$/ \backslash \quad \quad \quad \backslash \quad / \backslash$	
waroo wa roo	waroo waroo	

f- Stray Erasure

$$\begin{array}{ccc}
 \sigma & + & \sigma \quad \sigma \\
 / \backslash & & \backslash \quad / \backslash \\
 \text{war} & & \text{waroo} \quad = \quad [\text{warwaroo}]
 \end{array}$$

(15) a-Base b-Prefixation

$$\begin{array}{ccc}
 & & \text{F} \\
 & & \wedge \\
 \sigma \quad \sigma \quad \sigma & \text{--} & \sigma \quad \sigma + \sigma \quad \sigma \quad \sigma \\
 / \backslash \quad \backslash \quad / \backslash & & / \backslash \quad \backslash \quad / \backslash \\
 \text{baakunaa} & & \text{baakunaa}
 \end{array}$$

c-phoneme copying

$$\begin{array}{ccc}
 & & \text{F} \\
 & & / \backslash \\
 \sigma \quad \sigma + & & \sigma \quad \sigma \quad \sigma \\
 & & / \backslash \quad \backslash \quad / \backslash \\
 \text{baakunaa} & & \text{baakunaa}
 \end{array}$$

d-Association

$$\begin{array}{ccc}
 & & \text{F} \\
 & & \wedge \\
 \sigma \quad \sigma \quad + & & \sigma \quad \sigma \quad \sigma \\
 / \backslash \quad / \backslash & & / \backslash \quad \backslash \quad / \backslash \\
 \text{baa} \quad \text{kunaa} & & \text{baa} \quad \text{kunaa}
 \end{array}$$

e-Stray Erasure

$$\begin{array}{ccc}
 & & \text{F} \\
 & & / \backslash \\
 \sigma \quad \sigma \quad + & & \sigma \quad \sigma \quad \sigma \\
 / \backslash \quad / \backslash & & / \backslash \quad \backslash \quad / \backslash \\
 \text{baakun} & & \text{baaku naa} \quad = \quad * \text{baakunbaakunaa}
 \end{array}$$

As shown in (14) and (15) the foot prefixation approach does not operate in a unified manner. While postulating a syllable in (14) as the reduplicative template for deriving

wárwáróo leads to the right output, its yields the wrong result when applied to **bàakúnkúnàa** since the initial syllable does not reduplicate in this form. A prefix syllable also results in the wrong output within McCarthy and Prince's theory as demonstrated in (16).

(16) a-Base b-Prefixation

σ σ σ ---	σ + σ σ σ
/l\ \ \ /l\	/l\ \ \ /l\
baa kunaa	baakunaa

c-phoneme copying

σ +	σ σ σ
/ll\	/l\ \ \ /l\
baakunaa	baakunaa

d-Association

σ +	σ σ σ
/ll\	/l\ \ \ /l\
baakunaa	baakunaa

e-Stray Erasure

σ +	σ σ σ	
/ll\	/l\ \ \ /l\	
baak	baaku naa	= *baakbaakunaa

Let now look at how an infixation account of Hausa nominal reduplication works within McCarthy and Prince's theory of prosodic morphology. Examples (17) and (18) briefly illustrate the result of infixation application to nominal such as **báakúnàa** and **wárwáróo**.

(17) (a) σ + σ σ σ
 /\ \ /\ /\
 baa kunaa <baa>ku naa

(b) Stray Erasure
 σ + σ σ σ
 /\ \ /\ /\
 baa kun <baa>ku naa
 = bàakúnkúnàa

(c) Nasal Assimilation: [baakunkunaa]

(18) (a) σ + σ
 /\ \ /\
 war <wa>roo

(b) Stray Erasure
 σ + σ
 /\ \ /\
 war <wa>roo = *warroo

In (17) and (18) I assume that the reduplicative affix is a syllable which is prefixed to the base with the initial syllable of the base marked extrametrical (expressed by the symbol <>). Association then takes place in a left-to-right fashion. As can be seen in (17) the result of the association yields the right output [bàakúnkúnàa], whereas it produces the wrong output in (18). Thus, infixation does not provide a unified analysis for the data in (10) and (11).

To sum up, I have shown that the two kinds of words -- reduplicated nouns in (10) and the class 2 plurals in (11) -- are problematic for both prefixation and infixation account within McCarthy and Prince's theory of reduplication. Thus, by comparison to my proposal the prefixation and infixation analyses offer a less straightforward account of nominal reduplication process in Hausa. Thus, only the analysis where reduplication is viewed as the suffixing of a bisyllabic foot template can handle the data in (10) and (11) in a unified manner. In the following section, I look at how a CV-template approach along Marantz's line as exemplified by Davis (1988) would account for the reduplication pattern in (11).

4. A CV Account of Hausa Nominal Reduplication

Davis (1988) adopts Marantz's segmental approach to reduplication to account for the reduplication pattern shown in Hausa class 2 plurals presented in (11). He argues that the reduplication process involves the insertion of a VCC interfix before the stem-final vowel and shows how below how the derivation operates within CV-skeletal approach to result in the right output. This section I want to show how Davis' analysis which does not include the data in (10) would have to account for the reduplication pattern shown in this set of data.

In order for Davis to account for the data in (10) his analysis would have to stipulate that the reduplicative infix is a -CVC- sequence rather than a -VCC- sequence as suggested for (10) which is inserted before the stem final vowel. Thus the CV-template approach would yield the following derivation for wárwáróo, as shown below.

- (19) (a) (b) (c)
- | | | |
|-------|----------------------------|----------------------------|
| war o | war o | war o |
| Λ | Λ | Λ |
| --> | --> | |
| cvcv | cvc + cvc + vv | cvc + cvc + vv |
| | | waro |
-
- | | |
|--------------------------------|--------------------------------|
| (d) war o | (e) war o |
| Λ | Λ |
| cvc + c vc + vv | cvc + c vc + vv |
| | |
| waro | war |
- (f) [warwaroo]

Notice if a -VCC- sequence is assumed to be the reduplicative affix instead of a -CVC- sequence, the derivation would result in the wrong output as shown below:

- (20) (a) (b) (c)
- | | | |
|-------|----------------------------|----------------------------|
| war o | war o | war o |
| ^ | ^ | ^ |
| --> | --> | |
| cvcv | cvc + vcc + vv | cvc + vcc + vv |
| | | waro |
-
- | | |
|--------------------------------|--------------------------------|
| (d) war o | (e) war o |
| ^ | ^ |
| cvc + vcc + vv | cvc + vcc + vv |
| | |
| waro | war |
- (f) *[wararroo]

To sum up, I have just shown that a CV-template analysis along the lines of Davis (1988) fails to provide a unified account of the reduplication process involved in the data (10) and (11). Thus, I conclude that the analysis of the Hausa nominal reduplication I propose in this paper involving the suffixing of a bisyllabic foot on the stem is more adequate than Davis' CV account.

5. Other Evidence in Hausa for a Foot Template: Nickname Formation

The question arises as to whether there are other aspects of Hausa morphology that make use of a bisyllabic foot template or whether the use of a bisyllabic foot is peculiar to reduplication and not motivated elsewhere in the language. In this section I want to elaborate another process besides reduplication within the Hausa language which invokes foot as a prosodic template.

McCarthy and Prince (1986) argue that truncation, a process involving the reduction of word size under some morphological conditions, provide supporting evidence for templatic morphology. According to McCarthy and Prince the output of truncation in many languages favors foot creation. They

demonstrate that nickname formation or language games involving truncation usually invoke a foot template. The data in (21) from a Japanese secret language taken from McCarthy and Prince (1986: 259) illustrate a process (often, but not always involving truncation) where the target length of the secret language word is two bimoraic feet (four moras).

(21) Base Form	Secret Form	
maneezyan	zyaamane	'manager'
koohee	hiikoo	'coffee'
ippatu	patuiti	'a shot'
hi	iihii	'fire'

What the data in (21) show is that the Japanese secret language game words conform to a template consisting of two bimoraic feet. As can be seen in (20) the base forms that are more than two bimoraic feet long undergo truncation to satisfy the target template. A base form which is already two bimoraic feet, such as *koohee* undergoes neither lengthening nor truncation since it has already the shape of the template. But syllable inversion rule applies to *koohee* to derive *hiikoo*. A bimoraic word such as *hii* is lengthened by one more syllable to satisfy the target template to derive *iihii*. For *ippatu* the application of the reversal rule for deriving the nickname results in exchange of consonant length. Thus, the /t/ takes the gemination feature of /p/.

Further evidence in favor of the template-base morphology and also for the role of the foot in Japanese is provided by hypocoristic (nickname) formation which has been discussed in McCarthy and Prince (1986), but more clearly in Poser's (1990) article.

Poser (1990) observes that in Japanese hypocoristic formation involves adjoining the hypocoristic suffix /-tyan/ to a base form which is in the most common cases subject to a

two-mora constraint. Furthermore, Poser argues that a non bimoraic base form must undergo multiple modifications such as truncation or lengthening in order to satisfy the two-mora constraint. The sets of data taken from Poser (1990) illustrate his observations.

(22) Truncation in mid-morpheme or mid-syllable

akityan	<	akira
arityan	<	arisa (from English Alicia)
megutyān	<	megumi
wasatyān	<	wa + sabu + roo
tarotyān	<	taroo
zirotyān	<	ziroo

(23) First bimoraic syllable (CVV; CV₁V₂; CVN)

aatyan	<	aasa (a)
syuutyān	<	syuusuke
keityān	<	keiko, keizi
taityān	<	taizoo, taisen
zyuntyān	<	zyunko, zyun
kintyan	<	kinsuke

While the data in (22) show that modification of the base form involves truncation of the base form to the initial two mora of the base to produce exactly two mora, the data in (23) show that then the base initial syllable is bimoraic truncation may apply up to that initial bimoraic syllable. In (24) below it is shown that monomoraic base forms or (C)V₁CVX base form undergo lengthening in order to satisfy the two-mora constraint.

(24) tiiyan	<	ti	(25) attyan	<	atuko
hiityān	<	hiroko	kattyan	<	katuko
iityān	<	izumi	antyan	<	ani

neetyan	<	ane	titty ^{an}	<	ti
niityan	<	ani			
miityan	<	mieko			

In (25) Poser observes that the /t/ of the onset of the hypocoristic suffix is geminated to form the second mora of the preceding syllable of the base which is initially monomoraic. Poser also added that longer names in Japanese also conform to the two-mora constraint since their structure is generally modified to two feet (or four mora) as shown by the data below.

(26)	*wasabutyān	<	wasaburoo
	*gisabutyān	<	gisaburoo

Finally, Poser notes that monomoraic stems or stem forms that are more than bimoraic (or four mora) long cannot constitute a base form for hypocoristic formation.

(27)	*yotyān	<	yoosuke
	*ketyān	<	keezi
	*gityān	<	gisaburoo
	*watyān	<	wasaburoo

On the basis of the above data Poser (1990) argues that the modification process involved in hypocoristic formation in Japanese can best be accounted for by invoking a bimoraic foot template. Thus, nickname formation (and also several other morphological processes described in the same article) provides additional evidence in favor of template-based morphology and the role of foot in Japanese.

In Hausa there is a way of creating nicknames in which the nickname form must be two syllables long or one foot. This

means that for names of more than two syllables the nickname formation process involves truncation, and for names of one syllable the process involves lengthening. Consider, first, the proper names in (28) which all contain more than two syllables.

(28) Proper Name	Nickname
ʔàlkáasùm	ʔàlkáa, káasùm
Mùstáfàa	Mùttáa, ʔàttáa
Hússèináa	Húusèi, Húusèe
ʔìibàràhímàa	ʔìibùu, Bùràa, ʔìiróo
Hàbíibátàa	Hàbíi, Bíibàa
Zèináabùu	Zéinàb, ʔáabùu, Zéinoo, Zéinàa
Bàtúuriyáa	Túurái
Dòomìníikìi (Dominique)	Níikìi
Bìkìitár (Victor)	Bíkìi / <u>V</u> íkìi

The nickname forms of these above proper names all consist of two syllables or one foot. In addition, the shape of the nicknames exhibit some phonotactic constraints that are proper to the Hausa language in general. In general, a heavy syllable constitutes the last syllable of a nominal in Hausa. The above nicknames also satisfy this requirement by putting a heaviness constraint on its second syllable while there is no constraint on the first syllable. This represents evidence for a bisyllabic foot as the template in nickname formation.

Furthermore, if a bisyllabic foot is the target template for Hausa nicknames, then two predictions can be made regarding the derivation of nicknames from monosyllabic and bisyllabic proper names. The first prediction is that in order to derive a nickname from a monosyllabic proper name, the shape of the proper name must be lengthened by one more syllable. The second prediction is that there would not be any reduction or augmentation of syllable for deriving nicknames from

bisyllabic proper names. Monosyllabic and bisyllabic names in Hausa provide strong evidence for these two predictions as shown by the data in (29) and (30).

(29) Proper names	Nicknames
Bân (Ben)	Béenúu
Mâa (mother)	Mámáa

(29) shows lengthening of monosyllabic bases. Moreover, when the base consists of a single CVC syllable, as in *Bân*, a long vowel is added to the base to derive the nickname.

(30) (a)	
Míicál (Michel)	Míishùu
Míicál (Michele)	Míimìi
Dàanyál (Daniel)	Dàanfi
Jiizál (Gisele)	Jíizùu
(b)	
Múusáa	Kàllám, Kàlláa
(c)	
Sáanfi	---
Báarkèe	---
Gwòmmáa	---
Yéeràa (Gerard)	---

In (29) a heavy syllable --CVC -- constitutes the shape of the monosyllabic names. Nicknames formation from this set of names proceeds by long vowel suffixation to the final consonant of the name to create a bisyllabic structure. As for the bisyllabic names in (30a-c), the bisyllabic names undergo slight phonological changes to derive the bisyllabic nicknames. There is no syllable augmentation. In (30b) a bisyllabic nickname is derived from a completely different root from that

of the proper name. Finally in (30c) the disyllabic proper names do not have any nicknames.

To sum up, I have presented evidence that nickname formation in Hausa invokes a disyllabic foot as a prosodic template. The exact same template is required to account for Hausa suffixing reduplication. Hausa nickname formation thus provides independent evidence for the use of a bisyllabic template in Hausa morphology.

6. Conclusion

Summarizing, I have undertaken an analysis of Hausa nominal reduplication within McCarthy and Prince's (1986, 1988 and 1990) framework. I have demonstrated in section 3 that my analysis involving a bisyllabic foot template provides an adequate and even a superior account to partial nominal reduplication in Hausa than a CV-template approach. While in my analysis both patterns of reduplication described for the two sets of data in (10) and (11) are accounted for in a uniform way, both prefixation or infixation approaches in either a CV-template framework or in McCarthy and Prince's theory would have to postulate two kinds of analyses in order to account for the two kinds of words. Furthermore, I showed that Hausa nickname formation processes provide strong supporting evidence for the role of foot structure in Hausa and for McCarthy and Prince's theory of Prosodic morphology in general.

NOTES

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KOREAN "TENSE" CONSONANTS AS GEMINATES

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Abstract: In this paper, I argue that Korean "tense" consonants are geminates which occupy two C positions in a CV-tier. This argument is supported by phonetic evidence such as a longer closure duration of the tense consonants and phonological evidence such as the distribution, integrity, and inalterability of Korean tense consonants as well as the accent placement rule which is sensitive to syllable weight in Korean.

I. Introduction

Korean has three types of consonants: plain, aspirated, and tense. This triple contrast is illustrated in the following examples.

(1)

- a. /p̥ul/ 'fire' /t̥ək/ 'virtue' /ki/ 'spirit' /s̥al/ 'flesh' /c̥am/ 'sleep'
b. /p̥hul/ 'grass' /t̥hək/ 'chin' /k̥hi/ 'stature' _____ /c̥ham/ 'true'
c. /ppul/ 'horn' /ttək/ 'rice cake' /kki/ 'talent' /ssal/ 'rice' /ccam/ 'leisure'

Unlike the other consonants which show a triple contrast, there is a gap in the /s/-series, where no aspirated form occurs.

In this paper, I claim that Korean tense consonants are geminates based upon phonetic as well as phonological evidence. To support this contention, this paper will be organized as follows: In section II, I will deal with the phonetic realization of tense consonants, comparing it with the phonetic realization of plain consonants. In section III, I will deal with the representation of Korean tense consonants as single segments. In section IV, I will deal with the representation of Korean tense consonants as geminates and show that they are more appropriately represented as geminates than as single segments. In section V, I will summarize the phonetic realization and phonological representation of Korean tense consonants and state my conclusion.

II. Phonetic Realization of Tense Consonants

Tense consonants are acoustically characterized by a higher fundamental frequency at the beginning of the following vowel than their non-tense counterparts, according to Kim (1965:349), Han and Weitzman (1970:116), Hardcastle (1973:267) and Kagaya (1974:168-9). This acoustic characteristic is due to "isometric muscular tension" in the thyroarytenoideus muscle, that is, the tensing of the muscle without an associated shortening, as stated in Hardcastle (1973:267) and Dart (1987:139). In addition, both Kim (1965: 351) and Dart (1987:146) report that tense consonants have a higher oral pressure than their plain counterparts. This characteristic is due to a marked increase in lateral cricoarytenoid and vocalis muscle activity, presumably resulting in tension of the vocal folds and constriction of the glottis, according to Hirose et al. (1974:151).

Consider now the phonetic realizations of tense and plain consonants. The tense consonants of Korean are fully realized in the onset position in that they show the characteristics described above and keep their contrast with plain and aspirated counterparts, regardless of whether they occur in a word-initial or an intervocalic position, as in (2).

(2) word-initial position	intervocalic position
a. /ppalli/ [p'alli] 'quickly'	/ippal/ [ip'al] 'tooth'
b. /ttalo/ [t'alo] 'separately'	/itta/ [it'a] 'afterwards'
c. /kkaci/ [k'adzi] 'until'	/akka/ [ak'a] 'some time ago'
d. /ssacən/ [s'adzən] 'rice store'	/issusike/ [is'usigɛ] 'toothpick'
e. /ccacan/ [c'adzən] 'truly'	/kacca/ [kaç'a] 'counterfeit'

Tense consonants, if they occur in the coda position without being followed by vowels, become plain consonants as in (3).

- (3) a. /kkəkkt'a/ [k'əkt'a] 'to pick (a flower)'
 b. /məkəsst'a/ [məgətt'a]¹ 'ate'

There is no contrast between /kk/ and /k/ in the coda position, and /ss/ is not distinguished from /t/.

On the other hand, plain consonants of Korean are fully realized in the onset position so long as they occur in a word-initial position. The contrasts among some of the Korean plain consonants in the coda position, if they are not followed by vowels, are neutralized as in (4).

(4) a. /na_s/ [na_t] 'sickle' b. /na_t/ [na_t] 'grain' c. /na_c/ [na_t] 'day'

cf.) a. /na_s/ + /il/ 'Accusative Case Marker' > /na_sil/ [na_sil]
 b. /na_t/ + /al/ 'grain' > /na_tal/ [na_dal] 'grain'
 c. /na_c/ + /e/ 'Locative Case Marker' > na_ce [na_dʒe]

There is no contrast among /s/ in /na_s/, /t/ in /na_t/, and /c/ in /na_c/.

In addition, there are two more differences between the phonetic realizations of plain and tense consonants. First, the intervocalic plain consonants become voiced as in (5), while the intervocalic tense consonants do not become voiced as in the second examples of each pair in (2).

(5)	word-initial position	intervocalic position
a.	/pa _l in/ [pa _l in] 'right'	/i _p al/ [i _b al] 'haircut'
b.	/ta _c im/ [ta _d ʒim] 'pledge'	/i _t a/ [i _d a] 'to be'
c.	/ka _p u/ [ka _b u] 'right or wrong'	/pu _k a/ [pu _g a] 'addition'

Another difference is that plain and tense consonants differ in length, that is, the duration of closure. Han (1992:216) presents the following table which shows the difference of closure duration between plain and tense consonants.²

(6) Closure Duration of Bilabial and Alveolar Stops in Korean (ms):

phonation	intervocalic		word-initial	
	plain	tense	plain	tense
speaker A	57(12)	172(12)	55(12)	84(12)
speaker B	51(12)	118(12)	51(10)	81(12)
average	54(24)	145(24)	53(22)	83(24)

(): number of tokens

Even though the length of tense consonants varies according to position, they are at least one-and-a-half times as long as plain consonants. These aspects of the phonetic realization of tense consonants imply something about their phonological representation, which will be commented on in the following sections.

III. Tense Consonants as Single Segments

Tense consonants are regarded as single segments by Kim-Renaud (1974), Chung (1980), and Ahn (1985). There are three major pieces of evidence used to support the argument that Korean tense consonants are single segments which are associated with one C-slot in a CV-tier. The three pieces of evidence are concerned with the syllable structure of Korean, resyllabification, and tensification.

1. Syllable Structure of Korean It has been argued that Korean has a (C)V(C) syllable structure at the surface representation. For example, no consonant cluster is allowed in the onset position, while some consonant clusters exist underlyingly in the coda position, as in (7); but even in this case, those clusters are not phonetically realized.

- (7) a. */#lk/ b. */#ks/ c. */#lm/
 /hilk/ 'soil' /nəks/ 'soul' /salm/ 'life'

The consonant clusters in the coda position become corresponding plain consonants and conform to the CVC syllable structure as in (8).

- (8) a. /hilk/ 'soil' [hik] b. /nəks/ 'soul' [nək] c. /salm/ 'life' [sam]

In (8), the contrast among /lk/, /ks/, and /k/ disappears and there is no distinction between /lm/ and /m/.

As already examined, Korean tense consonants occur in both the onset and the coda. If a syllable with a tense consonant in its onset or in its coda is to conform to (C)V(C) syllable structure, tense consonants should be analyzed as single segments.

2. Resyllabification The view of tense consonants as single segments has some advantage in explaining a phonological phenomenon which is called resyllabification, as in (9).

- (9) a. /pap/ 'boiled rice' + /a/ 'Vocative Marker' > $\overset{\sigma}{\uparrow} \overset{\sigma}{\uparrow}$ p a p a
- b. /kim/ 'seaweed' + /il/ 'Accusative Case Marker' > $\overset{\sigma}{\uparrow} \overset{\sigma}{\uparrow}$ k i m i l
- c. /mul/ 'water' + /i/ 'Nominative Case Marker' > $\overset{\sigma}{\uparrow} \overset{\sigma}{\uparrow}$ m u l i

As the above examples show, a segment in the coda position moves to the onset of an adjacent syllable when the segment is followed by a vowel. Since syllabification operates under the maximal onset principle described in Goldsmith (1990:137), a consonant is preferred to be analyzed as occupying a syllable onset rather than a syllable coda. The following examples make it clear that only one of the segments in the coda position undergoes resyllabification, if two segments occupy the coda position.

- (10) a. /salm/ 'life' + /i/ 'Accusative Case Marker' > $\begin{matrix} \sigma & \sigma \\ \uparrow & \uparrow \\ s & a & l & m & i & l \end{matrix}$
- b. /hilk/ 'soil' + /i/ 'Nominative Case Marker' > $\begin{matrix} \sigma & \sigma \\ \uparrow & \uparrow \\ h & i & l & k & i \end{matrix}$
- c. /nəlp/ 'wide' + /i/ 'Nominalizing Marker' > $\begin{matrix} \sigma & \sigma \\ \uparrow & \uparrow \\ n & ə & l & p & i \end{matrix}$

Consonant clusters /lm/, /lk/ and /lp/ as a whole cannot move to the onset of the adjacent syllable because the onset clusters are not allowed.

The following examples contain tense consonants in the coda position.

- (11) a. /kkəkk/ - 'to pick' + /i/ 'Nominalizing Marker' > $\begin{matrix} \sigma & \sigma \\ \uparrow & \uparrow \\ k & k & ə & k & k & i \end{matrix}$
- b. /sa-/ 'to buy' + /ss/ 'Past Tense Marker' + /i/ 'Adjectival Marker' > $\begin{matrix} \sigma & \sigma \\ \uparrow & \uparrow \\ s & a & s & s & i & l \end{matrix}$

Tense consonants in the coda of the first syllable are resyllabified as being in the onset of the next syllable. If the target of resyllabification is only one segment in the coda, the resyllabification phenomenon of tense consonants as in (11) supports the claim that tense consonants /kk/ and /ss/ are single segments.

3. **Tensification** Tensification is a phonological phenomenon in Korean whereby a target consonant is realized as a tense consonant. If tensification is regarded as the change of a phonetic feature of a target plain consonant, this view of tensification presupposes that tense consonants are single segments. Ahn (1985:56-73) classifies several types of tensification in Korean, according to the internal structure of

the word which undergoes the above mentioned phonological process. The first is the tensification of a consonant following an obstruent, which usually occurs in "Noun+Noun" compounds as in /^heksaŋ/ [tʃeks'aŋ] 'study table'. The second type of tensification occurs in "Predicate stem + Ending" as in /sin-ta/ [sin'ta] 'to wear (shoes) + Declarative Marker'. The third is the tensification of a consonant following a lateral sound, which occurs in "Determiner (from verb/ adjective) + Noun" compounds as in /tʰelkam/ [t'elk'am] 'fire wood'. The fourth type of tensification occurs in Sino-Korean³ words as in /paltal/ [palt'al] 'development'. Ahn formulates the following rules to explain the various types of tensification.

- (12) a. Post-Obstruent Tensing (POT)
 [-son] → [+tense] / [-son] _____
 b. Predicate Tensification
 [-son] → [+tense] / [+nasal]]_{V/A} ____ (domain: Stratum 4⁴)
 c. Determiner Tensification
 [-son] → [+tense] / [+lateral]]_D ____ (domain: post-lexical)
 d. Sino-Korean Tensification
 [-son] → [+tense] / [+lateral] _____
 [+cor]

This formulation may be a good description of the phenomena discussed thus far, but is not sufficient to deal with the following phenomenon which is, without a doubt, in the category of tensification. In a word, Ahn's (1985) approach cannot generalize the tensification of Korean.

- (13) a. /son^hin/ 'back of the hand' [son^hin]
 /son/ 'hand' + /in/ 'back'
 b. /mulka/ 'waterside' [mulk'a]
 /mul/ 'water' + /ka/ 'side'
 c. /tin^hpul/ 'lamplight' [tin^hpul]
 /tin/ 'lamp' + /pul/ 'light'

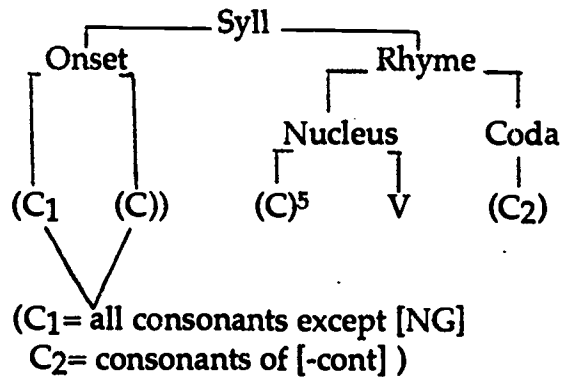
To explain this type of tensification, another rule will be required. In summary, the categorization of Korean tense consonants as single segments explains syllable structure and resyllabification in Korean, but does not generalize tensification.

IV. Tense Consonants as Geminates

Tense consonants are considered geminates by Whitman (1985), Kim (1986), Sohn (1987), Han (1992), and Kim (1992). There is much evidence to support the argument that Korean tense consonants are geminates which occupy two C-slots in a CV-tier. Even some of the supporting evidence for the argument that tense consonants are single segments (for example, syllable structure of Korean and tensification) can be reinterpreted as evidence in support of the view that Korean tense consonants are geminates.

1. Syllable Structure of Korean An alternative to viewing Korean syllable structure as (C)V(C) is based upon the assumption that tense consonants are geminates. Kim (1986:109) presents the syllable template of Korean as in (14).

(14) Syllable Template of Korean



As diagram(14) shows, geminates are the only case where an onset may branch and thus onset clusters are not allowed. The reason consonant cluster onsets are not permissible may be related to the fact that each of the Cs of a consonant cluster is linked to a different element on the harmony tier as in (15a), whereas each of the Cs of a geminate is linked to a single element as in (15b).



In addition, Whitman (1985:285) argues that the existence of geminates in the onset position will require us to allow for branching onsets. The resultant generalization is that Korean allows syllables of the form CCV(C), but not *(C)VCC. This alternative view of Korean syllable structure explains the difference in the distribution of consonant

clusters and tense consonants as well as the former view of Korean syllable structure as (C)V(C) does.

2. Length of Tense Consonants The phonological representation, whereby tense consonants are regarded as geminates, explains in a straightforward way why tense consonants are longer than plain consonants. It is natural that geminates, which occupy two C-slots, should be longer than plain consonants, which occupy only one C-slot, since each C-slot indicates a timing unit.

3. Tensification Tensification is explained by V'hitman (1985), Kim (1986), Sohn (1987), and Kim (1992) in terms of the insertion of a timing slot and the spreading of features. Kim (1992:94-95) explains tensification in terms of the rule of implosion (that is, a non-explosion whose function is the insertion of a timing slot) and in terms of the rule of spreading as follows:

(16) a. The Rule of Implosion

$$\emptyset \rightarrow x / x \quad \underline{\quad} \quad x$$

[+obst] [+obst]

b. The Rule of Spreading

$$\begin{array}{ccc} x & x & \\ & | & \\ & \alpha & \end{array} \rightarrow \begin{array}{cc} x & x \\ & \searrow \swarrow \\ & \alpha & \end{array}$$

Ahn's (1985) approach was described as requiring a new rule to deal with the examples in (13). However, instead of the formulation of a new rule, we can simply apply the view of tensification as the insertion of a timing slot and spreading to explain those examples. In other words, this view can generalize various types of tensification of Korean in a simple and elegant manner.

This analysis of tensification can be associated with a representation of tense consonants. If tense consonants are assumed to be geminates which occupy two C-slots, tensification can be explained as a straightforward process of gemination. However, if tense consonants are assumed to be single segments, further manipulation is required to reduce two C-slots, which are acquired as a result of tensification, into one C-slot. Furthermore, Korean tense consonants have properties of geminates which are described in Goldsmith (1990:76-82).

4. Accent Patterns of Korean Goldsmith (1990:76-82) makes four generalizations concerning geminate consonants, the first of which is that rules that are sensitive to syllable weight, or that establish syllable weight, treat geminate consonants as if they were two consonants. For example, in a language with severe restrictions on syllable codas and onsets, in which a CVC syllable counts as a heavy syllable, the first syllable of a sequence like [bigga] is treated as a heavy syllable because the first part of the geminate **gg** is syllabified as the coda of the first syllable.

A rule which is sensitive to syllable weight is found in Korean. A different accent pattern exists between a word like /ikki/ which is composed of a vowel followed by a tense consonant and a vowel, and a word like /aki/ which is composed of a vowel followed by a plain consonant and a vowel. The word /ikki/ 'moss' has its primary accent on the first syllable, whereas the word /aki/ 'baby' has its primary accent on the second syllable as in Han (1992:210). To explain accent patterns in Korean, Yu (1988:322) proposes the following accent rules:

(17) The Accent Rules of Standard Korean

- a. Give the primary accent on the leftmost heavy syllable of a 'mot phonétique'.
- b. If there is no heavy syllable in the 'mot phonétique', give the primary accent to the rightmost light syllable.

The accent placement on the first syllable of /ikki/ is a result of the application of rule (17a), which means that the first syllable is considered a VC sequence, in other words, the first syllable is regarded as heavy. If the first syllable is to be heavy, the tense consonant should be analyzed as occupying two C-slots in a CV-tier. The first C is in the coda of the first syllable, while the second C is in the onset of the next syllable.

5. Distribution of Tense Consonants The second generalization of Goldsmith (1990:77) is that geminate consonants frequently are allowed in positions where sequences of different consonants are not allowed. Korean has 11 underlying consonant clusters.⁶ They occur in syllable-final position but cannot occur in syllable-initial position. But Korean tense consonants are allowed in the syllable-initial position as in (18) and some of the tense consonants occur in the syllable-final position too, as in (18c-d).

- (18) a. /ppun/ 'only' b. /ttam/ 'sweat' c. /kkəm/ 'gum'
 */pp#/ */tt#/ /səkkta/ 'to mix'
 d. /ssə/ 'bitter' e. /ccim/ 'steamed food'
 /əss/ 'Past tense Marker' */cc#/

This pattern of distribution of the Korean tense consonants matches Goldsmith's (1990) second generalization of geminates.

6. **Integrity** The third generalization of geminates is concerned with the integrity of geminate consonants. Rules of epenthesis, whereby a vowel is inserted to break up impermissible sequences, fail to apply if their application would separate the halves of a geminate. Such a rule of epenthesis is found in Korean. An epenthetic /i/ is inserted to avoid the impermissible sequences of consonants as in (19).

- (19) /mək-/ 'to eat' + /lə/ 'Ending for purpose' > /mək+i+lə/ >
 [məkilə]

To avoid the sequence of /k/ and /l/, /i/ is inserted. The rule of epenthesis in Korean, however, cannot apply to tense consonants. For example, the tense consonant /kk/ of /takki/ 'a person who shines (something)' can never be separated by an epenthetic /i/. The insertion of the epenthetic /i/ into /takki/ results in the unacceptable */takiki/. This fact that the epenthetic rule of Korean does not apply to Korean tense consonants is consistent with Goldsmith's (1990) third generalization of geminates.

7. **Inalterability** The last generalization of geminates in Goldsmith (1990:80) is that rules that modify the segmental quality of consonants fail to apply to geminates. Korean has a voicing rule which changes voiceless consonants into voiced ones intervocalically as in (20).

- (20) a. /ak̥a/ [aga] 'baby' b. /op̥a/ [oba] 'overcoat'
 c. /su̥ta/ [suda] 'chattering'

Plain consonants are affected by this voicing rule as in (20), whereas tense consonants are not affected by this rule as in (21).

- (21) a. /ak̥ka/ [ak'a] 'sometime ago' b. /opp̥a/ [op'a] 'brother'
 c. /itt̥a/ [it'a] 'afterwards'

If this voicing rule is defined to be a spreading rule, whereby the voicing feature is spread to only one skeletal slot, the reason tense consonants do not undergo this spreading rule can be explained by the assumption that tense consonants are geminates which occupy two skeletal slots. As stated, the four generalizations about geminates in Goldsmith (1990) support the argument that Korean tense consonants are geminates.

V. Conclusion

From the evidence presented, it can be concluded that the tense consonants of Korean are geminates. Phonetic realizations and phonological phenomena concerning Korean tense consonants support this conclusion. Tense consonants in Korean are acoustically and articulatorily differentiated from plain consonants. Tense consonants, unless they are in the coda without a following vowel, are phonetically fully realized in that they show their own phonetic characteristics, such as a higher fundamental frequency at the beginning of the following vowel, and a higher oral pressure. The crucial phonetic realizations of Korean tense consonants, concerned with the phonological representation of them, is that first, tense consonants are not realized as voiced ones as corresponding plain consonants do and secondly, the closure duration of tense consonants is longer than that of plain consonants. These aspects of the phonetic realization of tense consonants are reasonably explained if tense consonants are geminates which occupy two C-slots in a CV-tier. Furthermore, there are some phonological phenomena which can be explained if tense consonants in Korean are regarded as geminates and, in fact, these phenomena match the characteristics of geminates described in Goldsmith (1990). These characteristics include the distribution of Korean tense consonants, their integrity and inalterability, and their influence on the syllable weight, which plays an important role in determining accent placement.

While there is some evidence to support the view that Korean tense consonants are single segments, most of it can be reinterpreted as evidence for the argument that Korean tense consonants are geminates.

The only problem with the representation of Korean tense consonants as geminates is that this view cannot provide a satisfactory explanation of resyllabification. One may try to reinterpret e/en resyllabification to make it a piece of supporting evidence for Korean

tense consonants as geminates. But this trial induces a rather complex process, the reality of which is dubious. Consider the first example of (11) again, as in (22).

- (22) a. /kkək^σk^σ/ 'to pick' + /i/ 'Nominalizing Marker' > b. /kkək^σk^σi/ >
 c. /kkə^σk^σi/

(22b) is a result of resyllabification whereby only the second C-slot in the coda position moves to the onset of the adjacent syllable. In order to get (22c), tensification and "CC cluster Simplification" should apply to (22b).

NOTES

¹ This is not a final phonetic form. The final form is [mægət'a]. In order to get this form, [mægətt'a] should undergo what Ahn (1985:65) calls "CC cluster Simplification," whereby [tt'] is changed into [t']. In each of the examples, intervocalic voiceless consonants are represented as voiced counterparts in their phonetic forms. In this example, intervocalic /k/ is realized as [g].

² Dart (1987) also points out the difference of closure duration between tense stops and plain stops. According to Dart (1987:42), the average closure duration of all plain stops is 133.5 ms, and that of all tense stops is 188.25ms.

³ Sino-Korean stands for Chinese loan words. It can be said that Sino-Korean is to Korean what Latinate-English is to English. Pure Korean words do not undergo tensification in the same environment as Sino-Korean words. Compare the following two examples.

- (1) /alci/ [aldzi] '(you) know?' (pure Korean)
 (2) /ilci/ [ilci] 'diary' (Sino-Korean)

The underlined phoneme, whose features are [-son], [+cor] etc., is tensified in the environment [+lateral] _____, only in the Sino-Korean words.

⁴ Ahn (1985:36) assumes that the stratified allocation of word formation processes in the lexicon of Korean is as follows: sub-compounding in stratum 1, co-compounding in stratum 2, derivation in stratum 3, and inflection and Case marking in stratum 4. Sub-compounding is defined as a word-formation process which has a "modifier + head" distinction, while co-compounding is a construction in which there is no "modifier + head" distinction.

⁵ The C-slot in the Nucleus indicates the position where Korean glides [y] and [w] occur. For example, the syllable structure of /kyo/ 'religion' is analyzed as [[k]O [[yo]N]R]s.

⁶ Ahn (1985:167) presents the following consonant clusters as possible codas: ps, ks; nc; lp, lp^h, lt^h, lk; ls, lh; lm; nh. Kim (1986:123-25) includes tensed geminates such as kk, tt, etc. and aspirated geminates such as p^h, t^h, k^h in the category of consonant clusters. I follow Ahn's (1985) approach to possible codas.

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GEMINATION PROCESSES: MOTIVATION, FORM AND CONSTRAINTS

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Abstract: Gemination in Pulaar, a dialect of Fula, does not always follow typically known gemination processes and previous attempts to analyze Pulaar gemination processes (McIntosh 1985, Paradis 1992, Bakovic 1995) were unsatisfactory. The proposed analyses fail to account for numerous exceptions and do not provide a comprehensive analysis of all gemination processes in Pulaar. In this paper I show the shortcomings of previous analyses and provide a satisfactory and comprehensive account of gemination processes in Pulaar.

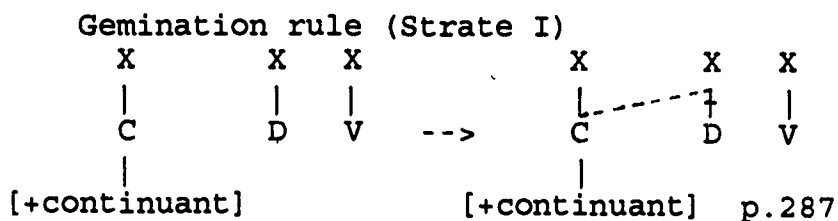
Introduction

Gemination in Pulaar can take various forms and be triggered by various suffixes. Three gemination processes occur in Pulaar. The first type is triggered by the addition of consonant initial suffixes. Contrary to other claims (Paradis 1992), this type of gemination process is not unidirectional. The second gemination process results from the addition of certain vowel initial suffixes. The third type occurs in word initial position. This type of gemination is triggered by the presence of word medial geminates. In the process of analyzing these gemination processes, motivations for and constraints on these processes are highlighted. The letter D stands for a dental implosive, B a bilabial implosive, Y a palatal implosive and ? a glottal stop.

