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## JUMJUM PHONOLOGY\*

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This article describes the basic aspects of the phonology of Jumjum, a little-known Western Nilotic language. The treatment includes syllable structure and word shapes, vowels and vowel harmony, consonants and consonant assimilation, and tones and tonal processes.

### 1. Introduction

Jumjum is a little-described Western Nilotic language spoken in the southern part of Blue Nile Province in Sudan. It belongs to the group of languages which Evans-Pritchard (1932) called Southern Burun, and which also includes Mabaan and Ulu. In Köhler's (1955) internal subgrouping of the Western Nilotic languages, Southern Burun and the neighbouring Northern Burun languages constitute one of three branches of Western Nilotic, the two other branches being Dinka-Nuer and the Luo languages. There are no previously published studies of Jumjum, except for two short word lists in Evans-Pritchard (1932: 28-31) and Bender (1971: 268).<sup>1</sup>

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\* The data on which this article is based were collected during two trips to Khartoum in 2002 and 2004. I wish to thank the Carlsberg Foundation for grants for the fieldwork and my Jumjum informants Juzuli Fadol Lago, Ramadan Makin Bashir and Yusif Juzuli for their assistance. I also wish to thank an anonymous referee and the editor for helpful comments on an earlier version of the article.

<sup>1</sup> However, at the 9th Nilo-Saharan Linguistics Colloquium, Institute of African and Asian Studies, University of Khartoum, 16-19 February 2004, Abeer Mohamed Ali Beshir presented a paper on Jumjum, "Morphophonemic alternations in Jumjum number formation", based on her recent master's thesis.

The present article describes the basic aspects of the phonology of Jumjum.<sup>2</sup> Section 2 deals with syllable structure and segmental word shapes. Section 3 describes the vowel system and accounts for the distribution of the vowels in terms of three types of harmony: [ATR] harmony, rounding harmony, and total harmony. Section 4 describes the inventory and distribution of consonants and accounts for certain constraints in terms of assimilation. Finally, section 5 describes the tonal system, accounts for the variability in the manifestation of the underlying tones in terms of three general tonal processes, and illustrates the functions of tones.

Morphophonological alternations abound in Jumjum as in many other Western Nilotic languages, but because of space limitations they are not dealt with in this article.

## 2. Syllable Structure and Segmental Word Shapes

As illustrated by means of monosyllabic words in (1), there are four syllable types in Jumjum.<sup>3</sup> All syllables begin with a consonant, they are open or closed, their vowels are short or long, and there are no intrasyllabic consonant clusters.

- |     |    |      |      |                         |
|-----|----|------|------|-------------------------|
| (1) | a. | CV   | bí   | (future tense particle) |
|     | b. | CVC  | ǰáǰ  | ‘crocodile’             |
|     | c. | CVV  | wôo  | ‘away, out’             |
|     | d. | CVVC | jâan | ‘tree’                  |

The length of a word is from one to at least four syllables, and all four syllable types also occur as the first and last syllables of disyllabic and trisyllabic words, as seen in (2)-(3), in which, respectively, the attested disyllabic and trisyllabic word shapes are listed and exemplified.<sup>4</sup> Here points indicate syllable

<sup>2</sup> There seem to be two dialects of Jumjum. The dialect described here is said to be spoken by people of Watkey.

<sup>3</sup> Tone marks indicate underlying tones, except that the tone marking of forms enclosed in brackets indicates surface tones, as in section 5 below. Lack of tone marks indicates that the underlying tones have not been identified.

<sup>4</sup> Here and in similar displays, morphologically complex words are normally followed by a morphemic translation in parentheses after the English translation. The following abbreviations are used in morphemic translations: **1DUIN** first person dual inclusive; **1PL** first person plural; **1PLEX** first person plural exclusive; **1PLIN** first person plural inclusive; **1SG** first person singular; **2PL** second person plural; **2SG** second person singular; **3** third person; **3PL**

boundaries, while hyphens indicate morpheme boundaries. The middle syllable of trisyllabic words has been attested as *CV* or *CVC*, but not as *CVV* or *CVVC*.

- (2)
- |    |           |           |                                    |
|----|-----------|-----------|------------------------------------|
| a. | CV.CV     | wàŋ-ì     | ‘my eye’ (eye-1SG)                 |
| b. | CV.CVC    | kàbál     | ‘sheep’ (sg.)                      |
| c. | CV.CVV    | ʔíkêɛ     | ‘you’ (2PL)                        |
| d. | CV.CVVC   | ʔíkôɔn    | ‘we’ (1PLEX)                       |
| e. | CVC.CV    | kùm-mú    | ‘egg’ (egg-SG)                     |
| f. | CVC.CVC   | kóttàŋ    | ‘tortoise’                         |
| g. | CVC.CVV   | ʔòl-l-âa  | ‘you pushed me’ (push-PST-2SG>1SG) |
| h. | CVV.CV    | wìil-è    | ‘its tail’ (tail-3SG)              |
| i. | CVV.CVC   | tàatáŋ    | ‘ash’                              |
| j. | CVVC.CV   | ʔáat-tà   | ‘chicken’ (chicken-SG)             |
| k. | CVVC.CVC  | ʔíŋ-ŋàn   | ‘intestine’ (intestine-SG)         |
| l. | CVVC.CVV  | nùt-k-âa  | ‘you tell me’ (tell-BEN-2SG>1SG)   |
| m. | CVVC.CVVC | nùt-k-ôɔn | ‘you tell us’ (tell-BEN-2SG>1PLEX) |
- (3)
- |    |              |              |   |
|----|--------------|--------------|---|
| a. | CV.CV.CVC    | pát-àkáy     | ‘bark’ (bark-SG)                            |
| b. | CV.CVC.CV    | pát-àŋgá     | ‘barks’ (bark-PL)                           |
| c. | CVC.CV.CV    | mín-nèní     | ‘child’ (child-SG)                          |
| d. | CVC.CVC.CV   | yàŋtáŋ-gá    | ‘names’ (name-PL)                           |
| e. | CVV.CV.CV    | ʔáat-án-à    | ‘I came’ (go:CP-PST-1SG)                    |
| f. | CVV.CV.CVC   | ʔáat-ón-òn   | ‘we came’ (go:CP-PST-1PLEX)                 |
| g. | CVV.CVC.CV   | péetàn-ŋí    | ‘garbages’ (garbage-PL)                     |
| h. | CVVC.CV.CV   | méetkání     | ‘spiders’ (spider-PL)                       |
| i. | CVVC.CV.CVC  | cáay-g-òn-òn | ‘we have it’ (be.present-BEN-PST-3PL>1PLEX) |
| j. | CVVC.CV.CVV  | nùj-g-áq-âa  | ‘you cook for me’ (cook-BEN-PRS-2SG>1SG)    |
| k. | CVVC.CV.CVVC | nùj-g-óq-ôɔn | ‘you cook for us’ (cook-BEN-PRS-2SG>1PLEX)  |
| l. | CVVC.CVC.CV  | ɲáal-ɖàŋjí   | ‘pythons’ (python-PL)                       |

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third person plural; **3SG** third person singular; **AG** antigenitive; **ANTIP** antipassive; **ATT** attributive; **BEN** benefactive; **CF** centrifugal; **COM** comitative; **CP** centripetal; **FUT** future tense; **M** multiplicative; **NMLZ** nominalizer; **PL** plural; **PREP** preposition; **PRO** pronoun; **PRS** present tense; **PST** past tense; **PTCP** participle; **SG** singular or, sometimes, singulative; **X>Y** X as subject and Y as object in a cross-reference suffix.



- (5) a. wéek-ìn ‘we are crying’ (cry-1PLIN)  
 b. bóoc-ìn ‘we are afraid’ (fear-1PLIN)  
 c. yèewùk ‘dry season’  
 d. dóŋ-ú ‘your neck’ (neck:SG-2SG)<sup>5</sup>  
 e. níin-è ‘you are lying down’ (lie-2PL)  
 f. níin-òn ‘we are lying down’ (lie-1PLEX)  
 g. túw-è ‘you are dying’ (die-2PL)  
 h. túw-òn ‘we are dying’ (die-1PLEX)

There is a binary length contrast for all eight phonemic vowel qualities, as illustrated by monosyllabic nouns in Table 2.

**Table 2. Contrastive vowel qualities and lengths**

	/ɪ/	wíŋ	‘head’	/ɪ/	ʔíŋŋ	‘woman’
	/ɛ/	mèn	‘person’	/ɛɛ/	ḍéɛŋ	‘cow’
[-ATR]	/a/	káŋ	‘leopard’	/aa/	pâan	‘moon’
	/ɔ/	dóŋ	‘neck’	/ɔɔ/	ʔóɔn	‘man’
	/ʊ/	bùŋ	‘arm’	/uu/	gûuŋ	‘dog’
	/i/	jíŋ	‘stomach’	/ii/	díin	‘bird’
[+ATR]	/ʌ/	ŋáŋ	‘back’	/ʌʌ/	pʌʌm	‘mountain’
	/u/	tùk	‘lip’	/uu/	kùun	‘thorn’

**3.2 [ATR] harmony.** The allophony of /ɛ/ and /ɔ/ results from a more general rule of vowel harmony to the effect that a high [+ATR] vowel spreads its [ATR] value to a non-low [-ATR] vowel of an adjacent syllable. The [+ATR] spread may occur in either direction: from root to suffix, or from suffix to root.<sup>6</sup> The effect of this rule is illustrated in Table 3, which shows possessive inflection of some body part nouns. Before the 2nd person singular possessive suffix /-u/ ‘your’, the stem vowels /ɪ, u, ɛ, ɔ/ become [i, u, e, o]. Moreover, the 1st person singular possessive suffix /-ɪ/ is manifested as [i] after stems with /i/ or /u/, and the 3rd person singular possessive suffix /-ɛ/ is manifested as [e] in the same environment.

<sup>5</sup> Singular nouns with the morphemic gloss “:SG” exhibit replacement of a root-final plosive with a homorganic nasal, see Andersen (to appear).

<sup>6</sup> A similar type of vowel harmony is found in the Northern Burun language Mayak, see Andersen (1999).



**Table 3. Possessive inflection of body part nouns**

	Unpossessed	1SG	2SG	3SG	
	/i/ wíŋ	wìŋ-ì	wíŋ-ù	wíŋ-è	‘head’
	/ɛ/ lèk	lèk-ì	lek-u	lék-è	‘teeth’
[-ATR]	/a/ wàŋ	wàŋ-ì	wàŋ-ù	wàŋ-è	‘eye’
	/ɔ/ dóŋ	dòŋ-ì	dóŋ-ú	dóŋ-è	‘neck’
	/u/ bùŋ	bùŋ-ì	bùŋ-ù	bùŋ-è	‘arm’
	/i/ ʔìŋt̪á	ʔìŋt̪-ì	ʔìŋt̪-ú	ʔìŋt̪-e	‘hand’
[+ATR]	/ʌ/ kʌn	kʌn-ì	kʌn-ù		‘stomach’
	/u/ t̪ùk	t̪ùk-ì	t̪ùk-u	t̪ùk-è	‘lip’

In the verbs forms (6b) and (7b), similarly, the root vowel harmonizes with the [+ATR] cross-reference suffix /-ín/. That the root vowel is lexically [-ATR] is evidenced by the forms (6a) and (7a), whose cross-reference suffix /-ón/ is [-ATR].

- (6) a. ʔùul -ón ‘he pushes us’  
 push:M-3SG>1PLEX
- b. ʔùul -ín ‘he pushes us’  
 push:M-3SG>1PLIN
- (7) a. níic -k -òt̪ -ón ‘they cook for us’  
 cook-BEN-PRS-3PL>1PLEX
- b. níic -k -it̪ -ín ‘they cook for us’  
 cook-BEN-PRS-3PL>1PLIN

**3.3 Rounding harmony.** In suffix position, the vowel [ʌ] varies with [u] and [u]. The quality [ʌ] occurs after unrounded root vowels, while [u] and [u] occur after and in [ATR] harmony with rounded root vowels. Thus, the suffix vowel harmonizes with the root vowel for rounding, and if the root vowel is [+round], the suffix vowel also harmonizes with the root vowel for [ATR].<sup>7</sup> In (8) this variation is shown in a *-CV* suffix that forms verbal nouns from verbal roots, and in (9) it is shown in the plural suffix *-gV*.

<sup>7</sup> [ATR] harmony restricted to rounded vowels seems not to have been attested in other Western Nilotic languages.

(8)	<i>Root</i>	<i>Verbal noun</i>	
	/ɪ/	lik-	lìŋ-ŋá 'to break'
	/ɛ/	yεp-	yèem-má 'to throw'
	/a/	kac-	kàŋ-ŋá 'to bite'
	/ɔ/	?ɔl-	?òl-lú 'to push'
	/ʊ/	yuk-	yùŋ-ŋú 'to kick'
	/i/	piit-	pìiŋ-ŋá 'to sow'
	/ʌ/	nʌk-	nàŋ-ŋá 'to kill'
	/u/	kuuʔ-	kùuŋ-ŋú 'to blow'
(9)	<i>Singular</i>	<i>Plural</i>	
	/ɪ/	kìŋ	kíd-gà 'guinea-fowl'
	/ɛ/	jâan	jèn-gà 'tree'
	/a/	làŋ-ŋáŋ	làŋ-gá 'fly'
	/ɔ/	bóŋ-ŋàn	bóy-gù 'skin'
	/ʊ/	pôŋ	púŋj-gú 'hare'
	/i/	yìm-máŋ	yím-gà 'blood'
	/ʌ/	?ʌŋ	?ʌʌr-gà 'house'
	/u/	kùm-mú	kúm-gù 'egg'

Another example is the 1st person singular subject suffix of intransitive verbs, *-V*, see (19) in section 4.2 below.

Suffixal [ʌ] always varies with [ʊ] and [u], and suffixal [ʊ] always varies with [ʌ] and [u], but suffixal [u] does not always vary with [ʌ] and [ʊ]. Thus, the 2nd person singular possessive suffix */-u/* 'your' is always realized as [u], and as shown in section 3.2 above, it spreads its [+ATR] feature to the root vowel. Hence, what is neutralized in suffix position is the contrast between underlying /ʌ/ and underlying /ʊ/.

**3.4 Total harmony.** In some word-medial suffixes the quality of the vowel is copied from the following vowel. Such vowels may be analysed as underlyingly unspecified. One example is the past tense suffix *-Vn*, as in (10), where it occurs between the root *ɖaam-* and suffixes which cross-reference a 3rd person plural subject and an object.

- (10) a. ɖ́áam-án-à 'they looked at me'  
 b. ɖ́áam-ín-ì 'they looked at you (2SG)'  
 c. ɖ́áam-ìn-í 'they looked at us (1DUIN)'  
 d. ɖ́áam-ìn-ín 'they looked at us (1PLIN)'  
 e. ɖ́áam-èn-ón 'they looked at us (1PLEX)'  
 f. ɖ́áam-èn-é 'they looked at you (2PL)'

#### 4. Consonants

**4.1 Inventory and distribution of consonants.** The inventory of consonants is shown in Table 4.

**Table 4. Inventory of consonants<sup>8</sup>**

	bilabial	inter- dental	alveo- lar	palatal	velar	glottal
voiceless plosive	p	t̪	t	c	k	ʔ
voiced plosive	b	ɖ	d	j	g	
nasal	m	ɳ	n	ɲ	ŋ	
lateral			l			
trill			r			
glide	w			y		

The occurrence of the consonants in three different positions of a word is exemplified in (11)-(12): initial position, final position of a monosyllable or disyllable, and intervocalic position. Some consonants are excluded from some of these positions: (i) The interdental nasal [ɳ] does not occur word-initially, intervocalically or word-finally; (ii) the glottal stop [ʔ] occurs only word-initially; (iii) the voiced plosives and the alveolar voiceless plosive [t] do not occur word-finally.

<sup>8</sup> The transcription deviates from IPA in that [j] is a palatal plosive and [y] a palatal glide. Moreover, the diacritic [̪] indicates interdental rather than dental place of articulation.

(11) *Word-initial*

/p/	p̄ɪk	‘water’
/t̄/	t̄ɔ̄n	‘cock’
/t/	t̄ɔ̄ŋ	‘spear’
/c/	cáay	‘ten’
/k/	kàaŋ	‘snake’
/ʔ/	ʔáak	‘milk’
/b/	b̄ɪŋ	‘arm’
/d̄/	d̄éɛŋ	‘cow’
/d/	d̄éɛl	‘goat’
/j/	j̄aan	‘tree’
/g/	ḡèɛl	‘lion’
/m/	m̄aaŋ	‘fire’
/ŋ̄/	–	
/n/	n̄aaŋ	‘calf’
/ɲ/	ɲáŋ	‘crocodile’
/ŋ/	ŋáŋ	‘back’
/l/	léɛŋ	‘elephant’
/r/	r̄ɪŋɪ̄t̄	‘rainbow’
/w/	wáŋ	‘eye’
/y/	ȳaan	‘bull’

*Word-final in monosyllable*

/p/	l̄ɛp	‘tongues’
/t̄/	ʔɛ̄t̄	‘faeces’ (pl.)
/t/	–	
/c/	d̄úuc	‘five’
/k/	yàk	‘fish’ (pl.)
/ʔ/	–	
/b/	–	
/d̄/	–	
/d/	–	
/j/	–	
/g/	–	
/m/	p̄ʌʌm	‘mountain’
/ŋ̄/	–	
/n/	m̄èn	‘person’
/ɲ/	w̄ɪŋ	‘head’
/ŋ/	ʔ̄ɪŋ	‘woman’
/l/	w̄iil	‘tail’
/r/	b̄ʌr	‘mosquito’
/w/	dàw	‘monkey species’
/y/	p̄ʌy	‘path’

(12) *Intervocalic*

/p/	c̄ʌp-í	‘she is cooking’ (cook:ANTIP-3)
/t̄/	n̄uɪt̄-ù	‘they teach him’ (teach-3PL>3)
/t/	p̄éɛt̄àt̄	‘garbage’
/c/	c̄ícà̄m	‘knife’
/k/	t̄ùk-ì	‘my lip’ (lip-1SG)
/ʔ/	–	
/b/	kàbál	‘sheep’ (sg.)
/d̄/	n̄uɪd̄-ù	‘I teach him’ (teach-1SG>3)

*Word-final in disyllable*

/p/	ʔ <sup>9</sup>	
/t̄/	ȳùd̄-ìt̄	‘they are standing’ (stand-M?:3)
/t/	–	
/c/	yɛɛ-n-ɪc	‘your’ (PRO-SG-2PL)
/k/	ɲáalòk	‘up’
/ʔ/	–	
/b/	–	
/d̄/	–	

<sup>9</sup> /p/ and /w/ have not been attested word-finally in disyllables, but that is possibly due to scarcity of data.