Previous Analyses

In her analysis, Paradis (1993) indicates that gemination in Pulaar is triggered by DV markers. She proposes the gemination rule in (1).

1)



However, in many instances, gemination fails to apply despite the presence of dV markers as illustrated in (2)

2)

bale	de	[bale de]	"the walls"
gite	de	[gite de]	"the eyes"
nate	de	[nate de]	"the pictures"
jale	de	[jale de]	"the hoes"
maje	de	[maje de]	"the lightnings"

Paradis indicates that /ñ, r, w, y/ do not have geminate counterparts. The data in (3) contradicts this claim.

3)

ññ	sóññude/aññeere	"to move gently/grave"
ww	jawwude/lówwirde	"to catch fire/walk around"
yy	sayyaade/layyaade	"to swing/slaughter"

The gemination of r is observed only in borrowed words as in (4)

4)

qirraade	"ascertain"
berraade	"teapot"

Bakovic (1995) whose analysis is based on Paradis (1992) suffers from the same limitations pertaining to the source. In what follows, I provide a comprehensive analysis of all types of gemination processes, viz, gemination from consonant assimilation, vowel initial suffixation and word initial gemination.

I) Gemination from Consonant Assimilation

Gemination from consonant assimilation is triggered by the fact that certain consonant sequences (mostly coronals) /tn, dn, Dn, yn, jn, dt, Dt, Yt, jt, td, Dd, jd, tD, dD, YD, jD, Yd/ are not allowed in Pulaar. Whenever an impermissible sequence is to result from the juxtaposition of certain elements, one of the consonants assimilates to the other consonant. The type of assimilation that obtains generally involves total assimilation, thus indicating why delinking is invoked. Delinking triggers spreading onto the empty slot. The analysis adopted here shows that spreading is not unidirectional. Instead, spreading can be from left to right or from right to left.

To account for gemination processes in Pulaar the following analysis is proposed.

- Delinking
- Spreading (gemination/vowel lengthening)

The suffixes analyzed here are the causative suffix {-n}, the infinitive suffix {-de}, the relative suffix {-Do} and the reversive suffix {t}. In what follows, the operation of the proposed analysis is discussed and data is provided to determine its adequacy.

Considering the data in (5)

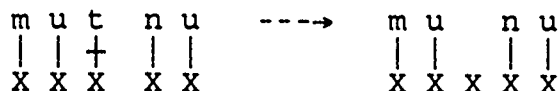
5)

mut	+	n + u	[munnu]	"make go under water"
wood	+	n + u	[wóónnu]	"make exist"
hoD	+	de	[hodde]	"inhabit"
fot	+	de	[fodde]	"to fit"
naat	+	Do	[naaDDo]	"person who entered"
laad	+	Do	[laaDDo]	"person who crawled"
waD	+	t + i	[watti]	"has done again"
sood	+	t + i	[sooti]	"freed himself"

In (5) we note a change in one of the adjacent consonants. The stem final consonant is assimilated and the suffix consonant is geminated.

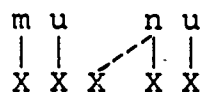
-Delinking leaves an empty X-slot as illustrated in (6).

6)



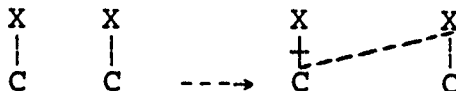
-Spreading of the suffix consonant fills the empty X-slot and gemination results as in (7).

7)



This type of gemination can be captured by the rule in (8)

8)



Leftward spreading occurs filling the empty X-slot. However, this is not the only direction that obtains in Pulaar as shown by the analysis of the data in (9).

9)

Stem	+	rel. suffix		
taY	+	Do	[taYYo]	"person who is worn out"
deeY	+	Do	[deeYYo]	"person who is calm/quiet"
fij	+	de	[fijje]	"to play"

In (9), the suffix consonant is the one undergoing assimilation. The stem final consonant is geminated.

-Delinking leaves an empty X-slot as illustrated in (10)

10)

t	a	Y	D	o	----->	t	a	Y	o
			+						
X	X	X	X	X		X	X	X	X

-Rightward spreading occurs, filling the empty X-slot thus resulting in gemination as illustrated in the following.

t	a	Y	o
X	X	X	X

Unlike what obtains in the gemination processes analyzed so far in this section concerning assimilation processes, the spreading in (10) is from right to left. However, these processes are not the only ones that obtain in Pulaar as shown by the analysis of the data in (11).

11)

maaj	+	n + u	[maaññu]	"make someone salute"
haac	+	de	[haajje]	"to scream"
waaY	+	de	[waaajje]	"to sweat"
maaj	+	Do	[maaYYo]	"person who saluted"

In (11) gemination occurs. This gemination process is somewhat different from the types analyzed so far. In previous instances involving assimilation, after delinking, the features of one segment spread onto the X-slot of the stem final consonant or the suffix initial X-slot. The features of the segment where spreading originates are not affected at all. In (11) a different process occurs. After gemination we get the form [maaññu] not [maannu] or [maajju]. When viewed like the usual spreading of features to a slot which has become vacant because of delinking, we will not be able to account for the gemination that resulted. The delinking from the stem final consonant yields the geminates [maannu] and [aatto]. The delinking of the suffix initial consonant yields the geminates [maajju] and [aayyo] and these geminate forms are different from the surface forms in (11). If delinking is not invoked, we cannot explain why spreading occurs. It is argued here

that delinking occurs first because without delinking, there is no motivation for spreading to occur. However, the palatal feature of the delinked element remain "floating" thus causing the dental nasal consonant suffix to surface as a palatal nasal. If the palatal features did not remain "floating" there is no way of accounting for the palatalization of the dental nasal. This assimilation is reciprocal between the segments in question.

In addition to gemination from consonant assimilation, gemination can also result from vowel initial suffixation.

II) Gemination from Vowel Initial Suffixation

For the analysis of this type of gemination, an important distinction needs to be made between underlying and non underlying geminates. The following data is to illustrate underlying geminates (12).

12)				
bajj	+	-o	[bajjo]	"one and only"
ball	+	-a	[balla]	"male first name"
moYY	+	-o	[moYYo]	"good"
lett	+	-o	[letto]	"squint-eyed person"
Dojj	+	-o	[Dojjo]	"cough"

The forms in (12) are underlying geminates because they do not change from singular to plural or from the addition of both diminutive and augmentative suffixes. Unlike the -o and -a suffixes, other surface vowel initial suffixes like {-in} (causative suffix) and {-i} (plural marker) can lead to gemination as illustrated by the data in (13).

13)				
waal	+	-in	[wallin]	"make spend the night"
laam	+	-in	[lammin]	"appoint a chief"
ñaam	+	-in	[ñaammin]	"make eat"
saam	+	-in	[sammin]	"make fall"
leem	+	-in	[lémmmin]	"make a wood pile"

The addition of the causative suffix leads to gemination and the previously long vowel is shortened. The previously long vowel is shortened only before a final heavy syllable.

Paradis (1992) indicates that the causative suffix is {-n}. If the causative suffix is -n, then we are dealing with an instance of vowel insertion which is supported by two observations. First, the insertion of the /i/ prevents the presence of a three consonant cluster, a sequence not allowed in the language.

In this case, insertion follows gemination. Second, /i/ occurs in the environment where insertion is expected, i.e. between the last two consonants of a three consonant cluster. However, considering {-n} as the causative suffix raises two problems. First, /i/ is not the vowel that is generally inserted to break a three consonant cluster in verbal complexes. Instead, /u/ is the vowel inserted to serve this purpose. Second, if the causative suffix is {-n} there is no way of accounting for the presence of gemination that results from the addition of this suffix to the stem. As indicated earlier, gemination from consonant assimilation occurs to prevent an impermissible sequence. The clusters mn, ln, wn, sn are permissible clusters as in (14).

14)

amnude		"to make dance"
haalnude		"to make speak"
séwnude		"to make slim"
hasnude		"to ready the dead for burial"

So if {-n} is the causative suffix, there is no motivation for gemination to occur. Besides, there are forms which take both {-n} and {-in} suffixes as illustrated by the data in (15).

15)

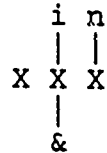
naat	+	in	---	[nattin]	"make enter again"
naat	+	n + u	---	[naannu]	"make enter"
sel	+	in	---	[sellin]	"make recover"
sel	+	n + u	---	[selnu]	"make branch"
deey	+	n + u	---	[deeynu]	"make calm"
deey	+	in	---	[deeyin]	"make quiet"

In (15) the suffixes {-n} and {-in} can both occur with the same root with different meanings. This situation is not expected if we are dealing with the same suffix. Therefore, the analysis adopted in this paper views {-n} and {-in} suffixes as different suffixes. Since there is no motivation for gemination to occur when {-n} alone is viewed as the causative suffix, this analysis considers the other alternative and take the causative suffix to be {-in}. In addition, this analysis is supported by the vowel shortening process discussed in (16a) and (16b).

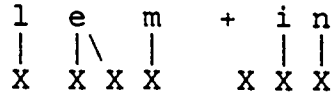
In previous instances we were dealing with gemination resulting from assimilation. The deletion of one of the consonants leads to the presence of an empty X-slot. Spreading fills the empty X-slot, thus leading to gemination. However, in these instances, no assimilation

occurs for us to invoke spreading. Spreading cannot occur without the presence of an empty X-slot. For this reason, the causative suffix is assumed to have an underlying featureless empty X-slot as in (16a).

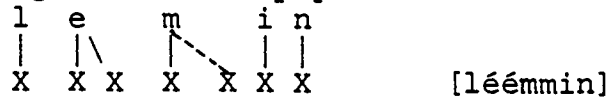
16a)



With this assumption in mind, the analysis is applied to determine its applicability to this type of gemination.



- Delinking: not applicable
- Spreading into the empty X-slot

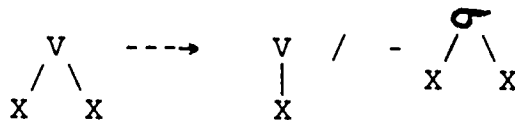


This type of gemination can be captured by either of the following gemination rules.

- $\begin{array}{c} [F] \\ | \\ X \end{array} \quad \text{--->} \quad \begin{array}{c} [F] \\ / \quad \backslash \\ X \quad X \end{array} \quad / -] + -in$
- $\begin{array}{c} X \\ | \\ C \end{array} \quad \text{--->} \quad \begin{array}{c} X \quad X \\ | \quad | \\ C \quad C \end{array} \quad / -] + -in$

As formulated, the analysis does not provide an adequate account of the data in (15). This derived form [léémmin] is not the one obtained on the surface. In order to account for the data in (15) we need to add another component to our analysis. This component will be vowel shortening. This vowel shortening rule is formulated in (16b).

16b)



The application of this vowel shortening rule leads to the correct output [lémmin].

Prunet and Tellier (1984) claim that (C)VC suffixes do not shorten long vowels in word initial position when they indicate that

'... cette alternance n'affecte jamais une voyelle qui se trouve en initiale de radical: ...' p. 70

'... this alternation never affects a vowel in the first syllable of the stem/root: ...' (my translation).

The data in (15) analyzed in (16a) and (16b) indicates that this vowel shortening rule can also apply to certain instances with a long vowel in word initial position.

This vowel shortening also supports the analysis adopted here which considers {-in} as the suffix since the particular vowel shortening occurs only in the presence of a (C)VC or (C)VV suffix.

The other type of vowel initial suffix that causes gemination is the nominal plural suffix -i. In general, this plural suffix causes only the gemination of [+continuants]. This vowel initial suffix is assumed to have the following representation (17).

17)

$$\begin{array}{c} i \\ | \\ X X \end{array}$$

Considering the data in (18) and (19)

18)

singular

a)

sóf-ru "chick"

nóf-ru "ear"

hóf-ru "knee"

b)

saw-ru "stick"

léw-ru "moon"

fów-ru "hyena"

c)

sóój-ru "type of bird"

19)

plural

a')

cópp-i "chicks"

nópp-i "ears"

kópp-i "knees"

b')

cabb-i "sticks"

lébb-i "moons"

póbb-i "hyenas"

c')

cóójj-i "types of birds"

As formulated, the analysis will not account for the data in (18) and (19). The analysis predicts the forms in (20).

20)

*/coffi; noffi; cooyi/

In order to account for the data in (20), the addition of another component, consonant hardening, is necessary. Consonant hardening affects only s, f, h, w, y. The consonants /s, f, h/ do not geminate in Pulaar. That is, the forms /*ss, *ff, *hh/ do not occur in the language. Since these consonants do not have geminate forms, they are changed into segments that are allowed to geminate when the conditions for gemination are satisfied. The candidates for /s/ and /f/ could be their voiced counterparts /z/ and /v/ respectively. These, however, do not occur in the language. The /*yy, *ww/ do not occur in nominal complexes even though these last two occur in verbal complexes. These segments are therefore changed into forms that can be geminated. So s ---> c, f ---> p, h ---> k, w ---> b, y ---> j.

*/coffi, noffi, cooyi/ ---> /coppi, noppi, coojji/ respectively.

Since this paper deals with gemination, we will deal only with the hardening of /s, f, h, w, y/ in relation to gemination. Also, consonant hardening in word initial position is addressed only when relevant to gemination processes. Consonant hardening can be captured by the following rule.

$$\begin{array}{ccc} \alpha & \text{-----} & \beta \\ / \quad \backslash & & / \quad \backslash \\ X \quad X & & X \quad X \end{array} \quad / -] + -i$$

In order to analyze the forms in (18) and (19) various proposals can be made. One proposal can suggest that #nop# in (a), #leb# in (b), #cooj# in (c) are the underlying forms of the stems. The addition of the plural nominal suffix triggers gemination as the last consonant of the root stem links to the featureless empty X-slot of the suffix as illustrated in the following.

$$\begin{array}{cc} \text{nop} & \text{i} \\ |||\backslash & | \\ \text{XXX X} & \text{X} \end{array}$$

Another alternative is to view the singular forms as underlying. In this case the underlying form of the stem will be #sof-#. Since the segment /f/ does not have a geminate counterpart, a need to determine how the stem final segment is realized as /p/ in its surface form arises. One approach can invoke a process of hardening whereby /f/ changes into /p/, /w/ into /b/ and /y/ into /j/ when they occur in a gemination environment. These processes are illustrated in (21).

21)

#	s	o	f	#	+	i
	s	o	f		+	i
	X	X	X		X	X

Rightward spreading occurs filling the empty X-slot thus leading to gemination as in (22).

22)

s	o	f		+	i
X	X	X		X	X

Consonant hardening occurs changing ff into pp and we get the following structure.

[c o p p i]

The first proposal seems to follow the general gemination process whereby the stem final consonant links to the empty featureless X-slot of the vowel initial suffix. The rule changing the obstruents /p,b,j/ to /f, w, y/ respectively is also a plausible phonological operation. The second alternative also leads to gemination. However, the conditions that trigger the hardening of the stem final consonant remain to be determined.

In order to determine the adequacy of these proposals, the data in (23) is considered.

23)

Sing. diminutive	Sing. augmentative	Plur. diminutive
cóf-él	cof-al	cof-on
nóf-él	nof-al	nof-on
caw-él	caw-al	caw-on
léw-él (léwléwél)	lew-al (lewlewal)	lewlew-on

The addition of the singular diminutive suffix (-el), the singular augmentative suffix (-al) and the plural diminutive suffix (-on) leaves the [+cont.] forms unaltered. The only instances where we have the [-cont.]

forms are the geminated cases. Therefore this analysis views the [+cont.] forms as underlying.

A third alternative can view the plural forms as underlying and the singular ones as derived. In this case we will need a weakening/softening rule that will change the root final obstruents into /f/, /s/, /y/ or /w/. This third alternative is not supported by the data in (23).

In addition to the gemination processes in word medial position, gemination in Pulaar, contrary to other claims, can occur in word initial position.

III) Word Initial Gemination

Word initial geminates have been documented for Luganda and Ponapeian (Hayes, 1989). Geminates in Pulaar occur mostly in word medial position. No geminate consonant occurs in word final position. This constraint is due to the fact that Pulaar does not allow more than one consonant in word final position. In Pulaar, consonants can be geminated in word initial position as illustrated by the data in (24) and (25).

24)			25)	
celal	[celal]	"grass"	cellal	[ccellal]
pelal	[pelal]	"footprint"	pellal	[ppellal]
malal	[malal]	"first name"	mallól	[mmallól]
maje	[maje]	"lightnings"	majjere	[mmajjere]
paDal	[paDal]	"big shoe"	paDDal	[ppaDDal]
Balal	[Balal]	"big body"	Balli	[BBalli]
cadi	[cadi]	"are costly"	caD+ti	[ccatti]
bile	[bile]	"traps"	bille	[bbille]
cakalo	[cakalo]	"friendly"	cakkagol	[ccakkagol]
came	[came]	"smallpox"	cammeeje	[ccammeeje]

The stem initial consonant in (25) is pronounced as a geminate. The presence of a geminate medial consonant affects the stem initial consonant. That is, when there is a medial geminate consonant the hard form of the word initial consonant is pronounced as a geminate counterpart of the hard simple form. This type of gemination can be observed with other consonants that can normally be geminated as well. Gemination of the medial consonant causes the stem initial consonant to become geminated. This observation is reinforced by the fact that word initial segments that have already undergone the

hardening process become geminated in the presence of a medial geminate as in (26).

26)	saD + i	[saDi]	"is expensive"
	caD + i	[caDi]	"are expensive"
	caD + ti	[ccatti]	"are very expensive/rare"

Even when preceded by vowels, the word initial geminates are maintained as in (27).

27)	O fii mo mallól	[o fii mo mmallól]
	O naati e péllél ngél	[o naatee ppéllél ngél]
	Wuro heewngo majjere	[wuro heewngo mmajjere]
	O wuji e Balli	[o wujee BBalli]

The only consonants that do not undergo this initial gemination are /y, w, f, s, h/. Interestingly enough these are the same consonants that do not have geminate forms in nominal complexes. Also, vowels in word initial position are also affected by the same process even though the realization is not the same as illustrated in (28) and (29).

28)	Simple form		29)	Geminated form	
	aduna [aduna]	(world)		addude [ʔaddude]	(bring)
	asi [asi]	(dug up)		acci [ʔacci]	(let go)
	ela [ela]	(dislike)		ella [ʔella]	(period)
	udumere [udumere]	(door)		uddugol [ʔuddugól]	(closing)
	oto [oto]	(car)		óttude [ʔóttude]	(contract)

In this particular case, a glottal stop is inserted at the beginning of the word as illustrated in (29).

Despite the pervasiveness of word initial gemination, it is subject to certain constraints.

Constraints on Word Initial Gemination

Gemination in word initial position is subject to two constraints. First, word initial geminates do not occur when there is an intervening long vowel between the word initial consonant and the word medial geminates as illustrated in (30)

30)	mooY + de	---->	moojje [moojje]	*[mmoojje]
	daaY + de	---->	daajje [daajje]	*[ddaajje]

As shown in (30), the initial consonant is not geminated when there is a long vowel intervening between the medial geminate and the word initial consonant.

Second, when the word initial segment is a type that does not have a geminate counterpart, then word initial gemination does not occur as in (31).

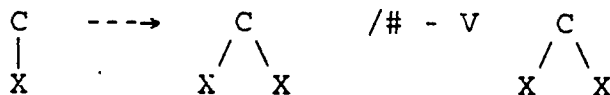
31)

sakkaade	"give charity"
hettere	"piece of e.g. meat"
fittude	"sweep"
rokkude	"give"

In (31) the word initial consonant is not geminated because it is not a consonant that is allowed to geminate. In addition, these consonants are not even changed into the forms that are allowed to geminate. So the analysis regarding consonant hardening will not apply in this particular case. However, when the word initial consonant is already in its hard form the presence of the word medial geminate will lead to the gemination of the word initial consonant as illustrated in (26).

A number of questions can arise pertaining to the analysis of this word initial gemination and how to represent these word initial geminates. The word initial gemination process can not be analyzed in terms of assimilation even though the gemination of the word initial consonant is triggered by the presence of the medial geminate. Another alternative is to view this initial gemination in terms of weight. As shown in previous studies (Hayes 1989) a segment can acquire weight when it is in a weight position. So the presence of a medial geminate renders the word initial position a weight position to which is assigned a mora or two skeletal slots. This word initial gemination can be captured by the following rule (32).

32)



Conclusion

The analysis of Pulaar gemination processes adopted in this paper has not only shown the inadequacy of previous analyses of gemination processes but also captures better the processes involved. The analysis that is proposed accounts for all types of gemination processes that obtain in Pulaar without having to segment the instances into different strata.

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SYLLABLE "SONORITY" HIERARCHY AND PULAAR STRESS:
A METRICAL APPROACH

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Abstract: "Syllable weight is usually viewed as a binary opposition ..." (Hayes 1989). That is, syllable weight distinctions are claimed to be at most binary: heavy vs light; bimoraic vs monomoraic. This paper argues that further distinctions of syllable weight are necessary to account for certain phonological processes. I argue and show that Pulaar (a dialect of Fula), makes a four way weight distinction. In addition, the analysis adopted in this paper shows that previous analyses of Pulaar metrical structure are inadequate.

I) Previous Analyses

Previous attempts to analyze Fula metrical structure have led to interesting remarks and generalizations. Taylor (1953) remarks that stress, depends on the long vowels. Arnott (1970) indicates that the first syllable is the salient syllable. According to McIntosh (1984) stress occurs on the last non final CVC or CVV syllable or on the initial syllable of the word in the absence of a heavy syllable. Prunet and Tellier (1984) indicate that the main stress falls on the first heavy syllable (CVV, CVC) starting from the left (beginning of the word). In the absence of a heavy syllable in a word, the major stress falls on the first syllable of the word.

II) Pulaar Metrical Structure

Before proposing an analysis, it is in order to provide the stress patterns that obtain in the language and examples to illustrate these patterns. The letter D stands for a dental implosive, B a bilabial implosive, Y a palatal implosive and ? a glottal stop.

Stress Patterns

The data in (1) through (6) illustrates the various stress patterns that obtain in Pulaar.

1)

a'ba bo	"type of grass"
wu'de re	"sarong"
a'l ku lal	"character of the alphabet"
a'sa maan	"sky"

From this data two observations can be made. First, the last syllable is never stressed. Second, the major stress falls on the first syllable of the word. In order to determine the adequacy of the above generalizations, additional data is provided in (2).

2)

ji yaa'Do	"slave"
fo doo're	"destiny"
ja maa'nu	"world"
bo na'n de	"harm"

The data in (2) indicates that the second observation is inadequate since the stress does not fall on the first syllable of the word. Instead, it falls on the penult. This second observation needs to be revised somewhat to account for all the data presented so far. The major stress is placed on the heavy non final syllable. If there is no heavy non final syllable, the major stress is placed on the first syllable of the word. This accounts for the data presented so far. To determine the adequacy of this revised observation additional data is considered in (3).

3)

ta'k kor di	"wet flour"
maa'maa re	"tree"
yaa'kaa re	"hope"

As formulated, the revised observation does not account for the data in (3). In (3) there are two heavy non final syllables and the revised observation does not indicate which one will bear the major stress. Additional revision is in order to accommodate the set of data in (3). The major stress falls on the heavy non final syllable of the word if it is the only heavy non final syllable in the word. In the presence of two non final heavy syllables, the stress falls on the first syllable of the word. In the absence of a heavy non final syllable, stress the first syllable of the word. These revisions will account for the data presented so far.

In order to determine the adequacy of these revisions, additional data is considered in (4).

4)

hal kaa'de	"to perish"
fer laa'de	"to squat"
haf taa'de	"to rise up"

These revisions cannot account for the placement of the major stress in (4). As a matter of fact, we have two heavy non final syllables in the words in (4) but the major stress is not placed on the first syllable of the words as predicted by the latest revised proposal. This proposal will then require further revisions in terms of the structure of the non final heavy syllables. If the non final heavy syllables are of the CVC and CVV patterns, then the major stress falls on the syllable with a CVV structure. This revised proposal will account for the cases in (4). In order to determine the suitability of this newly revised proposal, another set of data is considered in (5).

5)

jaa taa'r naa jo	"person from Jaataar"
ⁿ jaa yee'm naa jo	"person from njaayem"
naa naa'l de	

This revision does not account for the data in (5). To account for these problematic data, further revision is necessary. This revision is done using the structure of the syllables as this seems to be the determining factor for the assignment of the major stress. When non final heavy syllables have the structure CVV and CVVC, the major stress falls on the non final CVVC syllable. The adequacy of this new revision is tested against further data as in (6).

6)

haa'l pu l'aar ?en	"speakers of Pulaar"
waa'l waal du	"type of bird"

This newly revised proposal does not indicate where to place the major stress in this particular case. There are two non final heavy syllables of the structure CVVC and the proposal does not indicate where the major stress is to be placed. To account for these data, we need to indicate that in the presence of heavy non final syllables of the structure CVVC, the major stress falls on the leftmost heavy syllable of the word.

The observations that have been made so far seem to indicate that the placement of the major stress is determined by the weight of the heavy syllable.

Having made the above observations, we will now make generalizations about the placement of the major stress in Pulaar.

Generalizations

The last syllable of the word is never stressed. Stress the first syllable if there is no heavy syllable in the word as in (7).

7)

a'du na	"world"
ba'la be	"shoulders"

Stress the penult syllable if it is the only heavy syllable in the word as in (8).

8)

ma laa'Do	"blessed person"
da do'r de	"waist / belt"

When both first and penult syllables have the same structure CVC, CVV or CVVC, stress the first syllable as in (9).

9)

ta'l lor de	"place for rolling over"
CV'C CVC CV	
baa' waa do	"weak / defeated person"
CVV CVV CV	
haa'l pu l'aar ?en	"speakers of Pulaar"
CVVC CV CVVC CVC	

When both first and penult syllables are heavy but with different weight, stress the heaviest syllable. CVVC is heavier than CVV which in turn is heavier than CVC which is heavier than CV as in (10).

10)

hal kaa' de	"to perish"
CVC CVV CV	
gaa's to t'oo Do	"person who digs"
CVVC CV CVV CV	
ha'l ku de	"to make perish"
CVC CV CV	

Secondary Stress in Nominal and Verbal Complexes

In their analysis of Pulaar metrical structure Prunet and Tellier (1984) make the following assertion while referring to secondary stress.

'Les autres syllabes lourdes du mot portent des accents secondaires.' p. 81

'The other heavy syllables of the word carry secondary stresses.' (my translation)

Even though they acknowledge the presence of secondary stress in words, their rendering of the placement of the secondary stress is not accurate. Their claim for the placement of secondary stresses on every heavy syllable can lead to stress clash.

Considering the data in (11)

11)

j'aa taa'r n'aa jo	"person from Jaataar"
k'aa sa maa's n'aa jo	"person from Casamance"

In (11) above, the syllable carrying the major stress is immediately preceded and followed by heavy syllables to which their analysis will assign secondary stresses thus leading to stress clash. Also, stress systems tend to show some alternation between stressed and unstressed syllables. In Prunet and Tellier's analysis this alternation between stressed and unstressed will not obtain in the instance illustrated above.

Secondary stress occurs only in tetrasyllabic and pentasyllabic complexes. In disyllabic complexes, the last syllable is extrametrical and the major stress falls on the first syllable of the word. Therefore secondary stress cannot occur in disyllabic complexes. In trisyllabic words, the last syllable is also always extrametrical. The major stress can occur either on the first or second syllable of the word. This might leave the syllable that does not carry the major stress open for secondary stress assignment. The unstressed syllable will not carry secondary stress because there must be an intervening syllable between the syllable carrying the major stress and the one carrying the secondary stress. This type of situation never arises in trisyllabic complexes. For these reasons trisyllabic complexes do not carry secondary stress. Only heavy syllables can carry a secondary stress. A heavy syllable that is adjacent to the syllable carrying the major stress does not carry secondary stress. A secondary stress can occur in any position except in syllable final position.

The following data illustrates the presence of secondary stress in tetrasyllabic and pentasyllabic complexes.

Tetrasyllabic Complexes

Tetrasyllabic complexes exhibit various patterns as illustrated in (12).

12)		
j'ol ti noo' wo		"person who removes out of"
baa' bal n'aa jo		"person from Baabal"
haa'l pu l'aar ?en		"speakers of Pulaar"
gaa's to t'oo Do		"person who digs"
laa'l to t'oo Do		"person who lays mud"
ñaa' go too Do		"person who requests"
ñaa'l tin too Do		"person who takes leftovers"

Pentasyllabic Complexes

Like tetrasyllabic complexes, pentasyllabic complexes exhibit various patterns as illustrated in (13).

13)		
baa' bi r'aa ge lam		"my little dat"
k'aa sa maa's naa jo		"person from Casamance"
gaa's to to n'oo Do		"person who was digging up"
ñaa'l tin to noo Do		"person who was sleeping"

Having discussed the facts concerning the assignment of stress, I will now consider the type of analysis that Halle and Vergnaud's approach may provide for the analysis of Pulaar metrical structure.

Analysis

The following may be the kind of analysis that will be given within the Halle and Vergnaud's framework to account for the metrical structure of Pulaar.

Vowels that are heads are stress bearing elements

The last syllable is extrametrical

-Assign an asterisk to every syllable

-Assign another asterisk to a syllable with a long vowel

-Assign another asterisk to a closed syllable.

Line 0 Parameter settings are [+HT, -BND, right to left and left]. Construct constituents on line 0 and project the head(s) on line 1.

Line 1 parameter settings are [+HT, -BND, right to left and left]. Construct constituents on line 1 and project the heads on line 2.

To determine the adequacy of this analysis, it is tested against some data.

Considering the data in (14)

14)	ba'la be	"shoulders"
	(* *)<*> 0	
	*	1

This type of data is accounted for by the proposed analysis. The adequacy of this proposed analysis is tested against further data.

Considering the data in (15)

```

15)
   ta'l lor de           baa' waa Do
   *   *   <*>         *   *   *   0
   (*  *)              (*  *)      1
   *                   *           2

```

The last syllables are extrametrical. By virtue of being closed or long syllables, these are assigned a line 1 grid mark. Constructing constituents on line 1 and projecting the heads will provide the correct output. However, secondary stresses occur where they do not occur.

Considering the data in (16)

```

16)
   ji yaa' Do           "slave"
   *   *   <*> 0
   *                   1

```

If we construct an unbounded left headed constituent on line 0 and project the head we get the construction in (17).

```

17)
   ji yaa' Do
   (*  *) <*> 0
   *   *   1

```

Two asterisks appear on line 0 one of which is the head of the constituent constructed from line 0 and the other asterisk which was already present on line 1. If we construct a left headed constituent on line 1 and project the head on line 2, the derived output is (18).

```

18)
   ji yaa do
   (*  *) <*> 0
   (*  *)      1
   *           2

```

This, however is not the correct output. As a matter of fact, the major stress ends on the first syllable instead of the second syllable. To derive the correct output, a stress shift rule is needed to shift the stress to its correct position. Following Davis (1988) this stress shift rule is formulated in the following.

Stress Shift Rule

Shift a line 2 grid mark from the first to the second syllable if the second syllable is heavy and the first is light.

The application of this stress shift rule will lead to the output in (19).

```
19)
   ji yaa do
   (* *) <*> 0
   (* *)      1
   .*         2
```

A secondary stress appears incorrectly on the first syllable.

Considering the data in (20)

```
20)
   jaa  taa'r naa jo           "person from Jaataar"
   *    *    * <*> 0
   *    *    *      1
           *         2
```

If we construct one constituent on line 1 and project the head on line 2 we get the output in (21).

```
21)
   jaa taa'r naa jo
   *   *    * <*> 0
   (*  *    *)   1
   *   *         2
```

If we construct a constituent on line 2, project the head on line 3 and conflate lines 1 and 2 we get the structure (22).

```
22)
   jaa  taa'r naa jo
   *    *    * <*>
   (*   *)
   *
```

In order to account for this type of data we need to revise our stress shift rule to read (23).

23)

Shift a line 2 grid mark from the first to the second syllable if the second syllable is heavier than the first.

After the application of this stress shift rule, we get the structure (24).

24)
 jaa taa'r naa jo
 * * * <*> 0
 * * 1
 * 2

The proposed analysis appears to account for the data presented so far. However, incorrectly placed secondary stresses occur.

Considering the data in (25)

25)
 jol ti noo' wo "person who removes out of"
 * * * <*> 0
 (* *) 1
 * 2

The analysis will lead to the incorrect placement of the major stress on the first syllable. Applying the stress shift rule will then shift the stress to its normal position.

The analysis appears to provide a correct account of some aspects of Pulaar metrical structure. However, on a number of instances we had to invoke additional rules in order to derive the correct output. Also, in many instances, incorrectly placed secondary stresses occur.

In what follows is proposed a simpler analysis of Pulaar metrical structure based on the weight hierarchy among the syllables in the language. The proposed analysis does not need to invoke stress shifting rules and the addition of destressing rules solves the problem of incorrectly placed secondary stresses.

Proposed Analysis

The analysis proposed here to capture word stress assignment in Pulaar is as follows.

- a) Stress bearing elements are vowels
- b) Vowels that are head of rhymes are stress bearing.
- c) The last syllable of the word is marked extrametrical.
- d) Line 0 parameter settings are [+HT, +BND, right to left].

On line 0, construct binary left headed constituents if the left syllable in the constituent is equal to

or more sonorous than the right syllable; otherwise, construct right headed constituents.

Project the head(s) on line 1.

e) Line 1 parameters are [+HT, +BND, right to left]. On line 1, construct binary left headed constituents if the left syllable in the constituent is equal to or more sonorous than the right syllable; otherwise construct right-headed constituents.

Project the head(s) on line 2.

f) Line 2 parameter settings are [+HT, +BND, right to left].

If necessary, on line 2, construct binary left headed constituents if the left syllable in the constituent is equal to or more sonorous than the right syllable in the constituent; otherwise construct right-headed constituents. Project the head on line 3.

g) Apply the appropriate stress deletion rule (s) 1 and/or 2 to eliminate the incorrect placement of the secondary stress.

In order to prevent the incorrect placement of secondary stress, following Davis (1988) two destressing (stress deletion) rules are proposed.

*	*		*	*	
* *	*		* *	*	
* *	-->	* *	* *	-->	* *
V V		V V	V V		V V

The operation of these destressing rules will be shown in due course.

In what follows, the proposed analysis is applied to cases that were problematic with the Halle and Vergnaud's analysis. This proposed analysis provides a neat account of Pulaar metrical structure without recourse to additional rules.

Considering the data in (26)

26)

CVV	CVV'	C	CVC	
jaa	suu's	?	en	"spies"
haa	buu's	?	en	"useless / fair person"
(*)	*)	<*>	0	
	*		1	

On line 0 we construct a binary right headed constituent since the left syllable in the constituent is less sonorous than the right syllable in the constituent. We then project the head on line 1.

Considering the data in (27)
27)

```

naa naa'l de
maa maa'y de
yaa naa'l de
guu huu'n De
tee tii's De
(*  *) <*> 0
      *      1

```

In both (26) and (27), the major stress falls on the CVVC syllable which is the heaviest. This situation obtains only because the CVVC syllable is heavier than the CVV syllable.

Tetrasyllabic Nominals

The stress pattern of four syllable words is fairly consistent. In general, the major stress falls on the first or penult syllables of the word.

Considering the data in (28)
28)

```

j'oy yi noo' wo      "person who places down"
b'al li noo' wo     "person who spends the night"
(*) (*) (*) <*> 0
(*) (*)          1
      *          2

```

Applying line 0 and line 1 parameter settings to the data in (28) yields the correct results. To determine the adequacy of this analysis, we will test it against further data.

Considering the data in (29)
29)

```

jaa' fo t'oo Do      "person who forgives"
baa' bi r'aa Do     "father"
(*) (*) (*) <*> 0
(*) (*)          1
      *          2

```

Here again, the application of line 0, line 1 and line 2 parameters leads to the correct output. Both major and secondary stresses are correctly placed. To account for the appropriateness of this analysis, we test it against further data.

Considering the data in (30), (31) and (32)

- 30)
- | | |
|-------------------|------------------------|
| "jaa yee'm naa jo | "person from Njaayeem" |
| "jaa ree'm naa jo | "person from Njareem" |
| (*) (*) (*) <*> | 0 |
| (* *) | 1 |
| * | 2 |
- 31)
- | | |
|----------------------|-------------------------|
| k'aa sa maa's naa jo | "person from Casamance" |
| (* *) (*) (*) <*> | 0 |
| (* *) | 1 |
| * | 2 |
- 32)
- | | |
|---------------------|--------------------------|
| su wee raa't naa jo | "person from Zouerate" |
| nu waa soo'r naa jo | "person from Nouakchott" |
| (* *) (*) (*) <*> | 0 |
| (* *) | 1 |
| * | 2 |

All the data in (30) through (32) is accounted for by the application of line 1 and line 2 parameters.

Nominals with Derivational Suffixes

The behavior of derivational affixes with respect to stress assignment is very revealing. Some derivational suffixes influence the placement of the major stress while others do not. The derivational suffixes considered here are: "-am, -ji, -el/al". -am is a first person singular possessive suffix; -ji is a plural suffix; -el/al are diminutive and augmentative suffixes respectively.

The first part of this section deals with the use of derivational affixes which do not affect the placement of the major stress. The derivational suffix in question is '-am' which represents the first person singular possessive marker.

Considering the following data (33)

33)
 co'k tir ga lam "my key"
 Bo'f tir ga lam "my pick up instrument"

 (*) (* *) <*> 0
 (* *) 1
 * 2

In (33), the major stress falls on the first syllable as expected. On line 0 we mark the last syllable extrametrical and construct a binary left headed foot and a degenerate foot. On line 1 we construct a left headed constituent since the two syllables are of equal sonority and then project the head on line 2. Our stress deletion rule will eliminate the secondary stress on line 1 and we derive the correct output as illustrated in (34).

34)
 Bo'f tir ga lam.
 (*) (* *) <*> 0
 * 1
 * 2

Another suffix which affects stress assignment is the plural suffix -ji. The addition of this plural suffix to certain singular nouns can create conditions leading to the forward shifting of the major stress as in (35) and (36).

35)
 Ba taa'ke "letter"
 ka baa'ru "piece of news"

The data in (35) shows that the major stress falls on the penult which is the only heavy syllable in the word. This stress assignment is consistent with the stress assignment principles formulated earlier.

The addition of the plural suffix to the plural forms in (35) changes their structure in two ways. First of all, the vowel of the singular penult is no longer heavy. The vowel of the last syllable of the singular form is lengthened and the primary stress of the word is assigned to it as in (36).

36)
 Ba ta kee'ji "letters"
 (*) (* *) <*> 0
 (* *) 1
 * 2

Applying our analysis we mark the last syllable extrametrical and build constituents on line (0). On line 1 we build a right headed constituent and project the head on line 2 since the syllable in the right is more sonorous than the one in the left. The stress deletion rule 2 will delete the secondary stress on line 1 and the correct output is derived in (37).

37)

Ba ta kee' ji	
(*) (* *) <*>	0
*	1
*	2

Other types of suffixes that affect stress assignment are the diminutive and augmentative suffixes. In both their singular and plural forms, the addition of the diminutive or the augmentative suffix affects the stress placement in words. The singular forms of the diminutive and augmentative suffixes are -el and -al respectively. Unlike the plural suffix -ji which causes the forward shifting of the major stress, the diminutive and augmentative suffixes can lead to the retraction of the major stress. These patterns are illustrated in (38) and (39).

38)

Ba'taa'ke + el/al	-->	Ba'ta kel/Ba'ta kal
ka baa'ru + el/al	-->	ka'ba rel/ka'ba ral

39)

The comparison of the forms in (38) and (39) shows stress retraction to the first syllable. As predicted by the analysis, since the last syllable of the word is extrametrical, the major stress falls on the first syllable of the word when there is no heavy syllable in the word other than the last syllable. The addition of the diminutive/augmentative suffixes leads to the restructuring of the previous constituents as illustrated in (40).

40)

Ba'ta kel	"little letter"
(*) (*) <*>	0
*	1

The long vowel has been shortened and the major stress falls by default on the first syllable of the word.

Conclusion

This paper has provided a comprehensive analysis of Pulaar metrical structure in single nominal and verbal complexes and others with derivational suffixes. The proposed analysis accounts neatly for all types of stress assignment patterns that obtain in Pulaar without recourse to additional rules. In the process of analyzing Pulaar metrical structure, inadequacies of previous analyses were indicated and data was provided that shows that Pulaar makes a four-way-weight distinction among the syllables.

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ON THE CONDITION OF ADJUNCTION IN BARRIERS

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Abstract: Even though Barriers theory is considered to be an innovative approach toward the Universal Grammar, it has some conceptual problems. The first problem is concerned with the definition of the blocking category and the barrier. According to the definition, VP is a blocking category and an inherent barrier. However, VP-adjunction should always be permitted to avoid its barrierhood. This approach is no better than that which does not regard VP as a blocking category and a barrier, consequently permitting no VP-adjunction. The second problem is that I-projections are defective categories. Ad hoc rules for explaining the CNPC and the WH-island phenomena may be added as drawbacks in the theory of barriers. To solve these problems, I suggest some modification of the definitions of Barriers.

Introduction

In this paper, I reconsider Chomsky's 'Adjunction Condition(Chomsky 1986:p.6)' and suggest some modification of the theory of barriers to solve some problems arising mainly from the improper definition in Chomsky's barriers. In short, I argue that in S-structure, there is no adjunction in movement except extraposition and topicalization. To support this hypothesis, I assume only inherited barriers.

Problems in Adjunction Condition

Chomsky(1986:p.6) suggests the following condition on adjunction which allows adjunction to VP but not to CP and NP;

(1) Adjunction Condition

Adjunction is possible only to a maximal projection that is a nonargument.

Under the condition, adjunction to an argument NP or CP is not allowed, while adjunction to a nonargument VP is allowed. Then let's examine whether adjunction to other nonargument maximal projections is possible or not.

WH-island constraint phenomenon :

(2) ?? What do you wonder who saw ?

(2) has been traditionally considered to violate the Subjacency condition. When we first move 'who', the result will be (3);

(3) you wonder [cp who_i [c' [+WH] [ip t_i saw what]]]

When 'what' is moved in (3), it is first adjoined to the VP in the embedded clause and then to the VP of the main clause, and finally moves to the Specifier position of the main clause. The process is shown in (4);

(4) [cp what_j [c' do_k [ip you t_k [vp t_{2j} [vp wonder [cp who_i [c' e [ip t_i [vp t_{1j} [vp see t_j]]]]]]]]]]]]]]]

Here the problem arises when movement occurs from t_{1j} to t_{2j} . In this step the blocking category which dominates t_{1j} is not VP but IP, and the CP dominating the IP is a barrier. The movement is 1-subjacent because it crosses over one barrier. Actually this prediction contrasts with that of LGB in which it is judged as the violation of the Subjacency. However, when 'what' is moved, if it is first adjoined to VP and then to the IP of the embedded sentence instead of the VP of the higher sentence, the result will be different.

(5) [cp what_j [c' do_k [ip you t_k [vp t_{3j} [vp wonder [cp who_i [c' e [ip t_{2j} [ip t_i [vp t_{1j} [vp see t_j]]]]]]]]]]]]]]]

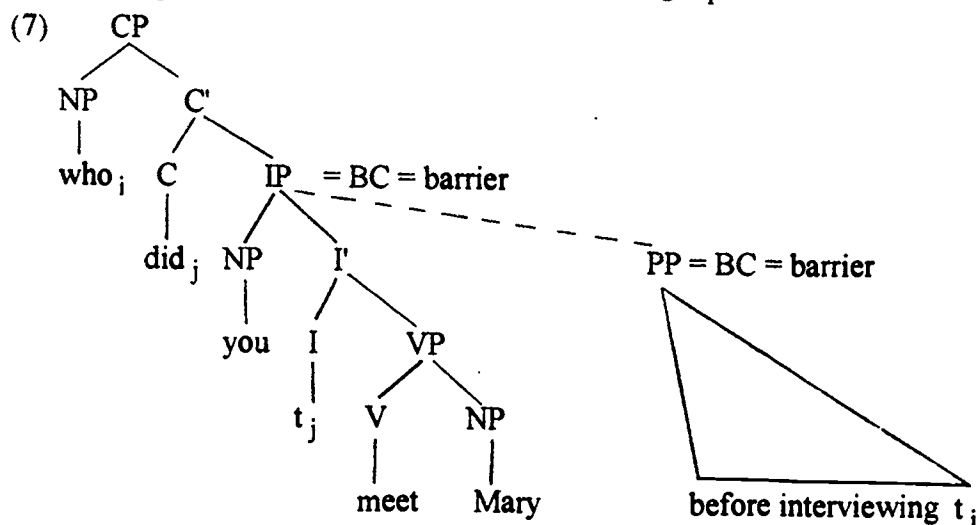
The movement from t_{1j} to t_{2j} is not problematic because no barrier intervened. Look at t_{2j} carefully. The IP of the embedded sentence is not a blocking category for t_{2j} because the IP doesn't exclude t_{2j} . The CP is L-marked by 'wonder', so CP is not a blocking category. Therefore there is no barrier between t_{2j} and t_{3j} and the movement from t_{2j} to t_{3j} obeys Subjacency and the ECP. However this derivation must be barred because (2) is not grammatical. That is, in syntactic movement we should allow adjunction to VP but we should not allow adjunction to IP. However, it is ad hoc to maintain that adjunction to nonargument VP is allowed and adjunction to a non-argument IP is barred. In addition, Lasnik and Saito analyze topicalization be a case of IP adjunction and if they are correct, barring IP adjunction is not plausible.

Even assuming a condition which prevents IP-adjunction, there is another derivation which can allow legal derivation. That is, if 'what' adjoins to the VP of the matrix sentence after 'what' is adjoined to the embedded VP, then it crosses over one barrier, CP. In this case to avoid the barrier, we can assume a derivation

in which 'what' is adjoined to the Spec of CP. Then, CP does not exclude 'what' and this derivation has the same effect as it has when 'what' moves through the Spec of CP. Therefore, the sentence should be grammatical. As May(1985) shows, the element adjoined to the Spec of CP c-commands its trace under the definition of the domination by exclusion. To prevent adjunction to CP we cannot say that because 'who' in Spec of CP is an argument, adjunction to CP is not permitted. This is because the violation of WH-is and constraint is more serious when an adjunct is placed in the Spec of CP. Therefore, adjunction to the Spec of CP must be prevented

Adjunct condition: The following sentence violates the adjunct condition. Although Chomsky(1986) says that it can be explained in terms of barriers, he doesn't show the process clearly.

(6) * who_i did you meet Mary before interviewing t_i ?



In (7), PP is not L-marked, so it is a blocking category and becomes a barrier. IP is also a blocking category and a barrier because it immediately dominates PP. Therefore the movement of 'who' crosses over two barriers which means a violation of subjacency and the sentence is ungrammatical. In this case the internal structure of PP is [pp before [cp t₃ [ip PRO [vp t₂ [vp interviewing t₁]]]]]. When t₃ moves to the Spec of CP, it crosses over two barriers PP and IP. However, there is evidence against this structure.

(8) John said he would leave the party before speaking to anyone, and leave the party before speaking to anyone he certainly did.

In 8), the PP (before-phrase) is a constituent of VP because it is moved forward together with VP by VP-preposing. In (8b) the PP is not the sister of V because the 'do so' substitution doesn't take place to include the PP. Therefore it is not correct to analyze PP to be immediately dominated by IP. The data below show that PP should be immediately dominated by VP (Tiedeman 1989:19-20).

(9) VP-preposing

- a. Bill said that John would go home before he saw Mary, and go home before he saw Mary he did.
- b.* Bill said that John would go home before he saw Mary, and go home he did before he saw Mary.

(10) WH-cleft

- a. John went home before he saw Mary.
- b. What John did was go home before he saw Mary.

(11) VP-deletion

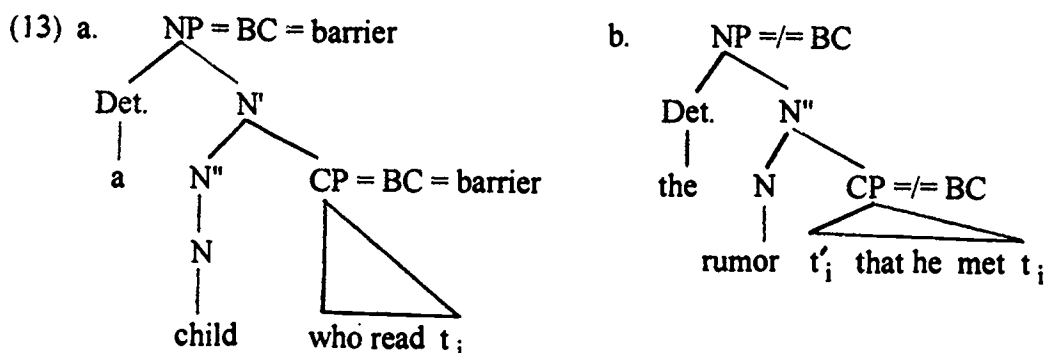
John went home before he saw Mary and Bill did too.

Therefore, if PP is within VP in (6), then when a constituent moves from the Spec of the CP, complement of P, it can be adjoined to the higher VP instead of being adjoined to the Spec of higher CP. If this adjunction to VP is possible, the movement crosses over only one barrier, PP. Then the movement has a $\bar{1}$ -subjacency which is a weak violation of subjacency and the sentence must be judged marginal. In addition, there is another possible derivation which is a more serious problem to the theory. If we accept Chomsky(1986)'s adjunction condition, which always allows adjunction to a non-argument position, then there is no way to prevent adjunction to PP. Then, the movement from the embedded [SPEC, CP] to adjoin to PP crosses over no barrier, and when the constituent moves from the adjoined PP to adjoin to the VP of the higher sentence, it doesn't cross over any barrier. Of course, this derivation does not explain the ungrammaticality of the sentence

Complex NP constraint phenomenon : Another problem found in Chomsky(1986) is that it can not explain the Complex NP Constraint phenomenon (CNPC) properly. In general, extraction from a complex NP is ungrammatical.

- (12) a. * Which book_i did John meet [np a child [cp who read t_i]]?
- b. ?? Which girl_i did Tom hear [np the rumor [cp that he met t_i]]?

The structure of the above complex NP's is (13);



When we extract from the relative clause (13a), it crosses over two barriers CP and NP, which is the violation of subadjacency and the sentence is correctly judged as ungrammatical. In (13b) CP is not a blocking category because it is subcategorized and L-marked as a complement of N. NP is not a blocking category either because it is L-marked by V. Therefore, extraction of the WH-phrase from the noun complement clause should be permitted. But (13b) is marginal at best. To solve this problem, Chomsky (1986) maintains that the CP which receives oblique case from N as a complement of N is an intrinsic barrier. In addition to this, he says that even though the CP which receives oblique case from N is a barrier, it is not a blocking category, so the NP which immediately dominates the CP cannot be an inherited barrier according to the definition of barrier (Chomsky 1986:14). Therefore extraction from a noun complement clause weakly violates subadjacency. Even though this explanation predicts the difference of grammaticality of the two types of sentence, there arise many problems. First, "why does the CP which receives oblique case become a barrier?" and "is it possible for a sentence to receive a case (cf. Stowell 1981)?" Second, a relative clause is not subcategorized and a noun complement clause is subcategorized. If we follow the adjunction condition (1), adjunction to the relative clause should be allowed, while adjunction to the noun complement clause should be prevented. However, if we permit adjunction to a relative clause, then extraction from a relative clause crosses over no barrier. A noun complement clause subcategorized by N and so no adjunction is allowed.

NP-movement: In the case of WH-movement, a WH-object adjoins first to VP to avoid the barrierhood of VP and then moves to the Spec of CP. However, in the case of NP-movement, an NP cannot adjoin to VP. If adjunction to VP occurs, the resulting chain cannot be licensed as an argument chain. Therefore, for NP-movement, no adjunction is allowed. Consider the following sentence;

- (14) a. Mary seems to be smart
 b. [ip Mary_i [seem-I]_j [vp t_j [ip t_i to be smart]]]

If VP-adjunction is barred in NP-movement, the movement from t_i to 'Mary' in (14) comes to cross over one barrier, VP. To solve this problem Chomsky(1986) introduces 'feature sharing'. In (14) 'Mary_i' and t_j are coindexed by movement, and [seem-I]_j is also coindexed with t_j. In addition, 'Mary' and [seem-I] are coindexed by Spec-head agreement, so that i = j. Then t_j can antecedent-govern t_i because there is no barrier between them and both of them have the same index. In this case, to allow the antecedent-government between two elements, we combine two separate chains into one extended chain(Chomsky 1986:74).

- (15) Extended Chain
 a. $\delta = (\alpha_1, \dots, \alpha_n, \beta)$ is an extended chain if $(\alpha_1, \dots, \alpha_n)$ is a chain with index i and β has index i.
 b. Chain coindexing holds of the links of an extended chain.

According to the condition in (15), an extended chain is licensed when two chains are coindexed and when subjacency and antecedent-government are obeyed between α_n and β . This assumption explains the following example(Chomsky 1986:75);

- (16) a. * Mary seems that it appears to be smart.
 b. Mary_i [seems-I]_j [vp t_j [cp that [ip it appears [ip t_i to be smart]]]

In the above sentence, the index of the chain (Mary, t) is shared with 'seem' after V-raising in the matrix sentence; however the trace of 'seem', t_j, does not govern t_i, so the latter yields an ECP violation. That is, the antecedent-government condition is not obeyed because of the barrier CP between t_i and t_j, so that the sentence is judged ungrammatical.

Now consider a simple passive sentence.

- (17) a. Mary_i was killed t_i
 b. [ip Mary_i [be-I]_j [vp' t_j [vp killed t_i]]]

In this structure VP intervenes in the movement while in the raising structure there is an IP intervening. There is no problem in antecedent-government in the

raising structure because IP is not a barrier; however in the passive structure, VP, which is a barrier, intervenes and prevents antecedent-government.

In (17b), t_j cannot antecedent-govern t_i because of VP. To solve this problem Chomsky(1986:76) assumes that "VP is one of the two segments of the verb phrase, not a category in itself that excludes t_j , whether it is base-generated or formed by an adjunction rule". Then " t_i is properly governed in the extended chain (be, t_j , t_i) as required, independently of theta-government by 'killed' "(Chomsky 1986:76). Consider the following more complicated sentence;

- (18) a. Mary i seems to have been killed t_i .
 b. [ip Mary i [seem-I] j [vp t_j [ip t_i to [vp have [vp be [killed t_i]]]]]]

To explain the sentences which have the aspectual verbs Chomsky(1986:77) assumes the relation of head-head agreement(= index sharing) between I and the aspectual verbs V^* as in "... I [vp V^* NP ...] ". He says that "there is (indirect) agreement between the subject and each aspectual verb of VP, as a reflex of SPEC-head agreement"(ibid. p.77). That is, based on the SPEC-head agreement, the Inflection 'to' has the same index with t_j in the Spec of IP, and then, based on the head-head agreement, the aspectual verb 'be' has the same index of i . Then 'be' can antecedent-govern t_i . However, his assumption has some problems as follows; first, is it intuitively plausible to assume agreement between 'to' and 'be' in the above sentence? Second, is it plausible to assume Spec-head agreement between ' t_i ' and 'to' which is a tense-lacking infinitive?

The problems discussed in this section are mainly, I think, from the implausible definition of adjunction which considers VP as a barrier and doesn't allow the adjunction to VP in passive. Another problem here is that we combine a head-chain with an argument-chain to have an extended-chain, and consider this extended-chain as an argument-chain. However we cannot find other evidence which can support this assumption.

So far I have discussed the implausibility of the adjunction condition in barriers with many counterexamples, all of which show that the condition which allows free adjunction to any non-argument maximal projection is so powerful that it allows many ungrammatical sentences. Especially it is awkward to allow adjunction to a VP to avoid the barrierhood. Therefore from now on I will discuss the possibility that we can maintain the theory of barriers without admitting adjunction in syntactic movement.

Application of the New Theory

Since we allowed adjunction to VP in barriers, we can think of the possibility that VP is not a blocking category and not a barrier, either. Actually it is hard to find data which show that the ungrammaticality of a sentence is caused by the barrierhood of VP. VP is considered a blocking category because it is not L-marked. Therefore if we find evidence which shows that VP is L-marked, that is, theta-governed, then it will enable us to give up the necessity of adjunction to VP. Consider the following sentences ;

- (19) a. [vp fix the car]_i , I wonder whether he will t_i ;
 b. * [ip he will fix the car]_i , I wonder whether t_i ;
 c. * [np car]_i , I wonder whether he will fix the t_i ;

(19) shows that, different from C or D, I has an ability to theta-govern its complement as well as other lexical categories. In addition, like lexical categories, there is no case in which I appears as a null category in a sentence, which is different from C or D. Further another supporting evidence for a difference between I and C/D is that I always makes its Spec an argument position, but C/D doesn't. For these reasons, I will just assume that I and auxiliaries including 'have' and 'be' belong to a lexical category, while C and D belong to the functional category. Then maximal categories IP and NP are blocking categories.

Since we assume I as a lexical category, IP is not a 'defective' maximal category any more. However, WH-movement moves a wh-element to the Spec of CP, crossing over IP which is now considered as a non-defective maximal category. To avoid this unfavorable result, I assume that while IP is a blocking category, it is not a barrier itself. Instead, the maximal projection immediately dominating IP becomes a barrier. And the inheritance is effective only once. Under this assumption, there is no problem arising from WH-movement inside CP. In addition to this, because IP is assumed to transmit its barrierhood to its immediately dominating maximal projection, this should be generalized to the other maximal projections. Then the resulting definition for the new blocking category and barriers would be as follows;¹⁾

- (20) Blocking category
 α is a blocking category for β iff:
 a. α is not L-marked,
 b. α immediately dominates β

(21) Barrier

A maximal projection α which immediately dominates a blocking category β is a barrier.

(22) L-marking

α L-marks β iff α is a lexical category that theta-governs β .

(Chomsky 1986:15)

Now let's apply the new theory to the sentences which raised some problems with Chomsky(1986)'s theory. Consider the following WH-island phenomena (= same with (2));

(23) a. * What_i did you [vp' wonder [cp' who_j [ip' t_j [vp' said [cp that [ip Bill [vp saw t_i]]]]]]

b. **What_i did you wonder [cp' who_j [ip' t_j [vp' knew [cp who_k [ip t_k [vp saw t_i]]]]]]

(Chomsky 1986:38)

According to Chomsky(1986), when 'what' moves to the Spec of the matrix CP in (a), it crosses over one CP' barrier. Then the sentence should be at most awkward not 'ungrammatical'. However, the sentence is ungrammatical as it is. To solve this problem, he assumes that "the most deeply embedded tensed clause is an extra barrier for the movement". Under his assumption, when 'what' moves in (a), it crosses over one extra IP barrier and the inherited CP' barrier, so the movement is 2-subjacent and is predicted to be ungrammatical. Consider the sentence (b); if VP-adjunction is allowed, the movement crosses over two barriers CP and CP' and the trace t_i is lexically governed. However this sentence is worse than (a). To explain this, Chomsky also depends on the extra IP barrier in (b). That is, When 'what' adjoins to VP', it crosses over one extra IP barrier and one inherited CP barrier. Then the move is 2-subjacent, and in the next move, it crosses over one inherited CP' barrier. Therefore the whole construction is 3-subjacent and so (b) is worse than (1).

However, if this explanation based on the extra barrier is correct, the following sentence is predicted to be at least awkward because the movement is 1-subjacent.

(24) What_i did you think [cp [ip Mary ate t_i]] ?

That is, under Chomsky(1986), the sentence should be awkward because in the second step of movement, 'what' crosses over one extra barrier. However this prediction is not borne out and therefore Chomsky(1986)'s assumption for the extra barrier can be said to be invalid.

Now let's see how the new theory explains this problem.

In (a), when 'what' moves, it cannot adjoin to VP's because our theory disallows adjunction in movement. Therefore 'what' should move from the Spec of CP directly to the Spec of the matrix clause. Then the movement crosses over one CP' barrier which inherits its barrierhood from IP'. In (b), when 'what' moves, it must move directly to the Spec of the matrix clause and during movement, it crosses over two barriers CP' and CP which immediately dominate IP' and IP respectively. Since (b) is 2-subjacent, we can easily predict that (b) is worse than (a). (here under the modified theory, we should assume that 1-subjacency is nearer 'ungrammaticality' than 'awkwardness' as we can see from the ungrammaticality of (a)) The new theory works in the problems above.

Consider the sentence below(=(6);

- (25) a. * Who_i did you meet Mary [pp before interviewing t_i] ?
 b. Who_i did [ip' you [vp' meet Mary] [pp before [cp t' ; [ip PRO [vp interviewing t_i]]]]]

Here PP is not L-marked, so it is a blocking category. When 'Who' moves to the Spec of CP within PP, it crosses over no barrier. Then when it moves to the Spec of CP, it cannot adjoin to the non-argument PP by the new condition which bars the adjunction in syntactic movement. Therefore 'who' must move directly to the Spec of the matrix CP. In this movement, it crosses over one barrier, IP which immediately dominates the blocking category PP. Therefore, the sentence is 1-subjacent and is predicted as ungrammatical as it is. Of course we can think of another possibility for the derivation as I showed in section 2.2. That is, we can think of PP generated within VP. However the result is the same with the case of the PP immediately dominated by IP. That is, if we assume PP within VP, then a VP which immediately dominates a blocking category (here the PP) will be a barrier. In this case, IP cannot be a barrier because IP does not immediately dominate a blocking category but a barrier by definition. Therefore the movement crosses over only one barrier. So the new theory also works for this problem.

Next is the Complex NP phenomenon(=(12))

- (26) a. * Which book_i did John meet [np a child [cp who_j [ip t_j read t_i]]] ?
 b. ?? Which book_i did Tom hear [np a rumor [cp that [ip you read t_i]]] ?
 (Chomsky 1986:34-35)

Consider (a) first. As we have discussed in (13), in (a) IP is not L-marked, so it is a blocking category and CP is not L-marked, so it is also a blocking category. When 'which book' moves, it crosses over two barriers, CP which immediately dominates the blocking category IP and NP which immediately dominates the blocking category CP. Therefore the sentence is correctly predicted to be ungrammatical. However the modified theory is confronted with a difficulty in (b). That is, it cannot correctly predict the grammaticality of (b). (Chomsky(1986) explained the difference in grammaticality between (a) and (b) in terms of the oblique case from N).

Let's apply the modified theory to (b). Since the N 'rumor' L-marks CP, CP is not a blocking category, nor is NP. Then 'which book' can move from the Spec of the embedded CP to the Spec of the matrix CP freely.

The only thing we can depend on in this stage to check the grammaticality of sentences is the status of traces. In fact, so far linguists have depended on two methods to explain linguistic data, one of which is the binding relation, especially between an antecedent and its trace, and the other is the government of the trace by a head.

Let's look at the structure of (b) carefully.

(27= 26b)

?? Which book_i did John hear [NP a rumor [cp t'_i [c' that [ip you read t_i]]]] ?

In fact, the antecedent 'which book' can antecedent-govern t'_i in the Spec of CP because there is no barrier between them under the modified theory. It is clear that the problem is not from the binding relation. Rizzi(1989:196) gives a very helpful explanation for this case. Rizzi(1989:197), accepting Cinque's proposal, says that " nouns should be inadequate governors. ... a maximal projection which is not selected by a [+V] head is a barrier. ... ". The condition he suggests is as follows;

- (28) XP is a barrier if it is not directly selected by an X⁰ non-distinct from [+V]

This condition implies that " nouns, contrary to verbs and adjectives, will never be able to govern inside a lower maximal projection". Consider the following example DP he gives and one corresponding sentence.

(29) a. ?* [_{DP} John's_i [np t'_i [n' appearance [ip t_i to be sick]]]]
(Rizzi 1989:196)

b. John_i I [vp t'_i appear [ip t_i to be sick]]

In (a) there is no problem in movement. No barriers are crossed. In terms of antecedent-government, there is no problem. Clearly t'_i can do it. Therefore the problem should be from the relation between N' 'appearance' and the trace t_i in the Spec of IP. According to Rizzi, we can make an explanation as follows ; even though the N' 'appearance' L-marks its complement IP, it cannot L-mark t_i in the Spec of IP since it is [-V] as Rizzi defined in (28). Then the trace t_i in the Spec of IP is not licensed, therefore the sentence is judged as ungrammatical. On the other hand , in (b) the verb 'appear' can L-mark IP and also L-mark t_i in the Spec of IP by Spec-head agreement as defined in (28). In the line of Rizzi's proposal, consider (27). The N' 'rumor' I marks IP, but since it is [-V], it cannot L-mark the Spec of IP. Therefore t'_i cannot be licensed. Then we can explain the difference in grammaticality between (26a, b) . First, (26a) is 2-subjacent, so it is ungrammatical. In (26b), even though it doesn't cross over any barrier, one of the traces is not licensed by a head, so it is not grammatical. However, because (26a) seriously violates subadjacency, (26a) is worse than (26b) which violates only a licensing condition.²⁾

The following sentences are showing NP-movement.

(30) a. Mary seems to be smart (=14)

a'. Mary_i [seem-I]_j [vp' t''_i [v' t_j [ip t'_i to [vp t_i [v' be smart]]]]]

b.* Mary seems that it appears to be smart.(=16)

b'. Mary_i [seem-I]_j [vp' t''_i [v' t_j [cp that [ip' it [appear-I]_k [vp [v' t_k [ip t'_i to [vp t_i [v' be smart]]]]]]]]]

c. Mary was killed.(=17)

c'. Mary_i [was-I]_j [vp' t''_i [v' t_j [vp t'_i [v killed t_i]]]]

In (30a) , instead of assuming feature-sharing , we can explain the grammaticality of (a) in terms of subjacency and the licensing condition.

[seem-I]_j L-marks the trace t'_j in the Spec of VP' because it L-marks VP'.³⁾

The movement from t'_j in the Spec of IP to the matrix clause obeys subjacency condition of the modified theory. Therefore (30a) is predicted to be grammatical. On the other hand, (30b) has a different story. Even though all the traces are licensed by [+V] category, the movement from the Spec of the most deeply embedded IP to the Spec of matrix VP violates subjacency. That is, the movement crosses over one barrier CP which immediately dominates the blocking category IP', so it is judged as ungrammatical as it is. In (30c), subjacency is obeyed, and traces are also well licensed by [+V] category such as I and verbs. Therefore, the sentence is grammatical.

Conclusion

So far I pointed out some problems which arose from the improper definition of the adjunction condition of barriers. As I discussed in section 2, the adjunction condition is too powerful in that it allows many ungrammatical sentences. To solve the problems, I first assumed that there is no adjunction at S-structure except extraposition and topicalization. Secondly, I assumed only inherited barriers , which is to consider IP, traditionally a defective category, as a normal lexical category. Under the new assumption, unlike I which L-marks VP, C and D which lack the ability of theta-government make IP and NP a blocking category, and the immediately dominating category becomes a barrier. In fact, under the modified barrier theory, subjacency condition can be said to be stronger than it was in Chomsky(1986). I applied the modified theory to every sentence which raised problems for barriers and showed that the new definition works well.

NOTES

1. Recall that I am now extending the theory in the line that there is no adjunction in syntactic movement except extraposition and topicalization which can be considered as stylistic phenomena.

2. I am not sure whether I can extend this licensing condition to the other categories such as C, or D. I assumed in (30) that I L-marks its complement VP and also L-marks the Spec of VP (I am now assuming VP-internal hypothesis

especially in explaining NP-movement as an experiment to extend and testify Rizzi's proposal. I think this licensing condition can be called roughly 'a head-licensing condition' because in this condition the role of head-category such as verb or noun etc. to license traces is critical. I think it works well with the data so far. If this licensing condition is fully developed, then I think it will be very helpful for us to judge grammaticality of linguistic data together with subadjacency condition. In fact, Chomsky(1986:24) also mentioned a similar suggestion with Rizzi(1989). Revising his L-marking condition, he mentioned that a lexical category can L-mark not only its complement but also the Spec of the complement. His condition for L-marking is as follows; "where a is a lexical category, a L-marks b iff b agrees with the head of \bar{r} that is theta-governed by a".

3. In fact, this process can raise some argument., since it is not clear whether I has the feature [+V] or [-V]. If we think of the Spec-head agreement, especially in terms of number, then I seems to be nearer to [-V]. On the other hand, if we consider that verbs raise to I and theta-govern VP, then it seems to be more like [+V]. For this case of (30a,b,c), I must be [+v] to L-mark the trace in the Spec of VP.

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THE LOGIC OF RECIPROCITY REVISITED:
On the Interpretations of a Reciprocal Construction in Taiwanese*¹

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Abstract: In this paper, we study the semantic properties of a reciprocal construction in Taiwanese. We particularly focus on the real-world situations that this reciprocal construction may encode. In this study, we not only find that the types of predicates are closely related to the interpretations of the reciprocal and that the semantics of the reciprocal is cross-linguistically similar by comparison with studies of reciprocals in English, but also make some discoveries that have never been discussed before. In addition, we review the general schema of reciprocals proposed by Langendoen (1978) and show its inadequacies. Then, based on Oehrle's (to appear) Austinian pluralities, we propose a new schema to accommodate all types of reciprocal situations.

Introduction

The purpose of this study is to investigate the semantic properties of a reciprocal construction in Taiwanese--*xiou-V*. We particularly focus on the real-world situations² that this reciprocal construction may encode. In this study, we not only find that the types of predicates are closely related to the interpretations of the reciprocal and that the semantics of the reciprocal is cross-linguistically similar by comparison with studies of reciprocals in English, but also make some new discoveries that have never been discussed in the previous studies of reciprocals. In addition, we review the general schema of reciprocals proposed by Langendoen (1978) and show its inadequacies. Then, based on Oehrle's (to appear) Austinian pluralities, we propose a new schema to accommodate all types of reciprocal situations.

The organization of this paper is as follows. First, we briefly discuss the syntactic properties of the reciprocal construction *xiou-V* in Taiwanese, which are different from those in English. Then, we discuss the various reciprocal situations that *xiou-V* may encode and compare them with those of the English examples. At the same time, we review the general schema of reciprocals proposed by Langendoen (1978) and show its inadequacies. Following that, we propose a new schema based on Oehrle's (to appear) Austinian pluralities to accommodate all types of reciprocal situations.

Syntactic Properties

The syntactic properties of the reciprocal construction *xiou-V* in Taiwanese are different from those of the reciprocal constructions in English in that English uses reciprocal pronouns such as *each other* to express reciprocal relations while *xiou-V* uses reciprocal verb construction for the same purpose. *Xiou-V* is composed of a verb and a prefix *xiou-*, which roughly means 'reciprocally'. The verb in *xiou-V* is normally a transitive verb,³ which can be a stative verb or an action verb. After combining with *xiou-*, the transitive verb becomes intransitive, as shown in (1).

- 1) a. I pa gua.
 he hit me
 'He hit me.'
- b. I ga gua xiou-pa.
 he and/with me REC-hit
 'He and I hit each other; he and I fought.'
- c. *I xiou-pa gua.
 he REC-hit me

(1a) is a normal transitive sentence, in which the verb *pa* 'hit' takes an object *gua* 'me'. The verb becomes intransitive when it becomes the reciprocal verb *xiou-pa* 'REC-hit', as in (1b). (1c) is ungrammatical because *xiou-pa* should be intransitive but it takes an object *gua*.

Besides, the subject of *xiou-V* must be plural. For example, the subject in (1b) is a conjoined plural subject. But in (2), the subject is singular and the sentence is ungrammatical, which is the same in English reciprocals.

- 2) *I xiou-pa.
 he REC-hit
 *'He hit each other.'

In fact, the claim that the subject of the reciprocal construction *xiou-V* must be plural is too strong because the status of *ga* (e.g. in (1b)) is not clear. *Ga* may be a conjunction like *and* in English or a preposition like *with*. For example, (3a) and (3b) are both grammatical. If we assume that a modal verb cannot intervene between elements of a conjoined subject, the *ga* in (3b) is more like a preposition than a conjunction.

- 3) a. I ga gua e xiou-pa.
 he and/with I will REC-hit
 'He and I will hit each other; he and I will fight.'
- b. I e ga gua xiou-pa.
 he will with me REC-hit
 'He will fight with me.'


In addition, some *xiou-V*'s can have a singular subject sometimes, as in (4a). (4a) is syntactically well-formed but semantically incomplete. The complex verb *xiou-kuan* 'REC-look-at' is used for matchmaking occasions. On such occasions, the participants must be more than one, but the subject in (4a) is singular. This is the reason why the question in (4b) is asked. The *ga* in (4b) is apparently a preposition.

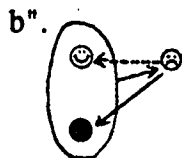
- 4) a. I zanga ki xiou-kuan
 he yesterday go REC-look-at
 'He went to see someone yesterday (on a matchmaking occasion).'
- b. Ga xiang xiou-kuan?
 with who REC-look-at
 'See whom?'

Since the focus of this study is the semantic properties of the reciprocal instead of the syntactic properties, we would like to regard this plurality requirement as a semantic requirement: the subject of the reciprocal construction *xiou-V* in Taiwanese must be semantically plural. The term 'subject' here should not be taken as strictly a syntactic subject. How this phenomenon is analyzed in a syntactic study is beyond the scope of this paper.

Semantic Properties

As noted by Lichtenberk (1985), the reciprocal construction in many languages may encode more than one type of real-world situation. The situations represented by the reciprocal construction in English have been discussed in Fiengo & Lasnik (1973) and Langendoen (1978), among others. Langendoen further proposed a general schema for the truth conditions of the reciprocals, namely weak reciprocity (WR) and weak reciprocity for subsets (WRS), as given in (5a) and (5b). (5a) is a schema for relations (R) between atomic elements of a set A and (5b) is a generalization of the notion of WR to relations between subsets of A. (5a'') is a situation described by (5a') and it satisfies WR. (5b'') is a situation described by (5b') and it satisfies WRS.

- 5) a. Weak Reciprocity (WR)
 $(\forall x \in A)(\exists y, z \in A)(x \neq y \wedge x \neq z \wedge xRy \wedge zRx)$
 a'. They scratched one another's back.
 a''. 
- b. Weak Reciprocity for Subsets (WRS)
 $(\forall x \in A)(\exists X_1, X_2, Y \neq \emptyset, Z \neq \emptyset \subseteq A)(x \in X_1 \wedge x \in X_2 \wedge x \notin Y \wedge x \notin Z \wedge X_1RY \wedge ZRX_2)$
 b'. They released one another.



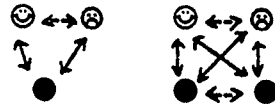
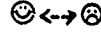

In this section, we are going to discuss the various situations that the reciprocal construction *xiou-V* in Taiwanese may encode.⁴ *Xiou-V* can be divided into five semantic types according to their corresponding real-world situations. The first type consists of stative verbs and denotes strong reciprocal situations. The second type consists of action verbs and expresses weak reciprocal situations. The third type consists of verbs such as *xiou-sua* 'REC-succeed' in Taiwanese and *stack* in English. *Xiou-V_{succeed}* is used as the label of this type in the following discussion. The fourth type is a new discovery. It consists of verbs such as *xiou-dan* 'REC-wait-for' in Taiwanese and *wait for* in English. *Xiou-V_{wait}* is used for this type in the discussion. The last type is a mixed type of *xiou-V_{succeed}* and *xiou-V_{wait}*. It consists of verbs such as *xiou-tah* 'REC-pile' and *xiou-jyu* 'REC-ask' in Taiwanese and *pile up* and *follow* in English. *Xiou-V_{pile}* is used for this type in the discussion. These five types are discussed in the following five subsections respectively. In the discussion, we not only show that the types of situations that the reciprocal encodes are closely related to the types of predicates, as also noticed by Fiengo & Lasnik (1973), we also show that the semantic properties of the reciprocal construction are cross-linguistically similar, and that the WR/WRS schema proposed by Langendoen in (5a) and (5b) cannot accommodate all the cases of reciprocal situations in Taiwanese as well as in English.

Xiou-V_{state} *Xiou-V_{state}* is the first semantic type of *xiou-V*. It consists of stative verbs. Examples are given in (6). The situations denoted by the reciprocal sentences of this type are strong reciprocal situations, as represented by the schema in (7) from Langendoen (1978).

- (6) *xiou-bal* 'know each other'
xiou-xiang 'resemble'
xiong-ho⁵ 'friends to each other'
xiong-ai 'love each other'

- 7) Strong Reciprocity (SR)
 $(\forall x, y \in A) (x \neq y \rightarrow xRy)$

In each situation, each participant bears the relation denoted by the predicate to every one else. For example, in (8a), every single member of the group denoted by *in* 'they' must know every other member in the group to satisfy the reciprocal situations, as illustrated in (8b), for instance. (The arrowheads indicate the directions of knowing.) Partitioning the participants into subgroups is not possible, as also noticed by Fiengo & Lasnik (1973).^{6,7} A situation in which A and B know each other and C and D know each other but A does not know C and D nor does B, as illustrated in (8c), is not a situation for (8a).

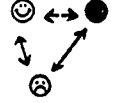
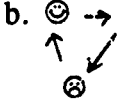
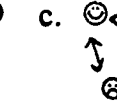
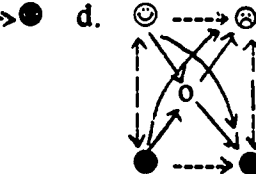
- 8) a. In u xiou-bal.
they Asp REC-know
'They know each other.'
- b. 
- c. 
- 

Xiou-V_{action} The second semantic class of the *xiou-V* reciprocal is *xiou-V_{action}*, which consists of action verbs. Examples are given in (9).

- 9) xiou-keh 'push each other'
xiou-pa 'hit each other, fight'
xiou-tai 'attack each other with knife'
xiou-ma 'scold each other'
xiou-liong 'shout at each other'
xiou-jim 'kiss each other, lip kiss'
xiou-kuan 'look at each other, used on matchmaking occasions'

The relation expressed by this type of reciprocal is WR/WRS given in (5). For example, in (10), if the participants are two, e.g. A and B, the situation would be that A is pushing B and B is pushing A. If the participants are three, e.g. A, B, and C, all the possible situations that can make (10) true are shown in (11a-c). If the number of the participants is five, (11d) is a possible situation for (10), which is a situation distinguishing WR from PIR and others.⁸

- 10) In li xiou-keh.
they Part. REC-push
'They are pushing each other.'