/d/	déɛd-àŋ ‘it is small’ (be.small-3)	/d/	–
/j/	kʌʌj-in ‘to come in’ (enter:CP-NMLZ)	/j/	–
/g/	dúugùk ‘six’	/g/	–
/m/	dʒám-à ‘I look at it’ (look.at-1SG>3)	/m/	cícám ‘knife’
/ŋ/	–	/ŋ/	–
/n/	cùnúuk ‘eight’	/n/	ɲʌʌk-càn ‘louse’ (louse-SG)
/ɲ/	rúnìt ‘rainbow’	/ɲ/	làŋ-ŋáɲ ‘fly’ (fly-SG)
/ŋ/	wàŋ-ì ‘my eye’ (eye-1SG)	/ŋ/	líyán ‘feather’
/l/	kéɛlɔ̀k ‘one’	/l/	kàbál ‘sheep’ (sg.)
/r/	ŋíràn ‘rib’	/r/	tàbúr ‘dust’
/w/	yèewùk ‘dry season’	/w/	?
/y/	wʌy-ɔ̀ ‘my father’ (father-1SG)	/y/	nùuɖ-èy ‘he is teaching you’ (teach-3SG>2SG)

As seen in section 2 above, there are heterosyllabic consonant clusters. Many, but far from all logically possible, clusters have been attested, and some of the non-attested ones are excluded for phonotactic reasons rather than being accidental gaps. Table 5 shows, by means of “x” in the respective cells, which C<sub>1</sub>C<sub>2</sub> combinations have been attested out of all logically possible ones. C<sub>1</sub> is shown vertically, C<sub>2</sub> horizontally.

The following gaps seem to be systematic:

- Plosives with different voice values cannot be adjacent.
- The sequence plosive + nasal does not occur. This is a result of assimilation, see section 4.2 below.
- Liquids and glides do not occur as C<sub>2</sub> in any cluster, except in geminates. The reason probably is that no suffixes underlyingly begin with any of these consonants.
- There are no heterorganic nasal clusters, except /ŋm/. This is a result of assimilation, see section 4.2 below.
- Labial plosives do not occur as C<sub>2</sub>, except in geminates. This is probably an accidental gap due to the fact there are no suffixes which underlyingly begin with a labial plosive.

- The alveolar plosives /t/ and /d/ do not occur as C<sub>1</sub>, except that /t/ occurs in a geminate. The reason for this gap is a historical sound change, see section 4.3 below.

**Table 5. Heterosyllabic consonant clusters**

		C <sub>2</sub>																		
		p	t	t	c	k	b	ḍ	d	j	g	m	ṇ	n	ɲ	ŋ	l	r	w	y
C <sub>1</sub>	p	x			x	x														
	t		x		x	x														
	t			x																
	c		x		x	x														
	k		x		x	x														
	b						x	x		x										
	ḍ							x		x	x									
	d																			
	j							x		x	x									
	g									x	x									
	m					x		x		x	x	x								
	ṇ		x									x	x							
	n			x		x			x		x			x						
	ɲ							x		x	x				x					
	ŋ					x		x		x	x					x				
	l		x		x	x		x		x	x				x		x			
	r				x	x		x			x				x	x		x		
	w				x	x		x			x			x					x	
	y				x	x		x			x			x	x					x

The large number of different consonant clusters is a feature that distinguishes Jumjum from the more well-known Western Nilotic languages, so it seems worthwhile to exemplify these clusters, as done in (13)-(17).<sup>10</sup>

<sup>10</sup>In some cases, the function of some of the morphemes contained in the words has not been identified (with certainty), as indicated by question marks.

(13) *Voiceless plosives as C<sub>1</sub>*

/pp/	yèɛp-p-é	‘he threw it thither’ (throw:CF-PST-3SG>3)
/pc/	yéɛp-c-éḍ-é	‘he throws it thither’ (throw-CF-PRS-3SG>3)
/pk/	kùp-k-ì	‘they opened for him’ (open-BEN-PST:3PL>3)
/tt/	pìit-t-á	‘he sowed’ (sow:ANTIP-PST-3)
/tc/	gìt-cán	‘leaf’ (leaf-SG)
/tk/	gìt-ká	‘leaves’ (leaf-PL)
/tt/	kìt-tà	‘star’ (star-SG)
/ct/	ɲʌʌc-tʌɲ	‘to smell’ (smell-NMLZ?)
/cc/	wìic-c-á	‘he swept’ (sweep:ANTIP-PST-3)
/ck/	má-c-kà	‘fires’ (fire-PL)
/kt/	wʌʌk-tʌɲ	‘to breathe’ (breathe-NMLZ?)
/kc/	yák-càn	‘fish’ (fish-SG)
/kk/	láak-ká	‘urine’ (urine-PL)

(14) *Voiced plosives as C<sub>1</sub>*

/bb/	tíib-bà	‘shadow’ (shadow-SG)
/bd/	ɲùbdón	‘heel’
/bj/	yìb-j-á	‘you throw them thither’ (throw:M?-CF-2SG>3)
/dd/	kìḍ-d-é	‘he drives them’ (drive-M-3SG>3)
/dj/	núud-jón	‘you teach us’ (teach-2SG>1PLEX)
/dg/	túḍ-gú	‘cocks’ (cock-PL)
/jd/	kúj-d-ù	‘I pick up’ (pick:ANTIP-?-1SG)
/jj/	ɲáj-j-à	‘I know him’ (know-CF-1SG>3)
/jg/	púuj-gú	‘hares’ (hare-PL)
/gj/	yúug-j-éḍ-é	‘he kicks them thither’ (kick:M-CF-PRS-3SG>3)
/gg/	tùg-gú	‘lips’ (lip-PL)

(15) *Nasals as C<sub>1</sub>*

/mm/	yìm-máɲ	‘blood’ (blood-SG)
/md/	kíim-dàɲɲí	‘hearts’ (heart-PL)
/mj/	dáʌm-j-áḍ-á	‘I look thither (?)’ (look.at:ANTIP-CF?-PRS-1SG)
/mk/	páʌm-kà	‘mountains’ (mountain-PL)
/mg/	kúm-gù	‘eggs’ (egg-PL)
/nm/	káɲmà	‘work’
/nt/	ʔìɲ-tá	‘hand’ (hand-SG)
/nn/	wáɲ-ɲà	‘buttock’ (buttock-SG)
/nt/	náʌn-tá	‘place’ (place-SG)

/nd/	dúndúl	‘bell’
/nn/	tín-nà	‘breast’ (breast-SG)
/nk/	ʔín-ká	‘hands’ (hand-PL)
/ng/	mààn-gà	‘women’ (women-PL)
/nɖ/	ʔín-ɖ-é	‘he gives him (smth)’ (give-?-3SG>3)
/nj/	ʔín-já	‘you give me (smth)’ (give-2SG>1SG)
/ɲɲ/	tún-ɲù	‘granary’ (granary-SG)
/ɲg/	yúuɲ-gù	‘they rub it’ (rub-3PL:3)
/ɲɖ/	gòɲ-ɖ-é	‘he pulls it’ (pull-M-3SG:3)
/ɲj/	dèɛɲ-j-é	‘he shoots it thither’ (shoot-CF-3SG>3)
/ɲk/	méɛɲká	‘spider’
/ɲg/	yàɲ-gà	‘meats’ (meat-PL)
/ɲɲ/	yàɲ-ɲá	‘meat’ (meat-SG)

(16) *Liquids as C<sub>1</sub>*

/lt/	bìl-t-í	‘it is present’ (be.present?-?-3)
/ld/	ɲááɪ-dàɲɲí	‘pythons’ (python-PL)
/ll/	bèɛl-lá	‘cane’ (cane-SG)
/lc/	pól-càn	‘cloud’ (cloud-SG)
/lj/	ʔòl-j-é	‘he pushes him thither’ (push-CF-3SG>3)
/ljɲ/	dèl-ɲán	‘penis’ (penis-SG)
/lk/	ɲál-kà	‘rains’ (rain-PL)
/lg/	kòlg-ón	‘fat’ (fat-SG)
/rɖ/	tór-ɖ-in	‘to pull’ (pull-M-NMLZ)
/rr/	yòor-rú	‘to see’ (see-NMLZ)
/rc/	tóor-c-éɖ-é	‘he pulls it thither’ (pull-CF-PRS-3SG>3)
/rɲ/	ɖúr-ɲù	‘young man’ (young.man-SG)
/rk/	kúrkòn	‘nail’
/rg/	díir-gá	‘birds’ (bird-PL)
/rɲ/	búɲù	‘cloth’

(17) *Glides as C<sub>1</sub>*

/ww/	yéwwè	‘two’
/wɖ/	pòw-ɖíní	‘homes’ (home-PL)
/wn/	ʔáw-nà	‘bone’ (bone-SG)
/wc/	kàw-cán	‘seed’ (seed-SG)
/wk/	kàw-ká	‘seeds’ (seed-PL)
/wg/	ʔáw-gà	‘bones’ (bone-PL)



/yɔ̄/	ʔáay-ɔ̄-ìn	‘to climb’ (climb-M-NMLZ)
/yn/	kàay-ná	‘to pasture’ (pasture-NMLZ)
/yc/	báay-còndé	‘which is long’ (be.long-?)
/yɲ/	kèy-ɲán	‘calabash’ (calabash-SG)
/yy/	ʔàay-yá	‘salt’ (salt-SG)
/yk/	mùy-kú	‘oxen’ (ox-PL)
/yg/	dèy-gón	‘porridge’ (porridge-SG)

In verbs, all consonant clusters occur across morpheme boundaries. In nouns, by contrast, there are consonant clusters within morphemes, namely in some (presumably) monomorphemic disyllabic nouns, such as *ɲìbɔ́ɔ̀n* ‘heel’, *dùndùl* ‘bell’ and *méeyká* ‘spider’.

**4.2 Assimilation in /C-n/.** Assimilations take place when a consonant-final stem is followed by a suffix which underlyingly begins with the alveolar nasal /n/. Table 6 shows the underlying representation (UR) and the surface representation (SR) of the consonant sequences in question. As can be observed, (i) the nasal spreads its nasality to a preceding plosive, which in return spreads its place of articulation to the nasal; (ii) stem-final nasals also spread their place of articulation to the suffixal nasal; (iii) the nasal totally assimilates to stem-final liquids; but (iv) no assimilation takes place if the stem-final consonant is a glide.

**Table 6. Surface representation of underlying /C-n/**

UR	p-n	t-n	c-n	k-n	m-n	n-n	ɲ-n	l-n	r-n	y-n	w-n
SR	m-m	ɲ-ɲ	ɲ-ɲ	ɲ-ɲ	m-m	n-n	ɲ-ɲ	l-l	r-r	y-n	w-n

One suffix that behaves in this way is *-nV*, which forms an abstract verbal noun from a verbal root, as illustrated in (18) for each of the twelve underlying consonants that can occur finally in a monosyllabic root. The root-final consonants surface more overtly in some verb forms, as also shown in (18). The verb forms cited consist of a transitive root and the suffix /-é/, which cross-references a third person singular subject and a third person object, except that in (18f), the verb consists of an intransitive root and the suffix /-à/, which cross-references a first person singular subject. In these verb forms, root-final underlying plosives are manifested as voiced plosives. It might be suggested that the nasal of the nominalizing suffix is underlyingly unspecified for place of articulation. How-

ever, since it is alveolar after the labial glide /w/ and after the palatal glide /y/, it must be alveolar underlyingly.

(18)	<i>Root-final</i>	<i>Root-3SG&gt;3</i>	<i>Verbal noun</i>	
a.	/p/	yɛɛb-é	yɛɛm-má	‘throw at’
b.	/t/	kúuɖ-é	kúuɥ-ɥú	‘blow’
c.	/c/	káj-é	kàɲ-ɲá	‘bite’
d.	/k/	líɔ-é	líɥ-ɥá	‘break’
e.	/m/	ʔám-é	ʔám-má	‘eat’
f.	/n/	níin-à	níin-nà	‘lie’
g.	/ɲ/	túɲ-é	túɲ-ɲú	‘light’
h.	/ŋ/	gɔɔŋ-é	gɔɔŋ-ŋú	‘pull’
i.	/l/	ʔɔl-é	ʔɔl-lú	‘push’
j.	/r/	ʔér-é	ʔèr-rá	‘cut’
k.	/y/	káay-é	káay-ná	‘pasture’
l.	/w/	kɔɔw-é	kɔɔw-nú	‘take’

Another suffix that behaves in the way shown in Table 6 is the past tense suffix /-n/. In (19) it is exemplified after simple intransitive verb stems and before the 1st person singular subject suffix -à, -ù, -ù. The underlying nature of the root-final consonants is revealed by the corresponding present tense forms, which have no tense suffix.

(19)	<i>Root-final</i>	<i>Root-1SG</i>	<i>Root-PST-1SG</i>	
a.	/c/	bɔɔj-ù	bɔɔɲ-ɲ-ù	‘fear’
b.	/k/	wéɛg-à	wéɛŋ-ŋ-à	‘cry’
c.	/n/	níin-à	níin-n-à	‘lie’
d.	/l/	ʔɔɔl-ù	ʔɔɔl-l-ù	‘sing’
e.	/y/	cáay-à	cáay-n-à	‘sit’
f.	/w/	túw-ù	túw-n-ù	‘die’

A third suffix with the same behaviour is the plural suffix /-ní/, which is illustrated in (20). Unlike the two other suffixes, this suffix also occurs after a vowel-final stem, as in (20a).

(20)	<i>Stem-final</i>	<i>Singular</i>	<i>Plural</i>	
a.	/a/	méɛŋká	méɛŋká-ní	‘spider’
b.	/t̥/	rún̩t̥	rún̩n̩-n̩í	‘rainbow’
c.	/k/	yílùk	yílùŋ-ŋí	‘rainy season’
d.	/n/	túupón	túupón-ní	‘dust’
e.	/ŋ/	kóttàn	kóttàn-ŋí	‘tortoise’
f.	/ɾ/	kárkár	kárkár-rí	‘stony place’

The direction of the assimilation with respect to manner of articulation seems to be determined by the sonority of the consonants involved. Given the sonority hierarchy glide > liquid > nasal > obstruent, a less sonorous consonant assimilates to a more sonorous one. Thus, obstruents assimilate to nasals, and nasals assimilate to liquids.

The above-mentioned suffixes are productive. Thus, the nominalizing suffix *-nV* and the past tense suffix *-n* are used after all simple verb stems, and the plural suffix *-ní* seems to be the default productive plural suffix.

**4.3 The interdental nasal [ɲ].** As seen in section 4.1 above, the interdental nasal [ɲ] has a very restricted distribution, and its phonemic status might be questioned. Thus, [ɲ] only occurs word-internally in heterosyllabic clusters. It regularly occurs in a geminate [ɲɲ], as in (21a-c), and before the voiceless interdental plosive /t̥/, as in (21d-e), and in both cases [ɲ] could result from assimilation, see below. But [ɲ] has also been attested before /m/, as in the noun in (21f), and here [ɲ] must have phonemic status, unless [ɲm] is derived from underlying /t̥m/, for which, so far, no independent evidence has been found.

(21)	a.	bóɲ-ɲàn	‘skin’	(skin-SG)
	b.	ʔéɲ-ɲà	‘faeces’	(faeces-SG)
	c.	màaɲ-ɲá	‘to drink’	(drink-NMLZ)
	d.	yàɲt̥áŋ	‘name’	
	e.	ʔíɲ-t̥á	‘hand’	(hand-SG)
	f.	káɲmà	‘work’	

Before an interdental plosive, [ɲ] can readily be analysed as an allophone of alveolar /n/, since [n] does not occur in that position. Moreover, geminate [ɲɲ] is often clearly the manifestation of an underlying root-final interdental /t̥/ plus an underlying alveolar /n/, as shown in section 4.2 above.

However, there are other instances of [ɲɲ] which cannot synchronically be analysed as underlying /tɲ/. Many disyllabic singular nouns end in a singular *-CV* suffix whose consonant is manifested almost like the underlying suffixal /n/ discussed in section 4.2 above. However, unlike the other suffixes, this suffix is not productive. Some examples are given in (22) together with the corresponding plural forms.

(22)	<i>Root-final</i>	<i>Singular</i>	<i>Plural</i>	
a.	/p/	léɲ-m̀̀	lèp	‘tongue’
b.	/t/	ʔéɲ-ɲ̀̀	ʔèɲ	‘faeces’
c.	/c/	túɲ-ɲ̀̀	túuc-k̀̀	‘granary’
d.	/k/	léɲ-ɲ̀̀	lèk	‘tooth’
e.	/m/	gím-m̀̀	gím-g̀̀	‘cheek’
f.	/n/	tín-ǹ̀	tín-g̀̀	‘breast’
g.	/ŋ/	ỳ̀ɲ-ɲ̀̀	ỳ̀ɲ-g̀̀	‘meat’
h.	/l/	wíl-l̀̀	wíl-g̀̀	‘guest’
i.	/r/	tìn-ǹ̀	tír	‘witch-doctor’
j.	/y/	wày-ǹ̀	wáy-g̀̀	‘shoe’
k.	/w/	ʔáw-ǹ̀	ʔáw-g̀̀	‘bone’

The plural forms are either suffixless or end in a plural suffix *-kV* or *-gV*, and their roots exhibit non-assimilated final consonants. The singular forms exhibit exactly the same consonant clusters as in section 4.2 above and under almost the same circumstances. It is therefore tempting to analyse the consonant of the singular suffix as an underlying /n/ here too. However, this analysis does not work for roots that end in /r/, as in (22i), since the resulting cluster here is /nn/ rather than /rr/, which is the synchronically productive result of /r/ plus underlying /n/. Hence, the consonant of the singular suffix cannot be analysed as being an underlying /n/ for all the allomorphs of the suffix. Instead, the surface forms of the singular nouns must be taken to be underlying forms, and therefore the geminate interdental /ɲɲ/ in (22b) cannot be derived synchronically from /tɲ/. Consequently, [ɲ] is a separate phoneme here.

At an earlier stage in the historical development of Jumjum, however, the consonant of the singular suffix must have been an underlying /n/ throughout. Thus, the alternation between root-final /r/ in the plural and root-final /n/ in the singular in (22i) is historically explainable as follows: The /r/ in the plural form goes back to an alveolar plosive \*/t/, which changed to /r/ in root-final position, and before this change took place, \*/t/ assimilated to the suffixal /n/ in the singu-

lar form. The change \*/t/ > /r/ also explains why /t/ does not occur word-finally today. In Mabaan, root-final /t/ has been retained, the cognates of Jumjum *ír* ‘witch-doctors’ and *cír* ‘spoons’ being *íietá* and *cíetá*, respectively, in that language.

Geminate [ɲɲ] is also found in some singular nouns which have the singularive suffix -ɲàɲ, as in (23). Again, the alternants of the roots that occur in the plural forms must be taken to be the original forms, and their final consonant is /n/ or /y/. Hence, the interdental [ɲ] of the suffix cannot have received its place of articulation from the root. So again we are forced to ascribe phonemic status to [ɲ]. The sequence [ɲm] in (21f) above is also left unaccounted for, unless this conclusion is accepted.

(23)	<i>Singular</i>	<i>Plural</i>	
a.	ʔíɲ-ɲàɲ	ʔíɲ-gà	‘intestine’
b.	bóɲ-ɲàɲ	bóy-gù	‘skin’

## 5. Tones.

**5.1 Tonal inventory and tonal processes.** Jumjum is a tone language with two underlying tones: high (H) and low (L). They may combine to form a falling tone (HĪ).

The identification of tones may start by examining nouns in the tonal frame shown in (24). This frame is a possessive construction in which the empty slot is filled by a possessee. The latter is followed by a pronoun which agrees in number with the possessee (sg. *yèn* ‘that of’, pl. *yèk* ‘those of’) and which is modified by the following possessor.