- 11) a.  b.  c.  d. 

Xiou-jim 'REC-kiss' and *xiou-kuan* 'REC-look-at' are two special cases in the type of *xiou-V_{action}*. They are used on special occasions and the number of the participants is normally two: *xiou-jim* is used to refer to lip kisses only and *xiou-kuan* is used on matchmaking occasions. But it is also possible that on an occasion of *xiou-kuan*, two men and two women are involved, as in (12). Hence, these two items may be special, but they are not exceptional cases of WR/WRS.

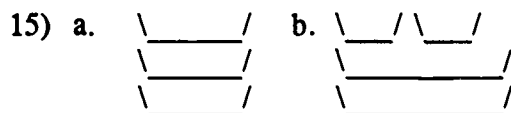
- 12) Zanga u si-e lang li jia xiou-kuan.
 yesterday have four-CL person in here REC-look-at
 'Yesterday, there were four people here (e.g. in a romantic restaurant) to look at each other.'

Xiou-V_{succeed} The third semantic type of reciprocal is called 'linear configurational' in Fiengo & Lasnik (1973) and the 'chaining situations' in Lichtenberk (1985). The relation denoted by the predicate is asymmetric, i.e. if the relation $A \rightarrow B$ holds, then $B \rightarrow A$ does not. For example, in (13), if dish A is stacked on top of dish B, dish B cannot be stacked on top of dish A.

- 13) The dishes are stacked on top of each other.

And the relation denoted by this type of reciprocal holds only between atomic items. That is, the relation illustrated in (14a) is such a relation but that in (14b) is not, and (15a) is a possible situation for (13) but (15b) is not.

- 14) a. $A \rightarrow B \rightarrow C \dots$
 b. $A \rightarrow (B, C) \rightarrow (D, E, F) \rightarrow G \dots$



Like *stack* in English, there are examples of chaining situations in Taiwanese. *Xiou-sua* 'REC-succeed' is one example.

As noted in Langendoen (1978), WR/WRS can satisfy an asymmetric, disconnected relation R on an indefinite set A for which the relation is not well-founded, as in (16), but it does not cover the situations that are well-founded, such as (13) and (14a). Hence, WR/WRS is not an adequate schema for *xiou-V_{succeed}*.

- 16) $\dots \rightarrow A \rightarrow B \rightarrow C \rightarrow \dots$

Xiou-V_{wait} The fourth semantic type of reciprocal consists of verbs such as *xiou-dan* 'REC-wait-for' in Taiwanese and *wait for* in English. The peculiarity of this type is that, like *xiou-V_{succeed}*, the relation denoted by the predicate is asymmetric and cannot be accommodated by WR/WRS, nor can it be represented by the atomically linearly ordered situation in (14a). For example, (17a) and (17b) may be satisfied by a single situation in which A waits for B and B does not wait for A, as in (18a), or by a situation in which A waits for B and A and B wait for C, as in (18b).⁹ But they are not likely a description of a situation in which A waits for B, and A leaves when B arrives, and then B waits for C alone.

- 17) a. Lan minazai li e qia-tao xiou-dan.
 we tomorrow in Part car-head REC-wait
 'Let's wait for each other at the station tomorrow.'

- b. We will wait for each other at the mall.
- 18) a. $A \rightarrow B$
 b. $A \rightarrow B; (A,B) \rightarrow C$

Xiou-V_{pile} The fifth semantic type, *xiou-V_{pile}*, is a mixed type of *xiou-V_{succeed}* and *xiou-V_{wait}*. The relation denoted by the predicate of this type is also asymmetric and may hold between linearly ordered atoms like that of *xiou-V_{succeed}* in (14a) and (15a), or the situations like those denoted by *xiou-V_{wait}* and those in (14b) and (15b) can also meet the requirement. *Xiou-tah* 'REC-pile', *xiou-jyu* 'REC-ask' and *xiou-de* 'REC-follow' are examples of this type from Taiwanese and *pile up* and *follow* are examples from English. For instance, (19a) can be interpreted as that A told B "Let's go to the opera" and then B told C "Let's go to the opera", like (14a), or that A told B "let's go to the opera" and then A and B together told C "Let's go to the opera", like (18b). (19b) is also vague in that it can indicate a situation in which one dish is stacked on top of the other, like (15a), or in which, say, two dishes are stacked on top of the other(s), like (15b). *Pile up* and *follow* in English reciprocal sentences denote the same situations as *xiou-tah* in Taiwanese does.¹⁰

- 19) a. Geng xiou-jyu lai kan hi.
 we REC-ask come see opera
 'We asked each other to come to the opera.'
- b. Huai pan-a xiou-tah.
 those dish-Part. REC-pile
 'The dishes are piled up on top of each other.'

Summary In the discussion above, the situations denoted by the *xiou-V* reciprocal are classified into five types: *xiou-V_{state}*, *xiou-V_{action}*, *xiou-V_{succeed}*, *xiou-V_{wait}* and *xiou-V_{pile}*. Different situation types are related to different predicates. These situation types are not unique in Taiwanese. They are also found in English. The general schema WR/WRS proposed by Langendoen (1978) can accommodate the first two types but not the last three. Hence, a new schema is presented and discussed in the following section.

A General Schema

As discussed above, the situations encoded in the reciprocal construction cannot be completely accommodated by the truth conditional schema in Langendoen (1978). A new general schema is needed. Hence, we adopt Oehrle's (to appear) schema of Austinian pluralities for the reciprocal situations with some adjustments, which is discussed in the first subsection. In the second subsection, the application of the general schema to the different semantic types of the reciprocal is discussed. And the third subsection is a brief summary of the discussion.

Oehrle's Schema and the Adjustments Oehrle (to appear) proposes a schema of plurality based on two ideas: the Austinian propositions¹¹ and the assumption that both individuals and situations constitute domains structured by a sum operation. An Austinian proposition is regarded as about a structured set of situations rather than a single situation, and such a proposition may involve similarly-structured set of individuals as the arguments of the relation involved. The schema of plurality proposed by Oehrle is in (20), where the relation ' $\alpha \models \beta$ ' holds when α is a minimal model of β .

$$\begin{aligned} 20) \quad & \bigsqcup_{i \in I} (s_i \models (v'(x_i)(y_i))) \\ & (\bigsqcup_{i \in I} (x_i)) \models np_1' \\ & (\bigsqcup_{i \in I} (y_i)) \models np_2' \end{aligned}$$

In (20), np_1 and np_2 are plural noun phrases and v is a transitive verb in a sentence $np_1 v np_2$. The interpretation of each noun phrase is represented as a join of individuals satisfying the interpretive constraints of its component parts and the interpretation of the sentence is represented as a join of situations satisfying the binary relation v' associated with v . These structures are linked with a common index set I , together with indexed indeterminates.

Based on the schema in (20), Oehrle develops the schema in (21) for reciprocals in English by adding some constraints. First, reciprocal pronouns in English such as *each other* cannot be bound by singular noun phrases. This is taken care of by the constraint $x_i \neq y_i$ in the relational schema. Second, in reciprocal sentences, both arguments of the verb (i.e. the subject np_1 and the object *each other* (np_2) for example) have the same interpretation; therefore, $(\bigsqcup_{i \in I} (y_i)) = \bigsqcup_{i \in I} (x_i)$ is required.

$$\begin{aligned} 21) \quad & \bigsqcup_{i \in I} (s_i \models (v'(x_i)(y_i)) \wedge x_i \neq y_i) \\ & (\bigsqcup_{i \in I} (x_i)) \models np_1' \\ & (\bigsqcup_{i \in I} (y_i)) = \bigsqcup_{i \in I} (x_i) \end{aligned}$$

Oehrle's account in (21) is compatible not only with interpretations of the form $(AxA) \setminus \Delta$ --the cross-product of the argument interpretation A with itself minus the diagonal Δ of AxA --but also with much weaker relations among the members of the argument interpretation A , as studied by Langendoen (1978). The formulation treats those readings of the reciprocal as special cases of the single, general and simple schema in (21).

However, as pointed out by Langendoen (personal communication), the condition that requires the relation holds of distinct pairs $\langle x_i, y_i \rangle$ in (21) is inadequate for the reciprocals. The condition $x_i \neq y_i$ should be modified to $x_i \cap y_i = \emptyset$, because, for example, (22) can be satisfied by the join of situations in which A hit B, B hit C and C hit A, or by the join of situations in which A and B hit C, B and C hit A, and A and C hit B, etc., but it cannot be satisfied

by the join of situations in which A and B hit B and C, and B and C hit A and B, yet the schema in (21) wrongly predicts that this is a correct set of situations for (22).

22) They (A, B and C) hit each other.

Also, x_i and y_i in (21) should not be null. Therefore, the schema for the reciprocal in (21) is modified as in (23), which is the schema we adopt for all the situations denoted by the reciprocal construction in Taiwanese and English.

$$23) \prod_{i \in I} (s_i \models (v'(x_i)(y_i)) \wedge x_i \cap y_i = \emptyset \wedge x_i, y_i \neq \emptyset)$$

$$(\prod_{i \in I} (x_i)) \models np_1'$$

$$(\prod_{i \in I} (y_i)) = \prod_{i \in I} (x_i)$$

However, in the reciprocal construction *xiou-V* in Taiwanese, there is no object *np* in the sentence. But this is not a problem because, in English, both arguments of the verb in the reciprocal construction have the same interpretation and only the subject *np* is relevant in (23). Yet, the item that refers to the participants in the *xiou-V* sentence may not be exactly the subject *np* as we have discussed previously. For this, the *np_1'* in (23) should be treated as the interpretation of the semantic subject, e.g. the subject and the *np* linked by *ga* 'and, with', as in (3a,b).

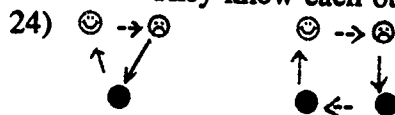
- 3) a. I *ga* *gua* *e* *xiou-pa*.
 he and/with I will REC-hit
 'He and I will hit each other; he and I will fight.'
- b. I *e* *ga* *gua* *xiou-pa*.
 he will with me REC-hit
 'He will fight with me.'

In the following section, we discuss the application of (23) to the different semantic types of the reciprocal in Taiwanese and English discussed in the previous section.

The Application of the Schema to the Reciprocal Situations As noted by Oehrle himself, the schema can accommodate the reciprocal cases discussed in Langendoen (1978), i.e. cases of WR/WRS, but it cannot accommodate cases like the chaining situations, i.e. cases of *xiou-V_{succeed}*. Also, as we have discussed in the previous section, cases such as *xiou-V_{walk}* and *xiou-V_{pile}* cannot be accommodated by WR/WRS either, nor can they be accommodated by the schema in (23). The common characteristic of these three types is that the relation that the verb denotes is asymmetric. Whereas, the relations denoted by the verbs in *xiou-V_{action}* and *xiou-V_{state}* are reversible. As suggested by Oehrle (to appear: 3), 'reasoning about particular cases depends on properties of the relation *v*'; therefore, in order for the schema in (23) to be able to apply to all the cases of the reciprocal situations, we have to give different types of predicates in the reciprocal construction different relational properties and constraints.

As discussed previously, the *xiou-V_{state}* type exhibits strong reciprocity. It requires that the relation v' corresponding to the stative verb holds symmetrically between atomic elements. But the schema in (23) is too weak to provide the *xiou-V_{state}* reciprocal with correct situations. For example, the situations illustrated in (24) satisfy the relational schema in (23) but they are not situations described by sentence (8a).

- 8) a. In u xiou-bal.
 they Asp REC-know
 'They know each other.'



Therefore, to guarantee that the symmetric relation holds, an extra condition (25) is needed in addition to the condition that x_i and y_i must be atomic:¹²

- 25) If $v'(x,y)$ is true, $v'(y,x)$ must also be true:

$$v'(x,y) \Rightarrow v'(y,x)$$

(v' is the binary relation denoted by a V_{state} .)

(25) is not an implication rule. It is interpreted as: if a situation s_1 that satisfies $v'(x,y)$ is found, another situation s_2 that satisfies $v'(y,x)$ must also be found. For example, in (8a), if A knows B, then B must also know A to satisfy the situation described by the sentence; if A knows B but B does not know A, (25) is violated and it is not a legitimate situation for (8a).

Even with (25), the schema in (23) is still too weak for the *xiou-V_{state}* reciprocal because it wrongly allows situations such as (26a) and (26b) to be legitimate situations of (8a). To prevent this from happening, another condition (27) is needed.

- 26) a.
 b.

- 27) If $v'(x,y)$ and $v'(y,z)$ are true, $v'(x,z)$ must also be true:

$$v'(x,y) \ \& \ v'(y,z) \Rightarrow v'(x,z)$$

(v' is the binary relation denoted by a V_{state} .)

Like (25), (27) is not an implication rule nor a transitive rule. It is interpreted as: whenever an s_1 that satisfies $v'(x,y)$ and an s_2 that satisfies $v'(y,z)$ are found, an s_3 that satisfies $v'(x,z)$ must also be found. For example, if A knows B and B knows C, A must also know C to satisfy the situation described by (8a).

Contrary to *xiou-V_{state}*, *xiou-V_{action}* exhibits WR/WRS. No extra condition needs to be added to (23).

Now we come to the types *xiou-V_{succeed}*, *xiou-V_{wait}* and *xiou-V_{pile}*. As noted above, the relation denoted by these predicates is asymmetric. And that is what makes them unable to be accommodated to the schema in (23). If we treat the

binary relation v' associated with the predicates V_{succed} , V_{wait} and V_{pile} as being in the relation of *V-ing*, following Langendoen's suggestion (personal communication), the problem can be solved. That is, if the verb is *follow*, v' in (23) can mean either 'following' or 'being followed'. For example, when A follows B, it is treated as A and B entering into a 'follow' relation; consequently, $v'(A)(B)$ is true and $v'(B)(A)$ is also true. The rule is in (28).

28) If $v'(x,y)$ is true, $v'(y,x)$ is automatically true:

$$v'(x,y) \rightarrow v'(y,x)$$

(v' is the binary relation denoted by a $V_{\text{succed/wait/pile}}$)

However, the three types of reciprocals $xiou-V_{\text{succed}}$, $xiou-V_{\text{wait}}$ and $xiou-V_{\text{pile}}$ are somewhat different from each other as discussed previously. The relation of $xiou-V_{\text{succed}}$ holds only between atomic items, i.e. x_i and y_i in (23) must be atomic; therefore, (29) is needed.

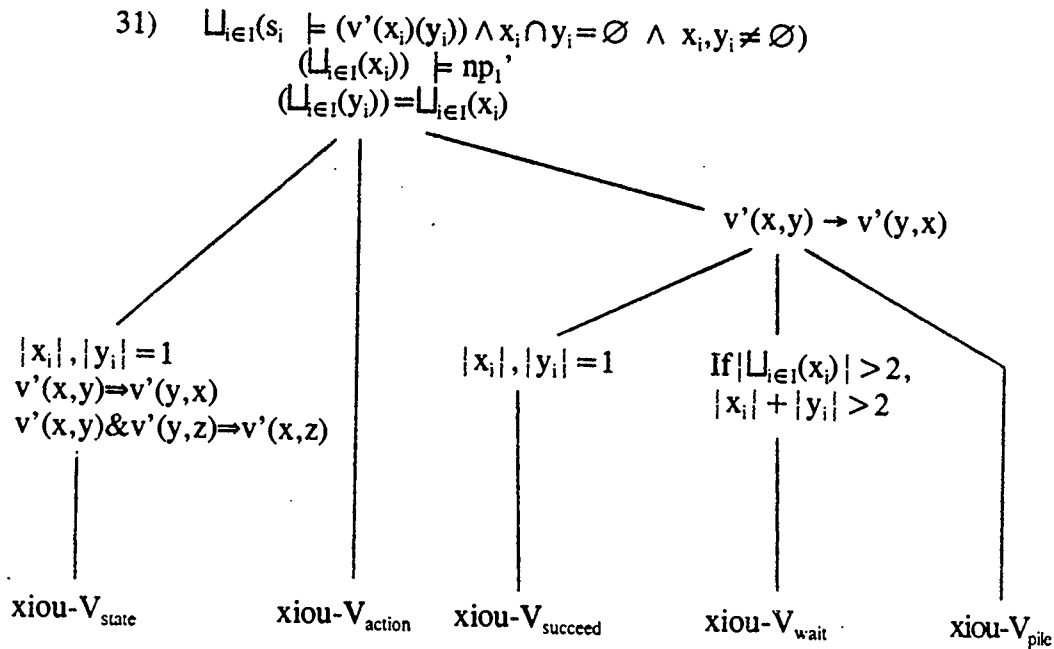
$$29) |x_i|, |y_i| = 1$$

The relation of $xiou-V_{\text{wait}}$ cannot hold between atomic items if the participants are more than two, i.e. x_i and y_i cannot both be atomic when the participants are more than two; hence, (30) is needed.¹³

$$30) \text{ If } |\bigsqcup_{i \in I} (x_i)| > 2, \text{ then } |x_i| + |y_i| > 2$$

$xiou-V_{\text{pile}}$ is the mixed type of the two, no extra constraint other than (28) is needed to be added to (23).

Summary With the schema in (23) and the different properties of the various types of predicates discussed above, we correctly supply the reciprocal in Taiwanese and English with the corresponding situations. The general schema and the specific conditions for each semantic type of the reciprocal are summarized in (31).



Conclusion

In this paper, we have discussed the semantic properties of the reciprocal *xiou-V* in Taiwanese and classified them into five semantic groups according to their corresponding real-world situations. We have also compared the reciprocal situations in Taiwanese and English and found that the semantic properties of the reciprocal are cross-linguistically similar: the five semantic types of the reciprocal are found both in Taiwanese and English and different predicates in the reciprocal construction may denote different real-world situations, e.g. the difference between *xiou-V_{state}* and *xiou-V_{action}*. In addition, based on Oehrle's (to appear) Austinian pluralities, we have also given the various semantic types of the reciprocal a general schema and specific conditions in order to supply them with correct real-world situations.

The relation between reciprocals and plurals have been well discussed in Langendoen (1978) and Oehrle (to appear), among others. Now the questions that may be aroused by this study of the reciprocal are: Why do different types of predicates denote different reciprocal situations? What principle may underlie the relation between predicates in the reciprocal construction and predicates in general? We will leave them for future research.

NOTES

* I would like to thank D. Terence Langendoen and Richard Oehrle for giving me helpful comments and for being the consultants. I would also like to thank Jane Tsay for giving me judgments about data from Taiwanese and Peg Lewis for judgments about data from English. My gratitude also goes to those who gave me comments when a previous version of this paper was presented in LASSO XXIII. Of course, all the errors are mine.

¹ Taiwanese is a variety of South Min (a Chinese dialect), which includes Amoy, Zhangzhou, Quanzhou, and many other dialects spoken in the southern part of Fukien (Min) Province and some part of Kwangtung Province. Some varieties of South Min are spoken by the Chinese in Malaysia, Singapore and other Southeastern Asian countries. The reason that 'Taiwanese' is used as the name of the language in the present study is that it is now the most common name for the language and that the data under study are drawn from the variety spoken in Taiwan, mostly my own dialect.

² The term 'situation' has two slightly different meanings in this paper. What we refer to as a situation in the first three sections may be a set of situations referred to by the schema discussed in the fourth section.

³ *Xiong-ho* 'REC-nice' is a special case of *xiou-V* in that *ho* is an adjective or a non-transitive stative verb that requires a plural subject if the interpretation of *ho* in *xiong-ho* is intended, as shown in (i).

- i) a. In jin ho.
they very nice
'They are very nice.'
'They are in good condition.'
'They are good friends.'
- b. In jin xiong-ho.
they very REC-nice
'They are friends to each other.'

(ia) is ambiguous. When it means the first and second readings, the subject can be singular. When the third reading is intended, the subject must be plural. (ib) has the same meaning as the third reading of (ia).

⁴ Not all cases of *xiou-V* are reciprocals. For example, *xiong-xin* 'believe' is a transitive verb like *believe* in English and has no meaning of any type of reciprocity discussed in this section. *Xiou-pien* 'cheat each other' and *xiou-sang* 'see off' can have a singular subject, as in (i). But when they have certain plural subjects, they are interpreted as reciprocals as in (ii).

- i) Li mai xiou-pien.
 you(sg.) don't REC-cheat
 'You don't cheat (me).'
- ii) Lan leng-e m-tang xiou-pien.
 we two-CL shouldn't REC-cheat
 'We two shouldn't cheat each other.'

My speculation is that some semantic change has been going on. *Xiong-xin* is completely lexicalized and has lost all the meaning of reciprocity, and *xiou-pien* and *xion-sang* have lost part of the meaning of reciprocity.

⁵ *Xiong-* is an allomorph of *xiou-*.

⁶ One thing to be noted is that when there are natural subgroups of the participants, the subgroups as a whole instead of the members in the subgroups are relevant to the situation in question. For example, (i) indicates that the general relation between the two families is pretty good. This may implicate that the members of the two families have friendly interaction with each other, but this is not what the sentence denotes.

- i) In leng-ge jin xiong-ho.
 they two-family very REC-nice
 'The two families are friendly to each other.'

(ii) is an example from English.

- ii) John's grandparents hate one another.

According to Langendoen (1978, footnote 10), (ii) is satisfied by a situation in which John's paternal grandparents hate John's maternal grandparents and vice versa. This seems to be a counterexample to our strong reciprocity analysis of *xiou-V_{state}*. But this may not be a real counterexample since there is a natural grouping of grandparents, namely, paternal and maternal, and in the situation of (ii), the subgroups are treated as whole units and the relation between the individual members inside the subgroups is not relevant. This is only a speculation and further studies on the following issues are needed: the definition of grouping, the causes of grouping (e.g. the context, the natural demarcation, the phrasing of the subject), the accessibility of members inside subgroups, etc.

⁷ According to Langendoen (1978), SR is too strong a schema for the stative-verb reciprocal. According to him, (i) can be satisfied by the situation in (ii) but SR would rule (ii) out. Therefore, unlike in Taiwanese, some stative verbs in English need a weaker reciprocal schema (e.g. WR/WRS) than SR.

- i) They are similar to one another.
- ii) $A \leftrightarrow B$
 $\updownarrow \quad \updownarrow$
 $C \leftrightarrow D$

⁸ In Langendoen (1978), there are six possible truth-conditional schemata for reciprocals. WR and PIR in (i) are two of them.

i) Partitioned Intermediate Reciprocity (PIR)

Let $A = A_1 \cup \dots \cup A_n$ and $(\forall i, j, 1 \leq i, j \leq n)(i \neq j \rightarrow A_i \cap A_j = \emptyset)$ and $(\forall k, 1 \leq k \leq n)(\text{card } A_k \geq 2)$:

$$(\forall i, 1 \leq i \leq n)(\forall x, y \in A_i)\{x \neq y \rightarrow [xRy \vee (\exists n > 0)(\exists z_1, \dots, z_n \in A)(xRz_1 \wedge \dots \wedge z_nRy)]\}$$

When the members of the set A are no more than four, PIR equals WR. When the members are more than four, PIR implies WR but not vice versa. (11d) is a situation of WR but not of PIR.

⁹ Note that if the sentence is in past tense, such as (i), the situation may be different. (i) can be satisfied when A waited for B in one corner of the mall while B waited for A in another corner at the same time. But (i) is not likely to be satisfied if the real situation is that A waited for B and not vice versa.

(i) We (A and B) waited for each other at the mall yesterday.

Also, if there is a frequency adverb such as *always* in the sentence, the situation may be different, too. For example, (ii) cannot be satisfied if A waits for B every time.

(ii) We always wait for each other.

Since the interaction among reciprocal situations, frequency adverbs and tempoal relations is beyond the scope of this study, I will leave it for future research.

¹⁰ It is interesting to note that in English *pile up* and *stack* are used as in *pile up on top of* and *stack on top of*, in which a direction is explicitly expressed. In Taiwanese, there is no direction incorporated explicitly in *xiou-tah* 'REC-pile'. But implicitly, a direction like that in English is incorporated, as shown in (i). (*Ga* in (i) is like *ba* in the *ba* construction in Mandarin. See Li (1994) for details.)

i) a. *Ga hi-de pan-a tah e ji-de pan-a ding-tao.*

GA that-CL dish pile on this-CL dish top-head

'Put that dish on top of this one.'

b. **Ga hi-de pan-a tah e ji-de pan-a e-tao.*

GA that-CL dish pile on this-CL dish down-head

'Put that dish underneath this one.'

Similarly, *xiou-de* 'REC-follow' in Taiwanese is like *follow each other* in English in that a direction is incorporated. But in Taiwanese, there is no counterpart of *precede each other*, which is not an acceptable usage in English, either. Maybe there is some universal constraint on spatial and temporal relations of reciprocals, as noted by Langendoen (1978).

¹¹ The definition of 'Austinian proposition' according to Barwise (1989: 273)

is: '...for each situation s and each s -infin σ , there is a proposition p expressing the claim that $s \models \sigma$. This proposition is written: $(s \models \sigma)$. Call such a proposition an Austinian proposition.' Infons are objects which actual situations make factual and serve to characterize the intrinsic nature of a situation.

¹² For some symmetric stative predicates such as *similar*, (25) may be redundant.

¹³ The specific condition for *xiou-V_{wait}* in (30) is still inadequate. I would like to leave it for future research.

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A DESCRIPTIVE NOTE ON MALAGASY VERBAL COMPLEMENTATION
AND THE BINDING HIERARCHY:

With Special Reference to the Occurrence of the Complementizer *fa**

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Abstract: The aim of the present paper is to describe verbal complementation in Malagasy and to consider how the Malagasy data reflect the "binding hierarchy" proposed by Givón (1980). It will be shown that the Malagasy data provide support for the hierarchy and that the occurrence of the complementizer *fa* can be accounted for in terms of the strength of binding of the main-clause verb.

1. Introduction

Malagasy is an Austronesian language spoken in Madagascar.¹ Its basic word order is VOS:²

- (1) a. natory aho
past-sleep 1sg(nom)
'I slept'
b. nahita ahy ianao
past-see 1sg(acc) 2sg(nom)
'You saw me'
c. nahita anao aho
past-see 2sg(acc) 1sg(nom)
'I saw you'

The cases are distinguished in the personal pronoun system, namely, nominative, accusative, and genitive. The genitive forms are cliticized to the noun:

- (2) trano-ko
house-1sg(gen)
'my house'

Genitive forms can also occur as clitics on verbs to express non-subject agent. Verbs divide as to whether they can take an argument in the genitive or not, and those that can are called "non-active" and those that can't are called "active":

- (3) a. mividy mofo ho'an ny ankizy aho (active)
buy bread for the child 1sg(nom)
'I am buying bread for the child'
b. ividiana-ko mofo ny ankizy (non-active)
bought for-1sg(gen) bread the child
'The child is bought bread for by me'
----- Keenan (1976:256)

The Malagasy conjunction *fa* has various senses, as illustrated in (4):³

- (4) a. Mahafantatra aho fa handeha any NY izy.
pres-know 1sg(nom) that fut-go to NY 3sg(nom)
'I know that s/he will go to NY'
- b. Namela azy handeha any NY aho, fa tsy nandeha izy
past-allow 3sg(acc) fut-go to NY I, but NEG past-go 3sg(nom)
'I allowed him to go to NY, but he didn't'
- c. Tsy nandeha aho fa avy ny orana.
NEG past-go 1sg(nom) because fall the rain
'I didn't go because it rained'

In (4a), *fa* is used as a complementizer, introducing the subordinate clause of the verb *mahafantatra* 'know'. In (4b), *fa* is used as a conjunction 'but'. In (4c), *fa* is used to mean 'because'.

The aim of the present paper is to describe verbal complementation in Malagasy and to consider how Malagasy complementation reflects the "binding hierarchy" proposed by Givón (1980, 1990). Special attention is given to the consideration of the semantic conditions that govern the appearance of *fa* as a complementizer. The organization of the paper is as follows: §2 describes three types of complement clauses in Malagasy and discusses what kinds of verbs can take each complement type. §3 shows how the three types of complement clauses reflect the binding hierarchy and how the occurrence of *fa* may be accounted for. §4 comprises the conclusion.

2. Three Types of Verbal Complement Structures

This section describes three types of Malagasy verbal complementation and considers the syntactic/semantic characteristics of each type.

Type A

Consider the following pair:

- (5) a. Nilaza i Koto hoe "tia-ko i Soa"
past-say Koto QUOT like-1sg(gen) Soa
Koto said, "I like Soa"
- b. Nilaza i Koto fa tia an'i Soa izy
past-say Koto that like ACC-Soa 3sg(nom)
'Koto said that he likes/liked Soa'

(5a) and (5b) represent direct speech and indirect speech, respectively. In (5b), *Nilaza* is the main-clause verb and *i Koto* is the main-clause subject. The *fa*-clause is the complement clause selected by the main-clause verb *nilaza*. The sentence has the word order VSO, where O is a complement clause headed by *fa*.⁴ I will call this complementation structure Type A. Let us take a look at other verbs that can take a Type A complement:

- (6) Mino aho fa handeha any NY izy.
pres-believe 1sg(nom) COMP fut-go to NY 3sg(nom)
'I believe that s/he will go to NY'
- (7) Mahafantatra aho fa handeha any NY izy.
pres-know 1sg(nom) COMP fut-go to NY 3sg(nom)
'I know that s/he will go to NY'
- (8) faly aho fa handeha any NY izy
happy 1sg(nom) COMP fut-go to NY 3sg(nom)
'I am happy that s/he will go to NY'
- (9) Nandre aho fa handeha any NY izy.

- past-hear 1sg(nom) COMP fut-go to NY 1sg(nom)
'I heard that s/he is going to NY'
- (10) Nahita aho fa namitaka ahy izy
past-see 1sg(nom) COMP past-cheat 1sg(acc) 3sg(nom)
'I found out that s/he cheated me'
- (11) Nanapakevitra aho fa handeha any NY izy
past-decide 1sg(nom) COMP fut-go to NY 3sg(nom)
'I decided that s/he should go to NY'
- (12) Manaiky isika fa mahay mihira tsara indrindra izy
agree 1pl(incl,nom) COMP able to sing good most 3sg(nom)
'We agree that s/he is the best singer'
- (13) Manantena i Koto fa hahita an'i Soa aho
hope Koto COMP fut-see ACC-Soa 1sg(nom)
'Koto hopes that I will see Soa'
- (14) Mahatadidy aho fa nandeha any NY izy.
remember 1sg(nom) COMP past-go to NY 3sg(nom)
'I remember that s/he went to NY'
- (15) Nanadino aho fa nandeha any NY izy.
past-forget 1sg(nom) COMP past-go to NY 3sg(nom)
'I forgot that s/he went to NY'

In the above examples, *fa* is obligatorily present and cannot be omitted. The verb *tia* ('like'), however, can occur with or without *fa*:⁵

- (16) Tiako (fa) hianatra teny angilisy izy
like-1sg(gen) (COMP) fut-study English 3sg(nom)
'(Lit.) I like that s/he will study English'

Examples (6)-(16) suggest that the Type A complement clause is just like an independent/main clause in terms of VOS word-order. The complement-clause verb is tensed and tense agreement does not generally exist between the main-clause verb and the complement-clause verb:⁶

- (17) Mahafantatra aho fa {mandeha/nandeha/handeha} any NY i Koto.
pres-know 1sg(nom) COMP {pres/past/fut-go} to NY Koto
'I know that Koto {goes/went/will go} to NY'

There are cases, however, where the Type A complement clause becomes less like an independent/main clause. We have so far seen examples where the main-clause subject and the complement-clause subject are non-coreferential; when the two are coreferential, the complement-clause subject may not overtly be expressed.⁷ Compare, for example, (12) and (13) with (18) and (19), respectively:

- (18) Nanaiky isika fa hanomboka aloha (*isika)
past-agree 1pl(incl,nom) COMP fut-start early
'We agreed that we should start early'
- (19) Manantena aho fa hahita an'i Koto (*aho)
pres-hope 1sg(nom) COMP fut-see Koto
'I hope that I will see Koto'

To sum up the properties of Type A complementation:

- (20) a. The sentence has the VSO word order, with O being a complement clause headed by *fa*.
 b. The complement clause has the same word order as the basic main clause (i.e., VOS).
 c. The complement-clause subject is unrestricted in terms of coreference with the main-clause subject. The complement-clause subject may not be expressed when it is coreferential with the main-clause subject.
 d. The complementizer *fa* is obligatory except with the verb *tia* ('like').
 e. The complement clause is tensed. No intrinsic tense agreement exists between the main-clause verb and the complement-clause verb.

Type B

It was observed in (18) and (19) that the complement-clause subject may not be expressed when it is coreferential with the main-clause subject. There is another way of coding the situation where the complement-clause subject/agent is coreferential with the main-clause subject/agent. Compare the following pair:

- (21) a. Nanaiky isika fa hanomboka aloha (= (18))
 past-agree 1pl(incl,nom) COMP fut-start early
 'We agreed that we should start early'
 b. Nanaiky (fa) hanomboka aloha isika
 past-agree (COMP) fut-start early 1pl(incl,nom)
 'We agreed to start early'

On the surface, it is not clear whether *isika* in (21b) is main-clause subject or complement-clause subject; however, Randriamasimanana (1986:497-498) provides syntactic evidence that it is the complement-clause subject, rather than the main-clause subject, that undergoes deletion. Assuming his argument, then, (21b) has the word order VOS, where O is a complement clause, which is optionally headed by *fa* and has no overt subject. (21a) and (21b), on the other hand, have in common that the complement clause is tensed. I will call the complementation pattern exemplified in (21b) Type B.⁸

Let us look at more examples of Type B complementation. Just like *manaiky* ('agree'), verbs *manapakevitra* ('decide') and *manantena* ('hope') can take a Type B complement as well as a Type A complement. Compare (11) and (13) with (22) and (23), respectively:

- (22) Nanapakevitra (fa) handeha any NY aho
 past-decide (COMP) fut-go to NY 1sg(nom)
 'I decided to go to NY'
 (23) Manantena (fa) hahita an'i Koto aho
 pres-hope (COMP) fut-see ACC-Koto 1sg(nom)
 'I hope to see Koto'

Notice that in (21)-(23), the complementizer *fa* is optional in this construction, unlike the Type A complement, where *fa* is generally obligatory.⁹

The verbs *mahatadidy* ('remember'), *manadino* ('forget') and *tia* ('like') can take a Type B complement as well as a Type A complement: however, unlike (21)-(23), they cannot have *fa* in Type B complement:

- (24) Nahatadidy (*fa) nividy gazety aho
 past-remember past-buy newspaper 1sg(nom)

- (25) 'I remembered to buy a newspaper'
Nanadino (*fa) nitsidika ny rova aho
past-forget past-visit the palace 1sg(nom)
'I forgot to visit the palace'
- (26) Tia (*fa) miteny frantsay aho ¹⁰
like pres-speak French 1sg(nom)
'I want to speak French'

We have so far seen verbs that can take both Type A and Type B complements. The following are examples where the verb can take a Type B complement, but not a Type A complement:

- (27) Nikasa (*fa) hianatra teny angilisy aho
past-intend fut-study English 1sg(nom)
'I intended to study English'
cf. *Nikasa aho fa hianatra teny angilisy
- (28) Nanandrana (*fa) nianatra teny angilisy aho
past-try past-study English 1sg(nom)
'I tried to study English'
cf. *Nanandrana aho fa nianatra teny angilisy
- (29) Nanomboka (*fa) nianatra teny angilisy izy
past-begin past-study English 3sg(nom)
'S/he began to study English'
cf. *Nanomboka izy fa nianatra teny angilisy
- (30) Nahavita (*fa) nianatra teny angilisy izy
past-finish past-study English 3sg(nom)
'S/he finished studying English'
cf. *Nahavita izy fa nianatra teny angilisy.
- (31) Nanajanona (*fa) nianatra teny angilisy izy
past-stop past-study English 3sg(nom)
'S/he stopped studying English'
cf. *Nanajanona izy fa nianatra teny angilisy.

Unlike Type A complementation, there exists tense agreement between the main-clause verb and the complement-clause verb; for example, it is reported by the consultant that the main-clause verb tense and the complement-clause verb tense have to agree for verbs such as 'try', 'begin' and 'stop'. ¹¹

To sum up the syntactic characteristics of Type B complementation:

- (32) a. The sentence has the VOS word order, where O is a complement clause
b. *fa* is optionally present for some verbs but not for others.
c. The complement clause lacks an overt subject.
d. The complement clause is tensed, and tense agreement exists between the main-clause verb and the complement-clause verb.
e. The complement-clause subject/agent is interpreted as coreferential with the main-clause subject/agent.