(24)	a.	[ __ yè-n            ʔòɲ ]	b.	[ __ yè-k            ʔòɲ ]
		PRO-SG:AG man:SG		PRO-PL:AG man:SG
		‘the man’s __’		‘the man’s __’

When uttered in isolation, monosyllabic nouns fall into two tonal classes: words with a low tone [ ` ] and words with a falling tone [ ^ ]. However, as revealed when the words are used in frame (24), the low-toned class actually represents two different underlying tonal classes. This is illustrated in Table 7, which shows three monosyllabic nouns in isolation and in frame (24) as well as their posited underlying tonal representation. In isolation, *yaan* ‘bull’ and *dɛɛɛ* ‘cow’ have a low tone, while *tɔɔɲ* ‘cock’ has a falling tone. In frame (24) the situation is

different: Here *yaan* still has a low tone, but *dɛɛŋ* and *tɔɔn* now both have a high tone. The latter two nouns, however, are distinguished by the pitch of the following word *yɛn*, which has a low tone after *tɔɔn*, as it also has after *yaan*, while it has a downstepped (\*) high tone after *dɛɛŋ*. The underlying tones posited for the three nouns are low for /yàan/, high for /dɛ́ɛŋ/, and falling for /tɔ̀ɔn/. Arguments for this analysis are given below.

**Table 7. Tonal classes of monosyllabic nouns**

	Surface tones in isolation	Surface tones in frame (24)	Underlying tones	
a.	[yàan] [L]	[yàan yèn ?ɔ̀ɔn]	/yàan/ /L/	‘bull’
b.	[dɛ́ɛŋ] [L]	[dɛ́ɛŋ *yɛ̀n ?ɔ̀ɔn]	/dɛ́ɛŋ/ /H/	‘cow’
c.	[tɔ̀ɔn] [HĪ]	[tɔ̀ɔn yɛ̀n ?ɔ̀ɔn]	/tɔ̀ɔn/ /HĪ/	‘cock’

**Table 8. Tonal classes of disyllabic nouns**

	Surface tones in isolation	Surface tones in frame (24)	Underlying tones	
a.	[tùdǵù] [LL]	[tùdǵù *yɛ̀k ?ɔ̀ɔn]	/tùdǵù/ /HH/	‘cocks’
b.	[wíl*íá] [H*HĪ]	[wíl*íá yèn ?ɔ̀ɔn]	/wílíá/ /HL/	‘guest’
c.	[dìŋŋà] [LL]	[dìŋŋà *yɛ̀n ?ɔ̀ɔn]	/dìŋŋà/ /LH/	‘pestle’
d.	[bèɛlgà] [LL]	[bèɛlgà yɛ̀k ?ɔ̀ɔn]	/bèɛlgà/ /LL/	‘canes’
e.	[mêrkà] [HL]	[mêrkà *yɛ̀k ?ɔ̀ɔn]	/mêrkà/ /HĪH/	‘children’
f.	[kúurà] [HL]	[kúurà yèn ?ɔ̀ɔn]	/kúurà/ /HĪL/	‘ball’

The six disyllabic nouns shown in Table 8 fall into three tonal classes when uttered in isolation: (i) words in which both syllables have a low tone, (ii) words in which the first syllable has a high tone and the second syllable a low tone, and (iii) words in which the first syllable has a high tone and the second syllable a tone that falls from a high level lower than the preceding high, a downstepped falling tone. However, these three classes represent six different underlying tonal classes, as revealed when the six nouns are inserted into frame (24) in Table 8. Together with the following word, these six nouns here exhibit six different surface tone configurations. As the posited underlying tones indicate, the six disyllabic nouns utilize all six logically possible combinations of H, L and HĪ in the first syllable and H and L in the second syllable. This analysis works in combination with the following three realization rules:

- (i) Utterance-final Lowering: In utterance-final (or prepausal) position a sequence of one or more high tones are changed to low tones.
- (ii) Downstepped Raising: After a high tone, a low tone is changed to a downstepped high tone in non-prepausal position and to a downstepped falling tone in prepausal position.
- (iii) Fall Simplification: In non-prepausal position a falling tone  $H\bar{L}$  is simplified to H, and a following high tone is downstepped.

The application of these tone rules depends only on the tonal context and the boundaries of the utterance. Thus, they are independent of word boundaries and phrase boundaries. Each rule is illustrated in the following subsections.

In the examples given below, forms in brackets show the surface tones, while forms without brackets, in the next line, show the underlying tones and also the morpheme boundaries involved.

**5.2 Utterance-final Lowering.** In utterance-final (or prepausal) position a high tone is manifested phonetically as a low pitch which is identical to the low pitch of a low tone in the same position. Thus, in isolation, the high-toned monosyllabic noun  $\acute{d}\acute{e}\acute{e}\eta$  ‘cow’ has the same (slightly falling) low pitch as the low-toned monosyllabic noun  $y\grave{a}an$  ‘bull’. Similarly, the final high tone of the disyllabic noun  $\acute{d}\grave{i}\eta\eta\acute{\lambda}$  ‘pestle’ is manifested as a pitch that is identical to (or even lower than) the pitch of the preceding low tone. Thus  $\acute{d}\grave{i}\eta\eta\acute{\lambda}$  gets the same pitch pattern as the low-toned word  $b\grave{e}elg\grave{\lambda}$  ‘canes’. Hence, Utterance-final Lowering changes an underlying high tone to a low tone in utterance-final position, thereby neutralizing the contrast between High and Low in that position.

Utterance-final Lowering also applies to a sequence of high tones. Thus the HH word  $\acute{t}\acute{u}d\acute{g}\acute{v}$  ‘cocks’ has the same pitch sequence as the LL word  $b\grave{e}elg\grave{\lambda}$  ‘canes’, namely a low pitch in the first syllable and an (extra) low pitch in the second syllable.

A high-toned word immediately preceding an utterance-final high-toned word also undergoes pitch lowering. Thus, while  $\acute{d}\acute{\lambda}\acute{\lambda}\acute{\mu}\acute{\lambda}$  surfaces with high tones before an underlyingly low-toned word in (25a), it surfaces with low tones before an underlyingly high-toned word in (25b).

- (25) a. [ʔikì ɖ́ɔ́ɔ́mɔ́ kɪ̀ŋ] ‘You are looking at a bee’  
 ʔikì ɖ́ɔ́ɔ́m -á kɪ̀ŋ  
 2SG look.at:ANTIP-2SG bee:SG
- b. [ʔikì ɖ́ɔ́ɔ́mɔ́ lɛ̀n] ‘You are looking at an axe’  
 ʔikì ɖ́ɔ́ɔ́m -á lɛ̀n  
 2SG look.at:ANTIP-2SG axe:SG

It has not been examined whether there is any limit to the range of Utterance-final Lowering, but a sequence of lowered high tones may make up at least two words, as in (25b) and (26), and it may comprise at least five high tones, as in (26).

- (26) a. [ʔikè pɪ̀tɪ̀ mùkkìní] ‘He is sowing maize’  
 ʔikè pɪ̀tɪ̀ -í múkkí-ní  
 3SG sow:ANTIP-3 maize -PL
- b. [ʔikè mɔ́ɔ́jò kùp̀kɛ̀nɛ̀] ‘He opened for Määjo’  
 ʔikè mɔ́ɔ́jò kúp̀ -k -ɛ̀n -ɛ̀  
 3SG Määjo open-BEN-PST-3SG>3

Utterance-final Lowering may even take effect at the very beginning of an utterance consisting of more than one word, as in (27a). The pitch sequence of this utterance is indistinguishable from the pitch sequence of utterance (27b), which underlyingly begins with a low tone followed by two high tones.

- (27) a. [lɛ̀n ʔùlàn] ‘The axe is black’  
 lɛ̀n ʔùl -án  
 axe:SG be.black-3
- b. [tòŋ ʔùlàn] ‘The spear is black’  
 tòŋ ʔùl -án  
 spear be.black-3

**5.3 Downstepped Raising.** In non-prepausal position, a low tone is changed to a downstepped high tone (<sup>+</sup>H) after a high tone, as in (28)-(30). Like the other tonal processes, this raising is independent of word boundaries and phrase boundaries. In (28), for instance, the final high tone of *kɔ́ttá* causes the low tone of the fol-





In utterance-final position after a high tone, a low tone is not realized as a downstepped high tone, but as a downstepped falling tone. This is illustrated in (33)-(35) and can also be observed in (30) above. Thus, while *tíŋàl* surfaces as [tí<sup>+</sup>ŋá̌l] in non-prepausal position in (33b), it surfaces as [tí<sup>+</sup>ŋá̌l] in prepausal position in (33a), here ending in a downstepped falling tone. The same variation is shown by *túwù* in (34), and in (35) the monosyllable *ŋìŋ* surfaces as [tí<sup>+</sup>ŋìŋ] prepausally.

- (33) a. [tí<sup>+</sup>ŋá̌l] ‘sand’  
 b. [tí<sup>+</sup>ŋá̌l yèk ʔôɔn] ‘the man’s sand’  
     tíŋàl yè -k ʔôɔn  
     sand(PL)<sup>12</sup> PRO-PL:AG man:SG
- (34) a. [ʔìkà bí tú<sup>+</sup>wù] ‘I shall die’  
     ʔìkà bí túw-ù  
     1SG FUT die -1SG  
 b. [ʔìkà bí tú<sup>+</sup>wú tìŋŋlèk] ‘I shall die tomorrow’  
     ʔìkà bí túw-ù tìŋŋlèk  
     1SG FUT die -1SG tomorrow
- (35) [ʔìkè tákí tìŋŋ] ‘He wants a woman’  
     ʔìkè ták -í tìŋŋ  
     3SG want:ANTIP-3 woman:SG

**5.4 Fall Simplification.** The behaviour of an underlying falling tone (H̄L) shows that it is a complex tone consisting of two simple tones, a high tone and a following low tone. A falling tone is manifested as a falling pitch in utterance-final position only, as in (36a) and (37a). In other positions the falling tone is manifested as a high level pitch, and a following high tone is downstepped. Thus, while *ŋìkôɔn* surfaces with a falling tone in (36a), it surfaces with a final high tone in (36b), and the initial high tone of the following word, *ʔámòɔn*, surfaces as a downstepped high tone. The same type of variation obtains in (37). The downstep resulting from Fall Simplification must reflect the low component which is set afloat when the falling tone is simplified.

<sup>12</sup>Plural nouns with the morphemic gloss “(PL)” have no plural suffix.

- (36) a. [ʔikôɔn] 'we'  
 b. [ʔikóɔn ʔá¹môɔn] 'We are eating'  
 ʔikôɔn ʔám -òɔn  
 1PLEX eat:ANTIP-1PLEX
- (37) a. [ʔikîin] 'we'  
 b. [ʔikíin ʔbí ʔá¹mîin] 'We will eat'  
 ʔikîin bí ʔám -ìn  
 1PLIN FUT eat:ANTIP-1PLIN

The downstep effect also applies to a following underlyingly falling tone, as in (38), where *jâan* becomes [ʔjáan] after *ʔôɔn*. By contrast, a low tone is left unaffected by a preceding underlyingly falling tone, as seen in (39), where *kâɔn* does not affect the realization of *yèn*.

- (38) [ʔôɔn ʔjáan ʔúulé ʔl̥ɔɔɔnàɔ] 'The man is pushing the tree now'  
 ʔôɔn jâan ʔúul -é ʔl̥ɔɔɔnàɔ  
 man:SG tree:SG push:M-3SG>3 now
- (39) a. [kâɔn] 'hunger'  
 b. [kâɔn yèn ʔôɔn] 'the man's hunger'  
 kâɔn yè -n ʔôɔn  
 hunger:SG PRO-SG:AG man:SG

There is no downstepped raising after a high tone that manifests a falling tone, as illustrated twice in (40). Here the initial low tone of *bìccàn* is not raised after [ʔôɔn], which is underlyingly *ʔôɔn*, and similarly, the initial low tone of *tòrɔ̀é* is not raised after [jáan], which is underlyingly *jâan*. This can be explained by assuming that the low component of the falling tone is not deleted, but left floating, as already assumed on independent grounds.

- (40) [ʔôɔn bìccàn jáan tòrɔ̀é] 'The man is pulling the root of the tree continuously'  
 ʔôɔn bìic -càn jáan tòr -ɔ̀-é  
 man:SG root-SG:AG tree:SG pull-M-3SG>3

Syllables that are not word-final never have a falling pitch. Nevertheless, an underlying falling tone must be posited for a non-final syllable of some words in order to explain their pitch patterns and their effect on a following word.

Consider first the noun *merk*<sub>Λ</sub> ‘children’ in (42) and compare it with the noun *will*<sub>Λ</sub> ‘guest’ in (41).

- (41) a. [wílʰlâ] ‘guest’  
 b. [wílʰlâ yèn ʔôɔn] ‘the man’s guest’  
 wíl -lâ yè -n ʔôɔn  
 guest-SG PRO-SG:AG man:SG
- (42) a. [mérkà] ‘children’  
 b. [mérʰkâ ʰyék ʔôɔn] ‘the man’s children’  
 mêr-kâ yè -k ʔôɔn  
 child-PL PRO-PL:AG man:SG

Both *will*<sub>Λ</sub> and *merk*<sub>Λ</sub> surface with a high tone on their first syllable, but in utterance-final position the pitches of their last syllable are different from each other. While [wílʰlâ] in (41a) ends in downstepped falling tone, the second syllable of [mérkà] in (42a) has a low tone. Before another word, both *will*<sub>Λ</sub> and *merk*<sub>Λ</sub> have the surface tone pattern [H<sup>+</sup>H], as seen in (41b) and (42b). However, while *will*<sub>Λ</sub> does not trigger Downstepped Raising in the following word, *merk*<sub>Λ</sub> does. Hence, while *will*<sub>Λ</sub> must be taken to end in a low tone underlyingly, *merk*<sub>Λ</sub> must be taken to end in a high tone underlyingly, see section 5.3 above. So while the downstep in [wílʰlâ] in (41b) must be caused by Downstepped Raising, the downstep in [mérʰkâ] in (42b) cannot be the result of this rule. Instead, it must be taken to be the result of the other rule that produces a downstep, viz. Fall Simplification. The implication is that *merk*<sub>Λ</sub> has an underlyingly falling tone on its first syllable, so that its underlying form is *mêrkâ*. This analysis also explains the tonal difference between *wíl*<sub>Λ</sub> and *mêrkâ* in prepausal position: While the final downstepped falling tone in [wílʰlâ] is a result of Downstepped Raising triggered by the preceding high tone, the final low tone in [mérkà] is a result of Utterance-final Lowering after the floating low component of the preceding falling tone.

Consider next the noun *kuura* ‘ball’ in (43).

- (43) a. [kúurà] 'ball'  
 b. [kúurà yèn ʔôon] 'the man's ball'  
     kûurà yè -n ʔôon  
     ball PRO-SG:AG man:SG

This noun has the same pitch pattern as *mêrká* 'children' in utterance-final position, see (43a) and (42a), respectively. In non-prepausal position, however, their pitch patterns differ from each other. Thus, while *mêrká* in (42b) has the surface tones [H<sup>+</sup>H], *kuura* in (43b) has the surface tones [HL], and its underlying tone pattern must, therefore, be different from that of *mêrká*, which was analysed as  $\widehat{H}\widehat{L}H$  above. The surface tone pattern [HL] of *kuura* cannot be its underlying tone pattern, since if it were, then its utterance-final surface tone pattern would be [H<sup>+</sup> $\widehat{H}\widehat{L}$ ], and its non-prepausal surface tone pattern would be [H<sup>+</sup>H]. Instead, its behaviour can be explained by taking its underlying tone pattern to be  $\widehat{H}\widehat{L}L$ , i.e. with a falling tone on the first syllable and a low tone on the final syllable. Thus, the falling tone is changed to a high tone by Fall Simplification, and the low tone set afloat by Fall Simplification prevents the low tone of the second syllable from undergoing Downstepped Raising.

**5.5 Functions of tone.** The function of tone is both lexical and grammatical, as exemplified below.

As seen in section 5.1 above, (singular or plural) nouns fall into tonal classes. There are also minimal pairs of nouns distinguished solely by tone, such as the monosyllabic (singular or plural) nouns in (44)-(45) and the disyllabic plural nouns in (46)-(48).

- (44) a. H kúl 'wart-hog'  
 b. L kùl 'deep water'
- (45) a.  $\widehat{H}\widehat{L}$  jùk 'words'  
 b. L jùk 'hairs'
- (46) a. HH kíyǵá 'streams'  
 b. LH kíyǵà 'feet'
- (47) a. HH káájǵá 'leopards'  
 b. HL káájǵà 'hungers'

- (48) a. HL       ʔáŋkà       ‘suns’  
 b. LL       ʔàŋkà       ‘fishing nets’

Unlike nouns, transitive verbal roots seem not to fall into tonal classes. Thus, they all behave in the same way tonally with respect to derivation and inflection. However, tone has a high functional load in person inflection of verbs with such roots. This is illustrated in Table 9, which shows the present tense forms with the simple transitive stem *daam-* ‘look at’. Transitive verb stems take portmanteau suffixes which cross-reference both the subject and the object with respect to person and number, except that no number distinction is made for a third person object. Note also that a distinction is made between 1st person dual inclusive (1DUIN), 1st person plural inclusive (1PLIN) and 1st person plural exclusive (1PLEX). The vertical dimension of the table indicates the subject parameter (S), the horizontal dimension the object parameter (O).

**Table 9. Present tense forms with the simple transitive stem *daam-* ‘look at’**

O→ S↓	1SG	2SG	3	1DUIN	1PLIN	1PLEX	2PL
1SG	–	ḍáam-èní	ḍáam-à	–	–	–	ḍâam-é
2SG	ḍáam-já	–	ḍáam-á	–	–	ḍáam-jón	–
3SG	ḍâam-à	ḍâam-èy	ḍáam-é	ḍâam-í	ḍâam-ín	ḍâam-ón	ḍâam-é
1DUIN	–	–	ḍáam-ì	–	–	–	–
1PLIN	–	–	ḍáam-ìn	–	–	–	–
1PLEX	–	ḍáam-gì	ḍáam-òn	–	–	–	ḍâam-gé
2PL	ḍâam-à	–	ḍáam-è	–	–	ḍâam-òn	–
3PL	ḍáam-gà	ḍáam-gì	ḍáam-gà	ḍâam-gí	ḍâam-gín	ḍâam-gón	ḍâam-gé

The paradigm in Table 9 includes six subsets of segmentally identical, but tonally distinct forms. Four of these subsets each contains two forms. For instance, the two forms with the segment sequence *daama* are distinguished tonally as spelt out in (49).



lutive case and is followed by a coreferential pronoun which is followed by the possessor in the absolutive case. The intervening pronoun agrees in number with the possessee (sg. *yèn*, pl. *yèk*) and has a form which seems to be the antigenitive case.

- (52) a. [bùrúŋgú 'yé:k ʔòɔn] 'the man's clothes'  
 bùrúŋ-gú yè -k ʔòɔn  
 cloth -PL PRO-PL:AG man:SG
- b. [bùrùŋ-gù ʔòɔn] 'the man's clothes'  
 bùrùŋ-gù ʔòɔn  
 cloth -PL:AG man:SG

The formal difference between the absolutive case and the antigenitive case is exemplified in (53) with some monosyllabic, disyllabic and trisyllabic nouns with various tone patterns in the absolutive. As can be observed, all tones are low in the antigenitive case, whereby the lexical tonal contrasts are neutralized.

- | (53) | <i>Absolutive</i> |          | <i>Antigenitive</i> |          |                         |
|------|-------------------|----------|---------------------|----------|-------------------------|
| a.   | H                 | ḑéɛŋ     | L                   | ḑéɛŋ     | 'cow'                   |
| b.   | HĪ                | yīm      | L                   | yīm      | 'giraffe' (giraffe:SG)  |
| c.   | L                 | kùun     | L                   | kùun     | 'thorn' (thorn:SG)      |
| d.   | HH                | díir-gá  | LL                  | díir-gà  | 'birds' (bird-PL)       |
| e.   | HL                | cícám    | LL                  | cícám    | 'knife'                 |
| f.   | LH                | càw-ná   | LL                  | càw-nà   | 'arrow' (arrow-SG)      |
| g.   | LL                | màan-gà  | LL                  | màan-gà  | 'women' (women-PL)      |
| h.   | HHH               | líyáŋ-gá | LLL                 | líyàŋ-gà | 'feathers' (feather-PL) |
| i.   | HLH               | mín-nèní | LLL                 | mìn-nènì | 'child' (child-SG)      |
| j.   | LHH               | bùrúŋ-gú | LLL                 | bùrùŋ-gù | 'clothes' (cloth-PL)    |



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**THE ABSENCE OF THE LINKER  
IN DOUBLE OBJECT CONSTRUCTIONS IN N|UU<sup>1</sup>**

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The linker in N|uu appears before various types of nominal expressions, but not before the second object in a double object construction. Linkers in Khoisan languages such as ≠Hoan and Jul'hoansi do appear in this position. I will show that this property of the linker in N|uu is related to the fact that N|uu has a dative Case marker *-a* which appears after the first object of a DOC, whereas ≠Hoan and Jul'hoansi do not.

**1. Introduction<sup>2</sup>**

The linker in N|uu, a southern Khoisan language of the !Ui branch, appears before various different types of nominal expressions, such as the locative in (1a) and the direct object of a causativized verb in (1b), but not before the second object in a double object construction, as show in (2a,b) (Decl stands for declarative, and Lk stands for linker).

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<sup>2</sup> I have recorded every sentence in this paper spoken by at least two speakers and in many cases by all five. In total, there are around 10 remaining speakers of N|uu in SA, and perhaps a few others in southern Botswana.

- (1) a. ku -a si fioo ku aŋki ŋ g!ari  
 3sgDecl Fut find 3sg father Lk Uppington  
 ‘He will find his father in Uppington’
- b. n -a kx’u |q’õa-a ku ŋ ≠qhee  
 1sgDecl make hunt-Asp<sup>3</sup> 3sg Lk duiker  
 ‘I made him hunt a duiker’
- (2) a. Griet ke si ?ãa ku-a doŋki-si  
 Griet Decl Fut give 3sg-Dat donkey-Sg  
 ‘Griet will give him the donkey’
- b. ku -a si kajama ŋ|angusi-a Ooe  
 3sgDecl Fut show N|angusi-Dat meat  
 ‘He will show N|angusi the meat’

The fact that the linker does not appear before the second object of a DOC is surprising because linkers in other Khoisan languages such as ≠Hoan and Ju|’hoansi do appear in this position. I will show that this difference in the syntax of the linker is related to the fact that N|uu has a dative Case marker *-a* which appears after the first object of a DOC, whereas ≠Hoan and Ju|’hoansi do not.

In section 2, I will discuss structures of the form [V Lk X], where the linker appears between the verb and one post-verbal constituent. In section 3, I will discuss how-constructions, which also involve a linker. In section 4, I will propose that the linker is a Case checking head. In section 5, I will discuss structures of the form [V DP Lk X] where the linker appears between two post-verbal constituents. In section 6, I will discuss causatives. In section 7, I will explain the absence of the linker in DOCs. In section 8, I will give a table summarizing the properties of the linker and how they vary amongst the Khoisan languages.

All the data in this paper are from N|uu unless otherwise indicated. All the data from ≠Hoan are from Collins (2003). All the data from Ju|’hoansi are from Collins (2003) and Dickens (1992). The N|uu sentences are written in the IPA alphabet.

<sup>3</sup> I gloss the final *-a* (low tone) that appears on verbs as Asp. It is used in the present tense with a subset of stative verbs (e.g., want, know). On non-stative verbs it indicates past tense. We have not yet systematically investigated the past imperfective (progressive, habitual) nor the past tense of stative verbs.

## 2. V Lk X

In this section I will discuss some cases where the linker appears between the verb and a post-verbal constituent. Consider first the case where a locative expression follows an intransitive verb. An intransitive verb is a verb without a direct object. In this case, a linker must precede the locative.<sup>4</sup>

(3) a. η !ũu ke xa |ʔaa η g!ari  
 1sggrandfather Decl Past die Lk Upington  
 ‘My grandfather died in Upington’

b. |ãʔn-si ke ||ʔη-a η !oo  
 snake-Sg Decl go.out-Asp Lk hole  
 ‘The snake went out of the hole’

c. ku -a |qhõ<sup>f</sup> η ku η||η ||ãʔẽ  
 3sgDecl dance Lk 3sg house in  
 ‘He is dancing in his house’

d. ku -a ≠qheke η ku η||η ||ãʔẽ  
 3sgDecl sing Lk 3sg house in  
 ‘He is singing in his house’

Similar sentences involving a locative following an intransitive verb can be found in ≠Hoan and Ju|’hoansi. Consider the following data from Collins (2003) (Trans stands for transitivity suffix).

(4) tsi a-kyxai ki !oa na (≠Hoan)  
 3pl Prog-dance Lk house in  
 ‘They are dancing in the house’

<sup>4</sup> Note that I am not claiming that the verbs in (3) are always intransitive. For example, the verb ‘dance’ can be used transitively, and therefore the verb ‘dance’ has a transitive and an intransitive use.

ku-a si |qhõ<sup>f</sup> !ʔui  
 3sg-Decl Fut dance !ʔui  
 ‘He will dance !ʔui’

- (5) Lena koh dɟxani-a tju n!ang (Ju|’hoansi)  
 Lena Past dance-Trans house in  
 ‘Lena danced in the house’

In (4), *ki* is the linker in ≠Hoan, and it appears preceding the locative. In (5), the transitivity suffix in Ju|’hoansi must be used on the verb preceding the locative. In Collins (2003), I analyze the transitivity suffix in Ju|’hoansi as a form of the linker (the other form being *ko*). Therefore, in both ≠Hoan and Ju|’hoansi a linker must appear before a locative that follows an intransitive verb.

The following examples show that the linker also precedes various kinds of non-locative expressions. These examples show that the linker does not have a specific locative meaning (such as ‘in’ or ‘at’). Furthermore, example (6a) shows that *!haeka* ‘tomorrow’ must be a DP, since the linker only appears before DPs (see section 3).

- (6) a. ku -a si |qhõ<sup>ʃ</sup> ŋ !haeka  
 3sgDecl Fut dance Lk tomorrow  
 ‘He will dance tomorrow’
- b. g|a ≠ao-a a ≠hoa ŋ ku mari (!ʔama)  
 2sg want-Asp 2sg talk Lk 3sg money about  
 ‘Do you want to talk about his money?’

Temporal expressions, as opposed to locatives, can also appear in a preverbal position, in which case they are not preceded by a linker.<sup>5</sup>

- (7) a. ku -a si !haeka |qhõ<sup>ʃ</sup>  
 3sgDecl Fut tomorrow dance  
 ‘He will dance tomorrow’

<sup>5</sup> Westphal p. 46 has other examples of preverbal temporal adverbs with no accompanying linker (see Güldemann’s 2004a publication of Westphal’s manuscript). In terms of the analysis presented in section 3, preverbal temporal adverbs have no Case feature, and post-verbal temporal adverbs have a Case feature (checked by the linker). I do not have independent evidence for this analysis of temporal adverbs.

- b. \*ku -a si g!ari |qhõ<sup>f</sup>  
 3sg Decl Fut Uprisington dance  
 ‘He will dance in Uprisington’

A linker does not appear between a transitive verb and its direct object.

- (8) a. n -a ꜱhãu-a !qhaa  
 1sgDecl pour-Asp water  
 ‘I poured water’
- b. n -a si ||ʔau -|ʔe ||aβa  
 1sgDecl Fut bury -put.in bone  
 ‘I will bury the bone’
- c. ku -a si ||x’oo Ooo-ke  
 3sgDecl Fut chop wood-pl  
 ‘He will chop wood’
- d. ku -a si fioo ku aŋki  
 3sgDecl Fut find 3sg father  
 ‘He will find his father’
- e. kunisi ke si ꜱam !ao  
 wagon Decl Fut hit rock  
 ‘The wagon will hit the rock’

Inserting a linker between a transitive verb and its direct object results in ungrammaticality.

- (9) ku -a si fioo (\*ŋ) ku aŋki  
 3sg Decl Fut find Lk 3sg father  
 ‘He will find his father’

A similar constraint holds for ꜱHoan and Ju|’hoansi (recall, I am assuming that the transitivity suffix *-a* in Ju|’hoansi is a form of the linker, as discussed in Collins 2003). The following sentences are from Collins (2003).

- (10) \*koloi g|on-a ki Jefo (≠Hoan)  
 car hit-Perf Lk Jeff
- (11) \*uto dchuun-a |Kaece (Ju|'hoansi)  
 car hit-Trans |Kaece

There are some verbs that take a locative complement without a linker.

- (12) a. ku -a si ||ʔae g!ari  
 3sgDecl Fut go Upington  
 'He will go to Upington'
- b. ŋɥhau ke |ʔee !oo  
 dungbeetle Decl enter hole  
 'The dungbeetle is entering the hole'
- c. ku -a ŋ||a a ŋ||ŋ ||ãʔẽ  
 3sgDecl be.loc 2sg house in  
 'He is in your house'
- d. ca<sup>h</sup>bakusi ke ŋ||a g!ari  
 ca<sup>h</sup>bakusi Decl be.loc g!ari  
 'Cabakusi is in Upington'

In the above example (12c), *ŋ||a* is the form of the verb 'be' that is used to express location. The simplest interpretation of these verbs is that they are transitive taking a locative direct object, just as 'enter' in English can be transitive ('John entered the room'). In terms of Case theory (see section 3), I assume that the verb checks the Case feature of its locative complement in these examples.

When a locative is extracted, the linker cannot be followed by a gap, instead the linker must be replaced by *ŋ||ã* 'be.loc'<sup>6</sup> (Q stands for question, Rel stands for relative complementizer).

<sup>6</sup> ≠Hoan and Ju|'hoansi do not have this strategy for avoiding a linker followed by a gap. I have also found *ŋ||ã* 'be.loc' used in when-questions, and in the following question.

cui !ʔama a ≠ao-a a ≠hoa ŋ||ã  
 what about 2sg want-Asp 2sg talk be.loc  
 'What do you want to talk about?'

- (13) a. kija xe ku !ũu xŋ |ʔaa ŋ||ã  
 where Q 3sg grandfather Past die be.loc  
 ‘Where did his grandfather die?’
- b. !hoe he ku !ũu xŋ |ʔaa ŋ||ã  
 place Rel 3sg grandfather Past die be.loc  
 ‘the place where his grandfather died’
- (14) a. kija xe ku |qhõ<sup>f</sup> ŋ||ã  
 where Q 3sg dance be.loc  
 ‘Where is he dancing?’
- b. !hoe he ku |qhõ<sup>f</sup> ŋ||ã  
 place Rel 3sg dance be.loc  
 ‘the place where he is dancing’

In these cases, it is impossible to strand the linker at the end of the sentence.

- (15) a. kija xe ku !ũu xŋ |ʔaa ŋ||ã (\*ŋ)  
 where Q 3sg grandfather Past die be.loc Lk
- b. kija xe ku |qhõ<sup>f</sup> ŋ||ã (\*ŋ)  
 where Q 3sg dance be.loc Lk

With verbs like ‘go’ (see (12)), which do not take a linker, ŋ||ã ‘be.loc’ is not used when the complement is extracted.

- (16) a. ku -a si ||ʔae g!ari  
 3sgDecl Fut go Upington  
 ‘He will go to Upington’
- b. kija xe ku si ||ʔae  
 where Q 3sg Fut go  
 ‘Where will he go?’
- c. !hoe he ku si ||ʔae  
 place Rel 3sg Fut go  
 ‘the place where he will go?’



$\eta||\tilde{a}$  ‘be.loc’ can only replace the linker if there has been extraction.

- (17) a. ku !ũu            ke   x $\eta$    |ʔaa    $\eta$    (\* $\eta||\tilde{a}$ )            g!ari  
           3sg grandfather   Decl   Past   die   Lk   be.loc            Upington  
           ‘His grandfather died in Upington’
- b. ku   -a   |qhõ<sup>f</sup>    $\eta$    (\* $\eta||\tilde{a}$ )   ku    $\eta||\eta$    || $\tilde{a}$ ?ẽ  
           3sg   Decl   dance   Lk   be.loc   3sg   house   in  
           ‘He is dancing in his house’

These extraction facts show that the system incorporates the following constraint.

- (18) \*Lk <XP>

This constraint says that the linker cannot be immediately followed by a gap (the notation <XP> means that the constituent XP has been displaced). In order to avoid (18), the linker  $\eta$  is replaced by  $\eta||\tilde{a}$  ‘be.loc’ as a last resort.

### 3. How-Constructions

The only exceptions to the generalization that the linker cannot be placed between a transitive verb and its direct object come from causatives (see section 6) and how-questions. How-questions are illustrated below<sup>7</sup> (*Mann* in the gloss stands for ‘manner’).

- (19) a. ku si        jee    $\eta$    ||x’oo    $\eta$             Ooo-ke  
           3sgFut   how   Mann   chop   Lk            wood-Pl  
           ‘How will he chop the wood?’
- b. ku si        jee    $\eta$    fioo    $\eta$         ku   anki  
           3sgFut   how   Mann   find   Lk        3sg   father  
           ‘How will he find his father?’

<sup>7</sup> A tentative syntactic analysis of how-questions is that the *jee* ‘how’ originates in the immediate post-verbal position, and moves to Spec MannP. Since the direct object is no longer in the immediately post-verbal position, a linker is required. I do not have sufficient data as of yet to support this analysis.

c. ku si jee η ||ʔae η g!ari  
 3sgFut how Mann go Lk Upington  
 ‘How will he go to Upington?’

d. Simon si jee η fioo η ku η g!ari  
 Simon Fut how Mann find Lk 3sg Lk Upington  
 ‘How will Simon find him in Upington?’

A strong argument that the *η* following the verb in (19a-d) is the linker is based on the distribution of strong pronouns. The full paradigm for strong and weak pronouns is given below.

(20) a. weak:

ʔη ‘1sg’, ʔa ‘2sg’, ku ‘3sg’, ʔi, si ‘1pl’, ʔu ‘2pl’, kike ‘3pl’

b. strong:

η|η ‘1sg’, gla ‘2sg’, ku ‘3sg’, gi ‘1pl’, gu ‘2pl’, kike ‘3pl’

In these examples, the first and second person pronouns have a different form (which incorporates a dental click) after the linker. This form is the strong form (see Güldemann 2004b for a brief description of the distribution of the strong form). Weak pronouns can only appear as subject (Spec IP), as possessors (Spec DP), or objects adjacent to the verb. Since the position following the linker is none of these, the strong form is used. Note that weak forms can be used after the instrumental preposition ‘with’: *η|a ʔη* ‘with me’. Examples illustrating the syntactic distribution of weak pronouns are given below.

(21) a. Simon ke si fioo ʔη  
 Simon Decl Fut find 1sg  
 ‘Simon will find me’

b. η ke si ||ʔae  
 1sg Decl Fut go  
 ‘I will go’

c. η xaŋki  
 1sgmother  
 ‘my mother’



I have glossed the preverbal  $\eta$  in the above examples as ‘Mann’, which stands for manner. The preverbal  $\eta$  is not a linker. It has none of the properties of a linker. First, linkers always precede DPs, which I will account for in the next section. The preverbal  $\eta$  precedes a verb, not a DP. Second, the preverbal  $\eta$  is restricted to how-questions and thus-constructions, illustrated below.<sup>8</sup>

- (25) ku xa  $\eta$  ||x’oo  $\eta$  Ooo-ke  
 3sg Past Mann chop Lk wood-Pl  
 ‘He chopped the wood thus’

This suggests that the preverbal  $\eta$  is semantically restricted in a way unlike the linker, which appears in a wide variety of constructions (before locative, temporal and reason adjuncts, in causatives and in how-questions).

#### 4. Case Analysis

I propose that the linker is a Case checking head. This analysis explains why the linker never appears before the direct object of a transitive verb (see (8,9)). Sentence (9) is ungrammatical because there are two Case checkers (the linker and the transitive verb), but only one DP. Second, the Case analysis predicts that the linker will only precede DPs. The prediction seems to hold true. First, in all the examples where the linker has appeared so far, it appears before a DP (*g!ari* ‘Upington’ in (1a), *#qhee* ‘duiker’ in (1b)).

The linker also appears before phrases headed by locative postpositions. Some examples of locative postpositions are given below.

- (26) a. n-a ||hoo-a mari  $\eta$  !ao |qhaa  
 1sg-Decl put-Asp money Lk rock next.to  
 ‘I put the money next to the rock’
- b. a ke si fioo mari  $\eta$  !ao tsʔi  
 2sgDecl Fut find money Lk rock behind  
 ‘You will find the money behind the rock’

<sup>8</sup> In the following example, I assume that there is a null constituent meaning ‘way/manner’ occupying Spec MannP.

- c. |x'esi ||ʔa sui |oba xu  
 necklace go sit.down child front  
 'The necklace fell in front of the child'  
 (From Collins & Namaseb 2005a)

- d. Ku-a |ʔe η||η ||ãʔẽ  
 3sg-Decl go.in house in  
 'He goes into the house'

As argued in Collins (2001, 2003), locative postpositions in ≠Hoan and Ju|'hoansi are inalienable nouns. For example, locative postpositions in ≠Hoan trigger genitive Case on the 1sg pronoun. There is some evidence that locative postpositions are nominal in N|uu as well. For example, the locative phrases can appear as subject.

- (27) a. bekersi ||ãʔẽ ke |x'urixa  
 cup inside Decl dirty  
 'The inside of the cup is dirty'
- b. η xu ke |x'urixa  
 1sg face Decl dirty  
 'My face is dirty'
- c. η |qha ke |x'urixa  
 1sg side Decl dirty  
 'My side is dirty'
- d. η||η tsʔi ke |x'urixa  
 house back Decl dirty  
 'The back (backyard) of the house is dirty'

The fact that locative phrases can appear as subjects implies that they are DPs, since normally only DPs can be subjects. Therefore, I conclude that locative postpositions are nominal in N|uu as well. Therefore, in the examples in (26a,b), the linkers appear before DPs (see Baker & Collins 2005 for a discussion of nominal locatives in Kinande). Therefore the generalization that the linker always appears before DPs holds up.