Type C

Some verbs allow the following two types of complementation:

- (33) a. Mino aho fa handeha any NY izy. (=6)
pres-believe 1sg(nom) COMP fut-go to NY 3sg(nom)
'I believe that he will go to NY'
b. Mino azy handeha any NY aho.
pres-believe 3sg(acc) fut-go to NY 1sg(nom)
'I believe him to go to NY'
- (34) a. Mahafantatra aho fa handeha any NY izy. (=7)
pres-know 1sg(nom) COMP fut-go to NY 3sg(nom)
'I know that he will go to NY'
b. Mahafantatra azy handeha any NY aho.
pres-know 3sg(acc) fut-go to NY 1sg(nom)
'I know him to go to NY'

The (a) examples of (33) and (34) have Type A complements. The (b) examples of (33) and (34) have the word order VOS, with O being a complement clause, where its agent is expressed as the main-clause object, i.e. *azy* (3sg acc). I will call this complementation structure Type C.¹² Notice, however, that the complement-clause verb is tensed in the (b) examples. Here are some more examples of Type C complementation:

- (38) Nilaza an'i Soa handeha any NY aho. (cf.(5b))
past-say ACC-Soa fut-go to NY 1sg(nom)
'I talked about Soa going to NY'
- (39) Nandre azy niteny angilisy aho. (cf. (9))
past-hear 3sg(acc) past-speak English 1sg(nom)
'I heard him speaking English'
- (40) Nahita azy namitaka ahy aho. (cf. (10))
past-see 3sg(acc) past-cheat 1sg(acc) 1sg(nom)
'I found him to have cheated me'
- (41) Manantena ahy hahita an'i Soa i Koto (cf. (13))
hope 1sg(acc) fut-see ACC-Soa Koto
'Koto hopes for me to see Soa'
- (42) Mahatadidy azy nandeha any NY aho. (cf.(14))
pres-remember 3sg(acc) past-go to NY 1sg(nom)
'I remember that he went to NY'
- (43) Nanadino azy nandeha any NY aho. (cf.(15))
past-forget 3sg(acc) past-go to NY 1sg(nom)
'I forgot that he went to NY'
- (44) Tia azy hianatra teny angilisy aho (cf. (16))
like 3sg(acc) fut-study English 1sg(nom)
'I want him to study English'

There are some verbs that can take a Type A complement, but not a Type C complement:

- (45) *Faly azy handeha any NY aho. (cf. (8))
happy 3sg(acc) fut-go to NY 1sg(nom)
'I'm happy that he will go to NY'
- (46) *Nanapakevitra azy handeha any NY aho. (cf. (11))
past-decide 3sg(acc) fut-go to NY 1sg(nom)
'I decided that s/he should go to NY'
- (47) *Manaiky azy mahay mihira tsara indrindra isika (cf. (12))¹³
pres-agree 3sg(acc) able sing good most 1pl(incl,nom)
'We agree that s/he is the best singer'

Type C complements can be used to express causative meanings. There are basically two ways of expressing causative in Malagasy: morphological causative and periphrastic causative. Morphological causative is made by prefixing *amp(a)-* to the base of the verb:¹⁴

- (48) N-amp-andeha azy any NY aho
 past-CAUS-go 3sg(acc) to NY 1sg(nom)
 'I made him go to NY'

In periphrastic causative, verbs such as *manery /motere-* ('force', 'order', 'make') and *mamela lavela-* ('allow', 'let') are used. In (49) and (50), the (a) examples use a Type A complement and the (b) examples use a Type C complement:¹⁵

- (49) a. Notereko (*fa) hividy fiarakodia izy
 past-force-1sg(gen) fut-buy car 3sg(nom)
 'I forced him to buy a car/I made him buy a car'
 b. Nanery azy hividy fiarakodia aho
 past-force 3sg(acc) fut-buy car 1sg(nom)
 'I forced him to buy a car/I made him buy a car'
- (50) a. Navelako (*fa) {handeha/nandeha} any NY izy
 past-allow-1sg(gen) {fut-go/past-go} to NY 3sg(nom)
 'I allowed him to go to NY/I let him go to NY'
 b. Namela azy {handeha/nandeha} any NY aho
 past-allow 3sg(acc) {fut-go/past-go} to NY 1sg(nom)
 'I allowed him to go to NY/I let him go to NY'

Note that *fa* is impossible in (49a) and (50a). Also, it seems to be the case that only non-active counterparts can take a Type A complement, while only active counterparts can take a Type C complement. Compare (49) and (50) with the following:

- (51) a. ?Nanery aho fa hividy fiarakodia izy
 past-force 1sg(nom) COMP fut-buy car 3sg(nom)
 b. *Notereko azy hividy fiarakodia
 past-force-1sg(gen) 3sg(acc) fut-buy car
- (52) a. ??Namela aho fa handeha any NY izy
 past-allow 1sg(nom) COMP fut-go to NY 3sg(nom)
 b. *Navelako azy handeha any NY
 past-allow-1sg(gen) 3sg(acc) fut-go to NY

As the above examples show, the complement-clause verb of Type C complementation is tensed; however, tense agreement is observed between the main-clause verb and the complement-clause verb. Let us see the following as an example:

- (53) Nanery azy {handeha/*nandeha} any NY aho, fa tsy nandeha izy
 past-force 3sg(acc) {fut-go/*past-go} to NY 1sg(nom), but NEG past-go 3sg(nom)
 'I forced him to go, but he didn't'

The past tense of the complement-clause verb implies that the causee actually went to NY, making it sound contradictory to add "he didn't go". The future tense, on the other hand, does not have such an implication; therefore, it is not contradictory to add "he didn't go". Thus the complement-clause verb tense serves to distinguish implicativity.¹⁶

When the main-clause causative verb is in the future tense, it logically follows that only non-implicative future tense can appear in the complement-clause verb. This proves correct as the following example indicates:

- (54) Hanery azy {handeha/*mandeha/*nandeha} any NY aho
fut-make him {fut-go/*present-go/*past-go} to NY 1sg(nom)
'I will make him go to NY'

To sum up the characteristics of Type C complementation:

- (55) a. The sentence has the word order VOS, with O being a complement clause.
b. The complement-clause agent is expressed in the accusative case.
c. The complement verb is tensed and tense agreement is observed.
d. *fa* cannot occur in this complementation.

3. Malagasy Complementation and Givón's Binding Hierarchy

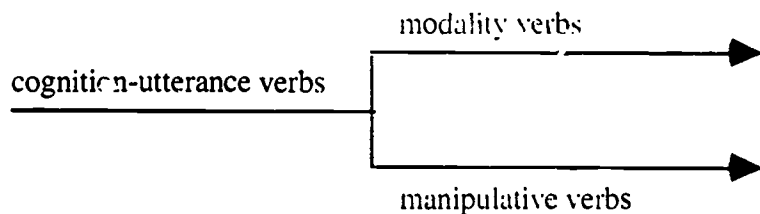
Givón (1980, 1990) proposes the concept of "binding" to capture systematic and iconic correlations between the semantics of complement-taking verbs and the syntactic structure of their complements.¹⁷ "Binding" is defined as "The stronger the influence exerted over the agent of the complement clause by the agent of the main-clause verb, by whatever means, the higher is the main-clause verb on the binding scale" (Givón 1980:335). The basic claim is summarized as follows:

- (56) The higher a verb is on the binding scale, the less would its complement tend to be syntactically coded as an independent/main clause. (Givón 1980:337)

Givón (1980, 1990) classifies complement-taking verbs into three major classes as in (57) and demonstrates, with cross-linguistic evidence, that manipulative verbs and modality verbs occupy higher positions on the binding scale than cognition-utterance verbs:¹⁸

- (57) (i) Cognition-utterance verbs ('say', 'think', 'know', etc.)
(ii) Manipulative verbs ('order', 'cause', 'tell', 'force', etc.)
(iii) Modality verbs ('want', 'succeed', 'begin', 'intend', 'try', etc.)

(58)



WEAKEST BOND <-----> STRONGEST BOND

As for cognition-utterance verbs, Givón (1980:345) postulates the following scale and cites cross-linguistic evidence that the higher cognition-utterance verbs on the scale tend to develop either modality or manipulative senses:

- (59) 'say' < 'think < 'decide' < 'hope' < 'want'
 'believe' 'agree' 'remember'
 'know' 'expect' 'forget'
 weak bond <-----> strong bond

The binding of the verb correlates negatively with the degree to which its complement appears syntactically similar to a main clause. More specifically,

- (60) The higher a verb is on the binding scale,
 (i) the less is the agent in its complement/embedded clause likely to exhibit the case-marking characteristic of main-clause subjects/agents/topics
 (ii) the less is the verb of its complement clause likely to exhibit the tense-aspect-modality markings characteristic of main clauses
 (iii) the more is the verb in its complement clause likely to be predicate-raised, i.e. lexicalized as one word with the main verb
 (iv) the less the main clause and the subordinate clause are likely to be separated by a subordinator (or a physical pause)

(Givón 1980:338, 1990:560-561)

It is now rather obvious that Malagasy verbs that take Type A, Type B, and Type C complementation described in §2 may correspond to cognition-utterance verbs, modality verbs, and manipulative verbs, respectively. This section aims to examine how Malagasy verbal complementation described in §2 reflects the syntactic ramifications (60).

The overall picture

The following is a summary chart that shows which Malagasy verb can take which complementation type. In the columns of Type A and Type B, it is indicated whether the occurrence of *fa* is obligatory, optional, or prohibited (indicated by √, (√), and *, respectively):¹⁹

(61)

Verbs	meaning	TypeA	fa	TypeB	fa	TypeC
milaza	say	√	√	√	√	√
mahafantatra	know	√	√	√	√	√
mino	believe	√	√	√	(√)	√
faly	be happy	√	√	√	(√)	*
mandre	hear	√	√	√	(√)	√
mahita	see, find	√	√	√	(√)	√
manapakevitra	decide	√	√	√	(√)	*
manaiky	agree	√	√	√	(√)	*
manantena	hope, expect	√	√	√	(√)	√
mahatadidy	remember	√	√	√	*	√
manadino	forget	√	√	√	*	√
tia	like, want	√	(√)	√	*	√
mikasa	intend	*		√	*	*
manandrana	try	*		√	*	*
manomboka	begin	*		√	*	*
mahavita	finish	*		√	*	*
manajanona	stop	*		√	*	?
avela-	allow, let	√	*	*		*
mamela	allow, let	??		*		√
motere-	force, make	√	*	*		*
manery	force, make	?		*		√

Using the above chart, let us consider what kinds of verbs take which types of complement clause. First we can observe that cognition-utterance verbs and non-active forms of manipulative verbs can take Type A complements, but modality verbs can't.

As for Type B complement, modality verbs typically take it, but manipulative verbs can't. It is well expected that higher cognition-utterance verbs on the binding scale (cf. (59)) may take a Type B complement, but what is peculiar is that in addition to higher-positioned verbs such as 'hope', and 'want', verbs as low on the scale as 'say', 'believe', 'know' can take it:

- (62) Milaza fa handeha izy
pres-say COMP fut-go 3sg(nom)
'S/he says that s/he will go'
- (63) Mino (fa) hianatra teny angilisy aho
pres-believe (COMP) fut-study English 1sg(nom)
w/ fa: 'It is likely that I will study English'
w/o fa: 'I believe that I will study English'

- (64) Mahafantatra fa handeha any NY aho.
pres-know COMP fut-go to NY 1sg(nom)
'I know that I will go to NY'

As for Type C complement, active forms of manipulative verbs can take it, but modality verbs can't. Again, higher cognition-utterance verbs on the binding scale are expected to take a Type C complement (and it is indeed the case with verbs like 'hope' and 'want'), but verbs as low on the hierarchy as 'say' and 'know' can take it as well.

In sum, cognition-utterance verbs in Malagasy are peculiar in that they can participate in complementation patterns that stronger-binding verbs (manipulative/modality verbs) typically take. Except for this, we could say that there is a correlation between cognition-utterance verbs and Type A complement, modality verbs and Type B complement, and manipulative verbs and Type C complement.

Syntactic dimensions: case-marking, verb-form and co-lexicalization

Let us next consider how (60 i-iii) are reflected in the Malagasy complementation patterns. As for (60 i), it was observed in §2 that a complement-clause agent is expressed just like a main-clause subject in Type A complements, whereas it is not overtly expressed in Type B complements, and it is expressed as a main-clause object in Type C complements.

As for (60 ii), it was shown in §2 that no tense agreement generally exists between the main-clause verb and the complement-clause verb in Type A complementation, but there is tense agreement of some sort in Type B complementation and Type C complementation.²⁰

Let us next turn to (60 iii). As far as our data are concerned, there is no co-lexicalization of the complement-clause verb and the main-clause verb in either Type A, Type B, or Type C complementation. Since Type B complementation, however, has the main-clause verb and the complement-clause verb in sequence, it is conceivable that Type B complementation may develop co-lexicalization. The following examples may be considered examples of co-lexicalization:

- (65) a. te-hanaiky hanasa ny zaza Rasoafa fa tsy afaka (Keenan 1976:279)
want-agree wash the child Rasoafa but not free
'Rasoafa wants to agree to wash the child but (she) isn't free (to do so)'
b. ta-handeha rahampitso izy (Malzac 1893, 1963:857)
want-fut-go tomorrow 3sg(nom)
'Il veut partir demain' (S/he wants to go tomorrow)
- (66) Miana-miteny io zaza io (Malzac 1893, 1963: 138)
pres-learn pres-speak that child
'Cet enfant commence à parler' (That child starts to talk)

The complete forms of *te/ta* and *miana* are *tia* and *mianatra*, and here they cliticize to the complement-clause verbs. I am not sure, though, how common and wide-spread this phenomenon is.

It can be concluded from the above that syntactic ramifications (60 i-iii) are observed in the three complementation patterns of Malagasy.

Occurrence of the complementizer *fa*

Lastly, let us consider how (60 iv) is reflected in Malagasy complementation. It was observed in §2 and summarized in Chart (61) that cognition-utterance verbs generally take *fa*

obligatorily in Type A complementation, except for the verb *tia* ('like', 'want'), which takes *fa* optionally. Notice that the verb 'want' is cross-linguistically situated higher on the binding scale than more typical cognition-utterance verbs such as 'say', 'believe', and 'know' (cf. (59)). Furthermore, manipulative verbs when they take a Type A complement cannot have *fa*. Thus, we may generalize for Type A complementation that the higher a verb is on the binding scale, the less likely it is to take *fa*.

Let us next consider the occurrence of *fa* in Type B complementation. Chart (61) indicates that *fa* is impossible for modality verbs and stronger-binding cognition-utterance verbs such as *mahatadidy* ('remember'), *manadino* ('forget'), and *tia* ('want'). For other cognition-utterance verbs, *fa* is either obligatory or optional in Type B complementation. This again supports the generalization that the higher a verb is on the binding scale, the less likely it is to take *fa*. As for Type C complementation, it is impossible to have *fa*, regardless of the verb class.

To conclude, we may propose the following generalization:

- (67) The higher a verb is on the binding scale, the less likely it is to take *fa*.

This observation shows that Malagasy complementation reflects (60 iv), namely, the higher a main-clause verb is on the binding scale, the less the main clause and the subordinate clause are likely to be separated by a subordinator.

4. Conclusion

The aim of this paper has been two-fold: description of Malagasy verbal complementation and examination of the binding hierarchy with respect to the Malagasy data. For the former, this paper has classified Malagasy verbal complementation into three types, described structural/semantic properties of each type, and provided a list of verbs that take each complementation type. For the latter, it has been shown that Malagasy verbal complementation generally supports Givón's claims about syntactic reflections of the binding hierarchy, and that the occurrence of *fa* can be accounted for in terms of the strength of binding of the main-clause verb.

NOTES

* This is a revised version of my course paper for Field Methods instructed by Professor Suzanne Kemmer in Spring 1993 at University of California, San Diego. I am greatly indebted to Aurelien Rajoharison for patiently acting as consultant. I am also grateful to Professor Suzanne Kemmer for her comments on the course paper, to all the students who attended the course and Ron Sheffer for their help, and to a reviewer of KWPL for comments. Any remaining errors and inadequacies are, of course, my responsibility alone.

¹ See Dyen (1971) for a succinct overview of the language.

² The following abbreviations are used in this paper: pres=present, fut=future, nom=nominative, acc=accusative, gen=genitive, incl=inclusive, CAUS=causative, COMP=complementizer, NEG=negation. QUOT=quotation marker, sg=singular, pl=plural,

1=first person, 2=second person, 3=third person

³ Richardson (1885:144) gives 'for', 'but', 'therefore', 'because', 'that' as the meanings of *fa*. Keenan (1976:274) notes that "We note that *fa* above is a very general sentential connective in Malagasy. It is often used with contrastive effect. like *but* in English, but also serves to introduce sentential complements of verbs of thinking, saying, etc., and as well serves as a largely contentless discourse connective."

⁴ See Keenan (1976:276-277) for his arguments for positing an underlying VOS order for these sentences.

⁵ There is a significant semantic difference between the sentence with *fa* and the one without *fa*: the sentence with *fa* means "I like the fact that he is going to study English/I am happy that he is going to study English", whereas the sentence without *fa* means "I wish he would study English". The difference seems to concern factivity of the complement.

⁶ I use the term "tense agreement" in the sense that the complement-clause verb tense is dependent in one way or another on the main-clause verb tense. cf. Givón (1990:531).

⁷ Keenan (1976) calls this rule Equi-1 and notes that "It is not fully clear whether Equi-1 is obligatory"; see Keenan (1976:276-278) for more details.

⁸ This construction corresponds to Keenan's (1976) Equi 2 and to Randriamasimanana's (1986) Equi 1.

⁹ Keenan (1976:278) and Randriamasimanana (1986:501) state that no complementizer can be present in Type B complement ("Equi-2" construction in Keenan and "Equi-1" construction in Randriamasimanana), but it seems to be the case that, at least for some verbs, the complementizer *fa* can optionally be present in Type B complements. This will be discussed more later below.

¹⁰ The complementation of the verb *tia* ('like', 'want') is unlike other verbs in that the main-clause verb tense is expressed by the complement-clause verb: the replacement of *miteny* by *niteny* (past-speak) and *hiteny* (fut-speak) would make the sentence mean "I wanted to speak French" and "I will want to speak French", respectively.

¹¹ Randriamasimanana (1986:500) states that future tense marker is mandatory for Type B construction (= "Equi 1" in his term), but it appears to be the case that future tense is not always mandatory.

¹² See Keenan (1976) and Randriamasimanana (1986) as they formulate "Raising to Object (R-O)" to derive this complement type.

¹³ Randriamasimanana (1986:536), however, lists the verb *manaiky* as a raising verb.

¹⁴ See Randriamasimanana (1986) for a detailed study of the causatives of Malagasy.

¹⁵ Randriamasimanana (1986:6) calls *amp(a)*-, *manery* and *mamela* "neutral Directive", "coercive", and "permissive", respectively. See Randriamasimanana (1986: ch.1) for other Malagasy causative construction types. Also, Randriamasimanana (1986) distinguishes between

raising and equi, and derives (49b) and (50b) by Equi-2 in his term. In this paper, I will not be concerned with the difference between raising and equi, and stick to the surface similarity between the two. cf. Langacker (1993).

¹⁶ The same contrast is observed when *nanery* (past-order) is replaced by *namela* (past-allow). Randriamasimanana (1986:77-78) claims that there is no entailment in coercive and permissive causatives, but his examples use complement-clause verbs in future tense.

¹⁷ See Cooreman (1984) for an application of the concept to Chamorro.

¹⁸ See Givón (1990:518, 533) for the semantic definitions of each class of verbs. Note, especially, that his usage of "modality" is somewhat different from the common usage in the linguistics literature; he defines modality verbs as "The main verb codes inception, termination, persistence, success, failure, attempt, intent, obligation or ability --- vis-a-vis the complement state/event" (Givón 1990:533).

¹⁹ This chart is based on a limited number of sentences I checked with the consultant. It is possible, I am aware, that particular choice of lexical items or pragmatic factors may have affected the results. Future research is necessary to determine whether (or how) discourse pragmatics --- in addition to the matrix verb semantics --- can influence the occurrence of *fa*.

²⁰ It is a task for future research to see if there is any restrictions on aspect and modality for each complementation type.

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POINT OF VIEW AND *ZIBUN*:
Toward a Unified Theory of the Japanese Reflexive

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Abstract: The predominant view of the binding facts of the Japanese reflexive *zibun* is that there are two types of uses; one is as a reflexive which is to be bound by the clause-mate subject, and the other one is as the so-called "logophoric" pronoun. Accordingly, the binding theory of *zibun* along the lines of this view will take the form of disjunction: *zibun* is bound by an NP if the NP is the clause-mate subject or it is a logophoric NP. However, it is hard to accept the idea of a morpheme one use of which is governed by a purely syntactic property, subjecthood, and the other one of which is governed by a purely semantic/pragmatic property, logophoricity. Such an analysis seems to fail to reach the appropriate level of generalization about the binding facts of *zibun*. In the current paper, we propose a conceptually more unified view that every instance of *zibun* should be bound by a point of view, and demonstrate that such a view is superior to the above disjunctive view empirically as well as conceptually.*

Introduction

Many researchers have proposed the binding conditions of the Japanese reflexive *zibun* on purely syntactic grounds by analogy to the so-called Condition A for the English reflexives in GB. The common denominator of the purely syntactic analyses of the *zibun* binding is roughly: The antecedent of *zibun* must be a subject noun phrase, it need not be in the same clause as *zibun*, and the referent of the antecedent must be animate. However, there is a class of counterexamples to the subjecthood condition on the antecedent. The counterexamples are characteristically such that the antecedent is not a subject, and furthermore, is not in the same clause as the *zibun*; that is, they are non-clause-bounded cases of the *zibun*-binding. To accommodate those counterexamples, several authors, e.g., Kuno (1987), Kameyama (1984, 5), Iida and Sells (1988), and Sells (1987), have proposed that those counterexamples should be analyzed as the cases of the so-called "logophoric" binding. Those approaches naturally lead to the bifurcation of the conditions governing the distributions of the morpheme *zibun*; one use, which is realized as the clause-bounded anaphora case, is such that the antecedent is the subject of the same clause, and the other use, which is realized as the non-clause-bounded anaphora case, is such that the antecedent is a "logophoric" one. As a matter of fact, Kameyama (1984), for instance, proposed that *zibun* should be bound with a [+logophoric] element or a subject noun phrase. However, at least in my opinion, they are missing a conceptual unity, for it is conceptually puzzling for two tokens of the same morpheme to be governed separately by such disparate conditions as a purely syntactic property, i.e., subjecthood, and a purely semantic/pragmatic/discourse property, i.e., logophoricity.

In this paper we will examine the notion of *point of view*, and propose a unified analysis of *zibun*-binding, in which all the occurrences of the *zibun* are to be identified with the referent of a point of view. In the proposed analysis, the subjecthood condition on the antecedent in the clause-bounded case of *zibun*-binding will be shown to follow as a consequence from a default principle that the locus of the point of view in event/state descriptions coincides with the referent of the subject phrase.

Syntactically Based Analyses of *Zibun*-binding

In the presence of the following kind of stock data on *zibun*-binding, it is natural, and in a sense, historically inevitable, considering the development of Condition A for English reflexives in GB (Chomsky (1981)) that numerous proposals, some of which we will review in Section 3 have been made all of which are essentially saying that *zibun* is to be bound by a subject of the same clause or a higher one.

- (1) a. Ken_i ga zibun_i wo seme-ta
 Ken NOM self ACC blame-PAST
 'Ken blamed himself.'
- b. Zibun_i wo Ken_i ga seme-ta
 self ACC Ken NOM blame-PAST
 'Ken blamed himself.'
- c. *Zibun_i ga Ken_i wo seme-ta
 self NOM Ken ACC blame-PAST
 'Ken blamed himself.'
- d. *Ken_i wo zibun_i ga seme-ta
 Ken ACC self NOM blame-PAST
 'Ken blamed himself.'
- (2) [Hanako_j wa [Taro_j ga zibun_{i/j} wo aishiteiru]] to omotteiru
 Hanako TOP Taro_j NOM self ACC love COMP think
 'Hanako_j thinks that Taro_j loves her_i/himself_j.'
- (2) demonstrates that the antecedent need not be in the same clause as *zibun*.
- (3) Taro_j wa Hanako_j ni zibun_{i/j} wo seme-sase-ta
 Taro_j TOP Hanako_j DAT self ACC blame-CAUSE-PAST
 'Taro_j made Hanako_j blame him_i/herself_j.'

(3) shows that it is subjecthood, not *ga*-marking, or nominative-marking that counts as an condition on the antecedent of *zibun*, for *Hanako*, which is an antecedent of *zibun* is a subject in the subordinate clause.

(4)

a. Tarooj ga Hanakoj wo zibunj/*j no apaato de korosita.
 Taroo NOM Hanako ACC self POSS apartment LOC killed
 'Tarooj killed Hanakoj at selfj/*j's apartment.'

b. Hanakoj ga Tarooj ni zibunj/*j no apaato de korosareta.
 Hanako NOM Taroo LOC self POSS apartment LOC was killed
 'Hanakoj was killed by Tarooj at selfj/*j's apartment.'

The binding facts exhibited in (4) indicate that it is a grammatical role, i.e., subjecthood rather than a thematic role, i.e., agent or theme, that is relevant for being an antecedent for *zibun*, since what is common to the possible antecedents, *Taroo* and *Hanako* in (4a) and (4b) is being subject, while they are distinct in terms of thematic roles.

Logophoric Binding of *Zibun*

Counterexamples to the Syntactically Based Approaches to the *Zibun*-Binding

However supportive to the syntactic based approaches the above data may be, it is easy to find counterexamples to the subjecthood condition on the antecedent of *zibun*. Consider the following examples, where the relevant anaphors are the ones coindexed with *j*.

(5)

a. Tarooj wa Hanakoj ni [zibunj/j ga sono tegami wo kaita]
 Taroo TOP Hanako by self NOM the letter ACC wrote
 to iwa-re-ta.
 Comp was told

'Tarooj was told by Hanakoj that selfj/j had written the letter.'

b. Tarooj wa Hanakoj ni [zibunj/j wo aisiteiru betuno otoko ga
 Taroo TOP Hanako by self ACC loves another man NOM
 iru] to tuge-rare-ta.
 exists Comp was informed

'Taroo_j was informed by Hanako_j that there was another man who loves self_{i/j}.'

(6)

- a. Taroo_j wa Hanako_j kara [zibun_{i/j}] ga nihon e iku koto ni natta]
 Taroo TOP Hanako from self Nom Japan to go Comp became
 to kiita.
 Comp heard

'Taroo_j heard from Hanako_j that it had been decided that self_{i/j} would go to Japan.'

- b. Taroo_j wa Hanako_j kara [zibun_{i/j}] no tokoro ni Tokyo
 Taroo TOP Hanako from self Poss place Loc Tokyo
 kara no okyaku ga kuru] to kiita.
 from GEN guest Nom come Comp heard

'Taroo_j heard from Hanako_j that a visitor from Tokyo would come to self_{i/j}'s place.'

McCawley (1976) noted that the object of a psychological verb can be the antecedent of *zibun* inside a complement clause, e.g., as in (7).

(7)

- a. [Taroo_j ga zibun_{i/j} wo aisiteiru] koto ga Hanako_j wo
 Taroo NOM self ACC loves Comp NOM Hanako ACC
 siawasena kibun ni sita.
 happy feeling DAT did
 The fact that Taroo_j loves self_{i/j} made Hanako_j feel happy.'

- b. [Zibun_j ga ikaiyoo dearu kamosirenai] toiu kenen ga
 self NOM ulcer is it is possible Comp suspicion NOM
 Yooko_j wo fuan ni sita.
 Yoko ACC worry DAT did
 'The suspicion_j that self might have an ulcer made Yoko_j worry.'

Logophoricity What is common to the above examples, where it is possible for *zibun* to be bound with a non-subject antecedent? All of the examples are complex sentences, having a clausal or sentential complement as an argument. According to

Kameyama (1984) and Kuno (1987), those clausal complements are furthermore "logophoric" ones.

Kameyama adopted the notion of logophoricity as it was originally introduced to account for the distributional facts of a class of pronouns morphologically different from other pronouns, which, of course, were referred to as "logophoric" pronouns. Let us see some examples from Ewe, reported in Clements (1975). The "logophoric" pronoun in Ewe is *yè* (plural *yèwo*), as cited in the following examples.

(8)

a. kofi be yè-dzo
Kofi say Log-leave
'Kofij said that hej left.'

b. kofi be e-dzo
Kofi say Pro-leave
'Kofij said that hej left.'

(9) ana kpO dyidzo be yè-dyi vi
Ana see happiness Comp Log-bear child
'Anaj was happy that shej bore a child.'

(10)

a. kofi nya be me-kpO yè
Kofi know Comp Pro-see Log
'Kofij knew that I had seen himj.'

b. kofi me-nya be me-kpO yè
Kofi not-know Comp Pro-see Log
'Kofij didn't know that I had seen himj.'

In terms of Clements (1975), the antecedent of the logophoric pronoun must be "the individual (other than the speaker) whose speech, thoughts, feelings, or general state of consciousness are reported or reflected in the linguistic context in which the pronoun occurs" [Clements (1975: 141)]. Kameyama claimed that the examples from (5) to (7) are cases of the logophoric binding of *zibun*, characterizing those non-subject binders as referring to the individuals who inform or report certain information or whose feelings are described.

Kuno (1987) adopted the notion of logophoricity from the study of reflexive pronouns in indirect discourse clauses. For example, in Latin, a (third person) reflexive pronoun *se* (accusative and ablative form) can or must appear in a subordinate clause with its antecedent outside the subordinate clause in some constructions:

(11) [Kuno 1987: (2.1), p. 105]

Petierunt	ut	<i>sibi</i>	liceret
begged	so-that	to-self	be-allowed

They_i begged that it might be allowed them_i.

(12) [Kuno 1987: (2.2), p. 105]

Icciusj	nuntium	mitit,	nisi	subsidium	<i>sibi</i>	submitatur . . .
	message	send	unless	support	to-self	is-furnished

'Icciusj sends a message that unless relief be furnished him_j, . . .'

Kuno cited the condition characterizing the use of reflexive pronoun in question, which he would call the "logophoric" pronoun, from Allen and Greenough (1883/1903, p. 181):

If the subordinate clause expresses the words or thought of the subject of the main clause, the reflexive is regularly used to refer to the subject . . . Sometimes the person or thing to which the reflexive refers is not the grammatical subject of the main clause, though it is in effect the subject of the discourse . . . If the subordinate clause does not express the words or thought of the main subject, the reflexive is not regularly used, though it is occasionally found.

The above characterization of logophoricity, specifically, that of "logophoric" pronoun, complement clause, and antecedent NP, roughly coincides with what Kameyama cited above from Clements (1975) conceptually. Besides the above definition, Kuno provides us with a more syntactic perspective on logophoricity. For him, the essential nature of logophoricity pertains to the speaker and the hearer of direct discourse statements. From this characterization of logophoricity it follows that for a complement clause to be a "logophoric" complement clause it is necessary for there to be a corresponding direct discourse statement for the complement clause. To illustrate his notion of logophoricity and its utility, let us consider the following data from Kuno [1987: (2.3) and (2.4), respectively, p. 105], which are about the distribution of full NP (nonpronominal and nonreflexive):

(13)

a. Those who trusted John_i were betrayed by him_i repeatedly.

- b. Those who trusted him_j were betrayed by John_j repeatedly.

In (13), the presence or absence of a full NP, in this case, *John* in a subordinate clause, does not make a difference in grammaticality, while it does in (14).

(14)

- a. ??That Ali_j was the best boxer in the world was claimed by him_j.
- b. (?)That he_j was the best boxer in the world was claimed by Ali_j.

The difference between the subordinate clause in (13) and that in (14) is that the former cannot be taken to be an indirect discourse representation for any direct discourse statement which Ali could have said, while the latter is readily interpretable as an indirect discourse representation of what Ali said, which is something like:

(15) "I am the best boxer in the world."¹

For Kuno, it is the speaker/experiencer and the hearer of the direct speech representation corresponding to an indirect speech complement clause that constitutes a defining character of logophoricity. The effects of logophoricity on linguistic forms are mediated by marking relevant NP arguments of direct discourse verbs with respect to whether they represent the speaker/experiencer or the hearer of the direct discourse representations corresponding to the complement clauses. He uses the symbol [+logo-1] to mark the speaker/experiencer NP, which corresponds to the first person pronoun in the direct discourse representations, and the symbol [+logo-2] to mark the addressee NP, which corresponds to the second person pronoun in the direct discourse representations. Then, the "logophoric" verbs are specified as verbs that take such NPs. The subject NP of verbs such as *say, tell, ask, complain, scream, realize, feel, know, expect* are as [+logo-1], and so are the object NPs of the so-called psychological NPs. The dative object of verbs such as *say, tell, ask, complain, scream* are marked with [+logo-2].

Going back to the examples in (13) and (14), Kuno proposed the following rule to account for the grammatical facts there:

(16) [Kuno 1987: (2.25), p.109]

Logophoric Pronoun Rule (Revised): Given a verb that takes [+logo-1/2] NPs and a logophoric complement clause, a full (nonpronominal, nonreflexive) NP in that complement cannot be coindexed with the [+logo-1/2] NPs in the main clause.

Since *betray* is not a logophoric verb, (13a) and (13b) are not subject to (16), but since *claim* is a logophoric verb, (14a) is a violation of (16) with a full NP, *Ali* in a

logophoric complement being coindexed with a [+logo-1] NP, while (14b) does not violate (16).

To the extent that there are grammatical facts like the ones displayed by (13) and (14) that cannot be accounted for on purely syntactic grounds, which Kuno convincingly demonstrated in Chapter 3 of his book, it is safe to conclude that logophoricity in the above sense plays a significant role in natural language grammar.

Zibun as a "logophoric" pronoun: Even though Kuno maintained his position that the primary function of *zibun* is for clause-mate reflexivization, he acknowledged that there is a use of *zibun* as a logophoric pronoun, based on the following kind of data.

(17) [Kuno 1987: (14.10), p. 138]

a. Taroo_i wa zibun_i ga tensai da to omotte iru.
 refl. genius is that thinking is
 'Taroo thinks that he is a genius.'

b. ??Taroo_i wa kare_j ga tensai da to omotte iru.
 he genius is that thinking is
 'Taroo thinks that he is a genius.'

As Kuno suggested, it seems reasonable to account for the grammaticality contrast by assuming that *zibun*, or at least one use of *zibun* is a [+logo-1] pronoun; *zibun* is required to refer back to a [+logo-1] NP, in this case, *Taroo*, at least from the subject position in a logophoric complement.

Representative Existent Analyses of the Zibun-binding

In the above we have observed that the consensus about the current state of affairs of the *zibun*-binding analyses is that there are, in fact, some instances of *zibun* whose binding facts cannot be accounted for by the intraclausal subject binding, as was evidenced by the data in the preceding sections. Those counterexamples to the clause-bounded subject binding analysis of *zibun* have been analyzed as the cases of the "logophoric" binding, which we have reviewed in the preceding section. Here let us summarize some representative analyses of *zibun*; Kuno (1987), Kameyama (1984), and Iida and Sells (1988).

Kuno (1987) Kuno maintains the position that the primary function of *zibun* is a reflexive which is to be bound by the clause-mate subject NP, but acknowledged that *zibun* is sometimes used as a "logophoric" pronoun, as is *se* in Latin. In addition to the regular reflexive and the "logophoric" uses, he recognizes at least one more use of *zibun*, which is as what he calls an "empathy" pronoun. An "empathy" pronoun is a pronoun whose referent is to be identified with the "viewpoint" of the speaker in describing an event/state. We will review the notion

of "empathy," or more generally, *point of view*, and its linguistic relevance including the area of anaphoricity in Section 4.

Kameyama (1984) In the presence of non-subject-bound *zibun* instances like (5), (6), and (7), Kameyama proposed a disjunctive rule for the *zibun*-binding, i.e., *zibun* should be bound by a subject NP or a "logophoric" NP. However, she has a proviso about the subject-bound *zibun* that it is a point-of-view sensitive expression; thus, it is subject to conditions regarding to point of view. In fact, there are cases where a point-of-view sensitive *zibun* cannot be bound by a potential NP even though the NP is a subject. That means that the subjecthood condition is not a sufficient condition, but a necessary condition for the antecedent NP of *zibun* as a point-of-view sensitive expression. But, later in Section 5.1, we will see some example sentences where the point-of-view sensitive *zibun* is bound by a non-subject antecedent, which means that the subjecthood is not even a necessary condition for the antecedent of the point-of-view sensitive *zibun*. In fact, in this paper, we will demonstrate that *zibun* in general does not impose any syntactic structural conditions on its antecedent.

Iida and Sells (1988) Iida and Sells do not concern themselves with the use of *zibun* as a clause-bounded reflexive, which I assume they are content to treat as being subject to purely syntactic conditions. They agree with Kameyama and Kuno that the non-clause-bounded cases of *zibun*-binding are essentially different from the former ones in that their distributional facts are constrained by non-syntactic conditions, and like Kameyama and Kuno they call those instances of *zibun* "logophoric" pronouns. The analyses of the logophoric binding by Kameyama (1984) and Kuno (1987) are essentially syntactic in that the central mechanism of their analyses is the assignment of a feature [+log] or [+logo-1] to argument NPs in specified constructions, and it all takes place in syntactic representation, even though the crucial idea they are based on, i.e., logophoricity, is a non-syntactic notion. On the other hand, Iida and Sells embed their account of "logophoric" binding in a formal semantic framework, specifically, Discourse Representation Theory first developed by Kamp (1981) to give some content to the features, [+log] and [+logo-1]. In that account, they argue that logophoricity phenomena are better analyzed if we assume that there are at least three components or discourse roles to logophoricity: the SOURCE, the SELF, and the PIVOT. "The SOURCE is the one who makes the report (for example, the speaker). The SELF represents the one whose "mind" is being reported; the PIVOT represents the one from whose point of view the report is made" [Sells (1987): p. 455]. In that context, they propose that the *zibun* must be bound with a PIVOT. We will examine their proposal in more detail later. What is to be noted of Iida and Sells' account of logophoricity with respect to the following discussion in this paper is the introduction of the notion of point of view into the picture of logophoricity, as is evident from their definition of PIVOT.

What seems to be wrong (at least to me) with their analyses is that it is conceptually difficult to accept that there would be a morpheme whose uses are subject to conditions so disparate from each other as a purely syntactic and a purely non-syntactic one. In general, it is preferable that there is a unique rule/principle/condition governing a given morpheme, and their seemingly disparate uses of the morpheme will be derived from the unique/rule/condition in conjunction with some other factors. I suspect that the theories of Kuno and Kameyama could

be descriptively adequate, but not quite explanatorily adequate, missing the core principle of the *zibun* binding, whatever it is.

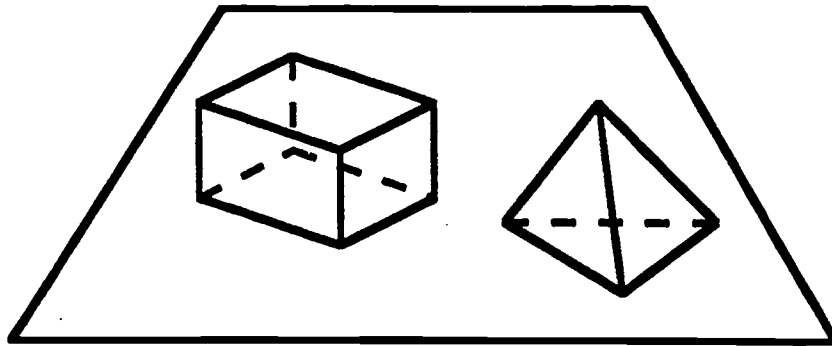
In the following we will examine the notion of point of view first without considering its linguistic implications, and see the prominence of the notion in our recognition of the world as cognitive agents. Next, we will attend to the linguistic relevancy of the notion of point of view by looking at some of what have been called point-of-view sensitive expressions. Then we will motivate the hypothesis that *zibun* is also a point-of-view sensitive expression. Our analysis will be different from the mentioned existent analyses in that it claims that all the instances of *zibun* can be analyzed as a point-of-view sensitive expression; thus, a unified analysis.

Point of View

Being finite entities, we human beings cannot be omnipresent or omniscient. That fact is, in a sense, an important reason for the existence of natural languages. If we were gods, we would know everything about the world; that is, there would be no need to communicate among ourselves, and consequently, there would not arise the need for languages either, given that the primary and foremost function of languages is communication. To put the truism of languages aside, we would like to speculate the implications of our being finite entities to humans as intelligent agents.

Being a finite entity, i.e., being situated in terms of space and time, implies that as an intelligent agent we can only recognize the world from a certain vantage point. Let us call this the *point of view*. For example, let us consider a locational state involving a cube and a pyramid depicted by figure (18)

(18)



One can describe the state as "The cube is on the right of the pyramid", while another can recognize the same state as "The cube is NOT on the right of the pyramid." According to a logic axiom, the so-called excluded middle, a reasonable

rendition in First Order Logic Language of the above description of the state, i.e., (19) is a contradiction.

(19) $\text{right-of}(c, p) \text{ } \text{ } \text{ } \neg \text{right-of}(c, p)$.

However, we know that the above description of the state in question is perfectly possible.

This seems to be paradoxical. Does this mean that the logic system, specifically, the excluded middle is wrong? The answer is No. The fallacy is due to the fact that the predicate expression in (18), *right-of* is a two-place one; however, the relation involved in the state (Let us denote it RIGHT-OF) is actually a three-place relation, taking three arguments. Two of the three arguments in the current situations are obviously the cube and the pyramid. Then what is a third argument? When you talk about the locational properties or relations of object(s) you usually need to determine an orientation along which the properties or relations are described.

Now it has become obvious that the RIGHT-OF relation is a three-place relation; two of the arguments are objects whose locations are characterized with respect to each other, and a third argument is a point of view, from which the objects are perceived. This, of course, has a bearing on the choice of the predicate which is involved in the logical formula to represent the above characterization of the state. It should be a three-place predicate instead of a two-place one. Let us denote the three-place predicate as *right-of(-seen-from)*. Then the logical formula should be something like the following.