Third, in how-constructions, the linker precedes the direct object of a transitive verb. In terms of the Case analysis, the verb loses the ability to check Case in the how-construction. The linker never follows an intransitive verb (see (24b)). Since there is no DP following the intransitive verb, no linker is necessary.

Fourth, the linker does not appear before with-phrases (as we will see in section 5), which unlike DPs do not have a Case feature that needs to be checked. Other than the locative postpositions, and the instrumental prepositions, there are no other prepositions or postpositions in N|uu. In particular, there is no preposition such as “across”. Most locative concepts are expressed with verbal compounds (see Collins & Namaseb 2005b for examples).

Similarly, the linker never appears before complement clauses. This is illustrated in the following examples. I indicate the embedded clause with bracketing.

- (28) a. n -a    ɸʔāi-a    [ Siso    xŋ    ||ʔai-a ]  
 1sg Decl think-Asp    Siso    Past    go-Asp  
 ‘I think Siso left’
- b. n -a    ɸao-a    [ kin    ||ʔae ]  
 1sg Decl want-Asp    they    leave  
 ‘I want that they leave’
- c. g|aɸʔi-a    [ !Q’oma si    ||ʔae    |q’ōa ]  
 2sg think-Asp !Q’oma Fut    go    hunting  
 ‘Do you think !Q’oma will go hunting?’
- d. n -a    ||hae-a    [ ku    ki    mari ]  
 1sg Decl know-Asp    3sg    have    money  
 ‘I know he has money’
- e. kinke    ku-a    ŋ    ŋ|ŋ    [ ŋ    ||ʔae ]  
 3pl Decl say-Asp Lk 1sg.Strong    1sg    go  
 ‘They told me to leave’
- f. n -a    xŋ    ku-a    [Siso    xŋ    ||ʔae-a ]  
 1sg Decl Past say-Asp Siso    Past    go-Asp  
 ‘I said Siso left’

The fact that the linker does not appear before complement clauses can be explained in terms of the assumption (common in the Principles and Parameters/Minimalist theory) that clauses do not have a Case feature. This assumption is usually justified in Principles and Parameters on the basis of the syntactic distribution of clauses. For example, the clausal complement of an adjective does not require ‘of’, as shown by the phrase ‘proud that John won’. On the other hand, a DP complement of an adjective does require ‘of’, as in the phrase ‘proud of John’. This contrast can be accounted for by the assumption that ‘of’ checks Case, and that DPs but not clauses have a Case feature.

In conclusion, the linker has the following properties: (a) it is post-verbal, (b) it is semantically vacuous, and (c) it requires the presence of a following nominal expression.<sup>9</sup> I have analyzed the last property in terms of Case theory.

## 5. V DP Lk X

In this section, I will discuss some cases where the linker appears between two post-verbal constituents. When a locative appears following a verb with a direct object, a linker must precede the locative.

- (29) a. ku -a    si    fɔo   ku   aŋki   ŋ    g!ari  
           3sgDecl   Fut   find   3sg   father Lk    Upington  
           ‘He will find his father in Upington’
- b. ku -a    si    ||x’oo   Ooo-ke   ŋ    !uu  
           2sgDecl   Fut   chop   wood-pl   Lk    veld  
           ‘He will chop wood in the veld’
- c. kunisi   ke   si    ≠am   !ao   ŋ    !an  
           wagon   Decl   Fut   hit   rock   Lk    road  
           ‘The wagon will hit the rock in the road’

Similar facts hold for ≠Hoan and Jul’hoansi (from Collins 2003:1).

<sup>9</sup> The passive preposition *by* in English has the same three properties as the linker: (a) it is post-verbal, (b) it is semantically vacuous and (c) it requires a following DP. However, I would not classify the passive preposition *by* as a linker. First, *by* is largely restricted to the passive. Second, it only occurs with the external argument of a verb. See Collins (2005) for a full analysis of the passive in English, where *by* is analyzed as a realization of the Voice head.

- (30) koloi g||on-a    ≠'amkoe    ki    gyeo na    (≠Hoan)  
 car hit-perf    person    Lk    road in  
 'A car hit a person in the road'
- (31) uto dchuun-a    |Kaece    ko    n!ama n!ang    (Ju|'hoansi)  
 car hit-trans    |Kaece    Lk    road in  
 'A car hit |Kaece in the road'

This use of the linker is particularly frequent in locative compounds, which add a locative argument to a verb (see Collins 2002 on Khoisan compounds).

- (32) a. n -a    si    ≠hãu !qhaa  
 1sgDecl Fut pour water  
 'I will pour water'
- b. n -a    si    ≠hãu |ʔee !qhaa ŋ xaβasi ||ãʔẽ  
 1sgDecl Fut pour put.in water Lk cup in  
 'I will pour water into the cup'

The linker is also used between a direct object and various non-locative expressions (see (6)).

- (33) a. n -a    si    ŋ!hoea mari    ŋ    ku  
 1sgDecl Fut ask money    Lk    3sg  
 'I will ask him for money'
- b. n -a    si    gaake mari    ŋ    ku  
 1sgDecl Fut steal money    Lk    3sg  
 'I will steal money from him'
- c. ku -a    si    !xama    ʔãki ŋ    !haeka  
 3sgDecl Fut cook food Lk tomorrow  
 'He will cook food tomorrow'

When a pronoun is used after the linker here, it is in the strong form (see also (22)) above.



- (34) ku xa ŋ!hoea ʔãki ŋ ŋ|ŋ  
 3sg Past ask food Lk 1sg.Strong  
 ‘She asked him for food’

All the other strong pronouns can be used after the linker as well: *g|a* ‘2sg’, *ku* ‘3sg’, *g|i* ‘1pl’, *g|u* ‘2pl’, and *kike* ‘3pl’.

The order of the theme and the locative is necessarily [V Theme Lk Loc]. The inverted order [V Loc Lk Theme] is not allowed (compare to (29)).

- (35) a. \*ku -a si f̥oo g!ari ŋ ku aŋki  
 3sg Decl Fut find Upington Lk 3sg father  
 ‘He will find his father in Upington’
- b. \*ku -a si ||x’oo !uu ŋ ʘoo-ke  
 3sg Decl Fut chop veld Lk wood-pl  
 ‘He will chop wood in the veld’
- c. \*kunisi ke si ɸam !an ŋ !ao  
 wagon Decl Fut hit road Lk rock  
 ‘The wagon will hit the rock in the road’

Therefore, I conclude that N|uu disallows inversion in linker constructions. The lack of inversion in N|uu is interesting in that Afrikaans, which all of my informants (five all together) spoke fluently, has considerable freedom in the ordering of the theme and the locative.

As for the other Khoisan languages, Ju|’hoansi allows inversion, and ɸHoan disallows it. See Collins (2003) for a comparison between ɸHoan and Ju|’hoansi, and see Dickens (1992) who describes inversion in Ju|’hoansi. These facts are illustrated below.<sup>10</sup>

- (36) a. ha ku ||ohm-a !aihn ko g|ui (Ju|’hoansi)  
 3sg Asp chop-Trans tree Lk forest  
 ‘He was chopping the tree in the forest’ (Dickens 1992)

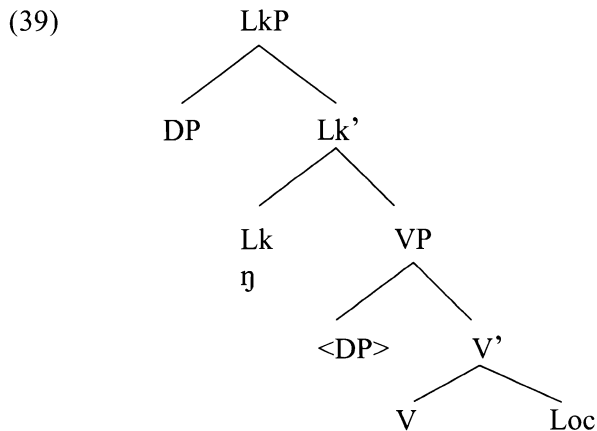
<sup>10</sup>Since only Ju|’hoansi has a transitivity suffix *-a* among the three languages in question, I conjecture that the presence of inversion in Ju|’hoansi is related to the transitivity suffix.

- b. ha ku ||ohm-a g|ui ko !aihn (Ju|'hoansi)  
 3sg Asp chop-Trans forest Lk tree
- (37) a. koloi g|on-a ꞑ'amkoe ki gyeo na (ꞑHoan)  
 car hit-Perf person Lk road in  
 'The car hit the person in the road' (Collins 2003)
- b. \*koloi g|on-a gyeo na ki ꞑ'amkoe (ꞑHoan)  
 car hit-Perf road in Lk person

Other possible word orders of the theme, Lk, and locative in N|uu are ungrammatical (similar sentences are ungrammatical in ꞑHoan and Ju|'hoansi as well, see Collins 2003).

- (38) a. \*ku -a si fioo ŋ ku aŋki g!ari  
 3sg Decl Fut find Lk 3sg father Upington
- b. \*ku -a si fioo ku aŋki g!ari ŋ  
 3sg Decl Fut find 3sg father Upington Lk

In (38a), the linker precedes both of the post-verbal constituents, and in (38b) the linker follows both of the post-verbal constituents. As I argued in Collins (2003), these ordering restrictions suggest that the linker is a functional head whose specifier is the theme and whose complement contains the locative (assuming the order Spec-Head-Complement).



In this structure, both the theme and the locative start out internal to the VP.<sup>11</sup> In  $\neq$ Hoan, Ju|’hoansi and N|uu, the theme can be moved into the specifier of the LkP, giving rise to the order: [Theme Lk Loc]. Only in Ju|’hoansi can the Loc move into the specifier of Lk giving rise to the order: [Loc Lk Theme].

An important source of evidence for the structure in (39) is the linker in the Bantu language Kinande, discussed by Baker & Collins (2005). In Kinande (as opposed to the Khoisan languages), the linker agrees with the preceding DP indicating a Spec-Head relation. The discussion of the linker in Kinande brings up a general question of the relationship between the linker and the Bantu associative marker. Both the linker in Kinande and the associative marker agree with a preceding nominal constituent, and they have a similar pattern of agreement. The big difference between the linker and the associative marker is that the linker appears internal to the vP, whereas the associative marker appears internal to the DP. See Baker & Collins for much more detail on the linker in Kinande, and some brief remarks on the associative marker.

When the theme is extracted, the linker continues to precede the locative as in the relative clause in (40a) and the constituent question in (40b).<sup>12</sup>

- (40) a.  $\text{Ooo-ke he Griet si } \|\text{x'oo } \eta \quad !\text{uu}$   
           wood-Pl Rel Griet Fut chop Lk veld  
           ‘The wood that Griet will chop in the veld’
- b.  $\text{cui xe Griet si } \|\text{?a } \|\text{x'oo } \eta \quad !\text{uu}$   
           what Q Griet Fut go chop Lk veld  
           ‘What will Griet go chop in the veld?’

When the locative is extracted, the verb  $\eta\|\tilde{a}$  ‘be.loc’ must be used, just as with intransitives.<sup>13</sup>

<sup>11</sup> See Chomsky (1995) and Collins (2003) for further discussion of the internal structure of the verb phrase. In these sources, it is assumed that the verb undergoes further movement to the head of vP (light verb phrase).

<sup>12</sup>  $\neq$ Hoan has the same pattern. In Ju|’hoansi, the Lk drops, yielding V-a DP (See Collins 2003).

<sup>13</sup> When the locative is extracted in  $\neq$ Hoan, the order becomes V Lk DP, as if there had been inversion (which is normally not allowed in  $\neq$ Hoan). In Ju|’hoansi, the linker drops, yielding: V-a DP. These patterns indicate that constraints similar to (18) need to be postulated for  $\neq$ Hoan and Ju|’hoansi as well (although there are a number of differences, see Collins (2003) for some discussion).

- (41) a. !uu-a he Griet si ||x'oo ʘoo-ke ŋ||ã  
 veld-Dem Rel Griet Fut chop wood-Pl be.loc  
 'The veld where Griet will chop wood'
- b. kija xe Griet si ||x'oo ʘoo-ke ŋ||ã  
 where Q Griet Fut chop wood-Pl be.loc  
 'Where will Griet chop wood?'

Although the linker is used before locatives and non-locative expressions, it is not used before instruments. Rather, the instrumental preposition ŋ|ã 'with' is used.

- (42) a. n -a si |aa ʘoe ŋ|ã ŋ#ona  
 1sg Decl Fut cut meat with knife  
 'I will cut the meat with a knife'
- b. n -a si ||x'oo #qhii ŋ|ã !?oo  
 1sg Decl Fut chop tree with axe  
 'I will chop the tree with an axe'
- c. Griet ke kuru-a ŋ||ŋ ŋ|ã |qhe  
 Griet Decl make-Asp house with grass  
 'Griet built a house with grass'

In these examples, the linker is never found before ŋ|ã 'with'. As noted in section 3, this fact can be accounted for on the assumption that with-phrases do not have a Case feature that needs to be checked.

## 6. Causatives

Another example where a linker appears between two post-verbal constituents (V X Lk Y) is the causative. Consider first the following examples of causatives of intransitive verbs.

- (43) a. n -a si kx'u ||?ae ku  
 1sg Decl Fut make go 3sg  
 'I will make him go'

b. n -a kx'u Oun-a |oeke  
 1sgDecl make sleep-Asp children  
 'I made the children sleep'

c. n -a kx'u |q'õa-a ku  
 1sgDecl make hunt-Asp 3sg  
 'I made him hunt'

d. n -a xŋ kx'u ʔã ku  
 1sgDecl Past make eat 3sg  
 'I made him eat'

These examples illustrate that the form of a causative of an intransitive verb is [kx'u-V DP], where the only argument of V follows V. *Kx'u* 'make' used as an independent verb is shown below.

(44) n -a si kx'u ŋ||ŋ  
 1sg Decl Fut build house  
 'I will build a house'

When a transitive verb is causativized, a linker must appear before the theme.

(45) a. n -a kx'u |q'õa-a ku ŋ ≠qhee  
 1sgDecl make hunt-Asp 3sg Lk duiker  
 'I made him hunt a duiker'

b. n -a xa kx'u ʔã ku ŋ ku ʔãki  
 1sgDecl Past make eat 3sg Lk 3sg food  
 'I made him eat his food'

I explain this use of the linker by assuming that the causativized verb can not check accusative Case (see Baker 1988: 173 for a theoretical account<sup>14</sup>). In the causative, *kx'u* 'make' itself checks the Case of the embedded external argu-

<sup>14</sup>In Baker's terminology (p. 164), N|uu has a Causative Rule 2, which is also found in Kiswahili and Chamorro (which appears to have a linker).

ment (e.g., *ku* 3sg in 43a,b), and the linker checks the Case of the embedded internal argument ( $\neq qhee$  ‘duiker’ in (45a), and  $\eta\ddot{a}ki$  ‘food’ in (45b)).

## 7. Double Object Constructions

One of the most striking aspects of the linker in N|uu is that it does not appear in double object constructions (DOCs). This is illustrated for ‘give’ in (46, 47), for ‘show’ in (48), ‘send’ in (49), and for benefactive arguments in (50, 51).

(46) a. *ku -a si \eta\ddot{a}a ku a\eta ki-a kea mari*  
 3sgDecl Fut give 3sg father-Dat that money  
 ‘He will give his father that money’

b. *Griet ke si \eta\ddot{a}a ku-a do\eta ki-si*  
 Griet Decl Fut give 3sg-Dat donkey-Sg  
 ‘Griet will give him the donkey’

(47) a. *\eta\ddot{a}a ku-a ku xa\eta ki ka- ||h\ddot{a}i*  
 Give 3sg-Dat 3sg mother Pl breasts  
 ‘Give her her mother’s breasts’  
 (from Collins & Namaseb 2005a)

b. *\eta\ddot{a}a ku-a mar ku xa\eta ki se \eta\ddot{a}*  
 give 3sg-Dat but 3sg mother Poss head  
 ‘But, give her her mother’s head’  
 (from Collins & Namaseb 2005a)

(48) a. *Griet ke si ka\eta ma ku-a si do\eta ki-si*  
 Griet Decl Fut show 3sg-Dat 1pl donkey-Sg  
 ‘Griet will show him our donkey’

b. *ku -a si ka\eta ma \eta|angusi-a Ooe*  
 3sgDecl Fut show N|angusi-Dat meat  
 ‘He will show N|angusi the meat’

(49) *n-a si |ee-a ku-a ki*  
 1sg-Decl Fut send-Appl 3sg-Dat 3sg-NH  
 ‘I will send it to him’ (NH stands for non-human)

(50) ku -a si kura-a n-a |x'ãike  
 3sg Decl Fut make-AppI 1sg-Dat beads  
 'He will make beads for me'

(51) kin ke ŋ!hau-a ku-a Ooe  
 3pl Decl roast-AppI 3sg-Dat meat  
 'They are roasting him meat'

In these examples, AppI in the glosses stands for 'applicative', which is a verbal suffix that allows a verb to take a benefactive or goal argument. I will argue that the *-a* (glossed Dat) that follows the first object in a double object construction is a dative Case marker.

In all of the above examples, there is no linker between the first DP (immediately following the verb) and the second (theme) DP. A double object construction with a linker present is judged ungrammatical.

(52) n -a si kajama ku-a (\*ŋ) ku mari  
 1sg Decl Fut show 3sg-Dat Lk 3sg money  
 'I will show him his money'

(53) n -a si ?ãa ku-a (\*ŋ) ku mari  
 1sg Decl Fut give 3sg-Dat Lk 3sg money  
 'I will give him his money'

One informant said that (53) with the linker could mean that I will give him something out of his money, which is not the interpretation of a DOC. The lack of the linker in DOCs in N|uu is consistent with the little that is known about other southern Khoisan languages (see Güldemann forthcoming a,b, and Hastings 2001: 12 on |Xam).

The absence of the linker in DOCs is surprising for a number of reasons. First, we have already seen that the linker is used in a wide variety of environments, including preceding themes (how-questions and causatives), showing that there is no thematic restriction of the linker to locative expressions.

Second, in causatives (see (45)), two DPs follow the verb and the second DP is preceded by a linker. On analogy with causatives, we might expect to find such a linker before the second DP in a double object construction.

Third, other Khoisan languages (Ju|'hoansi and ≠Hoan) have a linker that does appear before the second object in a double object construction. This is shown below (from Collins 2003).

(54) Gya''m-|a'a a-tsaxo-cu 'am gye ki ||a''e (≠Hoan)  
 child-Dim.pl Prog-cook-give 1sg mother Lk meat  
 'the children are cooking meat for my mother'

(55) Besa komm ||'ama -|'an Oba ko tcisi (Ju|'hoansi)  
 Besa Emph buy -give Oba Lk things  
 'Besa bought Oba some things'

I propose that the absence of a linker in DOCs in N|uu is related to another striking feature of DOCs. Note that the first object (the one immediately following the verb) is followed by Dat *-a* in N|uu in the examples in (46-51). In the rest of the section, I will justify an analysis of Dat *-a* as a Case checker, and show how the presence of the Dat *-a* gives rise to the absence of the linker in a DOC.

Dat *-a* can also appear when there is no following theme argument. The only condition is that the Dat *-a* can only mark a goal or a benefactive argument.