(20) $\text{right-of}(c, p, a_1) \text{ } \text{ } \text{ } \neg \text{right-of}(c, p, a_2)$,

where the first conjunct is the characterization of the spatial state (18) seen from an agent who is on the reader's side of this paper, while the second conjunct is the one by an agent who is behind this paper.

In the above we saw that an agent can perceive the world, specifically, eventualities only from a certain vantage point/camera angle/point of view. In the above example, the locus of the agent's point of view was on himself or herself. It is reasonable to assume that the point of view of an agent is typically the agent himself or herself. It is after all the agent himself or herself who conceives the world, so the agent himself or herself should be a default point of view.

Linguistic Relevance of Point of View Nonetheless, it is possible for an agent to take another as his or her point of view. For example, we can say something like "The cube is on left of the pyramid, seen from Bill's point of view", and "John is turning right at the corner." The last example is a case where the point of view of an agent is a participant involved in an event described, namely John. Let us consider another example. The type of event to be described is an event of someone's movement, say Taroo's movement toward another person, Hanako, as the destination. As is known from the fact that many languages including Japanese and English have two predicates to describe the type of movement-event mentioned

above, *iku* 'go' and *kuru* 'come', there are two modes of describing the event depending on which participant you adopt as your point of view. The following two Japanese sentences corresponds to the two ways of describing the event.

(21) Taroo wa Hanako no tokoro ni itta².
 Taroo TOP Hanako of place LOC went
 'Taroo went to Hanako.'

(22) Taroo wa Hanako no tokoro ni kita³.
 Taroo TOP Hanako of place LOC came
 'Taroo came to Hanako.'

In (21) the event is described with the speaker's point of view being Taroo, while in (22), the point of view is from Hanako. In general, given a movement event by one person to another, when an agent recognizes it as a going-event (a coming event), he or she takes on the source (the destination) of the movement as his or her point of view.

We saw that given an event an agent describing the event can take on some participant in the event as his or her point of view. Then what if the agent himself or herself is a participant of the event? In the above we understood that the agent himself or herself is a default choice for the locus of his or her point of view. From that it is expected that in the above case that the locus of the point of view is the agent himself or herself. Then let us propose the following default condition on the point of view.

(23)

Given an event and an agent describing the event, when the agent is a participant of the event, the point of view of the agent is typically the agent himself or herself.

Given that in a linguistic utterance describing an event, the agent is the speaker, the above default constraint on the point of view would be rendered into a linguistic assumption, which we call the *Speaker Priority Default Principle*.

(24)

Speaker Priority Default Principle: When the speaker describes an event/state involving himself or herself, the point of view of the description is the speaker himself or herself.

Point-of-view sensitive expressions: Grammatically, the above assumption predicts that when an expression referring to the speaker, e.g., *watasi* 'I' in Japanese appears in a sentence, the expression must occur at the grammatical position corresponding to the locus of the speaker's point of view. For example, in

the case of sentences whose main predicate is *iku* 'go', the grammatical position is the subject, corresponding to the source of the movement, while in the case of *kuru* 'come', the grammatical position is the locative phrase, corresponding to the goal of

the movement. The prediction is perfectly borne out as you see in the contrast of grammaticality among the following sentences.

(25)

a. Watasi ga Taroo no tokoro ni itta⁴.
 I NOM Taroo of place LOC went
 'I went to Taroo.'

b. ??Taroo ga watasi no tokoro ni itta.
 Taroo NOM I of place LOC went
 'Taroo went to me.'

c. Taroo ga watasi no tokoro ni kita⁵.
 Taroo NOM I of place LOC came
 'Taroo came to me.'

d. ??Watasi ga Taroo no tokoro ni kita.
 I NOM Taroo of place LOC came
 'I came to Taroo.'

What is common to the ??-marked sentences, i.e., (25b) and (25d) is that the speaker pronoun *watasi* appears at a non-point of view grammatical position; the locative position in (25b), and the subject position in (25d); hence, a conflict in terms of the locus of point of view.

Let us introduce another set of point-of-view sensitive verbs, *youtu* and *kururu*, both of which basically mean 'give.' That is why they are called *giving verbs*. For example, they are used as in the following sentences.

(26) Taroo wa/ga Hanako ni purezento wo youtu.
 Taroo TOP/NOM Hanako DAT present ACC give
 'Taroo gives a present to Hanako.'

(27) Taroo wa/ga Hanako ni purezento wo kururu.
 Taroo TOP/NOM Hanako DAT present ACC give
 'Taroo gives a present to Hanako.'

Both of the sentences, (26) and (27) mean 'Taroo gives a present to Hanako.' But they are different in terms of the locus of the speaker's point of view; in (26), the speaker seems to describe the event, taking Taroo as his or her point of view,

while in (27), the event seems to be described with Hanako as the speaker's point of view. In terms of lexical properties, that means that *youtu* requires the point of view to be on the subject NP, on the other hand *kureru* specifies the point of view to be on a non-subject NP, in this case, the dative NP.

The lexical specifications of the giving verbs with regard to point of view can be attested by the following kind of data comparable to the ones we saw above in relation to the movement verbs, *iku* and *kuru*.

(28) a. Watasi wa/ga Hanako ni purezento wo yaru.
I TOP/NOM Hanako DAT present ACC give
'I give a present to Hanako.'

b. *Watasi wa/ga Hanako ni purezento wo kureru.
I TOP/NOM Hanako DAT present ACC give
'I give a present to Hanako.'

(29) a. *Hanako wa/ga watasi ni purezento wo yaru.
Hanako TOP/NOM me DAT present ACC give
'Hanako gives a present to me.'

b. Hanako wa/ga watasi ni purezento wo kureru.
Hanako TOP/NOM me DAT present ACC give
'Hanako gives a present to me.'

The grammatical facts exhibited in (28) and (29) will follow as consequences from the above claimed lexical properties of *youtu* and *kureru*, and the Speaker Priority Default Principle. The ungrammaticality of the asterisked sentences, i.e., (28b) and (29a) is due to a conflict in terms of the specification of the syntactic locus of the speaker's point of view. In (28b) *kureru* requires the dative NP, *Hanako*, to be the point of view, while the Speaker Priority Default Principle requires the subject NP, *watasi*, to be the point of view. In (29a) *youtu* imposes the selection of the subject NP, *Hanako*, as the speaker's point of view, but the Speaker Priority Default Principle demands the dative NP, *watasi*, to be the point of view.

We have seen that *youtu* and *kureru* are point-of-view sensitive main verbs. In addition to being used as main verbs, those words can be used as auxiliary verbs. For example, the auxiliary verbs, *-youtu* and *-kureru* are used as in the following sentences.

(30)

- a. Taroo wa/ga Hanako ni gitaa wo hiite-yaru.
 Taroo TOP/NOM Hanako DAT guitar ACC play

'Taroo plays the guitar for Hanako.'

- b. Taroo wa/ga Hanako ni gitaa wo hiite-kureru.
 Taroo TOP/NOM Hanako DAT guitar ACC play

'Taroo plays the guitar for Hanako.'

Combined with a main verb, both *-yaru* and *-kureru* have the same connotation that the act described by the main verb is beneficial to the referent of the dative NP. However, they are different with respect to the point-of-view conditions they impose; actually, the point-of-view conditions imposed by the auxiliary verbs, *-yaru* and *-kureru* are exactly the same as those for the main verbs, *yaru* and *kureru*, respectively. That is, *-yaru* demands the subject NP to represent the speaker's point of view, while *-kureru* opts for a non-subject NP, which is supported by the following grammaticality facts involving *-yaru* and *-kureru*, (31) and (32) in exactly the same way as (28) and (29) vindicated the point-of-view conditions on the use of them as main verbs.

(31)

- a. Watasi wa/ga Hanako ni gitaa wo hiite-yaru.
 I TOP/NOM Hanako DAT guitar ACC play

'I play the guitar for Hanako.'

- b. *Watasi wa/ga Hanako ni gitaa wo hiite-kureru.
 I TOP/NOM Hanako DAT guitar ACC play

'I plays the guitar for Hanako.'

(32)

- a. *Hanako wa/ga watasi ni gitaa wo hiite-yaru.
 Hanako TOP/NOM me DAT guitar ACC play

'Hanako plays the guitar for me.'

- b. Hanako wa/ga watasi ni gitaa wo hiite-kureru.
 Hanako TOP/NOM me DAT guitar ACC play

'Hanako plays the guitar for me.'

Default Syntactic Position for the Point of View We have observed that some expressions lexically specify which syntactic position will be associated with the

locus of the speaker's point of view. Next, I want to raise the following question: Is there any default syntactic position for the speaker's point of view? From the above discussion noting that we as finite cognitive agents can describe the world only from some view point, it is reasonable to expect that a sentence which is a linguistic expression of an agent's description of the world has a default syntactic position corresponding to the agent's point of view. I propose that the subject position is such a default position for the expression representing the point of view. Let us introduce the discourse principle *Subject Priority Default Principle*.

(33) *Subject Priority Default Principle*

In a sentence describing an event or state, the default syntactic position corresponding to the speaker's point of view is the subject place unless otherwise specified by a point-of-view sensitive expression.

For evidence for the discourse principle, I will present the following data:

(34)

- a. Kinoo watasi ga Hanako ni koe wo kake-ta.
yesterday I NOM Hanako to voice ACC cast-PAST
'I talked to Hanako yesterday.'
- b. ??Kinoo Hanako ga watasi ni koe wo kakerare-ta.
yesterday Hanako NOM I by voice ACC be cast-PAST
'Hanako was talked to by me yesterday.'

If we assume the Subject Priority Default Principle, the ungrammaticality of (34b) will be a natural consequence from that with the Speaker Priority Default Principle, (24). That is, in (34b) there is a conflict with respect to the specification of the grammatical position for the point of view; the Speaker Default Principle requires a non-subject NP, *watasi ni* 'by me' is the position, while the Subject Priority Default Principle suggests that the subject NP, *Hanako ga* is such a position. Here, someone might suggest that the ungrammaticality of (34b) is somehow due to the passivization, having nothing to do with the considerations about point of view. The suspicion is ruled out in light of the following examples.

(35)

- a. Kinoo Taroo ga Hanako ni koe wo kake-ta.
yesterday Taroo NOM Hanako to voice ACC cast-PAST
'Taroo talked to Hanako yesterday.'

- b. Kinoo Hanako ga Taroo ni koe wo kakerare-ta.
 yesterday Hanako NOM Taroo by voice ACC be cast-PAST
 'Hanako was ta¹¹-ed to by Taroo yesterday.'

If the suspicion were the case, (35b) should be as ungrammatical as (34b); however, the fact is that (35b) is as grammatical as (35a), and (34a) for that matter.

It should be clear that the above grammaticality facts are fairly sufficient evidence for the claim that the subject is the default grammatical place for point-of-view bearing NPs. Nevertheless, we will further motivate the claim by making sure that it is the subject NP, not the direct object NP or the oblique NP whose reference the speaker adopts as his or her point of view by default.

First, consider the following pair of examples.

- (36) a. ?Kinoo kissaten de Hanako ga watasi wo
 yesterday coffee shop at Hanako NOM I ACC

Taroo ni syookaisi-ta.
 Taroo DAT introduce-PAST

'Hanako introduced me to Taroo at a coffee shop yesterday.'

- b. Kinoo kissaten de Hanako ga watasi wo
 yesterday coffee shop at Hanako NOM I ACC

Taroo ni syookaisite-kure-ta.
 Taroo DAT introduce-KURERU-PAST

'Hanako introduced me to Taroo at a coffee shop yesterday.'

If the Subject Priority Default Principle is valid, (36a) should sound as bad as (34b). The fact of the matter is that as the number of question marks indicates, it does not sound so bad. At first sight, the fact seems to undermine the validity of the principle in question. However, it is still the case that (36a) does not sound perfectly natural. Furthermore, the contrast between (36a) and (36b) in grammaticality tells us that the direct object is not the default place for an NP bearing the speaker's point of view to be realized at, in the following sense. Remember that the auxiliary verb '-kureru' requires a non-subject NP to denote the speaker's point of view. The fact that *watasi* 'I', which represents the speaker's point of view by the Speaker Priority Default Principle, sits perfectly comfortably at the direct object place when the place is lexically designated for the speaker's point of view, i.e., in (36b), but not so comfortably otherwise, i.e., in (36a), strongly suggests that the direct object NP is not the default grammatical position for the speaker's point of view.

Next, we can give evidence that the oblique object is not the default point-of-view grammatical position, by the following data in exactly the analogous reasoning as in the case of the direct object.

- (37) a. ?Kinoo kissaten de Hanako ga Taroo wo
yesterday coffee shop at Hanako NOM Taroo ACC

watasi ni syookaisi-ta.
me DAT introduce-PAST

'Hanako introduced Taroo to me at a coffee shop yesterday.'

- b. Kinoo kissaten de Hanako ga Taroo wo
yesterday coffee shop at Hanako NOM Taroo ACC

watasi ni syookaisite-kure-ta.
me DAT introduce-KURERU-PAST

'Hanako introduced me to Taroo at a coffee shop yesterday.'

Later in the discussion of the *zibun*-binding, we will see that the Subject Priority Default Principle is the source for the subjecthood condition for the antecedent of the clause-bounded cases of the *zibun*-binding.

Additional justification for the subject priority default principle: "symmetric" predicates: By the above discussion, it has been established that it is, in fact, the subject, not the direct object or the oblique object that is the default grammatical locus for point-of-view bearing NPs. Yet we have not ruled out the possibility that the selection of the default position is also influenced by thematic roles of arguments as well as their grammatical functions. In the following we will argue that the syntactic locus of point of view is entirely determined by the grammatical functions of arguments, free from the influence of their thematic roles. The following data make a crucial use of data involving what we call "symmetric" predicates.

Relations like that of "looking like" are symmetric in the sense that for any two objects, *a* and *b*, if *a* looks like *b*, then *b* looks like *a*. It is interesting to see whether natural-language expressions corresponding to those relations are also "symmetric" in the sense that for any two NPs, "X" and "Y", and a predicate in question, "P", if "XPY" can be truthfully uttered, "YPX" can be uttered, too.

Let us consider sentences of the form, "X looks like Y" and "Y looks like X". Now replace "X" with the name of someone close to you, and Y with the name of someone known to you, but not close to you, e.g., a celebrity. My contention is that uttered out of context or unless "Y" is the topic of discourse, "X looks like Y" sounds natural, while "Y looks like X" sounds rather awkward; that is, "X looks like Y" and "Y looks like X" are not uttered equivalently in terms of felicity. Thus we can conclude that the natural-language predicates corresponding to the

symmetric relations are not necessarily symmetric. Exactly the same situation is applicable to Japanese. For example, let us consider the following pair of Japanese sentences.

- (38) Yabushita-san wa/ga kootaisi ni nite-iru
 -Mr./Ms. TOP/NOM prince DAT look like

'Mr. Yabushita looks like the prince.'

- (39) #Kootaisi wa/ga Yabushita-san ni nite-iru
 prince TOP/NOM -Mr./Ms. DAT look like

'The prince looks like Mr. Yabushita.'

In fact, I have sometimes been said to look like the current Japanese prince, Naruhito, and the sentence form with which they would use to describe the fact is more likely that of (38) than (39); (38) is more natural or felicitously uttered than (39). (However, the felicitous fact is not a hard and fast property of the pair of sentences; that is, the felicity property of (38) and (39) can be changed depending on contexts.)

How should the above felicity fact, which seems to be invariant between English and Japanese, be construed? We can account for the fact by means of the subject priority default principle and a reasonable assumption on point of view/empathy. The assumption can be phrased like this.

(40)

Among people, the speaker takes the point of view of someone closer to him/her more readily than that of someone less close to him/her.

In fact, the speaker priority default principle is a special case of the above assumption, for the speaker himself/herself is the closest to the speaker. From the assumption (40) and the subject priority default principle, the difference between (38) and (39) in felicity falls out as a consequence in the following sense: With the subject being a default position for the speaker's point of view, in (39) there is a conflict with the assumption (40) in that *kootaisi* 'prince', which is less likely to be chosen as the speaker's point of view than *Yabushita-san*, occupies the subject position, while there is no such conflict in (38).

What can "symmetric" predicates tell us about the Subject Priority Default Principle? First let us review some facts about (non-)symmetric relations. The participants in non-symmetric relations play distinct thematic-roles; for instance, the two participants in a killing relation are a killer and a killee, and the use of the corresponding (active-voice) predicate *kill* specifies the killer to be realized in subject position, and the killee in object position. The specification is absolute in the sense that a failure to observe it results in an incorrect, or untruthful description of an event. That is, it does not hold in general that if 'A killed B' is true, then 'B killed A', and vice versa. On the other hand, in the case of symmetric relation

there is no distinction among the participants in terms of thematic roles; for example, the two participants in a meeting event play non-distinct thematic roles, i.e. a meeter, and at the same time, a meetee. Thus, it holds in general that if *a* meets *b*, then *b* meets *a*, and vice versa. Consequently, there should be no requirement as to which participant should be put in subject position and which participant, in object position in sentences whose main predicate is 'meet', at least in terms of truth conditions. That suggests that in describing events by means of "symmetric" predicates, one can choose either of the NPs for the subject place. However, as we have seen above, that is not the case in general; that is, the felicity of the choice for the subject is not equal for the NPs involved. We have seen that the choice of the NPs for the subject position for the "symmetric" predicates like 'look alike' and 'meet' is consistent with the Subject Priority Default Principle and other reasonable conditions on point of view. Since "symmetric" predicates can not lexically specify the assignment of the NPs to the grammatical functions in terms of the thematic roles of the NPs, for there is no distinction among the NPs in terms of thematic roles, the positioning of the NPs to the grammatical functions of the "symmetric" predicates are largely subject to conditions pertinent to point of view. To the extent that the felicity facts regarding to the selection of the NPs for the subject position, illustrated by examples from (34) to(39), the Subject Priority Default Principle is justified.

To the extent that the grammaticality facts exhibited by the sentences in the above discussion can be accounted for by perspectivity considerations, we can say that perspectivity indeed is significant for natural language grammars. Henceforth, I will sometimes use a term *indexical perspective* for point of view in the context of describing eventualities, following Katagiri (1991). For the notion in question, Kuno (1987) adopted a term *empathy*, and Iida & Sells (1988) and Sells (1987) used PIVOT.

Mental-state Descriptions In the above we have examined the perspectivity of recognition of the world, where the objects of recognition are eventualities, i.e., states and events. In our daily cognitive activities we are not just recognizing the physical states of affairs holding of the outside world. We are also recognizing mental states, or belief states, whether they are of our own or of other people. Otherwise we cannot act purposely, guess how other people behave, or infer how other people will infer. We will see that perspectivity is an indispensable element in the recognition of mental states, too.

Let me introduce a French boy, Pierre, who was originally introduced by Kripke (1979). Pierre grows up in France, and hears that a city he knows as "Londres" is beautiful. But for some reason he later finds himself in a filthy block of the city of London, and learns that the city he is in now is called "London." Is it plausible to characterize Pierre's belief state by the following statement?

(41) Londres is beautiful and London is ugly.

We, or strictly speaking, people who know that *Londres* and *London* are one and the same city feel ambivalent about characterizing Pierre's mental state by the statement or proposition. We feel uncomfortable when we interpret the statement based on our knowledge about the identity of *Londres* and *London*. In that case,

we know that the statement is contradictory; thus, ascribing the resulting propositional content to Pierre would end up characterizing his mental state as inconsistent although we do not think he is conceptually confused. While when we interpret the statement (41) based on Pierre's ignorance of the identity of *Londres* and *London*, then the characterization of Pierre's mental state by the proposition is agreeable to us.

What is to be noted from the above story is that when you characterize an agent's mental state with a proposition, you have to know with respect to whom the proposition is interpreted; in other words, the propositional content of a statement with which an agent's mental state is characterized cannot be determined until we know with respect to whose cognitive state the statement is evaluated.⁶ I would argue that the one with respect to whom the statement characterizing an agent's mental state is evaluated is nothing but a realization of the notion of point of view in the context of mental state characterization. Henceforth, I will sometimes use a term *inferential perspective* for point of view in the context of mental state descriptions, following Katagiri (1991).

Linguistically, mental state descriptions are characteristically rendered into the form of sentences having a clausal complement or other proposition-denoting expression, as in (42).

(42)

- a. Mary believes that Elvis Presley is still alive.
- b. That his house was destroyed by the earthquake drove John into despair.
- c. Martha claimed that she had won a lottery.
- d. Dale got excited by the thought of going to London .

The above characterization of sentences describing mental states should remind you of the "logophoric" constructions. That is, both constructions are coextensional, as they should be because both of them are characterized by the presence of constructions characterizing mental states such as speeches, thoughts, feelings, and so on.

In the above discussion of Pierre's belief report, we recognized that given a mental state and a propositional expression to characterize the mental state, the characterization will not be determined without the specification of the one against whose cognitive state the propositional expression is interpreted to determine the propositional content, i.e., the point of view, or the inferential perspective. Then, the natural question is: Where is the locus of the inferential perspective in describing mental states; in other words, given a mental state, and a propositional representation to characterize the mental state with, against whose cognitive state

does an agent interpret the representation to determine its propositional content? It seems that the one whose mental state is characterized is an obvious choice. Linguistically, it is the speaker or experiencer of the direct discourse representation corresponding to the indirect discourse complement clause in the sense of Kuno's direct discourse perspective. The speaker and the experiencer are such that they are assigned a [+ log] feature and [+ logo-1] in Kameyama's logophoric system and Kuno's, respectively. Thus, it turned out that the "logophoric" NPs in general indicates the locus of the inferential perspective.

Zibun as a Point-of-view Sensitive Expression

We have examined the notion of point of view in recognizing the world, more specifically, describing events and states not involving mental states on the one hand, and describing mental states on the other hand, and argued that the point of view in the non-mental-state descriptions, i.e., the indexical perspective is related to the subject position of the corresponding sentences, and the one in the mental-state descriptions is related to what have been called the "logophoric" NPs in the linguistic literature.

With the above background, I propose a theory of *zibun*-binding:

(43)

The referent of *zibun* is to be identified with the locus of the point of view of the description in which the *zibun* appears.

More specifically, when *zibun* appears in a sentence which is not a clausal complement argument, its referent is identified with the point of view for the event/state description, i.e., the indexical perspective, and when it occurs in a clausal complement argument, its referent is identified with the "speaker" or experiencer of the mental state characterized by the clausal complement.

Let us illustrate our current theory by examining an example that embodies both of the subtypes of *zibun* being bound by point of view, i.e., (2), which is reproduced here.

- (2) Hanako_i wa [Taroo_j ga zibun_{i/j} wo aisiteiru] to omotteiru
 Hanako TOP Taroo NOM self ACC love COMP think
 'Hanako_i thinks that Taroo_j loves her_i/himself_j.'

The binding relation represented by *Taroo_j* and *zibun_j* is a case of the indexical-perspective binding; that is, the referent of *zibun* is identified with that of the indexical perspective, which is specified as the referent of the subject phrase, *Taroo ga* by the Subject Priority Default Principle. Next, the binding relation expressed by *Hanako_i* and *zibun_i* is a case of the inferential perspective binding, identifying the referent of *zibun* with that of the point of view with respect to an indirect discourse complement clause, in this case, [*Taroo ga zibun wo aisiteiru*], where *Hanako ga* is the "logophoric" NP.

Although we will not analyze the *zibun*-bindings of any other examples in this section, it should be easy to characterize all the instances of *zibun*-binding encountered so far into one of the subclasses of point-of-view bound *zibun*.

Hypothetical Alternative Analyses In the preceding section, I proposed a conceptually very simple "unified" hypothesis of the binding of the Japanese reflexive *zibun*; that is, the reference of *zibun* is to be identified with that of a point of view. Of the instances of *zibun*-binding, the cases of clause-bounded subject binding are now categorized as a subclass of point of view binding, where the point of view is an indexical perspective, and the cases of the so-called "logophoric" binding are now the other subclass of point of view binding, where the point of view is an inferential perspective. Since the instances of point of view binding are comprised by the two subclasses of subject binding and "logophoric" binding, it is reasonable for someone to ask the following question: How is the current "unified" point-of-view based theory different from the following kind of hypothetical alternative analyses?

(44)

Zibun is to be bound by a subject NP or a "logophoric" NP.

(45)

Zibun is to be bound by a subject NP or a point of view, with the proviso that one subtype of point of view, i.e., indexical perspective tends to be expressed as a subject.

In fact, the data examined so far do not actually favor our theory over the above alternatives.⁷ That is, in terms of descriptive adequacy we have not demonstrated that our unified hypothesis is superior to the above non-unified hypotheses. What is common to the above alternatives, (44) and (45) is that they both take the subjecthood of an NP as a sufficient condition for the NP to be an antecedent for *zibun*, while our theory does not make such a claim. According to our theory, the essential property of a binder of *zibun* is being a point of view, and the subjecthood of some antecedent NPs of *zibun* is a derivative property due to the principle that a point of view tends to be realized as a subject (Subject Priority Default Principle). Hence our theory predicts that given an instance of *zibun* in a sentence, if the subject NP does not denote a point of view, but a non-subject NP does, that is, the Subject Priority Default Principle is overridden, the *zibun* legitimately can be bound only by the non-subject NP. On the other hand, the hypothetical alternative analyses predict that the *zibun* legitimately would be bound by the subject NP as well. In the following we will see some evidence that favors our theory over the hypothetical alternatives.

Remember that we have seen in Section 4.1.1 that there are some expressions that specify the locus of a point of view, e.g. motion verbs like *iku* 'go' and *kuru* 'come', and auxiliary verbs like *-kureru*, *-yaru*, *-ageru*; *-kureru*, for instance, specifies the locus of a point of view to be a non-subject. With the background in mind, let us consider the following example.

- (46) Taroo_i wa/ga Ziroo_j ni zibun_{i/j} sen'yo no heya o
 Taroo TOP/NOM Ziroo DAT self exclusive use GEN room ACC

itizi kasite-kureta⁸.
 temporarily lend-KURERU-PAST

'Taroo_i lent Ziroo_j a room for his_{i/j} exclusive use temporarily.'

As is indicated by the indexation in (46), the available reading is the one where *zibun* is bound by the object NP, *Ziroo* instead of the subject NP, *Taroo*. That is, the exclusivity of the use of the room in question is applicable only to *Ziroo*; in other words, the sentence can be true even if the room in question had been used by other people than *Taroo* before it was lent to *Ziroo* as long as it was used only by *Ziroo* after the lease. The binding fact of *zibun* in (46) renders evidence against the hypothetical alternatives. For according to the alternatives, the subjecthood of an NP should be sufficient for the NP to be a binder of *zibun*; hence, (46) would be wrongly predicted to have the *-marked unavailable reading. On the other hand, the binding fact is consistent with our hypothesis, which basically states that *zibun* is to be bound by a point of view, which, in the case of (46), is realized as the object NP, *Ziroo*.

The unavailability or near unavailability of the reading corresponding to *zibun* being bound by the subject NP, *Taroo* in (46) is highlighted by the following example (47), which is only different from (46) in that the predicate takes an auxiliary verb '-yaru' instead of '-kureru'; -yaru, if you recall, lexically specifies that the speaker's point of view should be on (the referent of) the subject NP.

- (47) Taroo_i wa/ga Ziroo_j ni zibun_{i/*j} sen'yo no heya o
 Taroo TOP/NOM Ziroo DAT self exclusive use GEN room ACC

itizi kasite-yatta⁹.
 temporarily lend-YARU-PAST

'Taroo_i lent Ziroo_j a room for his_{i/*j} exclusive use temporarily.'

In contrast to the case of (46), the preferred or dominant reading of (47) is the one corresponding to *zibun* being bound by the subject NP, *Taroo* instead of the object NP, *Ziroo*; that is, the exclusivity of the room in question is regarding to *Taroo*, this time; in other words, the sentence can be true even if the room was used by people other than *Ziroo* as long as it had been used exclusively by *Taroo* before the lease.

Let us see further set of examples that vindicates the point we have attested in the above examples.

- (48) a. *Tarooj wa/ga zibunj no musuko ni purezento wo
 Taroo TOP/NOM self GEN son DAT present ACC

katte-kure-ta
 buy-KURERU-PAST

'Tarooj bought hisj son a present.'

- b. Tarooj wa/ga zibunj no musuko ni purezento wo
 Taroo TOP/NOM self GEN son DAT present ACC

katte-yat-ta
 buy-YARU-PAST

'Tarooj bought hisj son a present.'

As in (46) and (47), (48a) and (48b) are minimally different from each other with respect to their auxiliary verbs; (48a) has '-kureru', while (48b) has '-yaru'.

With (48a), as the asterisk indicates, there is no reading corresponding to the co-indexing exhibited there, i.e., the reading where *zibun* is bound by the subject NP, *Taroo*, which the hypothetical alternative analyses wrongly predict would be available. For that matter, there are no other readings with respect to the binding of *zibun* available, either. The situation with (48a) is quite consistent with our point-of-view based theory of *zibun*-binding in the following sense. From the fact that the auxiliary verb '-kureru' specifies (the referent of) a non-subject NP, in this case, *zibun no musuko* 'self's son' to be a point of view, and our theory of *zibun*-binding that *zibun* is to be bound by a point of view, it follows that *zibun* should be bound by *zibun no musuko*. However, the specification of the value of *zibun* is circular, for *zibun* is characterized by another expression containing *zibun* itself. Thus, the value of *zibun* will be left indeterminate, which presumably accounts for the ungrammaticality of (48a). On the other hand, in (48b) the auxiliary verb '-yaru' specifies the subject NP, in this case, *Taroo*, to be a point of view. Then, our theory of *zibun*-binding predicts that *zibun* is to be bound by the subject NP, *Taroo*, which corresponds to the available reading of (48b).

Note that the binding relation between *Tarooj* and *zibunj* in (48b) depends on *Taroo*'s being a point of view, not *Taroo*'s being a subject NP, for otherwise the binding relation between *Taroo* and *zibun* should be possible in (48a) as well, which is not the case. That casts a serious doubt on the validity of the hypothetical alternative analyses of *zibun*-binding, or generally any analysis that holds that the subjecthood of an NP is a sufficient condition for the NP to be an antecedent of *zibun*.

The Non-syntactic Nature of *Zibun*-binding The most important thesis of our theory of *zibun*-binding expounded in the current paper is that the only requirement that *zibun* imposes on its antecedent is just its referent should denote a point of view. That is, there is no requirement in terms of syntactic structural properties

whatsoever. In the following we will see some evidence that confirms the non-syntactic nature of *zibun*-binding.

Humanness condition for reflexivization: Kuno (1987) observed that there is a hierarchy among NPs with respect to the availability as an antecedent for a picture-noun reflexive. First, consider the following examples from Kuno (1987).

- (49) a. Ironically, Mary_i owed her_i success partly to that scandalous rumor about herself_i that was going around.
 b. *Ironically, the book_i owed its_i success partly to that scandalous rumor about itself_i that was going around.
- (50) a. ?They wrapped Mary_i with an enlarged portrait of herself_i.
 b. *They wrapped the diamond_i with an enlarged picture of itself_i.
- (51) a. Fido_i owed his_i enormous popularity in the neighborhood to newspaper articles about himself_i.
 b. ??The dog_i owed his_i enormous popularity in the neighborhood to newspaper articles about himself_i.

From the above grammaticality data it seems reasonable to propose the following hierarchy among NPs as to reflexivization in terms of humanness.

(52)

Humanness Hierarchy: The higher the triggering NP is in the humanness hierarchy, the better the result of reflexivization is.

Human > Nonhuman animate > Inanimate

However, the English reflexive, specifically, as a picture-noun reflexive seems to be exempted from the humanness condition as long as the antecedent is a subject NP, as you see in the following.

- (53) a. The book has overextended itself in its coverage.

- b. Harvard has published a book about itself.
- c. The cell has produced a clone of itself.

(54) The wire was touching itself.¹⁰

Next, let us consider the following Japanese examples of reflexivization comparable to the above English data.

- (55) a. Hanako_i wa/ga zibun_i nikansuru uwasa wo
Hanako TOP/NOM self concerning rumor ACC

tanosin-de-iru
enjoying

'Hanako_i is enjoying a rumor concerning herself_i.'

- b. Tama_i¹¹ wa/ga zibun_i no sippo wo oikake-te-iru.
Tama TOP/NOM self GEN tail ACC chasing

'Tama is chasing his/her tail.'

- c. ?Sono neko_i wa/ga zibun_i no sippo wo oikake-te-iru.
that cat TOP/NOM self GEN tail ACC chasing

'The cat is chasing its tail.'

- d. *Sono kaisyai wa/ga zibun_i no okyaku wo
that company TOP/NOM self GEN customers ACC

saiyusen site keieisa-re-te-iru.
top priority making being run

'The company is being run with its customers being its top priority.'

There is a close parallelism between the English (picture-noun) reflexive and the Japanese reflexive, *zibun* with respect to the humanness condition, as you see in the above sentences. However, the parallelism is not exact in that as is shown by (55d), the subjecthood of an NP is not a sufficient condition for the NP to be a binder of the reflexive in question in Japanese, unlike English.

The grammaticality facts of the above English and Japanese reflexives are significant in two respects. First, the English reflexive, *X-self/selves* is sometimes subject to semantic and pragmatic conditions for its antecedent as well as structural syntactic conditions, which have been often claimed to be the sole factors for the English reflexivization. Second, the conditions for Japanese reflexivization seem to

be essentially semantic and pragmatic, for the subjecthood alone of an NP does not authorize reflexivization as it does in English. The second point strongly points to the thesis of our theory of the *zibun*-binding; that is, the binding condition of *zibun* is semantically and pragmatically characterized such that the referent of *zibun* is to be identified with the speaker's point of view.

Antecedent-less *Zibun*-binding: Before concluding this section, let us see other evidence for the non-syntactic nature of the *zibun*-binding. The following argument involves cases where the antecedent of *zibun* is not syntactically present in the sentences.

Consider the following example.

- (56) Zibun wa/ga Tookyoo kara kimasi-ta.
 self TOP/NOM Tokyo from come-PAST
 'I came from Tokyo.'

There is no antecedent NP present for *zibun* in (56); however, as you can tell from the gloss, the binder of *zibun* is the speaker; usually, when *zibun* appears in a matrix declarative sentence without a possible antecedent NP in the sentence, the referent of the *zibun* is the speaker. That type of example is problematic to any analysis that tries to characterize the binder of *zibun* on purely syntactic grounds such as grammatical functions, for simply the binder of *zibun* in those cases is not manifested syntactically.

Someone might respond by saying that the above sentence, (56) is to be derived from the following kind of underlying structure *a la* Ross' (1970) performative-verb hypothesis.

- (57) I SAY TO YOU [zibun wa/ga Tookyoo kara kimasi-ta]
 self TOP/NOM Tokyo from come-PAST

In (57), 'I' is the binder of *zibun*, which is just another case of subject-bound reflexive; therefore, (56) is not a counterexample to the subjecthood condition for the antecedent of *zibun*.

However, consider another example where there is no syntactic expression as an antecedent for *zibun*.

- (58) Zibun wa doko kara kimasi-ta ka.
 self TOP where from came-PAST Q
 'Where did you come from?'

This time, as the gloss tells, *zibun* is coreferent with the hearer, instead of the speaker. The defender of the syntactic-based characterization of the *zibun*-binder would suggest that (58) is to be derived from the following kind of underlying structure.

(59) I ASK (OF) YOU [zibun wa doko kara kimasi-ta ka]
 self TOP where from came-PAST Q

In (59), *zibun* is bound by the (oblique) object NP, '(OF) YOU'; thus, the proponent of the syntactically based characterization of the *zibun*-binder would be led to propose that an NP can bind *zibun* if it is an (oblique) object NP. But one does not want to tread down the path, for combined with the subjecthood sufficient condition for the *zibun*-binder, the (oblique) objecthood sufficient condition for the *zibun*-binder means "Anything goes."; that is, *zibun* can be bound by an NP of any grammatical function.

On the contrary, the current point of view-based approach can offer a coherent account for the above cases. When a person utters a statement with a matrix sentence, it seems reasonable to assume that the speaker is aware of the fact that he or she is making the statement; that is, he or she has some attitude to the propositional content corresponding to the sentence. In other words, a matrix sentence *de facto* can function as a "logophoric" complement clause. In this context, the speaker is nothing but a "logophoric" NP, a [+logo-1] NP in Kuno's terms, or an inferential perspective of a mental state characterized by the complement clause. Hence, in our current analysis (56) is just another case of *zibun* being bound by a point of view, specifically, an inferential perspective.

What about (58)? The binder of *zibun* is not the speaker, but the hearer. Note the fact that (58) is an interrogative sentence, not a declarative sentence as (56). In asking a question with an interrogative sentence, it is the hearer's information state, not the speaker's that the interrogative sentence is, in a sense, matched against to solicit a response; in our terms, it is the hearer's mental state with respect to which the propositional content expressed by the interrogative sentence is evaluated. That is, the default inferential perspective of the propositional content expressed by an interrogative sentence is the hearer. Therefore, (58) also can be seen as just another case of *zibun* being bound by a point of view.¹²

Conclusion

In this paper we proposed a unified theory of *zibun*-binding; for any instance of *zibun*, its referent is to be identified with that of a point of view. There are two manifestations of the point of view, depending on what kind of description for which the point of view is meant. If it is for a description of an event/state not involving a mental state, the point of view is an indexical perspective, and if the description is about a mental state, the point of view is an inferential perspective. The two subclasses of *zibun*-binding, i.e., the indexical-perspective binding and the inferential-perspective binding correspond to what have been traditionally considered two distinct uses of *zibun*, i.e., the clause-bounded subject-bound reflexive, and the "logophoric" pronoun.

NOTES

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¹ For Kuno, the corresponding direct discourse representation is not just inferentially arrived from an indirect discourse complement clause, but literally exists to the extent that he proposed that (b) should be derived from the following underlying structure:

[Ali claimed ["I am the best boxer in the world."]].

² *iku* 'go' + *ta* 'PAST' á *itta*

³ *kuru* 'come' + *ta* 'PAST' á *kita*

⁴ *iku* 'go' + *ta* 'PAST' á *itta*

⁵ *kuru* 'come' + *ta* 'PAST' á *kita*

⁶ For a semantics of belief report incorporating what we call the point of view for mental-state descriptions, see, for example, Asher (1986).

⁷ I owe the point to Steve Wechsler.

⁸ *kureru* + *ta* 'PAST' á *kureta*

⁹ *yaru* + *ta* 'PAST' á *yatta*

¹⁰ I owe to Steve Wechsler this particular example, and suspecting the relevance of humanness, or "sentience" condition, to borrow his terminology, to the essentially semantic and pragmatic nature of the *zibun*-binder.

¹¹ Tama is a representative name for a cat in Japan(ese).

¹² Some Japanese native speakers do not accept the reading of (86) in which *zibun* is bound by the hearer. We can hypothesize that for those speakers, the hearer cannot be an inferential perspective for direct speech statements.

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Part II: Studies in Native American Languages

THE REFLEXIVE SUFFIX -V IN HUALAPAI *

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Abstract: Like many other languages Hualapai employs the reflexive suffix for several different grammatical purposes. Unlike them, however, constructions with a reflexive marker in Hualapai are usually not ambiguous with respect to the expected meanings. The unmarked focus of interest in Hualapai discourse is on the present state of affairs. Thus, it is possible, for example, that a clause yields a reflexive meaning in present tense, but a stative one in past tense, with the reflexive meaning backgrounded. It has been found that the Hualapai reflexive has not extended itself to the passive use. One interesting piece of evidence for the non-extension is that when a verb has both transitive and intransitive uses, only the intransitive one can reflexivize.