- (56) a. n -a si g|uu-a ku-a  
 1sgDecl Fut lie-Appl 3sg-Dat  
 'I will lie to him'
- b. n -a si šīsən-a ku-a  
 1sg-Decl Fut work-Appl 3sg-Dat  
 'I will work for him'
- c. n -a si |qhō<sup>ſ</sup>-a Griet-a  
 1sgDecl Fut dance-Appl Griet-Dat  
 'I will dance for Griet'

In these examples, I propose that the Case of the DP is not checked by the verb, but rather by the Dat *-a*. Evidence for this analysis is that the linker does not appear before a dative marked DP in a how-construction.



- (57) a. Griet si jee ŋ |qhõ<sup>f</sup>-a ku-a  
 Griet Fut how mann dance-AppI 3sg-Dat  
 ‘How will Griet dance for him?’
- b. Griet si jee ŋ g|uu-a ku-a  
 Griet Fut how Mann lie-AppI 3sg-Dat  
 ‘How will Griet lie to him?’

Given that the linker checks the Case of the following DP, and that DP following the verb already has a dative Case marker, there is no need for the linker to be used. Predictably, Dat *-a* is impossible if the DP following the verb is not a goal or benefactive.

- (58) n -a si ŋ|aa ku (\*-a)  
 1sg Decl Fut see 3sg Dat  
 ‘I will see him’

Dat *-a* morphologically resembles the declarative *-a* found following the subject of declarative clauses (they both have the same high tone). I will compare the properties of declarative *-a* and dative *-a*, and I will show that although dative *-a* and declarative *-a* are similar, they can not be identified. I give the complete pronominal paradigm for dative *-a* in (59) and for declarative *-a* in (60).

- (59) a. Andries ke xa ʔãa n-a fia mari  
 Andries Decl Past give 1sg-Dat 3sg money  
 ‘Andries gave me his money’
- b. Andries ke xa ʔãa ʔa fia mari  
 Decl Past give 2sg-Dat 3sg money
- c. Andries ke xa ʔãa ku-a fia mari  
 Decl Past give 3sg-Dat 3sg money
- d. Andries ke xa ʔãa s-a fia mari  
 Decl Past give 1pl-Dat 3sg money

- |    |         |      |      |      |         |     |                     |
|----|---------|------|------|------|---------|-----|---------------------|
| e. | Andries | ke   | xa   | ʔãa  | b-a     | fi  | mari                |
|    |         | Decl | Past | give | 2pl-Dat | 3sg | money               |
| f. | Andries | ke   | xa   | ʔãa  | kik-a   | fi  | mari                |
|    |         | Decl | Past | give | 3pl-Dat | 3sg | money <sup>15</sup> |
- (60) a. n-a      si      ||ʔae  
           1sg Decl Fut go  
           ‘I will go’
- b. a            si      ||ʔae  
               2sg Decl Fut go
- c. ku a        si      ||ʔae  
               3sg Decl Fut go
- d. s -a        si      ||ʔae  
               1pl Decl Fut go
- e. b -a        si      ||ʔae  
               2pl Decl Fut go
- f. kin ke      si      ||ʔae  
               3pl Decl Fut go

With the exception of third plural,<sup>16</sup> the dative pronouns and the declarative pronouns are identical. This series of pronouns is called the A-Form of the pronoun in Collins & Namaseb (2005b). I know of no other place in N|uu grammar where this particular combination of weak pronoun plus *-a* occurs. The parallelism between the subject *-a* pronouns and the dative pronouns suggests that Decl *-a* shares some properties with dative *-a*. While this may be true, there are some reasons for not identifying the two morphemes.

<sup>15</sup>The 3pl dative *-a* pronoun can be *kín-a* as in the following example:

cui	xe	Sini	xŋ	ʔãa	kin-a
what	Q	Sini	Past	give	3pl-Dat

‘What did Sini give him?’

<sup>16</sup>The pronoun *kín-a* is not possible as the subject in (60f). While *ke* can appear following all subject types (pronouns, proper names, full DPs), the declarative *-a* seems restricted to pronouns for which the combination pronoun-*a* is monosyllabic (crucially, *kua* 3sg-decl is pronounced [kwa] and not [kuʔa]). In all my field notes, and all the sentences in Westphal (see his examples (34-36), (121), (231), (260)), I have found no clear counter-examples to this generalization. No similar restriction exists for dative *-a*. Much more work is needed on this prosodic restriction.

In a declarative sentence, declarative *-a* can be used following the subject. Alternatively, declarative *ke* can be used following the subject. Furthermore, the two can not be used simultaneously (see Güldemann 2004b). Declarative *ke* is illustrated below.

- (61)  $\eta$  ke xa soo kia  
 1sg Decl Past sit here  
 ‘I was sitting here’

The series of subject pronouns that can precede declarative *ke* is the following:  $\eta$  ‘1sg’, a ‘2sg’, ku ‘3sg’, i, si ‘1pl’, u ‘2pl’, kin ‘3pl’. The following example shows that in some cases either *-a* or *ke* can be used as the declarative head.

- (62) a. n -a x $\eta$  ||?ae-a !gari  
 1sgDecl Past go-Asp Upington  
 ‘I went to Upington’
- b.  $\eta$  ke x $\eta$  ||?ae-a g!ari  
 1sgDecl Past go-Asp Upington  
 ‘I went to Upington’

The following examples show that declarative *-a* and declarative *ke* cannot appear simultaneously.

- (63) a. n -a si Oun  
 1sgDecl Fut sleep  
 ‘I will sleep’
- b.  $\eta$  ke si Oun  
 1sgDecl Fut sleep  
 ‘I will sleep’
- c. \*n -a ke si Oun  
 1sgDecl Decl Fut sleep
- (64) a. n -a x $\eta$  ||?ae g!ari  
 1sgDecl Past go Upington  
 ‘I went to Upington’

b. n ke xŋ ||ʔae g!ari  
 1sgDecl Past go Upington  
 ‘I went to Upington’

c. \*n -a ke ||ʔae g!ari  
 1sgDecl Decl go Upington

Furthermore, neither declarative *ke* nor declarative *-a* appears in questions or relative clauses (or embedded clauses more generally).

(65) a. kija xe ku si ||ʔae  
 where Q 3sg Fut go  
 ‘Where will he go?’

b. gao he ku si ||ʔama  
 thing Rel 3sg Fut buy  
 ‘the thing that he will buy’

So it appears that *-a* and *ke* following the subject are two realizations of single morpheme, which I will identify as the functional category Decl. Dative *-a*, on the other hand, does not alternate with a *ke*. In fact, *ke* cannot appear following the first object of a DOC.

(66) a. Griet ke si ʔãa ku-a doŋki-si  
 Griet Decl Fut give 3sg-Dat donkey-Sg  
 ‘Griet will give him the donkey’

b. \*Griet ke si ʔãa ku ke doŋki-si  
 Griet Decl Fut give 3sg Decl donkey-Sg

Furthermore, dative *-a*, unlike declarative *-a*, can appear in questions.

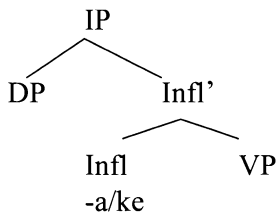
(67) a. ku -a si ʔãa ku-a mari  
 3sg Decl Fut give 3sg-Dat money  
 ‘He will give her the money’

- b. ku si ʔãa ku-a mari  
 3sg Fut give 3sg-Dat money  
 ‘Will he give her the money?’

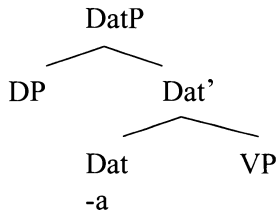
In (67a), both the declarative *-a* and the dative *-a* appear. In the yes-no question in (67b), the declarative *-a* disappears, but the dative *-a* remains.

For these reasons, I will not identify dative *-a* and declarative *-a*. However, I propose that they are partially similar, in that both the declarative *-a* and the dative *-a* head clausal functional projections. In the case of declarative *-a*, it is the head of IP.<sup>17</sup> In the case of dative *-a*, it is a functional projection which I will simply call DatP. In this way, dative *-a* resembles the linker as well, which heads a functional projection taking a VP complement. The two structures are given below (for more on the general framework for this kind of syntactic structure, see Chomsky 1995 and Collins 2003).

(68)



(69)



I will assume that (unlike the linker) the dative *-a* does not check the Case of a following DP, thus accounting for the fact that the dative *-a* does not have to be followed by a constituent in contrast to the linker, see section 4. Rather, it seems natural to analyze the dative *-a* as checking the Case of the DP in its specifier.

Consider now the lack of inversion in DOCs, given the analysis in (69).

<sup>17</sup>Or conceivably the head of a lower projection in the left periphery.

- (70) a. n     -a     si   ʔãa   Griet-a   mari  
       1sg   Decl   Fut   give   Griet-Dat   money  
       ‘I will give Griet the money’
- b. \*n     -a     si   ʔãa   mari     Griet-a  
       1sg   Decl   Fut   give   money    Griet-Dat
- c. \*n     -a     si   ʔãa   mari-a   Griet  
       1sg   Decl   Fut   give   money-Dat   Griet
- (71) a. n     -a     si   kajama   Simon-a   Ooe  
       1sg   Decl   Fut   show     Simon-Dat   meat  
       ‘I will show Simon the meat’
- b. \*n     -a     si   kajama   Ooe   Simon-a  
       1sg   Decl   Fut   show     meat   Simon-Dat
- c. \*n     -a     si   kajama   Ooe-a   Simon  
       1sg   Decl   Fut   show     meat-Dat   Simon

Sentences (70b) and (71b) are unacceptable, since given the analysis in (69), the only way to derive them would be for DatP to have two DP specifiers (to the left of the head Dat), presumably not allowed. Sentences (70c) and (71c) are disallowed, since they would involve inversion. The only way to derive these word orders would be for the theme to move to Spec DatP. But as we saw in (35) above, inversion is not allowed in N|uu.

Consider the following extraction facts in light of the above analysis in (69).

- (72) a. |eeki   he   Griet si   ʔãa   fia     si   doŋki-si  
       woman   Rel   Griet Fut   give   3sg-Dat   1pl   donkey-Sg  
       ‘the woman Griet will give our donkey to’
- b. cu   xe   Griet si   ʔãa   fia     si   doŋki-si  
       who Q   Griet Fut   give   3sg-Dat   1pl   donkey-Sg  
       ‘Who will Griet give our donkey to?’

- (73) a. |eeki he Griet si kajama fia si doŋki-si  
 woman Rel Griet Fut show 3sg-Dat 1pl donkey-Sg  
 ‘the woman Griet will show our donkey to’
- b. cu xe Griet si kajama fia si doŋki-si  
 who Q Griet Fut show 3sg-Dat 1pl donkey-Sg  
 ‘Who will Griet show our donkey to?’

These examples show that when the first object of a DOC is extracted, there is a resumptive pronoun. Furthermore, a resumptive pronoun is also left by extraction from the position following an intransitive verb with an applicative.

- (74) a. cu xe ?a si g|uu-a fia  
 who Q 2sg Fut lie-Appl 3sg-Dat  
 ‘Who will you lie to?’
- b. cu xe ?a si |qhõ<sup>f</sup>-a fia  
 who Q 2sg Fut dance-Appl 3sg-Dat  
 ‘Who will you dance for?’
- c. cu xe ?a si s̄sən-a fia  
 who Q 2sg Fut work-Appl 3sg-Dat  
 ‘Who will you work for?’

Lastly, there is no resumptive pronoun when the second object of a DOC is extracted.

- (75) a. doŋki-si he Griet si ?ãa ku-a  
 donkey-Sg Rel Griet Fut give 3sg-Dat  
 ‘The donkey that Griet will give him’
- b. cui xe Griet si ?ãa ku-a  
 what Q Griet Fut give 3sg-Dat  
 ‘What will Griet give him?’
- (76) a. doŋki-si he Griet si kajama ku-a  
 donkey-Sg Rel Griet Fut show 3sg-Dat  
 ‘The donkey Griet will show to him’

- b. cui xe Griet si kajama ku-a  
 what Q Griet Fut show 3sg-Dat  
 ‘What will Griet show him?’

The fact that a resumptive pronoun needs to be left behind suggests that the dative *-a* is a clitic. As a clitic, dative *-a* must combine with a preceding DP. If the DP has been extracted, a resumptive pronoun needs to be left behind to satisfy the morphological property of dative *-a*.

How can we explain the lack of a linker in double object constructions? First note that there is a no general prohibition against a linker following an DP marked by Dat *-a*.

- (77) a. Griet ke si ʔãa ku-a doŋki-si ŋ g!ari  
 Griet Decl Fut give 3sg-Dat donkey-Sg Lk Upington  
 ‘Griet will give him a donkey in Upington’

- b. n -a si šīsən-a ku-a ŋ g!ari  
 1sgDecl Fut work-Appl 3sg-Dat Lk Upington  
 ‘I will work for him in Upington’

- c. n -a si g|uu-a ku-a ŋ mari (!ʔam)  
 1sgDecl Fut lie-Appl 3sg-Dat Lk money about  
 ‘I will lie to him about the money’

Given the presence of the linker in these sentences it is impossible to attribute the lack of a linker in DOCs to a general constraint prohibiting a linker from following a verb with a dative object. Rather, the following generalization seems to be true for N|uu, Ju]’hoansi and ≠Hoan.<sup>18</sup>

- (78) At most one unmarked DP can follow a verb

Unmarked here means a DP that is (a) not immediately preceded by the linker *ŋ* and (b) not immediately followed by a dative *-a*. In Minimalism, we can recast this as follows.

<sup>18</sup>Khoekhoe would have the following constraint: at most one unmarked DP can appear in a clause. Usually the unmarked DP is the subject, the rest are marked by the clitic *-a*.



(79) The verb can check the structural Case of at most one DP

The generalizations in (78) and (79) are satisfied by the DOC in N|uu, but we still have not answered why there is no linker in DOCs in N|uu. For example, the sentence in (53), repeated below, would satisfy (78) and (79), even if the linker were present.

(80) n      -a      si      ʔāa      ku-a      (\*ŋ)ku      mari  
 1sg   Decl   Fut      give   3sg-Dat   Lk   3sg      money  
 ‘I will give him his money’

I propose that this example should be ruled out in the same way that we ruled out the presence of a linker with a transitive verb in N|uu (see (9) above).

(81) ku      -a      si      f̄oo      (\*ŋ)      ku      aŋki  
 3sg   Decl   Fut      find   Lk      3sg      father  
 ‘He will find his father’

I claimed that this example is bad because there are two structural Case checkers (the verb and the linker) but only one DP. Similarly, in (80) the verb is a structural Case checker that does not need to check the Case of the first object (because of the presence of the dative *-a*). Therefore, the verb is free to check the Case of the direct object, thus blocking the presence of the linker.

An objection to this analysis is that when a DOC is put into a how-question, the second object is not preceded by a linker.

(82) gla      jee      ŋ      ʔaa      Griet-a      mari  
 2sg      how      mann      give      Griet-Dat      money  
 ‘How did you give Griet the money?’

We have already seen that no linker is needed before the dative (see (57)) in a how-question. But what about the second object? If the verb is checking the Case of the second object in a DOC, and if a how-question makes it impossible for a verb to check the Case of a direct object (see section 3), then we would expect to find a linker in (82) as well. I leave this question for further research.

## 8. Conclusion

In this paper, I have given an overview of the syntactic distribution of the linker in N|uu. I have shown how the properties of the linker follow from the theory that it is a Case checking functional head, with no interpretable features (no semantic content).

I then showed the linker in N|uu does not appear before the second object of a double object construction. The absence of the linker in DOCs is surprising for a number of reasons. First, I showed that the linker is used in a wide variety of environments showing that there is no thematic restriction on the distribution of the linker. Second, in causatives, two DPs follow the verb and the second DP is preceded by a linker. On analogy with causatives, we might expect to find a linker before the second DP in a double object construction. The third, and most compelling, reason for expecting a linker in DOCs is that in other Khoisan languages (Ju|'hoansi and ≠Hoan), a linker does appear before the second object in a double object construction.

I proposed that the absence of a linker in DOCs in N|uu is related to the presence of a dative marker following the first object of a DOC.

## 9. A Summary of Linkers in (Non-Central) Khoisan

In this section, I will present a brief summary of linker properties in the three Khoisan languages ≠Hoan, Ju|'hoansi, and N|uu.<sup>19</sup>

	<b>Property</b>	<b>≠Hoan</b>	<b>Ju 'hoansi</b>	<b>N uu</b>
1.	Lk	yes (ki)	yes (-a/ko)	yes (ŋ)
2.	Lk thematically unrestricted	yes	yes	yes
3.	V Lk X	yes	yes (-a)	yes
4.	V X Lk (Lk must precede X)	no	no	no
5.	V DP Lk X	yes	yes (ko)	yes
6.	V DP X Lk	no	no	no

<sup>19</sup>See Hastings (2001) for a preliminary survey of the linker in |Xam, and !Xóõ.

7.	V Lk DP X	no	no	no
8.	Subj Lk X V (see (7a))	no	no	no
9.	Lk in causative (V DP Lk DP)	yes	yes	yes
10.	Trans suffix	no	yes (-a)	no
11.	Inversion (V Loc Lk DP)	no	yes	no
12.	Lk in DOCs	yes	yes	no
13.	Dative	no	no	yes(-a)
14.	Declarative	no	no	yes (-a/ke)
15.	Lk-gap (see (18))	yes (sometimes)	no (for ko) yes (for -a)	no
16.	“be.in” as Last Resort	no	no	yes

Properties (1-9) define the core syntax of the linker, found in all three languages. Seen from the perspective of this chart, the linker in ≠Hoan is defined by the core properties. Properties (10-11) define what is distinctive about Ju|’hoansi, which is basically the presence of the transitivity suffix and all the consequences that follow (see Collins 2003).

Properties (12-16) define what is distinctive about N|uu. I speculate that some of the syntactic features distinguishing N|uu from ≠Hoan and Ju|’hoansi are the result of Khoekhoe influence. For example, Khoekhoe has a declarative *ke*, just like N|uu. Khoekhoe also has clitic *-a* as a general case marker (see Hagman 1977). It may be that this clitic influenced the development of dative *-a* and declarative *-a* in N|uu.

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**ON THE VERBAL SYSTEM IN LANGI  
A BANTU LANGUAGE OF TANZANIA (F.33)\***

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This paper presents the Langi verbal system and the various ways in which tense, aspect and mood are encoded. Through a description of the structures and uses of the various forms, it attempts to demonstrate how the different conjugations fit together to form a coherent whole, morphologically and semantically, and how in some cases the system has been influenced by surrounding Cushitic languages.

**1. Introduction.**

Langi<sup>1</sup> (Rangi in Swahili) is a Bantu language spoken by approximately 300,000 people in the Kondo Region of Tanzania. It is of interest linguistically, as its speakers have long been surrounded by non Bantu-speaking communities. In this paper I will show that this has not been without consequences for the language, as evidenced by certain areal features.

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<sup>1</sup> This language is relatively unknown to linguistics: when I began studying it in 1996, the only published work dated from 1916 (by Otto Dempwolff). The data presented here is all first hand, and was gathered during fieldwork I carried out in Tanzania during my doctoral studies, the funding for which was provided by the LACITO-CNRS. Oliver Stegen of SIL has started working on the language recently; so far he has presented a paper on the vowel system at CALL (Leiden) in 2000, and has published a paper on derivation (2002). A monograph on Langi is in press, see Dunham, in press.

This paper presents the verbal system of Langi as it is spoken in the towns of Kondo and Pahi. Through the description of the structures and uses of the various verb forms, I will attempt to demonstrate how the different conjugations fit together to form a coherent whole, morphologically and semantically. I will begin with a brief presentation of the three types of elements which enter into verbal constructions in Langi: verb forms, copulative verbs and infinitival forms. I will then proceed to present the conjugations attested in the language.

**1.1. Verb forms.** The verb form in Langi, and in Bantu languages in general, is composed of several elements. These elements are not all necessarily present in a given verb form, but always appear in a fixed order. In Langi, a verb form may contain up to seven elements, which can be represented as follows.

(1)	1	2	3	4	5	6	7
	negative	subject	TAM	-object,	RAD	extensions	TAM
	pre- <i>px</i> <sup>2</sup>	<i>px</i>	TAM	reflexive			

Minimal forms contain only a radical and a suffix. This corresponds to the imperative (see section 2.18 below).

(2)	<i>d</i> ma <sup>3</sup>	‘go!’
	<i>d</i> m -a	
	go -imp2sg	

Maximal forms contain seven elements.

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<sup>2</sup> Abbreviations used in this paper are as follows. **ADV** advisory; **APPL** applicative extension; **ASC** associative extension; **AUX** auxiliary; **CAUS** causative extension; **CONN** connective; **COP** copula; **DEC** decisional; **DEICT** deictic; **DEM** demonstrative; **DET** determinative; **DP** dependant nominal prefix; **HAB** habitual; **IMP** imperative; **INF** infinitive; **INJ** injunctive; **INV** = inevitable; **IP** independant nominal prefix; **lit** literally; **LOC** locative suffix; **n/a** not applicable; **NAR** narrative; **NEG** negative; **NEUT** neutral extension; **OBJ** object marker; **PASS** passive extension; **pers.com.** personal communication; **PFT** perfect; **PFV** perfective; **PERS** personal pronoun; **PFX** prefix; **PL** plural; **POSS** possessive; **P.PFX** negation pre-prefix; **PRES** presentative; **PROG** progressive; **RAD** radical; **REFL** reflexive; **REL** relator; **SFX** suffix; **SG** singular; **SP** subject prefix; **STAT** stative extension; **SUB** subjunctive; **TAM** tense-aspect-mood marker; **V** verb. Numbers in glosses refer to noun classes.

<sup>3</sup> Tones will not be marked on examples. Tonal distinctions in Langi, particularly at the grammatical level, are so restricted that not marking them in this study does not affect the analysis.

(3) siviiovasomera tuku 'They are not reading to them.'

si - va - iyo - va - som -er -a tuku  
 p.pfx - sp2 - prog - obj2 - read -appl -prog neg

*Position 1.* The first element in the verb form is the negative pre-prefix *si*. Its presence negates the verb form. Negative forms are generally accompanied by the adverb *tuku* at the end of the sentence. This is the only negative marker in the verb form, the suffix, for example, never being modified. We will see in sections 2.20 and 2.21 that imperatives and subjunctives are negated in a different manner.

*Position 2.* The second element in the verb form is the subject prefix. With the exception of imperatives, where the person is marked in the 7<sup>th</sup> position, a subject prefix in the second position is obligatory. The subject prefixes most frequently encountered in this paper will be the person prefixes. Below is a table showing the prefixes as they appear when followed by a consonant.

(4)	<i>Singular</i>	<i>Plural</i>
	1 ni-	tu-
	2 u-	mu-
	3 a-	va-

When followed by a vowel, the forms vary somewhat: the prefix vowel either drops (as in example (3) above) or elides, depending on the articulatory nature of the two vowels in contact and also depending on the nature of the following morpheme. In general, when the prefix vowel is altered, the following vowel is lengthened. The rules governing vowel contact may be found in Dunham (forthcoming).

The subject prefix for the 1<sup>st</sup> person singular has several distinct variants: it is *ni-* in verb forms, but when prefixed to the copula *-ri*, it is *nde-* in the affirmative and *ndu-* in the negative.

(5) nkadzɛŋga numba 'I built a house.'

ni -ka -dʒɛŋg -a n -umba  
 sp1sg -nar -build -nar ip9 -house



- (6) ndɛɾɪ muhindʒa, sindurɪ mutavana tuku 'I'm a girl, I'm not a boy.'  
 ndɛ -ɾɪ mu -hindʒa si -ndu -ɾɪ mu -tavana tuku  
 splsg -cop ip1 -girl p.pfx-splsg -cop ip1 -boy neg

The subject prefix for the 3<sup>rd</sup> person singular is *a-* (∅ before a vowel) in all cases except preceding the habitual marker *-ɔ-* where it is *y-*.

- (7) akadʒɛŋga ɲumba 'He built a house.'  
 a -ka -dʒɛŋg-a ɲ -umba  
 sp1 -nar -build -nar ip9 -house
- (8) yɔɔdɔma ndʒiriɪ 'He goes on the path.'  
 y -ɔ -dɔm -a n -dʒira -i  
 sp3sg -hab -go -hab ip9 -path -loc

*Position 3.* The third position contains tense-aspect-mood markers. These will be largely discussed in the following sections. In brief, conjugations in the verb forms are determined by the elements present in the third and the seventh positions (in the case of the imperative and the subjunctive, by a null marker in the 3<sup>rd</sup> position). In example (5) above, one can see that I have given the same gloss (nar) to the elements found in what corresponds to the 3<sup>rd</sup> and 7<sup>th</sup> positions of the verb form. In the representation of the verb form (at the beginning of this section), there are two sets of elements appearing in the 3<sup>rd</sup> position as one TAM marker, since *tɔ* may combine with other TAM markers in this position. This phenomenon will be discussed below, in section 2.8.

*Position 4.* This position contains object and reflexive markers. Object marking is relatively limited in Langi, and is mostly, but not exclusively, reserved for beneficiaries. See for example (3), (38), (39), (81). The reflexive marker *-i-*, roughly speaking, indicates that the situation applies to the subjects themselves, and is widely encountered in Langi. See for example (20), (21), (74), (104).

*Position 5.* This position contains the verb radical. The most common structure in Langi is *-CVC-*, however many other structures are encountered, such as *-VC-*, *-VCVC-*, etc.

*Position 6.* This position contains extensions, which modify the valency of the verb. The most common are the applicative (3), (20), the passive (102), (106) and the causative (45). Several extensions may be present in a given verb form (20), (106).



- (12) *twiidza vumbi* 'We used to be singers.'  
 tu -idza va -mb -i  
 sp1pl -cop ip2 -sing -sfx
- (13) *kwiidza kɪfaka aha ndzi vi* 'There used to be woods just right here.'  
 ku -idza kɪ -ɬfaka aha ndzi vi  
 sp17 -cop ip7 -woods dem16 deict only
- (14) *sikwiidza kɪfaka tuku* 'There didn't used to be woods.'  
 si -ku -idza kɪ -ɬfaka tuku  
 p.pfx -sp17 -cop ip7 -woods neg

In verbal compounds, *-idza* combines with inflected verbs. In some cases, it bears the pre-stem aspect marker *-a-* (see sections 2.16 and 2.18).

**1.3 Infinitival forms.** The infinitival forms found in verbal constructions show two structures, either *RAD-a* or *ku-RAD-a*, where *ku-* is the class 15 prefix which marks all verbo-nominal forms of verbs. The choice between the form with or without the class 15 prefix is based upon how closely bonded, semantically, the two verbal elements are. In Hadermann (1996: 159), it is mentioned that in the languages under study the infinitive sometimes lacks a prefix. She attributes this to morphological factors (whether or not the radical is vowel initial), but says the conditioning may also depend on the syntactic status of the verbo-nominal form within the utterance.

In Langi the difference is independent of the radical initial, and is fully distinctive. For example, there are two future tenses (which will be examined in detail in section 2.19), distinguished by the presence or absence of the class 15 prefix.

- (15) *sakaata turi* 'We are about to hunt.'  
 sakaat -a tu -ri  
 hunt -sfx sp1pl -cop
- (16) *kusakaata turi* 'We will hunt.' (At some indeterminate future time.)  
 ku -sakaat -a tu -ri  
 ip15 -hunt -sfx sp1pl -cop

In (15) the form corresponds to an immediate future, something that is about to happen, and in (16) the form corresponds to an indeterminate future.

The same structural distinction is found for example when the infinitival form functions as direct object.

(17) *vɔɔsaka vina* ‘They always want to dance / they adore dancing.’

*va -ɔ -sak -a vin -a*  
*sp2pl -hab -want -hab dance -sfx*

(18) *vɔɔsaka kuvina* ‘They want to dance.’

*va -ɔ -sak -a ku -vin -a*  
*sp2pl -hab -want -hab ip15 -dance -sfx*

In example (17), wanting to dance is part of the subjects’ personality, a permanent feature, whereas in (18) it is a passing fancy. We will see more examples of this phenomenon in section 2.10.

Now that we have had a look at the different elements involved, let us turn to the conjugations in which they are used.

## 2. Conjugations

Table 1 is a list of the conjugations which I have observed in Langi. Where applicable, negative forms are indicated by the pre-prefix in parentheses (*si-*) or, where the pre-prefix does not apply, by the independent form following the affirmative form(s) to which it applies.

It can be seen from this list that the Langi verbal system, like that of most Niger-Congo languages (Welmers 1973: 344), makes use of both ‘simple’ verb forms and verbal constructions. Several features however are atypical in comparison to Proto-Bantu or even to most East African Bantu languages. The most striking is the future formation /infinitive + auxiliary/ which runs counter to Greenberg’s prediction (1966: 84) that languages where the usual word order is verb-object (VO) also tend to show the the word order /auxiliary + infinitive/.

**Table 1: Langi Verb Conjugations**

<i>Form</i>	<i>Value</i>	<i>Abbreviation</i> <sup>4</sup>
(si-)sp-iyɔ-RAD-a	Progressive	prog
(si-)sp-ɔ-RAD-a	Habitual	hab
(si-)sp-a-RAD-a	Perfect	pft
(si-)sp-a-RAD-irɛ	Perfective	pfv
(si-)sp-a sp-a-RAD-a	Anterior perfect	pft pft
(si-)sp-a sp-a-RAD-irɛ	Anterior perfective	pfv pfv
sp-ɛndɔ-RAD-a	Inevitable	inv
sp-tɔ-RAD-a	Decisional	dec
(si-)sp-ka-RAD-a <sup>5</sup>	Narrative	nar
sp-ɾɪ (ku-)RAD-a <sup>6</sup>	Narrative present	n/a
ku-RAD-a sp-a-ɾɪ	Narrative past progressive	n/a
sp-a-ɾɪ sp-iyɔ-RAD-a	Dynamic past progressive	n/a
sp-a-ɾɪ sp-ɔ-RAD-a	Dynamic past habitual	n/a
(si-)sp-idʒa sp-ɔ-RAD-a	Stative past habitual	n/a
sp-idʒa sp-a-RAD-a	Stative past perfect	n/a
sp-idʒa sp-a-RAD-a	Stative far past perfect	n/a
sp-a-idʒa (si-)sp-a-RAD-irɛ	Stative past perfective	n/a
(si-)sp-a-idʒa sp-a-RAD-irɛ	Stative far past perfective	n/a
(ku)-RAD-a sp-ɾɪ	Future	n/a
si-sp-ɾɪ RAD-a	Negative future	n/a
RAD-a	Imperative 2sg	imp2sg
RAD-ɛ	Imperative 1pl	imp1pl
RAD-i	Imperative 2pl	imp2pl
sp-RAD-ɛ	Subjunctive	sub
sp-ka-RAD-a	Advisory	adv
sp-ka-RAD-ɛ	Injunctive	inj
apa ku-RAD-a / ku-RAD-a tuku	Negative imperative	n/a

<sup>4</sup> In compound forms, each component has its specific abbreviation (such as cop for 'copula').

<sup>5</sup> This form is identical to the Advisory. They are only distinguished by the context in which they are used (narratives vs. direct speech), and not for example by tone: the tones are identical.

<sup>6</sup> On the presence vs. absence of *ku-*, see the discussion of examples (15) through (18) above.

However, Langi is not alone in presenting such atypical word order. It is also found in several other Bantu languages, such as Mbugwe (F.34, Mous 2000, 2004), Gusii (E.42, Whiteley 1960), Kuria (E.43, Whiteley, 1955), and a number of languages from the zones B.40-B.50 and H.10-H.30 (Hadermann, 1996).

It is highly probable that the counter-universal structures in Langi were calqued on surrounding Southern Cushitic languages, the most likely candidates being Burunge and Alagwa (Mous, pers. com.). Further indication of influence from these languages is the fact that there are no clear distinctions between degrees of past in Langi.<sup>7</sup> We will see in the following paragraphs that many conjugations can only incidentally be interpreted as past tenses, and that in most cases, the past is indicated by a distinct copula, which precedes the verb form. This situation is contrary to what is found in most Bantu languages (although comparable to what is found in Standard Swahili, Nurse 2000a: 249), as well as in Proto-Bantu, but closely resembles Southern Cushitic where aspectual distinctions are much more central than temporal ones (Nurse 2000b: 524). Furthermore, the only clear temporal distinctions are expressed in verbal constructions, whereas most aspectual and modal distinctions are expressed directly in the verb form.

**2.1 Progressive: (si-)sp-iyɔ-RAD-a.** The progressive indicates a process which is on-going at the time of speech. It is often used to signify that one is in the middle of doing something, and therefore unable to respond to a demand.

(19) *niiyɔluusika* 'I'm talking'

*ni -iyɔ -luus -ik -a*  
 sp1sg -prog -talk -neut -prog

(20) *siiyɔseyə kintu tuku, iiyɔkiriirikana*  
 'He isn't saying anything, he's thinking.'

*si -a -iyɔ -sey -a kɪ -ntu tuku*  
 p.pfx -sp1 -prog -say -prog ip<sup>7</sup> -thing neg  
*a -iyɔ -k<sup>8</sup> -i -r -ir -ik -an -a*  
 sp1 -prog -k -refl -think -appl -neut -asc -prog

<sup>7</sup> Or at least in the dialect spoken in the towns of Kondoa and Pahi. I have been told by Nurse that Stegen has found several distinct pasts, however, as Stegen's aim is to establish a 'pan-Langi' orthography, he has not distinguished between the various dialects.

<sup>8</sup> This consonant is inserted to avoid the merging of the two vowels. It is not part of the reflexive or the radical, the form in the infinitive is *kwiirikana* 'to think'.

- (21) vasiŋga siviyyɔkivaa tuku, viiyɔbwɪta  
 ‘The children aren’t fighting, they’re playing.’

va -siŋga si -va -iyɔ -k -i -va -a tuku va -iyɔ -bwɪt -a  
 ip2 -child p.pfx -sp2 -prog -k -refl -hit -prog neg sp2 -prog -play -prog

The progressive is never used with stative verbs. For a state current at the time of speech, either the habitual, the perfect or the perfective is used. For example the verb *kɔɔfa* ‘to be afraid’ is usually conjugated in the habitual (*nɔɔkɔɔfa ndʒɔka* ‘I am afraid of snakes / I fear snakes’), whereas the verb *kuvɪha* ‘to be bad’ is usually conjugated in the perfect (*naavɪha* ‘I am bad’).

**2.2 Habitual: (si-)sp-ɔ-RAD-a.** The habitual is mostly used to describe situations that are characteristic of an extended period of time, to express recurrent events, statements of general truth. It is used for example to describe what one does in life, but, contrary to the progressive, does not stress that something is on-going at the time of speech.

The habitual shares many features with the perfect (see below), the difference being that the habitual does not refer to an earlier situation, and is mostly used with dynamic verbs, whereas the perfect is commonly used with both dynamic and stative verbs.

- (22) nɔɔrima ‘I farm / I’m a farmer.’

ni -ɔ -rim -a  
 splsg -hab -farm -hab

- (23) ntʃuŋgula yɔɔrya ndʒuu ‘The hare eats beans.’

n -tʃuŋgula i -ɔ -ry -a n -dʒuu  
 ip9 -hare sp9 -hab -eat -hab ip10 -beans

- (24) siɔɔtɛrɛka tuku  
 ‘I don’t cook/ I’m not the one who cooks in our house.’

si -ni -ɔ -tɛr -ɛk -a tuku  
 p.pfx -splsg -hab -cook -neut -hab neg

- (25) sivɔɔtɛma lukwi tuku ‘They are not cutting wood.’  
 si -va -ɔ -tɛm -a lu -kwi tuku  
 p.pfx -sp2 -hab -cut -hab ip11 -wood neg

In the following example, a stative verb usually inflected in the perfective is inflected in the habitual, to show sarcasm.

- (26) tɔɔtaŋga  
 ‘We know/we are knowing (we’re not stupid).’  
 tu -ɔ -taŋg -a  
 splpl -hab -know -hab

**2.3 Perfect: (si-)sp-a-RAD-a.** This form is certainly the reflex of the (tentative) Proto-Bantu ‘preterite ipf.’ (-á-...-a) (Meeussen 1967: 109), however, as its values are closer to what Comrie calls the perfect (Comrie 1976: 52-65), I have chosen the label which will have meaning for the largest number of readers.

The interpretation of the perfect is linked to the type of verb: stative vs. dynamic. When used with stative verbs, the time reference is the present, as in:

- (27) vitʃiŋgɔ vyaabɔha ‘The beads are beautiful.’  
 vi -tʃiŋgɔ vi -a -bɔh -a  
 ip8 -bead sp8 -pft -be.beautiful -pft

- (28) aya madzi siyaahɔla tuku ‘This water is not cold.’  
 aya ma -dʒi si -ya -a -hɔl -a tuku  
 dem6 ip6 -water p.pfx -sp6 -pft -be.cold -pft neg

When used with dynamic verbs, the perfect refers to a present situation which results from a preceding process, the latter having produced a state which is either still current or the effects of which are still felt.

- (29) mwaana aakula  
 ‘The child has grown.’ (One deduces that he used to be short.)  
 mu -ana a -a -kul -a  
 ip1 -child spl -pft -grow -pft



(30) naadoma kaayii yaavɔ

‘I have been to their house (already, therefore I don’t want to go back).’

nɪ -a -dɔm -a Ø -kaaya -i ɪ -a -vɔ  
 splsg -pft -go -pft ip9 -house -loc dp9 -det -poss3pl

(31) sinaadoma kaayii yaavɔ tuku

‘I haven’t been to their house (but would like to go).’

si -nɪ -a -dɔm -a Ø -kaaya -i ɪ -a -vɔ tuku  
 p.pfx -splsg -pft -go -pft ip9 -house -loc dp9 -det -poss3pl neg

**2.4 Perfective: (si-)sp-a-RAD-irɛ.** This conjugation can also be traced back to Proto-Bantu, however it is not clear whether it is the reflex of Meeussen’s ‘recent pf.’ (-a-, -*ídé*) or his ‘pret. pf.’ (-á-, -*ídé*) (Meeussen 1967: 113), in neither case do the tones correspond (the pattern in Langi is usually -à-, -*ídè*, but may vary according to context).