I. Introduction¹

In many languages the reflexive marker is employed for several different constructions (Langacker and Munro 1975, Shibatani 1985, Givón 1991). In Spanish, for example, the following sentence with a reflexive is ambiguous in three ways (Givón 1991:604):

- (1) Se cur-aron los brujos
Refl cure-Past/3 the sorcerers
(a) 'The sorcerers cured themselves.' (Reflexive)
(b) 'The sorcerers got cured.' (Anticausative)
(c) 'The sorcerers were cured.' (Passive)

In Imbabura Quechua (Shibatani 1985:828; quoting Cole 1982), the reflexive marker can also be used in reciprocals and anticausatives:

- (2) a. Ispiju-pi riku-ri-rka-ni.
mirror-in see-Refl-Past.1
'I saw myself in the mirror.'
b. Wambra-kuna riku-ri-rka.
child-Pl see-Refl-Past.3
'The children saw each other.'

- c. Pungu-kuna-ka paska-ri-rka
door-Pl-Top open-Refl-Past.3
'The door opened.'

Diachronic, typological research has shown that this kind of extension of the reflexive to other uses is very common in languages of the world (see Geniušienė 1987 and Haspelmath 1990, *inter alia*). I will show that Hualapai, an Upland Yuman language spoken in the northwest area of Arizona, also reflects multiple uses of the reflexive by identifying various functions the Hualapai reflexive suffix *-v* may have and the factors that determine what functions it exerts in a clause.

On the other hand, for synchronic formal approaches this kind of ambiguity of the reflexive marker has been handled by positing a different morpheme for each function, all of which happen to be homophonic. This approach makes sense in that the extension of the reflexive to other uses is a process of reanalysis or semantic bleaching through which the reflexive becomes a 'different' thing (if not, there can be no ambiguity). The approaches of this kind (I will call them 'the homophonic theory' for convenience) might work in languages where its functions are complementary, and thus one function excludes other possibilities. However, I will show that, at least in Hualapai, it is not felicitous, even synchronically, to assume an independent but homophonic suffix *-v* for each of the functions it may have, because there is often no ambiguity available where it is expected, and it is sometimes possible for the reflexive to retain two functions simultaneously by foregrounding one and backgrounding the other.

Finally, I will examine Hualapai reflexives to see if they have extended to the passive use or not, and will show that they have not.

II. Functions of the Suffix -v

1. Reflexive

Most basically, the suffix *-v* is used to indicate that the subject and the object are referentially identical:

- (3) a. Nyihách nya thivdi:va damo:kwiny.
nyí-ha-ch nya thivdi:-va damo:-k-wi-ny
Spec-Dem/that-Subj I 1.arm-Dem/this 3/1.scratch-SS-
Aux/do-Past
'S/he scratched my arm.'

- b. Nyach damo:vyuny.
 nya-ch damo:-v-yu-ny.
 I-Subj 1.scratch-Refl-Aux/be-Past
 'I scratched myself.'

Unless otherwise indicated (see 2.3 below), clauses like (3b), which have a singular animate subject, are interpreted as reflexive. When another object or objects are already available, the suffix is interpreted as a reflexive oblique:

- (4) Philch nyijida bes gava:viki
 Phil-ch nyi-jid-a bes gava:-v-k-i
 Phil-Subj 3.Sub-mother-Def money 3/3.ask-Refl-SS-Aux/say
 'Phil is asking money from his mother (for himself).'
- (5) Hmany qéchach he' dake:vkyu.
 hmany qech-a-ch he' dake:-v-k-yu
 child 3.be=little-Def-Subj dress 3.change-Refl-SS-Aux/be
 'The little child is changing her dress (by himself).'

2. Reciprocal

When the subject is plural, and they are animate (typically humans), the suffix *-v* yields a reciprocal meaning. Sometimes (but not always) the suffix *-b* is used instead when the subject is dual, which seems to be a reflex of an old reflexive dual marking:

- (6) a. Cindych Joriginem hwak'k gwa:wviki.
 Cindy-ch Jorigine-m hwak-k gwa:w-v-k-i
 Cindy-Subj Jorigine-Com 3.be=two-SS 3.talk-Refl-SS-Aux/be
 'Cindy and Jorigine are talking together (to each other).'
- b. Ba:hch jijqá:mbikyu.
 ba:-h-ch ji-jiqá:m-b-k-yu
 man-Dem/that-Subj 3.Pl-hit=with=fist-Refl-SS-Aux/be
 'They are hitting each other with their fists.'
- c. Wajimí:jvikyu.
 wa-ji-mi:-j-v-k-yu
 WA-3.Pl-hate-Pl-Refl-SS-Aux/be
 'They (many) hate each other.'

Notice that in Hualapai when the subject is animate plural, and the suffix *-v* is utilized, the clause should be interpreted as reciprocal (i.e., referring to actions done to each other or to one another), not as reflexive (i.e., as a collection of reflexive actions). Thus, the above clauses are not ambiguous with respect to the reciprocal vs. reflexive meaning, even though they are expected to be so in the homophonic theory.

When the subject is inanimate, one can get a reciprocal meaning if the verb itself is semantically reciprocal:

- (7) Nyonya:hch jogae:wvijkyu.
 nyonya:-h-ch jogae:w-v-j-k-yu
 road-Dem/that-Subj 3.cross-Refl-Pl-SS-Aux/be
 'The roads cross each other.'

3. Stative

When the subject is an inanimate thing, the suffix *-v* behaves as a resultative/stative marker:

- (8) a. Nya jidach gwèda'óliha da'amkwiny.
 nya jid-a-ch gweda'oli-ha da'am-k-wi-ny
 I 1.mother-Def-Subj pot-Dem/that 3/3.put=lid=on-SS
 -Aux/do-Past
 'My mother put a lid on the pot.'
- b. Gwèda'ólich da'amvikyu.
 gweda'oli-ch da'am-vi-k-yu
 pot-Subj 3.put=lid=on-Refl-SS-Aux/be
 'The pot is covered.'
- (9) I'sivgòhch nyimsávam jiyálvokyu.
 i'sivgo'-h-ch nyimsav-m jiyal-v-o-k-yu
 fence-Dem/that-Subj 3.white=Instr 3.paint-Refl-Evid-SS-Aux/be
 'The fence is painted white.'
- (10) Nya qwáwch sijívikyu.
 nya qwaw-ch siji-v-k-yu
 I 1.hair-Subj 3.brush-Refl-SS-Aux/be
 'My hair is brushed.'

When the subject is animate but nonvolitional, the clause may be interpreted as stative. The volitionality of the subject, of course, depends on the discourse context.

- (11) Hmányach ye:v'm i'v'm a:vk nahmídvikyuny.
 hmany-a-ch ye:vm i'i-v-m a:v-k
 child-Def-Subj 3.alone stick-Dem/this-Instr 3/3.hit-SS
 nahmid-vi-k-yu-ny
 3.hurt-Refl-SS-Aux/be-Past
 'The child hit himself with the stick and was hurt (or hurt himself).'
- (12) Waksi:vch sídth'k bi'jvikyu.
 waksi:-v-ch sídth-k bi'j-v-k-yu
 cow-Dem/this-Subj 3.be=only-SS 3.leave=behind-Refl-SS-Aux/be
 'This cow is the only one left.'

Notice, however, that in fact the clause (11) does not discard its reflexive meaning, but it refers to the present state (being hurt) that has resulted from the reflexive action (hurting himself). In this respect, the stative and reflexive meaning are not exclusive of each other but coexist in clauses like (11).

The correlation between the reflexive and stative is very important to account for the following quirky cases:

- (13) a. Ba:hch diswi:vkyu.
 ba:-h-ch diswi:-v-k-yu
 man-Dem/that-Subj 3.shave-Refl-SS-Aux/be
 'The man is shaving (himself).'
- b. Ba:hch diswi:vkyuny.
 ba:-h-ch diswi:-v-k-yu-ny
 man-Dem/that-Subj 3.shave-Refl-SS-Aux/be-Past
 'The man is shaved.' or 'The man shaved.'
- (14) a. Jithúlvíyu.
 jithul-v-yu
 1.wash-Refl-Aux/be
 'I am bathing (myself).'

- b. Jithúlvíyuny.
 jithul-v-yu-ny
 1.wash-Refl-Aux/be-Past
 'I am bathed.' or 'I bathed.'

Verbs like these yield progressive interpretations when the tense is present (and the action of the verb is durative).² However, when the tense is past, the focus goes to the present resultative state, and thus a stative interpretation is yielded. Notice also that in each b-sentence the first gloss is in present tense. This stative interpretation should not be glossed with past tense (e.g., 'He was shaved.'), because it will then become a passive to which the Hualapai reflexive has not extended itself yet (see section 3 below for details). This suggests that in either tense, present or past, the focus of interest is on the present state of affairs. A gloss with past tense (i.e., 'He shaved.', etc), which refers to a reflexive action, is used when it is necessary to move the focus to the past event, especially an event in the distant past. What matters, therefore, is which is foregrounded and which is backgrounded by the speaker, the present state or the past event, although the unmarked reading is that the present state is foregrounded and the past event backgrounded.

The reflexivization of some transitive verbs can render an anticausative meaning along with a stative meaning:

- (15) a. Wa'h s'dákk namákwiny.
 wa'-h s'dak-k nama-k-wi-ny
 door-Def 3/3.open-SS 3.leave-SS-Aux/do-Past
 'S/he left the door open.'
- b. Wa'hch s'dákvikyú.
 wa'-h-ch s'dak-v-k-yu
 door-Def-Subj 3.open-Refl-SS-Aux/be
 'The door is open.' or 'The door opened.'
- (16) a. Babéla lé:lkwi.
 babel-a le:l-k-wi
 paper-Def 3/3.tear-SS-Aux/do
 'S/he tore the paper.'
- b. Babélach lé:lvikyú.
 babel-a-ch le:l-v-k-yu
 paper-Def-Subj 3.tear-Refl-SS-Aux/be
 'The paper is torn.' or 'The paper tore.'

The context determines which meaning is more prominent, but again it is a matter of foregrounding one and backgrounding the other, not a matter of ambiguity in which one possibility excludes others.

4. Instantive ('just now') interpretation

A certain class of verbs yield an instantive interpretation when they are suffixed by the reflexive marker, an interpretation that the event in question has happened 'just now'.³

- (17) a. Gwede:hch qáwkyu.
 gwede:-h-ch qaw-k-yu
 toy-Def-Subj 3.break-SS-Aux/be
 'The toy is broken.'
- b. Gwede:hch qáwvkyu.
 gwede:-h-ch qaw-v-k-yu
 toy-Def-Subj 3.break-Refl-SS-Aux/be
 'The toy just broke.'
- (18) a. Gwevóyhch lu:thkyu.
 gwevoyi-h-ch lu:th-k-yu
 tire-Def-Subj 3.burst-SS-Aux/be
 'The tire is burst.'
- b. Gwevóyhch lu:thvkyu.
 gwevoyi-h-ch lu:th-v-k-yu
 tire-Def-Subj 3.burst-Refl-SS-Aux/be
 'The tire just burst.'
- (19) a. Bolch dímskyu.
 bol-ch dims-k-yu
 ball-Subj 3.bounce-SS-Aux/be
 'The ball bounced.' or 'The ball is bouncing.'
- b. Bolch díms'ivkyu.
 bol-ch dims-i-v-k-yu
 ball-Subj 3.bounce-suddenly-Refl-SS-Aux/be
 'The ball just bounced.'

The verbs show two characteristics: first, they denote an instantaneous change of state, i.e. the beginning and the end of the action is non-durative, momentary; second, they already have a non-reflexive intransitive use,⁴ but not

necessarily a transitive use. That is to say, the instantive meaning associated with this class of instantaneous verbs when suffixed with *-v*, emerges relative to their non-reflexive intransitive uses. Therefore, a reflexive use of such verbs as *ha:ch* 'to melt (intr)', which is a durative verb, yields a progressive reading:

- (20) Hanbáchach ha:chvikyu.
hanbach-ch ha:ch-v-k-yu
snow-Subj 3.melt-Refl-SS-Aux/be
'The snow is melting.'

A reflexive use of such verb as *s'amk* 'to close', which is exclusively transitive, yields a stative (or anticausative reading), even though it is an instantaneous verb:

- (21) a. *Wa'hch s'amkyu
b. Wa'hch s'amvikyu.
wa-h-ch s'am-v-k-yu
door-Def-Subj 3.close-Refl-SS-Aux/be
'The door is closed.' or 'The door closed.'

This clause may also imply an instantive meaning, since the verb is an instantaneous verb.⁵ That is, clauses like (21) can denote a present state of affairs which has resulted from an event just happened. Unlike in (17b-19b), however, their instantive meanings are secondary, i.e., backgrounded. The reflexive suffix is not responsible for this phenomenon, but rather the semantics of the verb itself.

As mentioned above, the instantive reading is obtained when the verb already has a non-reflexive intransitive use like a-sentences in (17-19). It suggests that such use of the reflexive suffix applies not to the transitive but to the intransitive verb. A supporting evidence is the verb *machk* 'to go off'. It belongs to the instantaneous verb class and can be used either intransitively without *-v* or reflexively with *-v*. Its transitive counterpart is *dimáchk* 'to turn something off', and it does not have a reflexive use **dimáchvik*:

- (22) a. O'u:lich ma:chkyu.
o'u:li-ch ma:ch-k-yu
light-Subj 3.go=off-SS-Aux /be
'The light went off.'

- b. O'u:lich ma:chvikyu.
 o'u:li-ch ma:ch-v-k-yu
 light-Subj 3.go=off-Refl-SS-Aux /be
 'The light just went off.'

- (23) a. Tomch o'u:li dimáchkwiny.
 Tom-ch o'u:li dimach-k-wi-ny
 Tom-Subj light 3/3.turn=off-SS-Aux/do-Past
 'Tom turned the light off.'

- b. *O'u:lich dimáchvikyuny.

In this respect, the instantive function of the reflexive can be seen as a sort of transitivity which shifts the focus of interest to the dynamic aspect from the resultative stative aspect of the event. It is important to note that with instantaneous verbs the actual tense marking does not matter, present or past (see Note 3), unless it is necessary to move the focus of interest to the event in the distant past. Their interpretations are the same, and the focus of interest is the present state of affairs resulted from the event just happened. Therefore, the a-sentences in (17-19) and (22) are more like the stative, and the reflexive suffix applies to these stative clauses. Thereby, the focus of interest shifts to the dynamic aspect of the event, and this event is one that has just happened. Hence the instantive meaning.⁶

III. Stative vs. Passive: Non-development of the Passive

The reader will recall that the English glosses should not be relied on to identify the passivity of Hualapai clauses. Typical English passives are also resultative-stative. But, at the same time, they imply agents. This fact, of course, does not guarantee that the case is the same in Hualapai. We need Hualapai-specific evidence that one of the functions of the reflexive is passive, or none of them. The reader will also recall that I have mentioned that the Hualapai reflexive has not been extended to the passive use yet. This section is to discuss this in more detail, and show that the so-called stative clauses in Hualapai must not be construed as passives (cf. Ichihashi 1991).

Indeed, some evidence has already been presented implicitly above. In 2.4, it was shown that, in case of instantaneous verbs which have both intransitive and transitive use, the reflexive does not apply to the transitive but to the intransitive one to yield an instantive meaning. It also seems to be the case that most transitive verbs which are derived from intransitive ones by adding a causative prefix are not subject to reflexivization, unless they are reinterpreted

as a lexicalized non-derived form. We have seen this in (23) above. Especially, when the verb is semantically adjectival, its derived transitive verb does not take reflexive suffix. The reason is that the intransitive is already stative, and stativization through reflexivization is not necessary:

- (24) a. Nya qwáwvach búlkyu.
 nya qwaw-va-ch bul-k-yu
 I 1.hair-Dem/this-Subj 3.be=wet-SS-Aux/be
 'My hair is wet.'
- b. Baqi:hch qwáwa dabúlkwi.
 baqi:-h-ch qwaw-a dabul-k-wi
 lady-Dem/that-Subj 3.hair-Def 3/3.wet-SS-Aux/do
 'The lady is wetting her hair.'
- c. *Nya qwáwvach dabúlvikyu.
- (25) a. Gwevóyi'yach lápkyu.
 gwevoyi-ya-ch lap-k-yu
 tire-Dem/that-Subj 3.be=flat-SS-Aux/be
 'The tire is flat.'
- b. Gwevóyi dalápkwi.
 gwevoyi dalap-k-wi
 tire 3/3.flatten-SS-Aux/do
 'He flattened the tire.'
- c. *Gwevóyi'yach dalápvikyu.

The distribution of verbs like these constitutes good evidence that the passive is not a function of the reflexive.

Some verbs require, as one of their semantic components, an instrumental phrase. Among them are *jigáedk* 'to cut (with a knife)', *da:k* 'to grind with a rock', *v'qamk* 'to stab with a knife', *a:vk* 'to hit with a long and hard object', and *daqávk* 'to hit with a hammer'. These verbs may not be reflexivized with an inanimate subject, because the instrumental phrase implies an external (human) agent, and thus reflexivization of them will yield not a purely stative meaning, but a passive interpretation.

- (26) a. Miyál jigáedkwi
 miyal jigaed-k-wi
 bread 3/3.cut-SS-Aux/do
 'He cut the bread.'
- b. *Miyálch jigáedvikyu.
 'The bread was cut.'
- (27) a. Waksi'ma:da da:kwi.
 waksi'ma:d-a da:-k-wi
 meat-Def 3/3.grind-SS-Aux/do
 'He is grinding the meat.'
- (28) b. *Waksi'ma:dach da:vkyuny.
 'The meat is ground.'

Since Hualapai has not extended the reflexive to the passive, it has instead developed different ways of expressing the latter notion. It makes use of the plural subject marker *-j* for the agentless passive, or the word order change of the subject and object for the agentive passive:

- (29) Lily jiqámjokwiny.
 Lily jiqam-j-o-k-wi-ny
 Lily 3/3.hit=with=fist-Pass-Evid-SS-Aux/do-Past
 'Lily was hit.'
- (30) a. Ba:hch Josie yu'h jiyákwiny
 ba:-h-ch J. yu'-h jiyal-k-wi-ny
 person-Dem/that-Subj J. face-Dem/that 3/3.paint-SS
 -Aux/do-Past
 'The man painted Josie's face.'
- b. Josie yu'h ba:hch jiyálokwiny
 Josie yu'-h ba:-h-ch jiyal-o-k-wi-ny
 J. face-Dem/that person-Dem-Subj 3/3.paint-Evid-SS
 -Aux/do-Past
 'Josie's face was painted by the man.'

As the passive utilizes the plural subject marker without changing its position, the clause is always ambiguous between the active and the passive. Note, however, that when the speaker has no idea about the number of the agent, *-j* is the default form to be taken and the subject must be deleted. If not, the

clause is active, unless the word order is changed from subject-object to object-subject.

IV. Summary

I have identified four functions which the reflexive suffix may have: reflexive, reciprocal, stative, and instantive. We have seen that the constructions with a reflexive *-v* are usually not ambiguous, but have clearly separate functions. The clauses which are interpreted reciprocally, for example, do not render reflexive meanings which are expected by the homophonic theory. When the subject is animate and volitional, the stative clauses do not discard the reflexive meaning but background it. So, in present tense, they yield a reflexive meaning, but in past tense a stative meaning with the reflexive meaning backgrounded. The stative and anticausative meaning can also coexist in a clause with a reflexive. This interpretive distribution is allowable because the unmarked focus of interest in Hualapai discourse is on the present state of the subject NP, and thus it is possible to foreground one (e.g., present state) and background the other (e.g., event happened).

We also have seen that the reflexive *-v* in Hualapai has not extended itself to the passive use yet. When the verb has both transitive and intransitive uses, the reflexive applies to the intransitive use and fails to operate in the transitive use of the verb. The transitive verbs derived from intransitive verbs by causative prefixation do not take the reflexive. The verbs which require an instrumental component as their essential semantic component do not take it, either. Hualapai has different ways of expressing the passive notion: making use of the plural subject marker, or word order change. These facts constitute highly compelling evidence that the Hualapai reflexive does not have a passive function.

It remains for future research to compare the Yuman and related languages to see the ways in which the reflexive has extended itself for other uses in those languages.

NOTES

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with him when he went to Peach Springs. I also thank the reviewer of this paper and Professor Ken Miner for their helpful comments.

¹ Hualapai has developed its own writing system. Most characters correspond to IPA, but some must be specified: b = [p], p = [p^h], j = [ʃ], ch = [tʃ], d = [t], d = [r], t = [t^h], th = [θ], g = [k], k = [k^h], ny = [ɲ], ng = [ŋ], ' = [ʔ]. There is no phonemic stress.

Abbreviations:

1	1st person	2	2nd person
3	3rd person	3/1	3rd person subject/1st person object
Aux	Auxiliary	3/3	3rd person subject/3rd person object
Com	Comitative	Def	Definitizer
Dem	Demonstrative	DS	Different subject
Evid	Evidential	Instr	Instrumental
Obj	Object	Pass	Passive
Pl	Plural	Refl	Reflexive
SS	Same subject	Sub	Subordinator
Subj	Subject	Top	Topic

When the gloss of a word is composed of more than one word they are conjoined by equal signs (=) in the analyses. All the Hualapai examples are from Watahomigie, et al. (1994) and the Structure of Hualapai course which was offered in Fall 1994 at the University of Kansas.

² The English glosses should be such as 'He is shaving', 'He is bathing', etc., not '...shaving himself', '...bathing himself', etc., which are emphatic in English.

³ While discussing the Hualapai intensive prefix *v(i)-*, Redden (1977) advanced the following pair of clauses which happened to be containing reflexive suffixes (transliteration modified; parsing done only for relevant affixes):

- (i) a. Hályóyà qáw-v-kyu. 'The glass is cracked.'
 b. Hályóyà vi-qáw-v-kyu. 'The glass has just cracked.'

He did not give the non-reflexive counterpart of (a) *Hályóyà qáwkyu*. According to the consultants in this study, the meaning of this clause is 'The glass is broken', and the gloss of (a) is 'The glass just broke.' It is presumable that the Hualapai speakers might have reanalyzed the two homophonic affixes. This question is open for future research.

⁴ The verb *mark* 'to fall' has an intransitive use but does not have a reflexive counterpart.

⁵ Thus, the transitive sentence in (i), which has an instantaneous verb, is normally glossed in past tense regardless of the actual tense marking. In its reflexive counterpart, the stative meaning is glossed in present tense; whereas the anticausative reading is glossed in past tense as in (i), again regardless of the actual tense marking. The tense in the gloss, therefore, depends on which one is focused, state or event.

(ii) Johnach wa:h s'amkwi(ny).
 John-ch wa-h s'am-k-wi(-ny)
 John-Subj door-Def 3.close-SS-Aux/do(-Past)
 'John closed the door.'

(iii) Wa'hch s'amvikyu(ny).
 wa-h-ch s'am-v-k-yu(-ny)
 door-Def-Subj 3.close-Refl-SS-Aux/be(-Past)
 'The door is closed.' or 'The door closed.'

⁶ If we disregard the instantive meaning, we can find a somewhat similar case in Spanish, in which the reflexive marking shifts a nonpunctual state to a punctual action or event (Hopper and Thompson 1980: 266, quoting from García 1975):

- (iv) a. Juan durmió (toda la noche).
 John slept (all the night)
 'John slept (all night).'
- b. Juan se durmió (*toda la noche).
 John Refl slept all the night
 'John went to sleep (*all night).'
- (v) a. La paja ardió (toda la noche).
 the straw burned all the night
 'The straw burned (all night).'
- b. La paja se ardió (*toda la noche).
 the straw Refl burned all the night
 'The straw caught fire (*all night).'

In each pair, sentence (a) represents a nonpunctual state, whereas sentence (b), which has a reflexive morpheme, represents a punctual action or event.

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AN ETHNOPOETIC ANALYSIS OF A TRADITIONAL KASHAYA GAMBLING NARRATIVE

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Abstract: In this paper I examine the text of a traditional Kashaya narrative which depicts a gambling game between coast and forest creatures. I propose an analysis of the meaning and organization of the text in terms of its cultural context as well as its poetic and rhetorical structure.¹

Over the last few decades, research in Native American verbal art has drawn on the disciplines of linguistics, anthropology, literature, and folklore to find a way to represent oral performances that grounds them in cultural context and preserves stylistic aspects of the original performance that are ignored or obscured by a block textual representation. Dell Hymes (1981, 1987) and Dennis Tedlock (1971, 1978) have made pioneering contributions to the field of ethno poetics, and this focus of research continues for a variety of Native American languages in work by Bright (1984), McLendon (1981), Sherzer (1987, 1994), Woodbury (1987, 1992), and others.

Following this research, in this paper I place the text of a Kashaya traditional narrative in cultural context and analyze linguistic, poetic, and rhetorical features that contribute to its artistry. In part this necessitates a reconstruction of the culture which gave rise to the narrative itself, in the tradition of much Native American anthropology, as both the language of the narrative and the gambling game it describes are no longer an active part of the Kashaya culture today. In the interim, the narrator of the gambling myth opened the door to linguists and anthropologists more than three decades ago in an attempt to preserve as much traditional information as possible for future generations. Brief fragments of the narrator's formal and conversational speech are included as a narrow window onto the culture at that time to illustrate the prevailing conditions which facilitated the preservation of this text. The text depicts a traditional gambling game between coast creatures and forest creatures. I provide background on the gambling game in its heyday and the circumstances surrounding its fall from favor. I also describe differences between the traditional context of telling coyote stories and the performance that is represented by this text. Finally, I examine the poetic and rhetorical structure of the text in terms of grammatical and thematic parallelism, forms of reference, morphological marking, and other narrative devices.

The Text: Transcription and Representation

The traditional narrative discussed in this paper was recorded by Robert Oswalt and appears in Kashaya Texts, a collection of myths (traditional narrative), personal and historical narrative, ceremonial speech, and conversations collected during Oswalt's fieldwork in the summers of the late 1950's and early 1960's. In the Boasian tradition, Oswalt has documented the Kashaya language with this compilation of texts and a detailed grammar (1961). However, no dictionary for Kashaya is available.

The text is included in its entirety in Appendix 1 in a tripartite interlinear text format: phonemic transcription, grammatical analysis, and English gloss. All line numbers in the body of the paper refer to this text. The phonemic transcription appears as it does in Kashaya Texts with a few notation exceptions: long vowels are represented with two consecutive vowels, <ɟ> is used to represent a palatal fricative, and I have added morphological segmentation which corresponds to the grammatical analysis I provide on the intermediate line. The prosodic information consists of primary stress marking and broad intonational contours. For the most part, the line divisions correspond to Oswalt's sentential units in the gloss and are consistent with the convergence of terminal contours and complete syntactic information. A guide to the transcription notation and phonemic inventory is provided in Appendix 2.

The italicized gloss is the translation that Oswalt provides in Kashaya Texts. I have provided the intermediate grammatical analysis as a link between the original text and the English gloss. The grammatical analysis is based on information gleaned from the resources available, primarily Oswalt's Kashaya grammar (1961) and a limited word list of nouns, adjectives, and adverbs, K'ahja:ya cahno kalikak^h 'Kashaya Vocabulary' (1975). As noted above, however, no dictionary for Kashaya is available, so the analysis presented here is tentative. The additional text fragments used in this paper conform to the format described above.

The Language

Kashaya, also known as Southwestern Pomo, is one of seven Pomoan languages native to Northern California and classified as part of the larger Hokan language family. Incidental to this analysis of a traditional narrative about a gambling game, it is interesting to note that in the related language of Central Pomo the word kashaya means 'expert gamblers', from /ka/ 'gambling' and /jaa/ 'expert'. For the derivation of the native term, Oswalt proposes /kahja/ 'agile, nimble' and /ya/, translated as 'people, group, race' in both languages mentioned.

The Kashaya language is moribund, spoken only by a handful of elders. In Oswalt's (1964) assessment of the state of the language in the early sixties,

he writes that those who were at that time in their thirties and forties used English most of the time but could speak Kashaya fairly well, albeit with an appreciably smaller vocabulary than that of the older generations. In addition, most children under twenty actively used only occasional words and phrases of Kashaya.

The Narrator

The narrator of the gambling myth is Essie Parrish (E.P.), a Kashaya spiritual leader and sucking doctor. E. P. was born in 1902 and learned her stories from her maternal grandmother as well as from other relatives. E.P. was very active in the preservation of traditional knowledge for posterity. She worked with Oswalt as one of his main language consultants, and she also worked with anthropologists to prevent traditional information from being lost to future generations. The following excerpt from one of her speeches reflects her concern over the young people's disregard for the old ways. This speech was delivered on the eve of a July 4th dance in 1958, when she gathered the community together in the ceremonial roundhouse to decide whether or not anthropologist Samuel A. Barrett would be allowed to film the dance inside the roundhouse.

Kashaya Text #78:12-13

- a. ?é-n s'i-ba ?k^he ?aca? qahle yá^hma k^he cahno
 be-SS.S/A do-SS.ANT 1sg.OBL person white people 1sg.OBL language
 do?k'oyaac'-a-m maya damíta-?^
 scatter.pl-NOM-S 2pl.S discard-ABS
 'Like this [with a gesture] the white people are picking up the scattered bits of my language that you are discarding.'
- b. maya damíta-? just like -
 2pl.S discard-ABS
 'You threw away just like....'
- c. maya miili scraps maya damítaac'-a-l men é-e ma?u
 2pl.S here.V 2pl.S discard.pl-NOM-O thus be-NFV this.S
 ma?caa cohtow-a-m ^
 roundhouse stand-NOM-S
 'The roundhouse standing here is just like scraps that you throw away.'
- d. maya-l younger generation yá^hma yaaco-l e-e ?a cahnoo-d-a-m
 3pl-O people AGNOM-O be-NFV 1sg.S talk-DUR-NOM-S
 'You younger generation are the ones that I am talking to.'

Not surprisingly, the recording of ceremonial practices was highly controversial. The people decided against allowing the sacred dances to be filmed

at that time, but three years later they gave a special performance for Barrett to film outside the roundhouse. Oswalt notes that the text above and the two other ceremonial speeches given by E.P. included in Kashaya Texts were transcribed from E.P.'s own tape recording. In a later segment of the speech excerpted above, E.P. assures her audience that the tape recorder next to her is her own. The controversy over sharing information on sacred practices is further documented in Sarris' (1993) essay on Native American religious resistance. In this essay, Sarris reports that Cache Creek Pomo medicine woman Mabel McKay, whom he has known since childhood, claimed that E.P.'s death was related to her sharing of traditional healing ceremonies with outsiders in the ethnographic film The Sucking Doctor.²

The Gambling Game

Gambling games were an important part of social gatherings, trade, and ceremony in indigenous North American culture. The gambling game depicted in the narrative discussed in this paper is the hand game, a type of guessing game that was widely distributed throughout the tribal territories of North America. In his book on the games of native North America, Culin reports finding the hand game "among 81 tribes belonging to 28 different linguistic stocks" (1992:267). The game was often conducted when members of different tribes met. Of the native Californians, Kroeber (1976:848) writes, "A public ritual, a dance, even a mourning ceremony, could hardly take place without the accompaniment, at least at the conclusion, of the guessing game....It is hard for us to realize to the full the large degree to which this amusement or occupation entered into the life not so much of a professional class of gamblers as of all the California Indians."

Stewart Powers describes witnessing the grass game played by the Pomo in the 1870s. The grass game is a version of the hand game in which the bones are wound in wisps of grass in the opponents' view.

While among the Gualala I had an excellent opportunity of witnessing the gambling game of wi and tep, and a description of the same, with slight variations, will answer for nearly all the tribes in Central and Southern California....They gamble with four cylinders of bone about two inches long, two of which are plain and two marked with rings and strings tied around the middle. The game is conducted by four old and experienced men, frequently gray-heads, two for each party, squatting on their knees on opposite sides of the fire. They have before them a quantity of fine dry grass, and, with their hands in rapid and juggling motion before and behind them, they roll up each piece of bone in a little bale, and the opposite party presently guess in which hand is the marked bone. Generally only one guesses at a time, which he does with the word tep (marked one), wi (plain one). If he guesses right for

both the players, they simply toss the bones over to him and his partner, and nothing is scored on either side. If he guesses right for one and wrong for the other, the one for whom he guessed right is "out", but his partner rolls up the bones for another trial, and the guesser forfeits to them one of the twelve counters. If he guesses wrong for both, they still keep on, and he forfeits two counters....There are only twelve counters, and when they have been all won over to one side or the other the game is ended (1976:189-190).

Culin classifies the hand game as a game of chance (in contrast to games of dexterity, which include archery and ball games). In the introduction to Culin's volume on games of chance, Dennis Tedlock notes that this classification reflects the viewpoint of an observer, but "the participants constantly think in terms of strategy, pitting their wishes against chance in momentary acts of magic" (in Culin 1992:23). Kroeber's (1976) description of the act of guessing for the Yokuts reflects the strategic elements of the game:

When there were two pairs of players confronting each other, a single finger signified a guess at the hand indicated and at the partner's opposite hand; two fingers, the same hand of both players. These complications look like arbitrary elaborations; but like most such Californian devices, they spring from an intensive development of the spirit of the game. A gesture begun with one finger can be finished with two if the instant suffices for recognition of a trace of satisfaction in the opponent's countenance as he realizes an impending false guess...It is a game in which not sticks and luck but the tensest of wills, the keenest perceptions, and the supplest of muscular responses are matched...There is possibly no game in the world that, played sitting, has, with equal intrinsic simplicity, such competitive capacities (1976:540).

In many cultures, success in the gambling game transcended luck or skill and was attributed to a player's access to magical power. Singing was an integral part of the hand game, and players often used songs to call upon magical forces for power, as Olmstead and Stewart (1978) report for the Achumawi:

It [the hand game] was permeated by religio-mystic feeling, since winning involved, in their view, something more than pure chance. One's *tinihowi* [guardian spirit, medicine] might be particularly efficacious for assisting the gambler. Success displayed the winner's powerful life-force, which was not attainable without a good *tinihowi* ... During the game there was singing, which reached almost to the point of ecstasy (1978:234).

Gambling fell into disfavor among the Kashaya when it was banned along with drinking by Annie Jarvis, a Bole Maru Dreamer and Kashaya spiritual leader from 1912-1943. The Bole Maru was a revivalistic religion, an offshoot of the Ghost Dance movement of the 1870's. The Bole Maru Dreamers advocated the retention of traditional ways and beliefs, but at the same time integrated a Victorian ideology of cleanliness and abstinence into their doctrine (Bean and Theodoratus 1978; Bean and Vane 1978; Sarris 1993).

A fragment of conversation Oswalt recorded in the late 1950's illustrates the obsolescence of gambling by this time. E.P. and her daughter Violet are discussing an upcoming social event which is to include a demonstration of the grass game. Violet was in her late twenties at the time of this conversation (August, 1957), and, as Oswalt notes in the transcription, she slightly mispronounces the word for the grass game because she is unfamiliar with it.

Kashaya Text #76:36-40

E: ?óo[^] muu t.a ya[?]-k^he prógram ?i-?k^he capa-s'ii met' idom -
 Oh VG.S RSP 1pl-OBL be-FUT week-make time QUOT
 'Oh, I've been told our program will be held on Saturday.'

V: baq'o cíc'-wac'-k^he ?wa[~]
 what do-DUR.pl-FUT Q
 'What are they going to do?'

E: qacúhse hqamac'-k^he ?dom t.a[~]
 grass.game play.pl-FUT QUOT RSP
 'I've heard they'll play the grass game.'

V: baq'o wá t.a q^hacuhse[~]
 what Q RSP ~grass.game
 'What is the grass game?'
 [Oswalt: Violet used /q^hacuhse/ instead of /qacuhse/ because she misheard the unfamiliar word]

E: mu t.a qacúhse[~] qama-ac'-ém neni[?] duwení qan
 VG.S RSP grass.game play-DUR.pl-RSP INTR old.days INTS
 'Well, let's see now, they used to play the grass game in the old days'
 maya t'o ca-[?]=^hin ém mu-l ?t'o qan ?bak^he yach^hma[~]
 2pls CTR see-ABS=NEG RSP VG-O now INTS of people
 'You people nowadays have never seen that.'

Coyote Stories

The traditional narratives, which Oswalt classifies as myths in Kashaya Texts, are called duwi dīciidu 'coyote stories' by the Kashaya; literally, 'telling about Coyote.' The term duwi dīciidu is not restricted to stories about Coyote, but includes all accounts of the time of creation, when the world was populated with animals who could speak and had other human attributes.

Little information has been recorded about traditional Pomo storytelling. E.P.'s initial commentary in the gambling myth reveals some differences between the traditional telling of this story and the performance recorded by Oswalt in the summer of 1958 that is represented by the text in this paper. Most of E.P.'s traditional narratives open with 'This is a story about...' or 'Now I am going to talk about...' , diving into the introduction of the characters and setting the scene for the action. Her telling of the gambling myth is different in this respect because she makes initial remarks on customs associated with telling coyote stories (lines 1a - 1i) before she begins the story itself. With her introductory remarks, she grounds the story in its traditional context by describing how it was told to her as a child by ?aca? tīlekin iyowam duwi dīci'iduceedu 'one old man who used to tell coyote stories.'³

E.P. also mentions certain taboos connected with the telling of coyote stories. She remarks that the old man preferred to tell coyote stories in the winter (line 1b), a reference to the taboo against telling them at any other time. The taboo on telling coyote stories outside of the winter season was common. Wallace (1978a) notes that the Pomo and Yokuts believed that telling coyote stories in the summer could result in a rattlesnake bite (D. Hymes (1981) reports this belief for the Chinook as well). These tribes also maintained that telling 'serious' stories in the daytime would make the storyteller hunchbacked. Wallace adds that parents and grandparents could tell 'simple' stories to their children almost anytime (see also McLendon, 1977a and Gifford, 1980).

Another taboo that E.P. mentions in her introductory comments is that telling coyote stories while sitting up is forbidden (line 1f). She goes on to say that only one of the children (the favorite, probably E.P. herself) would recline along with the narrator as directed.

E.P.'s remarks on these coyote story taboos are most likely prompted because the circumstances of the recording violate them: it takes place at the wrong time of year and probably in the wrong posture as well. By contrast, such references to taboos do not appear in other coyote stories in the Kashaya Texts, although they were collected under similar circumstances. Further investigation is necessary to determine whether there was no mention of them or they were simply not recorded.

In Sarris' (1993) essay on the verbal art of Mabel McKay, he discusses Oswalt's collection of Kashaya narratives outside of the natural storytelling context. Sarris argues that the formal framing devices used by the narrators are "emergent" and evidence of the fieldworker's presence. Abrupt ending frames (*mu ?em me?phi* 'that is all') are characteristic of E.P.'s narratives in *Kashaya Texts*, appearing at the end of coyote stories, personal narratives, and descriptions of traditional food preparation alike. Sarris notes that in his almost thirty years of association with E.P., he never heard her use these curt endings outside of formal situations such as preaching. When he asked E.P.'s daughter Violet about the stories and their frames she replied, "Mom just did it that way, for the language. He [Oswalt] wanted language. I heard those stories different -- when Mom used to tell them when we kids were in bed" (1993:19).

Sarris proposes that the framing devices may have been helpful to the Kashaya narrators in dealing with the unusual circumstances of elicitation by circumscribing their interaction with the fieldworker.

Any attempt on the part of fieldworkers to recreate the "native scene" risks the danger of denying the present, of displacing the significance of the fieldworkers' presence and how it affects the speakers' and ultimately the fieldworkers' re-creation of the text. In this instance with James⁴ and Parrish, we might examine the rules and ethics of behavior that are still endemic to the Pomo, particularly as they might affect how a story is told. Mabel, for instance, mentions regularly that she cannot tell coyote stories during the summer months. "It is forbidden," she says. "It's an old-time rule. Us old people know that." Equally significant is the pervasive notion of privacy among the Pomo, particularly in terms of sacred objects, songs, and stories. A person's songs and stories are considered valuable property not to be shared openly with strangers. Sacred objects are never handled or touched except by their owners. Given just these strictures we might imagine why James and Parrish presented the stories the way they did to Oswalt, who did virtually all of his fieldwork in the summer months. James and Parrish, as elders and religious people, were in the position of being asked to break taboo and disregard an invasion of privacy. What resulted was a text that reflected, at least to some degree, that situation; the texts, as already suggested, are framed so that they are closed ("This is all"), thus inviting neither further storytelling nor inquiry into their world (1993:21-22).

The 'That is all' ending frame most likely does reflect the particular circumstances of the performance context, but Sarris' conclusion that it is a mechanism for shutting out the fieldworker is not a necessary one. The 'That

is all' ending frame has a more straightforward interpretation as a useful way of signaling the end of a performance to someone who may not pick up on more subtle framing cues. In the context of the elicitation, it is an effective means of informing the fieldworker that the tape recorder can be turned off.⁵

Symbolism

It was frequently members of different tribes who competed against each other in the hand game. This both rivalrous and friendly behavior was a common accompaniment to the Pomo trade-feast congeries (Bean and Theodoratus, 1978). The tribal identification which divided competing teams is depicted in the Kashaya gambling myth by the opposition between the coast creatures and the forest creatures. The coast-forest dualism is in turn strikingly reflective of the twofold nature of the coast-redwood Kashaya tribal territory.

The water-land dichotomy represented by the rival teams in the Kashaya gambling myth is suggestive of the totemic moieties described by Kroeber (1976) for the Miwok and other California tribes to the south, although the Pomo territory is not included in the totemic area of California. The Miwok moieties divide nature into a water half and a land half. Yokuts myths commonly pit animals from opposite moieties against one another in competitions (for the Yokuts, Kroeber notes that the moiety names are similar but oddly opposite: "upstream" corresponds to the Miwok water half, and "downstream" to the land half). Generally, the downstream animal wins. In the Kashaya gambling myth, the coast creatures win the game, contra the Yokuts predilection. Consistent with their mythical representations, the Southern Valley Yokuts often competed against members of the opposite moiety in games (Wallace, 1978b).

The symbolism of the opposition between the coast creatures and the forest creatures in the Kashaya gambling myth can also be characterized in terms of the relationship of these creatures to the food supply. The members of the coastal team are the abalone, the turban snail, the large and small chiton, the sea anemone, and the mussel. All of the coast creatures constitute seafood sources for the Kashaya. The importance of the coastal food sources is evident from passages in Kashaya Texts. The coast creatures are named in the creation myth when Coyote puts food into the ocean for people to eat (see Kashaya Text #1). Moreover, the Kashaya practice of preserving seafood in the coastal cliffs is credited with keeping people from starving in the winter months (Kashaya Text #70).

The members of the forest team are the crow, the Stellar jay,⁶ the chipmunk, the skunk, and the bear. These are all creatures who compete with the Kashaya for food sources such as insects, grubs, acorns, seeds, and berries.⁷ In the gambling myth competition of the coast creatures against the forest

creatures, it is the coast creatures who win, suggesting that the coastal food sources prevail over the various demands on the local food supply. Taken with the information above from Kashaya Text #70, this point is especially salient given that this myth was traditionally told only in winter.

Poetic and rhetorical structure

In this section I discuss the nature of poetic organization and the components of rhetorical structure in the Kashaya gambling text. In his examination of the Native American verbal art of the North Pacific Coast, D. Hymes (1981) reports a systematic covariation along the dimensions of form and meaning that structures narratives in terms of numerically constrained lines and verses as well as larger units of discourse. The type of measured verse organization described by Hymes is not readily apparent in the gambling text, but a formal structuring principle is clear.⁸ The gambling text is organized in a series of parallel verses, one for each player, in a formal organizational trope which might be termed the poetics of the discourse. A number of narrative devices identify the verses as a distinct but parallel units of discourse. Each verse has uniform event structure, begins with sentence-initial particles, ends in a falling terminal contour, and establishes the player, the focal character of the verse, with specially-marked nominal reference. The recurrent verses establish an expected structure that is then manipulated by rhetorical devices to convey the drama and the point of the narrative.

My analysis will focus on the major portion of the text, the parallel verses depicting alternating turns of the gambling game, which reflect the poetic structure of the discourse. The overall pattern of each verse is uniform except for the identity of the player (and therefore the player's song). At the beginning of each verse, the current player is introduced with explicit reference: a nominal followed by the clitic /yac/ (realized as =ya?) which serves to identify the referent as the main character in the verse. Next, the player's song is introduced and sung. In some cases, E.P. states that she cannot remember the song, but offers a qualitative assessment (e.g. it was pretty, it was good).⁹ Then there is often a description of the atmosphere of the game at that point, where the current team is described as laughing and yelling, thinking they are going to win. The verse ends when the opposing team guesses correctly so the turn of play switches to the other side.

The distribution of discourse markers reinforces the verse structure of the text. Hymes (1981) shows that verse division in Chinookan narrative is based on sentence-initial particles which are translatable in English as 'and', 'so', 'then', and the like. Each of the gambling verses in the Kashaya text also begins with sentence-initial particles, typically ma?u?ul 'this now', or ma?u?ul bet 'this now next', and sometimes ma?u?dom 'this it is said'. The

recapitulation clause *mens'ili* 'having done so' introduces the verses for Stellar jay and Skunk (verses 7 and 10, respectively). This use of recapitulation clauses will be discussed below.

Prosodic information also contributes to the verse organization of the gambling text. Oswald's phonemic transcription of the text includes broad intonational contours, especially when they coincide with complete syntactic information. The intonational markings show that the end of each gambling verse coincides with a falling terminal contour occurring on the word which brings each verse to an end, *hco?* 'guess'. By contrast, the lines within verses are characterized by either level or rising terminal contours, contributing to the continuity within the discourse unit.

In the first line of each gambling verse the player is established with nominal reference plus the clitic */yac/*. */yac/* often appears in connection with animal names in Kashaya coyote stories as an agency marker which anthropomorphizes the non-human noun to which it attaches (Hall, 1990). Its presence seems to enhance the prominence of the character it is associated with in a given discourse unit (in the case of the gambling text, the unit is the verse; in other texts, the unit can be larger).

Coincidentally, Virginia Hymes (1987) notes the use of *-ya* as a characteristic of Warm Springs Sahaptin narratives, although this language is not demonstrably related to the Pomoan languages. This special suffix occurs on animal names when they are myth characters:

For example, *xuxux* is the ordinary word for raven, an ordinary raven you might see flying around. *Xuxuxya* is Raven, the myth character. This feature makes possible a very subtle narrative device, found in [the myth under discussion]. When Raven flies off, deserting her disobedient children, she flies as *xuxux*, having dropped her *-ya* suffix along with her maternal responsibilities (1987:79)

The use of */yac/* as a personifier in Kashaya myths appears to be more complex since it is not predictable when it will occur with an animal name and when it won't. Moreover, */yac/* not limited to the names of animal myth characters (cf. lines 1h, 12e, 13b, in which */yac/* functions as an agentive nominalizer). Hall (1990) provides a detailed discussion of the general uses of this clitic. However, the relationship of */yac/* to character prominence in Kashaya discourse has not been well-described and further research is necessary for adequate characterization. 11

The predictability of the structure established by the recurrent parallel verses is reflected in variations of the forms of reference that occur throughout the text. Abalone is the first player in the game, and this verse (lines 4a-4f) serves to set the pattern for those that follow by using more explicit language. The third-person singular masculine possessive pronoun is used in the phrase muukin[?]k^{he} q'o[?]o 'his song', in contrast to the use of a deictic form mu[?]cay[?]yaco[?]k^{he} q'o[?]o 'that person's song' thereafter. In addition, Abalone's gambling song is introduced specifically as his ?ahqa q'o[?]o 'game song', while in all other verses the player's gambling song is referred to simply as q'o[?]o 'song' without the modifier ?ahqa 'game'. In the last line, an opposing player who guesses Abalone is referred to as we[?]ée tow=em[?]cay[?]ya[?] 'the one over on the other side', while in the following verses this reference is usually null (e.g. 5g, 6f, 7d, etc.; 12f is an extreme case of elliptical reference in which both arguments of the verb 'guess' are omitted). Thus the introductory game verse clearly establishes the important referents with explicit forms while subsequent verses use less explicit forms.

Switch-reference markers play a role in discourse organization. Switch-reference suffixes are a form of referential tracking in Kashaya. The verbal morphology in the switch-reference marked clause indicates whether its subject has the same or different reference as that of the linked clause.¹² In the gambling text, the SS (same subject) marker occurs frequently within verses, keeping the narrative focus on the current player and the player's team. For example, in Small Chiton's verse (11a - 11d), Small Chiton is established as the player in the expected fashion, by a nominal marked with /yac/ in the first line. In the next two lines E.P. comments that she cannot remember his song, but it was a good one, introducing new referential material into the discourse: herself in 11b, with the first-person singular subject pronoun ?a, and the song in 11c, marked as the subject with the definite subject marker: q'o[?]o q'o[?]di =[?]em. The subject of 11d is Small Chiton again, but the SS marker is used, continuing the reference from 11a in spite of the intervening referential material.¹³ This use of the SS switch-reference marker goes beyond the local level of clause-linking and makes sense in a broader discourse context as a means of enhancing the continuity of the main narrative events, effectively skipping over the metanarrative commentary. In addition, the pattern of events has been well-established by the recurrent parallel verses, so Small Chiton is the predictable agent of the verb gamáadu 'played' at this point in the action.

In contrast to the frequent use of the SS marker within verses, the DS (different subject) marker rarely appears. It might be expected in the last line of each verse to emphasize a shift in action when the other team guesses the current player. The DS marker serves this purpose in the first gambling verse

(4f). Subsequently, however, the last line of each verse generally lacks overt reference to the other team, while a pronominal form marked for objective case is used for the current player (e.g. 5g, 6f, 7d), suggestive of the passive voice in English: 'He was guessed.' This referential strategy retains the current player as the focal character within the verse.

The DS marker appears twice at the beginning of a verse (verses 7 and 12) in the form of the recapitulation clause mens'ili (<thus-do-DS.ANT) 'having done so'. Recapitulation clauses are a common narrative device in Kashaya for connecting a series of events. Their verse-initial use for the fourth and the eight players in the game is a subtle narrative strategy that underscores the alternating focus of action between the opposing teams.

The rhetorical structure of the text can be seen as a linear progression of interpretation that builds on top of the established poetic structure. Woodbury (personal communication) notes the ironic juxtaposition of the sequences of animal gamblers from each team which contributes to the rhetorical structure of this text. The coast creatures begin the game with their most splendid member (the abalone), and the large chiton precedes the small chiton, but it is the most humble one (the mussel) who wins in the end. In contrast, the forest creatures progress from the least formidable players (the birds; the uncolored one precedes the more colorful one), to the harmless chipmunk, to the skunk, a classic varmint, finally to the most dangerous, the bear. The moral then is that humility wins, a poignant lesson in the context of the extermination of California cultures.

The last verses of the text deviate from the established structure in order to emphasize the special characteristics of the player. Sea Anemone's verse (13a-13e) stands out because E.P. stresses that Sea Anemone has been traditionally represented as a woman in the telling of this myth. The third-person singular pronouns are marked for gender in Kashaya.¹⁴ Reference to Sea Anemone in lines 13c and 13e occurs in the form of the third-person singular feminine pronoun, which emphasizes gender, rather than the more typical zero reference used for the main character of other verses. With respect to the hand game, one particular that varied across cultures was whether or not women played the game. In most cultures where gambling is recorded, some form of gambling is noted for women but in many cases the gambling games for men and women were different. If men and women took part in the same game, they often played on separate teams (Culin, 1992). Sea Anemone's verse in the gambling myth preserves the cultural information that Kashaya women also took part in the hand game, and that they played alongside the men.

Bear plays in the penultimate verse (14a - 14e), which breaks away from the expected verse structure with the added line 'That bear had been claiming that he was an expert gambler.' This extra line enhances the suspense of the

narrative by building up the expectation that the powerful bear will win. In the end, however, Bear is guessed, and Mussel goes on to win the game.

Based on the above discussion of poetic and rhetorical structure of the text and taking the available intonational contour markings into account, the textual representation of the gambling verses of the first two players (verses 4 and 5) could be reorganized as follows:

4. Verse: Abalone plays

maʔu ʔul duʔk'áʃyaʔ waa ʃokoolaw˘

mens'iba ʔul˘

qamaalaw˘

maʔú ʔdom˘

muukinʔ kʰe t'ɔ q'oʔo ʔahqa q'óʔo˘

ʔaqʰa yoo dúuk'áʃq'at.a

ʔaqʰa yoo dúukuykuma

nihcedú ʔdom muukínkʰe t'ɔ q'oʔo˘

maʔu ʔul mens'ilír

weʔée tow em ʔcayʔ yaʔ ^

coʔ ^

5. Episode: Crow plays

maʔu ʔúl bet' qʰaʔáayaʔ qamaalaw˘

mulidom ʔul bac'ow˘

maʔú ʔdom muʔcay ʔyacoʔkʰe t'ɔ q'oʔo˘

ʔa too s'úwaa pʰimiiyalii

keyoo kéyoo maneewelaa

nihcedun qamáadu

maʔu ʔul˘

chuwáyʔ baʔt'an˘

bic'úlman˘

q'oʔdi t'ác'qaa mihyác' kʰe t'awíc'qac'in˘

mulidom ʔul muʔcayʔyacol pʰala hcoʔ ^

This preliminary analysis of the gambling text reveals some of the broader patterns of organization and narrative strategies employed in Kashaya discourse which reflect the cultural orientation and verbal artistry of the oral performance. Access to more complete prosodic information would allow for the examination of the rhetorical function of intonational phenomena and provide additional guidelines for the restructuring of the textual representation of oral narrative. The analysis of pitch, pause phrasing, speed of delivery, and other prosodic elements would undoubtedly contribute to a richer understanding of this narrative and Kashaya oral performance in general. Finally, I hope that this paper contributes to a deeper understanding and appreciation of the text and the culture which created it.

NOTES

- 1 I would like to thank Robert Oswalt, Joel Sherzer, Buck Van Winkle, and Anthony C. Woodbury for discussion and comments on previous versions of this paper. Any errors of fact or interpretation that remain are solely my responsibility.
- 2 The Pomo often associated death with the breaking of a taboo. See B. W. Aginsky (1976) for discussion of the socio-psychological significance of death among the Pomo.
- 3 Among the Pomo it is taboo to mention the names of the deceased. This results in references to individuals which can at times be rather elaborate. See also O'Connor (1990) for a discussion of circumlocutory reference in Northern Pomo conversation.
- 4 Herman James was Oswalt's other main language consultant.
- 5 This interpretation was first suggested to me by A. C. Woodbury.
- 6 This is probably Steller's Jay, but Oswalt identifies the bird as Stellar Jay.
- 7 McLendon (1977b) has characterized the animals who figure prominently in Eastern Pomo mythology as the larger mammal predators, birds of prey and scavengers who compete with the Eastern Pomo for nonvegetable food sources such as insects, grubs, fish, small mammals and deer. McLendon concludes that

"the Eastern Pomo liked to talk about animals who were predators like themselves, who found their food in the same places as the Eastern Pomo, with whom the Eastern Pomo had to share their food supply, and whom the Eastern Pomo sometimes used in order to identify the location of a food supply" (1977:167).

8 Four is the ritual number for the Pomo, representative of the four directions, or four winds, which is sometimes augmented to six (Kroeber, 1976). Some of the gambling songs seem to be phrased in fours, but the pattern is not striking or consistent. Numerically-constrained patterns of lines and verses figure more prominently in ritual speech, where groups of four consistently recur in ceremonial prayers and songs (see Kashaya Text #80 and #81).

9 E.P. does not give the songs for the Stellar Jay, the small chiton, the sea anemone (the female player), and the mussel (the winning player). In light of the issues discussed above dealing with taboo and privacy in connection with coyote stories and traditional information in general, it is possible that (some of) these players have a special significance within the culture or to E.P. personally which prohibits the disclosure of their gambling songs to outsiders or under the unusual circumstances of the recording.

10 /yac/ is omitted for Chipmunk in verse 10.

11 The =ya[?] marker has been reported with varying descriptions for other Pomoan languages. Oswald (1978) notes that in several Pomo languages it is used to characterize a group or tribe, as in the word kashaya. Mithun (1990) identifies =ya as a topic marker in the related language of Central Pomo, although she does not elaborate on its use. O'Connor (1990) categorizes =ya[?] as an enclitic pronoun marking animacy as well as case in connection with demonstrative pronouns in Northern Pomo.

12 In Kashaya, the switch-reference suffixes encode temporal and logical information in addition to referential information.

13 Kashaya switch-reference markers are sensitive to agency rather than subjecthood (Oswald 1983; Gamon 1990), so for this reason q'o'ʔo q'o'ʔdi =ʔem 'the song' would not trigger the use of a switch-reference marker.

14 Kroeber (1976:256) remarks that the gender-marking in Pomo is unusual for California languages and attempts to link it to a heightened gender awareness in the culture by claiming that the status of Pomo women is one of

"greater social equality" than is usual among northwestern tribes, citing evidence such as the suggestion of matrilineal descent, women chiefs, and membership of women in the secret society.

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APPENDIX 1

Kashaya Text #17: The Coast Creatures gamble against the Forest Creatures
(Told by Essie Parrish, June 1958)

Note that all of the gambling songs can be repeated indefinitely. The square brackets are Oswalt's annotations. The square brackets by the songs enclose the normal spoken Kashaya for the altered form in the song.

1. Introductory comments

- a) ?aca? t'ilekin iyowa-m ta[~] duwi dic'-iid-uceed-u[~]
man old former-S RSP coyote tell-DUR-DFN-ABS
'There was one old man who used to tell Coyote stories.'
- b) mu?nati ?yowa-m mu[~] yuhu mé? t'o dic'-iid-u daqa-ac'ed-ú=^hin[~] me?[~]
however former-S VG.S summer time CTR tell-DUR-ABS like-DUR.pl-ABS =NEG time
'However, he never did like to tell them in summer time'
- q^hos'a ?yowá-m[~] dic'-iiduwáad-u daqa-ac'ed-ú[~]
winter former-S tell-HAB-ABS like-DUR.pl-ABS
'but rather he preferred to tell them in the winter.'
- c) ya-l nat,a=yya q^hadi-t-ii-c'ed-u dic'-iiduwa-?ti[~]
1pl-O child=pl call-PLACT-DUR-DFN.pl-ABS tell-DUR-INT
'He used to call us children in order to tell the stories;'
- d) ?ahca qawi tii ?ii=li mii yá-l q^ha?di-yii-c'ed-u[~]
house little RFL.sg.S be=at thereNV 1pl-O call-DUR.pl-DFN.pl-ABS
'(he) used to call us to the little house where he lived.'
- e) men-s'i-wem ya mii p^hima-yi-? fo-ti[~]
thus-do-DS.S/A 1pl.S thereV go.pl-DUR.pl-ABS hear-INT
'When (he) did so, we went in to listen.'
- f) mu?nati ?yowa-m mu[~] kookó ?ce-?do qalii cáa=too[~] duwi dic'-iid-u[~]
however former-S VG.S taboo say-QUOT up sit=from coyote tell-DUR-ABS
'But they say that it is dangerous to relate Coyote stories while sitting up.'
- g) "bat,ic'-k^he ?ée maya t'ii" nihc-ed-un[~] tii t'o cahti=yoo mit,-ic-iid-u[~]
recline.pl-FUT be 2pl.S all say-DUR-SS.S/A RFL.sg.S CTR sitting=from lie-SMF-DUR-ABS
'"You will all lie down," (he) would say to us, lying down himself.'
- h) mens'in ku má?yul mit,-ic-iid-u[~] wac-tid-u=ya? ^
and one only lie-SMF-DUR-ABS main-DUR-ABS=AGNOM.S
'And only one, the main one, lay down [with him, i.e., his favorite].'

i) mens'in ?ul ~ dic'-iiduwáadu-ceed-u~ ma?u ?a duwi díic'-i?ti?d-a-m mu=?em~
and then tell-HAB-DFN-ABS this 1sg.S coyote tell-INT-NOM-S VG.S=DEF.S

?ahqá hqama-? ^
game gamble-ABS

'Then he used to tell this Coyote story that I am about to tell ~ about gambling.'

2. Introduction of players

a) q^ha+tów ?bak^he=?em=maaca?^ mens'in kulu bák^he jí?bafí=?em
water+side of=DEF.S=3pl.S and wilderness of animals=DEF.S

mu qáma-c'-mu?-ti?c'-a-m ~
VG.S gamble-SMF.pl-RCP-INT-NOM-S

'The coastal creatures and the forest creatures were the ones who were going to compete with each other.'

b) ma?u=?em ~ du?k'af' ma?u=?em s'uq^haa ~
this =DEF.S abalone thisS=DEF.S turban.snail
'There was the abalone, there was the turban snail.'

ma?u=?em ?imuu ~ qat'ee ~ sihmu? ^ mens'in no?q'o ~
this S=DEF.S large.chiton small.chiton sea.anemone and mussel
'there was the large chiton, the small chiton, the sea anemone, and the mussel.'

c) me? ma?u=?em kulu bák^he jí?bafí=?em mu ~
and thisS=DEF.S wilderness of animals=DEF.S VG.S
'And the creatures from the forest were'

q^ha?ay~ hee~ fawala~ mens'in~ ba?s'im?si~ hee nup^hee~ mens'in butaqa~
crow and stellar.jay and chipmunk and skunk and bear
'the crow, and the Steller jay, and the chipmunk, and the skunk, and the bear.'

c) mu=?em maaca?^ qama-c'-muc'-k^he yac^hma ~
VgS =DEF.S 3pl.S gamble-SMF.pl-RCP -FUT people
'Those are the ones who were going to play together.'

3. The game begins

a) mu-l-idom ~a?u~ kulu bák^he jí?bafí=?el maaca?^ ?ul c^hímita-? ^
VG-O-QUOT this.S forest of animals=DEF.O 3pl.S then plan-ABS
'Now the forest creatures were making plans.'

b) "mii ya q^hat.haa=wi p^hil-ala-p^hi ya maaca-l beeli
thereNV 1pl.S beach=at go.pl-down-SS.F/C 1pl.S 3pl-O hereV

q^hád-alooqo-te? ?ahqá hqama-c'-mu?-ti~ nihc-ed-u~
call-up.hither-PRFINT game gamble-SMF.pl-RCP-INT say-DUR-ABS

c) maʔú ʔdom mu=ʔcay ʔ=yacoʔ-k^he t'o q'oʔo[~]
 thisS QUOT VG.S=person=AGNOM.OBL-OBL CTR song
 'This is the song of that one.'

d) ʔa too s'úwaa p^himiyalii [ʔa to s'uwaa cadu-maʔ-li]
 1sg.S 1sg.O shoulder look-over-DS.ANT
 keyoo kéyoo manewelaa [keʔye kéʔyee manewel-a]
 bob bob-NFV dance-ABS
 'When I look back over my shoulder
 Bobbing, bobbing, I dance.'

e) nihc-ed-un qamá-ad-u
 say-DUR-SS.S/A play-DUR-ABS
 '(he) sang while playing.'

f) maʔu ʔul⁻ c^huwáy? baʔt'a-n⁻ bic'úlma-n⁻ q'oʔdi t'ác'qa-a mihiyác-k^he t'awíc'qac'-in⁻
 thisS then laugh sound-SS.S/A yell-SS.S/A good feel-NFV win.pl-FUT think.pl-SS.S/A
 'They were all laughing and shouting, feeling good, thinking they were going to win.'

g) mu-l-ídom ʔul mu=ʔcay ʔ=yacol p^hala hco-ʔ[^]
 VG-O-QUOT then VG.S=person=AGNOM.O also guess-ABS
 'But [the opponents] guessed him correctly too.'

6. Verse: Turban Snail plays

a) maʔu ʔúl bet' s'uq^haa=yáʔ qama-ala-w⁻
 thisS then next turban.snail=AG.S play-INCH-ABS
 'Next it was the turban snail's turn to play'

b) meʔ mu=ʔcay ʔ=yacoʔ-k^he t'o ʔdom q'oʔo⁻ q'oʔdi=t^hin⁻
 but VG.S=person=AGNOM.OBL CTR QUOT song good=NEG
 'but his song was not good;'

c) sóh mu t'o⁻ q'oʔo baʔt'á-w =ʔt^hin⁻
 just VG.S CTR song sound-ABS =NEG
 'it didn't even sound like a song'

d) series of smacks

e) nihc-ed-un qamá-ad-u⁻
 say-DUR-SS.S/A play-DUR-ABS
 '(he) was making while playing.'

f) series of smacks

g) nihc-ed-un qamá-ad-u⁻
 say-DUR-SS.S/A play-DUR-ABS
 '(he) was making while playing.'

f) mu-l-idom ?ul mu-l p^hala hco-? ^
 VG-O-QUOT then VG-O also guess-ABS
 'Then (they) guessed him too.'

7. Verse: Stellar Jay plays

a) men-s'ii-li we?ée tow =em =?cay ?=ya? ?ul ma?u ~
 thus-do-DS.ANT far side=DEF.S=person=AGNOM.S then thisS

qamá-alaá bet' ~ s'awala=yá? qama-ala-w ~
 play-INCH-NFV next steller.jay=AG.S play-INCH-ABS
 'The person on the other side started to play next- the Steller jay started to play.'

b) mu?natí =?em to mu =?cay ?=yaco?-k^he q'o?o t'ó du?yáqa-ad-u =t^hin ~
 however=DEF.S 1sg.O VG.S=person=AGNOM-OBL song CTR remember-DUR-ABS =NEG

q'o?o c'íjkan =em mu ~
 song pretty =DEF.S VG.S
 'But I don't remember the song of that person~it was a pretty song.'

c) mu-l ?ul men qama-ad-u ma?u ?iq^hadic'qac-in ~ bic'ulma-n chuway? ba?t'a-w ~
 VG-O then thus play-DUR-ABS thisS happy-SS.S/A yell-SS.S/A laugh sound-ABS
 'Then (he) was playing, feeling happy, shouting, laughing.'

d) ma?u muuki-to p^hala ?úl hco-? ^
 thisS 3sg-O also then guess-ABS
 '(They) guessed him too.'

8. Verse: Large Chiton plays

a) ma?u ?ul we?ée tow =em ?ul ma?u ~ ?imuu =yá? qama-ala-w ~
 thisS then far side =DEF.S then thisS large.chiton=AG.S play-INCH-ABS
 'And now on the other side, the large chiton began to play.'

b) ma?u =?ém mu =?cay ?=yaco?-k^hée t'ó q'o?o ~
 thisS =DEF.S VG.S=person=AGNOM-OBL CTR song
 'This is that one's song.'

c) ?imu té woloolo [?imuu hiy=em?=ya?] large.chiton=DEF.S=AG.S
 qat'e cii-yata-? [qat'e ciyata?] small.chiton crawl-DUR.pl-ABS
 'The large chiton is the lord
 Of the small chitons crawling around.'

d) mu-l mi-céedu-n qamá-ad-u ^
 VG-O say-SS.S/A play-DUR-ABS
 '(he) said while playing.'

e) mu-l p^hala men c^huway? ba?t'a-n⁻ q'o?di t'ác'qa-w⁻ mihyác^hmu?-ti⁻
 VG-O also thus laugh sound-SS.S/A good feel-ABS win-INT
 'Like before (they) were laughing and feeling good, intending to beat [the opponents].'

f) men-s'ii-li ?ul⁻ hco-?^ mu p^hala⁻
 thus-do-DS.ANT then guess-ABS VG.S also
 'Then they guessed (him) too.'

9. Verse: Metanarrative Interlude to describe game

a) ma?u=?ém mu ma?a-l to díic'i?-ti fu?umqam⁻
 thisS=DEF.S VG.S 3pl-O 1sg.O take-INT
 'Someone holds the bones.'

b) ?ihyaa=?ém mu bi-?di-m-?- ku k'íli ?-in ku qahle ^
 bone=DEF.S VG.S by.encircling-hold-Over-ABS one black be-SS.S/A one white
 'one black and one white, [hidden one in each hand].'

c) mu-l hóotoo dima-w =ei mu-l⁻ coqóod-e-m =ém mu⁻ qahlé hco-? ^
 VG-O front hold-ABS =DEF.O VG-O guess-Nom-S=DEF.S VgS white guess-ABS
 '[The opponent tries to] guess which one is held out in front.'

d) mens'in=em mu⁻ ?ahaa naaq^ho=?ém mu hqama-? =lii⁻
 and=DEF.S VG.S stick twelve=DEF.S VG.S gamble-ABS =with
 'There are twelve sticks to gamble with [to keep score].'

10. Verse: Chipmunk plays

a) ma?u ?úl bet' ba?s'im?s'i qama-ala-w⁻
 this.S then next chipmunk play-INCH-ABS
 'The chipmunk started to play next.'

b) ma?ú ?dom mu=?cay ? =yaco?-k^he t'o q'o?o⁻
 thisS QUOT VG.S=person=AGNOM-OBL CTR song
 'This is the song of that one.'

c) baalooloo wac^hmela [ba?loba?lo-n waadela]
 chatter-FRQ-SS.S/A around
 ?ama kule s'iita [?ama kule s'ihta]
 thing mischievous creature
 'I am chattering around
 Mischievous little creature.'

d) nihc-ed-un qamá-ad-u⁻
 say-DUR-SS.S/A play-DUR-ABS
 '(he) said while playing.'

e) kumf?da? mu t'o c^huway? ba?t'a-n bic'ulma-w⁻ mihyac'-k^he t'awic'qac'-in⁻

always VG.S CTR laugh sound-SS.S/A yell-ABS win.pl-FUT think.pl-SS.S/A
 'They were laughing and yelling continuously, thinking that they were going to win.'

f) mu-l-idom mu-l p^halá ?ul co-? -
 VG-O-QUOT VG-O also then guess-ABS
 '(They) guessed him too.'

11. Verse: Small Chiton plays

a) ma[?]ú ?dom bet' ?ul ~ qat 'ee=yá? qama-ala-w ~
 thisS QUOT next then small.chiton=AG.S play-INCH-ABS
 'Next it was the small chiton's turn to start to gamble.'

b) mu[?]nati =?em ?a mu=?cay ?=yaco?-k^he q'o[?]o t'o dúuci? =t^hin ^
 however=DEF.S 1sg.S VG.S=person=AGNOM-OBL song CTR know =NEG
 'However I don't know his song.'

c) mu[?]nati mu p^hala q'o[?]o q'o[?]di =?em ~
 however VG.S also song good=DEF.S
 'But it was a good song too.'

d) men qamá-ad-u cahno-n qamá-ad-u ~
 thus play-DUR-ABS sing-SS.S/A play-DUR-ABS
 '(He) played - while singing he played.'

e) ma[?]u ?ul muukito p^hala hco? ^
 thisS then 3sg.O also guess-ABS
 'Then (they) guessed him too.'

12. Verse: Skunk plays

a) men-s'ii-li bet' nup^hee =yá? qama-ala-w ~
 thus-do-DS.ANT next skunk =AG.S play-INCH-ABS
 'The skunk started to play next.'

b) ma[?]ú ?dom mu=?cay ?=yaco?-k^he t'o q'o[?]o ~
 thisS QUOT VG.S=person=AGNOM-OBL CTR song
 'This is his song.'

c) nup^hee coololwa coololwa coololwa
 [nup^hee co[?]lo-?lo-waad-u co[?]lo[?]lowaadu co[?]lc[?]lowaadu]
 skunk tail.up-ITR-DUR-ABS
 'Skunk goes around with his tail in the air'

d) nihc-ed-un qama-ad-u ~
 say-DUR-SS-S/A play-DUR-ABS
 '(he) said while playing.'

e) men-s'i-wem mu t'o q'o[?]di t'ac'qa-n bic'ulmá-n c^huway? ba[?]t'a-w ~
 thus-do-DS.S/A VG.S CTR good feel-SS.S/A yell-SS.S/A laugh sound-ABS

miyáak'a? =ya? ^
 his.friends =AGNOM
 'While he was singing, they were feeling good--his friends--shouting and laughing.'

f) mu-l-idom men p^hala p^hi?t'an hco-? ^
 VG-O-QUOT thus again before guess-ABS
 But, as before, they guessed him.

13. Verse: Sea Anemone plays

a) ma?ú ?dom ?ul bet' - sihmú =ya? qama-ala-w ^
 thisS QUOT then next sea.anemone=AG.S play-INCH-ABS
 'Now the sea anemone started to play.'

b) mu ?dóm mu t'o ?imaata~ muliyowam mu duwi díci-iiid-u=ya? ^
 VG.S QUOT VG.S CTR woman PRSEXP VG.S coyote tell-DUR-ABS-AGNOM.S

micé-ed-uceed-u mu-l ?imaata níhc-ed-uuced-u ^
 say-DUR-DFN-ABS VG-O woman say-DUR-DFN-ABS
 'The one who used to tell this story, used to say that that one was a woman.'

c) ma?u ?úl man? p^hala hqama-ad-u ^
 thisS then 3sg.F.S again play-DUR-ABS
 'She also played.'

d) men q'o?o c'ískan ?q'o =?em mu mu?nati to du?yaaqá?-t^h-e-m ^
 thus song pretty song=DEF.S VG.S however 1sg.S remember-NEG-NOM-S
 'She had a pretty song but I don't remember it.'

e) ma?u qama-ad-u men~ mu-l maadá-l p^hala hco-? ^
 this.S play-DUR-ABS thus VG-O 3sg.F-O also guess-ABS
 She played as the others had and they guessed her too.

14. Verse: Bear plays

a) ma?u ?úl but.aqá =?em=?cay? =ya? qama-ala-?k^he
 this.S then bear=DEF.S=person=AG.S play-INCH-FUT
 'Now the bear is going to start to play.'

b) mu but.aqá =?em mu ?dom mu ?ahqa jáa ji-yiic'-ed-u ^
 VG.S bear=DEF.S VG.S QUOT VG.S game expert do-INC-DUR-ABS
 'That bear had been claiming that he was an expert gambler.'

c) ma?u ?úl qama-ala-w~ ?ul c^huwáy? ba?t'a-n q'o?di t'ác'qaa mihyáa-ti ^
 this.S then play-INCH-ABS then laugh sound-SS.S/A good feel win-INT
 'Now (he) started to play while (they) were laughing and shouting, expecting to win.'

d) ba^hk^hoo yoo c^halac^hala tihham? [bak^ho y c^hala-c^halaa tihham?]

manzanita under swoosh-swoosh grunt
'Under a manzanita, swoosh, swoosh, grunt.'

e) nihc-ed-un qamá-ad-u.
say-DUR-SS-S/A play-DUR-ABS
'(he) was saying while playing.'

e) mu-l phit'an phala hco-? ^
VG-O unexpectedly again guess-ABS
'(They.) unexpectedly, guessed him too.'

15. Verse: Mussel plays

a) ma?u ?ul bet' no?q'o=ya? qama-ala-?khe- mihyác'-khe=ya? ^
this.S then next mussel=AG play-INCH-FUT win-FUT=AGNOM.S
'The next to play is the mussel - the one that is going to win.'

b) mu?nati?ée to mu=?cay?-yaco?-khe q'o?o du?yaqá-ad-u =t^hin -
however be.NFV 1sg.O VG.S=person=AGNOM-OBL song remember-DUR-ABS =NEG
'But I have forgotten the song of that one.'

c) ma?u ?ul men qama-ad-u[~] men qama-ad-u cahno-n qama-ad-u[~]
thisS then thus play-DUR-ABS thus play-DUR-ABS sing-SS.S/A play-DUR-ABS
'(He) played and played, singing while playing.'

d) phit'an t'ii ?anáa bat,hee ?ahaa bi?di-? ^
unexpectedly everyone very most stick pick.up-ABS
'Unexpectedly, (he) got more sticks than anyone.'

e) men-s'ii-li hco-? ^ mu?nati ?ul mu t'o ?ahaa bat,hee bi?di-? ^
thus-do-DS.ANT guess-ABS however then VG.S CTR stick most pick.up-ABS
'Then they guessed him, but he already had most of the sticks.'

16. Ending

a) mu =?em mé-?-p^hi ^
VG.S =DEF.S time-be-SS.F/C
'That is all.'

APPENDIX 2

Abbreviations

1	1st person
2	2nd person
3	3rd person
ABS	Absolutive
AG	Agentive
AGNOM	Agentive Nominalizer

CAUS	Causative
CIR	Circumstantial Evidential
COND	Conditional
CTR	Contrast
DEF	Definite
DFN	Defunctive
DST	Distributive
DS.ANT	Different subject Anterior: Past, Present "After"
DS.S/A	Different subject Simultaneous/Alternating "While/When"
DUR	Durative
F	Feminine
FRQ	Frequentative (Stem reduplication)
FUT	Future
HAB	Habitual
INC	Inceptive
INCH	Inchoative
INF	Inferential
INT	General Intentive/Near Future
INTR	Interjection
INTS	Intensifier
ITR	Iterative (Root reduplication)
M	Masculine
NEG	Negation
NOM	Nominalizer
NV	Not visible
NFV	Non-final verb
O	Objective case
OBL	Oblique
pl	Plural
PRFINT	Performative Intentive
PRSEXP	Personal Experience Evidential
Q	Question: Interrogative Particle
QUOT	Quotative Evidential "it is said"
RCP	Reciprocal
RFL	Reflexive
RSP	Responsive
S	Subjective case
SEM	Semelfactive
sg	Singular
SS.ANT	Same subject Anterior: "After"
SS.CE	Same subject Counter-Expectation "Although"
SS.F/C	Same subject Future-Conditional "When/If"
SS.S/A	Same subject Simultaneous/Alternating "While/When"
V	Visible
VB	Verbalizer
VG	Vague pronominal reference: that, these, those, it, he, they
VIS	Visual Evidential

Phonemes

This is the Kashaya phonemic inventory given by Oswald (1964:viii). Although Buckley (1992) describes a somewhat different inventory (he adds glottalized

sonorants motivated by a reanalysis of phonological processes), I use Oswald's original inventory since it corresponds to the transcriptions in Kashaya Texts.

Consonants

	Labial	Postdental	Alveolar	Palatal	Velar	Postvelar	Laryngeal
Plain stops	p	t	t.	c	k	q	ʔ
Asp stops	p ^h	t ^h	t. ^h	ch	kh	q ^h	
Glott stops	p'	t'	t.'	c'	k'	q'	
Vcd stops	b		d				
Nasals	m		n				
Semivowels	w			y			
Laterals			l, (r)				
Spirants	(f)		s	ʃ			
Glott Affricates			s'				h

<r> and <f> occur only in loans from European languages

Vowels

	Front Unrounded	Central	Back Rounded
High	i		u
Mid	e		o
Low		a	

All vowels are contrastive for length, transcribed as consecutive identical vowels.

Prosodic phonemes

/ /	Raised tone	
/' ' /	Heightened contrast	
/^ /	Falling intonation	characteristic of declarative sentence endings
/ˆ /	Rising intonation	characteristic of interrogative or responsive utterance endings
/- /	Level intonation	characteristic of a pause or hesitation

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