The perfective denotes a completed situation. Contrary to the perfect, it does not refer to a past situation.

(32) mwaana aakurirɛ

‘The child grew.’

mu -ana a -a -kul<sup>9</sup> -irɛ  
 ip1 -child spl -pfv -grow -pfv

(33) kuri sidzaalumirɛ musunḡaati tuku

‘The dogs didn’t bite the rich man.’

Ø -kuri si -dʒi -a -lum -irɛ mu -sunḡaati tuku  
 ip10 -dog p.pfx -spl0 -pfv -bite -pfv ip1 -rich.man neg

The perfective can be used with all types of past adverbs, ‘yesterday’ as well as ‘last year’.

(34) idzɔ, naadomirɛ na ludzii

‘Yesterday I went to the watering hole.’

idzɔ nɪ -a -dɔm -irɛ na lu -dʒi -i  
 yesterday splsg -pfv -go -pfv conn ip11 -watering.hole -loc

<sup>9</sup> /l/ is pronounced [r] before /i/.

- (35) mwaaka waalokire, twaadomire na arufa  
 ‘Last year, we went to Arusha.’

mu -aka u -a -lok -ire tu -a -dom -ire na arusha  
 ip3 -year sp3 -pfv -pass -pfv splpl -pfv-go -pfv conn Arusha

One could be tempted to consider the perfective a ‘past tense’. In my opinion, however, the emphasis is on the completed aspect rather than on the fact that it is past. This is supported by the use of the perfective in conditional phrases.

- (36) kōni naadomire kaayii, rya nderi  
 ‘If I go home, I will eat.’ (lit. ‘If I went home, I will eat.’)

kōni ni -a -dom -ire Ø -kaaya -i ry -a nde -ri  
 if splsg -pfv -go -pfv ip9 -house -loc eat -sfx splsg -cop

**2.5 Anterior perfect: (si-)sp-a sp-a-RAD-a.** The anterior perfect has the same aspectual values as the perfect but refers to a situation which takes place prior to another situation, which is necessarily in the past. The structure of this form is unusual, as in Bantu verb forms a TAM marker must be prefixed to a radical, not to another TAM marker. According to my informants, the verb is simply “doubled”.

- (37) fatuma aa aatumama hantu ali uudzire  
 ‘Fatuma was working when Ally came.’

Fatuma a -a a -a -tumam -a  
 Fatuma sp3sg -pft sp3sg -pft -work -pft  
 ha -ntu Ally a -a -udz -ire  
 ip16 -place Ally sp3sg -pfv -come -pft

- (38) hantu viinukire, sinaa naanda ira kazi waampere<sup>10</sup> tuku  
 ‘When they left, I hadn’t started the work you gave me.’

<sup>10</sup> This form is imbricated. Imbrication affects verbs inflected in the perfective, generally those bearing certain extensions, where, roughly speaking, the extension and the suffix merge. The outcome varies both according to the extension and to the radical final consonant. Other examples can be found in (41), (70), (71). For more information on imbrication, see Bastin (1983) and Dunham (forthcoming).

ha -ntu va -a -i -nuk -irɛ si -nɪ -a nɪ -a -and -a  
 ip16-place sp2pl -pfv-refl -leave-pfv p.pfx-sp1sg -pft sp1sg -pft -begin -pft  
 ɪ -ra Ø -kazi u -a -ŋ -hɛɛr -irɛ tuku  
 dp9 -dem ip9 -work sp2sg -pfv -obj1sg -give -pfv neg

- (39) hayi vaari ava vasinga? sinaa naavɔɔna tuku  
 ‘Where were the children? I hadn’t seen them.’

hayi va -a -rɪ ava va -singa  
 where sp2 -pft -cop dem2 ip2 -child  
 si -nɪ -a nɪ -a -va -ɔn -a tuku  
 p.pfx -sp1sg -pft sp1sg -pft -obj2-see -pft neg

A possible explanation is that these structures, as well as those presented in the following section, at one point contained an auxiliary which has since been deleted.

**2.6 Anterior perfective: (si-)sp-a sp-a-RAD-irɛ.** The anterior perfective has the same aspectual values as the perfective but, as for the anterior perfect in the preceding section, refers to a situation which takes place prior to another, past situation.

- (40) hantu twa twaaturirɛ ma ali akalɔka  
 ‘When we appeared, then Ally left (lit. passed).’

ha -ntu tu -a tu -a -tul -irɛ  
 ip16 -place sp1pl -pfv sp1pl -pfv -appear -pfv  
 ma ali a -ka -lɔk -a  
 then Ally sp3sg -nar -pass -nar

- (41) twa twiɪɛɛɛɛ, ma nɪkaanda tɪdʒa na idukii  
 ‘We had met, then (after which) I started running off to the store.’

tu -a tu -a -i -ʃi -an -irɛ  
 sp1pl -pfv sp1pl -pfv -refl -meet -rec -pft  
 ma nɪ -ka -and -a -tɪdʒ -a na i -duki -i  
 then sp1sg -nar -start -nar -run -sfx conn ip5 -store -loc

**2.7 Inevitable: sp-endo-RAD-a.** Verbs in this conjugation refer to a situation which the speaker considers will happen in the near future and which is inevitable. The marker *-endo-* is probably a grammaticalized form of the verb *kwenda* ‘want, love’. This is quite frequent in Bantu languages, to the point that Heine (1997: 2) includes it in his catalogue of probabilistic predictions that can be made about African languages: “(v) If a language develops a future tense marker then most likely it will use either of the motion verbs ‘go (to)’ or ‘come (to)’ or a verb of volition ‘want’.”.

As will be seen from the following examples, Langi has retained the notion of volition, but in the sense that when something ‘wants’ to do something, it means that that something is bound to happen. This type of value is found for example in Moore (Raphael Kaboré, pers. com.), a Gur language spoken in Burkina Faso, where when one says ‘it wants to rain’, it means that the clouds are so full that it is bound to rain, or ‘the glass wants to fall’ meaning that if the glass is not moved it will fall from the table.

- (42) mpaka mnenya tundopata habari  
‘All the way to Mnenya we are bound to get the news.’

mpaka mnenya tu -endo -pat -a Ø -habari  
until Mnenya sp1pl -inv -get -sfx ip10 -news

- (43) ma ha mpitji yendokwatwa  
‘Then, here, the hyena is going to get caught.’

ma ha m -pitji i -endo -kwat -w -a  
then here ip9 -hyena sp9 -inv -touch -pass -sfx

- (44) kintu mundorya ni waari  
‘What you are going to eat is porridge.’ (Whether you like it or not.)

ki -ntu mu -endo<sup>11</sup> -ry -a ni u -ari  
ip7 -thing sp2pl -inv -eat -sfx pres ip14 -porridge

- (45) akafumya ngɔ dzaatʃwɛ na endokɔwa  
‘She took off her clothes (in order) to wash.’

a -ka -fum -y -a ŋ -gɔ dʒi -a -tʃwɛ na

<sup>11</sup> Preceded by the vowel /u/, the marker’s initial /ɛ/ drops.

spl -nar -exit -caus -nar ip10 -clothes dp10 -det -poss3sg conn  
 a -endɔ -k -ɔw -a  
 spl -inv -k -wash -sfx

**2.8 Decisional: sp-tɔ-RAD-a.** It is highly probable that *-tɔ-* is a grammaticalized form of a full verb (Güldemann 2003: 185), as is the case for *-endɔ-*. Contrary to *-endɔ-* however, it is difficult to say which full verb it stems from. Language-internally, the only likely source is *kutɔla* ‘take’. I have been unable to find any examples of other Bantu languages where ‘take’ has been grammaticalized, however the phenomenon is widely attested in the languages of the world (Hagège 1975, Sebba 1987, Li and Thompson 1974, Lord 1993, Ozanne-Rivierre 2004). Contrary to what is found in Langi, in most of the cases described, the verb ‘take’ is serialized and tends to undergo a gradual reanalysis as a preposition or a case marker. The one example I have found that is somewhat similar to Langi is in the Polynesian Outlier language, Pileni. According to Åshild Næss (2004: 242), two constructions use the verb *toa* ‘take’, with different semantic and syntactic properties: one where *toa* introduces an object argument, and another where it contributes a volitional or inceptive meaning to the clause, similar to the English ‘to take to V-ing’.

One other possibility is that the form derives from a verb ‘to leave’ or ‘to go’ (in Langi *ku-tamanya* and *ku-dɔma* respectively) followed by an infinitive. Botne (1999: 484) mentions two Bantu languages where a marker *-to-* is found. In the first case it is derived from ‘to leave, to go’, in *to-kos-e* ‘va prendre’ (Ntomba C.66: Gilliard 1928), and in the second case (Lozi S.34: Gorman 1950) it is derived from ‘come’ + *ku-inf*: *mu-to-ng-a* ‘come (Pl) and get (it)’. Hadermann (1999: 454-455) mentions one case where a marker *-too-* is found, and also posits its origins in a verb ‘to go’: “En nkengo (C.61), une des formes du futur comporte la marque *-too-* qui pourrait refléter une séquence ancienne *-ta-ko-* où *-ta-* remonterait à un verbe ‘aller’.”

In the examples I have found in Langi, the use of *-tɔ-* signifies that the speaker is about to/has decided to/intends to undertake an action voluntarily.

(46) aakwiire, tutɔsɔŋgɔla mayiti yaatʃwe

‘He is dead, we are going to remove his corpse.’

a -a -kwi -ire tu -tɔ -sɔŋgɔl -a Ø -mayiti ɪ -a -tʃwe  
 spl -pfv -die -pfv splpl -dec -remove -sfx ip9 -corpse dp9 -det -poss3sg

- (47) ηkukulume itoveka vi, keyi kakatola  
 ‘Just when the rooster was about to crow, he (small bird) took (clothes).’

η -kuku -lume ɪ -tɔ -vek -a vi keyi ka -ka -tɔl -a  
 ip9 -chicken -male sp9 -dec -crow -sfx just then sp12 -nar -take -nar

A particularity of the decisional marker is that it can follow other TAM markers in the 3<sup>rd</sup> position of the verb form, for example, the following:

*Habitual + Decisional.* When the decisional is combined with the habitual marker, the speaker indicates that a decision has been taken, and that it is in the process of being carried out.

- (48) nootokowa ludzii  
 ‘I’m going to wash in the watering hole.’ (Despite contrary orders.)

ni -ɔ -tɔ -k -ɔw -a lu -dʒi -i  
 sp1sg -hab -dec -k -wash -hab ip11 -watering.hole -loc

*Perfect + Decisional.* Here the speaker indicates that a decision was taken, and has already been carried out:

- (49) naatokowa ‘I still went and took a bath.’

ni -a -tɔ -k -ɔw -a  
 sp1sg -pft -dec -k -wash -pft

*Progressive + Decisional.* Here, too, the use of the marker *-tɔ-* seems to add a level of intention or decision to the basic verb, but, as the form is in the negative, to indicate that the decision is not in the process of being carried out.

- (50) mbula yɔɔvaa, ava vadala siviiyɔtorima tuku  
 ‘It’s raining, the women are not going to farm.’

m -bula ɪ -ɔ -va -a  
 ip9 -rain sp9 -hab -beat -hab  
 ava va -dala si -va -iyɔ -tɔ -rim -a tuku  
 dem2 ip2 -woman p.pfx -sp2 -prog -dec -farm -prog neg

*Inevitable + Decisional.* When *-endɔ-* and *-tɔ-* are combined, the resulting values are inevitability and intention/decision.

- (51) nɔ utʃiku yɛɛndɔtɔrya ndʒuu ‘It’s at night (that) he goes and eats beans.’  
(Even though he knows he’s bound to be caught).

nɔ u -tʃiku ɪ -ɛndɔ -tɔ -ry -a n -dʒuu  
rel ip14 -night sp9 -inv -dec -eat -sfx ip10 -bean

- (52) hapana kundɔtɔkɔwa  
‘Do not go and wash anyway.’ (Despite our orders).

hapana ku -ɛndɔ -tɔ -k -ɔw -a  
neg ip15 -inv -dec -k -wash -sfx

From these examples it can be seen that the inevitable *-ɛndɔ-* and the decisional *-tɔ-*, show rather atypical behavior. This leads me to hypothesize that they entered the Langi tense/aspect/mood system more recently than the other markers we have seen thus far, such as the anterior or the progressive, for example.

The first distinctive feature of *-tɔ-* and *-ɛndɔ-* is that the corresponding full lexical verbs are still in common use (with reservations however concerning the origins of *-tɔ-*, see above).

- (53) tɔɔla idihwa ‘Take some white sorghum.’

tɔɔl -a i -dihwa  
take -imp2sg ip5 -sorghum

- (54) simba kintu yɛɛnda ni mahɔŋge ‘The lion, what he loves is steak.’

∅ -simba kɪ -ntu ɪ -a -ɛnd -a ni ma -hɔŋge  
ip9 -lion ip7 -thing sp9 -pft -love -pft pres ip6 -steak

I would further hypothesize that *-tɔ-* was grammaticalized before *-ɛndɔ-* as the latter, in its full form, is still attested as the first verb in a verb combination. For example.

- (55) mpitʃi dʒɛɛnda kusakaata ‘Hyenas love to hunt.’

m -pitʃi dʒi -a -ɛnd -a ku -sakaat -a  
ip10 -hyena sp10 -pft -love -pft ip15 -hunt -sfx

Furthermore, *tɔ* can combine with other markers in the 3<sup>rd</sup> column. In my opinion, the value common to these two verbs, *kwɛɛnda* ‘want, love’ and *kutɔɔla* ‘take’ which led to their grammaticalization, and which was lacking in the Langi verb system, is that of showing the speaker’s involvement, or attitude towards the state of affairs expressed in the clause. This type of ‘attitude’ marker is described by Maarten Mous for Ma’ra (2003: 116, 129, 131). A further similarity between the markers mentioned by Mous and the Langi *-tɔ-* is their possibility of combining with other pre-radical TAM markers.

**2.9 Narrative: (si)-sp-ka-RAD-a.** This conjugation is identical in structure to what I have dubbed the ‘advisory’ (see below, section 2.22). A similar state of affairs was attested by Meeussen (1967), who mentions three distinct conjugations with *-ka-* (motional, inceptive and subsecutive) and notes (p. 109): “The relationship between *-ká-*, *-ka-* and an often attested near homophone formative with meaning ‘and (he did...)’ (subsecutive) is not clear.”

In Langi, the narrative and the advisory are never used in the same speech context: the narrative, as its name indicates, is only used in narration, whereas the advisory, and the injunctive (with the suffix *-ɛ*) is always addressed to someone, even if the advice concerns a third person.

The narrative is never used as the first verb form in a text, the time frame always having been previously established, either by the traditional introduction *ahɔ kale* ‘Once upon a time...’ or by a preceding verb form. Once the time frame is established, successive events are presented in the narrative, most often separated by *ma* ‘then’.

(56) *ma akadɔma* na ludʒi                      ‘Then she went to the watering hole.’

ma a -ka -dɔm -a na lu -dʒi -i  
then sp1 -nar -go -nar conn ip11 -water -loc

(57) *ma ikawuluka* na dʒira ŋɔ                      ‘Then it flew away with those clothes.’

ma ɪ -ka -wul -uk -a na dʒi -ra ŋ -gɔ  
then sp9 -nar -fly -sep -nar conn dp10 -dem ip10 -clothes

Verbs inflected in the narrative are usually translated by a preterit in English, but in Langi it cannot be considered a ‘past tense’, as by itself it carries no reference to time, and is dependant on a separate form. In this respect, the narrative is com-



parable to the ‘aorist’ described by Guentchéva (1990: 107) for Bulgarian, and Robert (1996) for Wolof. Robert states:

L’Aoriste est une forme verbale qui n’indique pas de repérage temporel. (...) Les événements à l’Aoriste n’ont pas par eux-mêmes ni lieu ni temps ; ils s’inscrivent dans un cadre situationnel prédéfini à l’aide d’une autre conjugaison.  
[p. 377]

**2.10 Narrative present: sp-ri (ku-)RAD-a.** In this construction, the verb radical following the copula may or may not carry the infinitive prefix *ku-*, depending on how closely, semantically, the subject is bound to the lexical verb. In example (58), the lion is coming of his own free will — he could choose not to — thus the verb carries the infinitive prefix. In example (59), the hare is struggling to get by and can do nothing about it, thus the prefix is absent. See also examples (15)-(18).

This conjugation is only attested in narratives. It is used when there is a break in the narration, either in time or in space.

(58) *haha simba ɪɪ kuudʒa nɔ ʃiana mpitʃi*  
‘Now the lion is coming to meet the hyena.’

*haha* Ø -simba ɪ -ɪ ku -udʒ -a nɔ ʃian -a m -pitʃi  
now ip9 -lion sp9-cop ip15 -come -sfx rel meet -sfx ip9 -hyena

This example is taken from a story.<sup>12</sup> The preceding sentences present the lion and the hyena, and the narrative present is then used to signify that the speaker has finished the introduction and is entering the narrative present.

(59) *ntʃuŋgula ɪɪ kwɛta* ‘The hare is struggling (to get by).’

n -tʃuŋgula ɪ -ɪ kwɛt -a  
ip9 -hare sp9-cop struggle -sfx

Here too, the hare has been introduced as part of the story in the preceding sentences, example (59) serving to describe the state the hare is in, in the narrative present.

<sup>12</sup>This story and others may be read and listened to on the LACITO Archive Project website: <http://lacito.vjf.cnrs.fr/archivage>.

**2.11 Narrative past progressive: ku-RAD-a sp-a-rɪ.** Unfortunately I have only one example of this construction in my data, and it is elicited,<sup>13</sup> but it is also mentioned in Nurse (2003: 97). There is further mention of this same construction, in this order (infinitive + copula) as well as in the inverse order (copula + infinitive) in Mous (2000: 475, however his examples were given by Nurse).<sup>14</sup> According to Mous, the change in word order is probably due to emphasis (pers. com).

- (60) kuseka twaari ma uhu maka akaanda rɪra  
‘We were laughing then this guy started to cry!’

ku	-sɛk	-a	tu	-a	-rɪ	ma	uhu	∅	-maka
ip15	-laugh	-sfx	sp1pl	-pft	-cop	then	dem1	ip1a	-guy
	a	-ka	-and	-a	rɪr	-a			
	sp1	-nar	-start	-nar	cry	-sfx			

Despite the scarcity of data, I have given this example as it shows a counter-universal word order (infinitive + copula) — see the general introduction to section 2).

**2.12 Dynamic past progressive: sp-a-rɪ sp-iyɔ-RAD-a.** This structure is also only attested in elicitation, in one example. However, it confirms that the copula *-rɪ* is largely productive in verbal constructions, both with and without the perfect marker, and both preceding and following the lexical verb.

- (61) twaari twiiyɔseka ‘We were (in the process of) laughing.’

tu	-a	-rɪ	tu	-iyɔ	-sɛk	-a
sp1pl	-pft	-cop	sp1pl	-prog	-laugh	-prog

**2.13 Dynamic past habitual: sp-a-rɪ sp-ɔ-RAD-a.**

- (62) twaari tɔseka ‘We were laughing.’

tu	-a	-rɪ	tu	-ɔ	-sɛk	-a
sp1pl	-pft	-cop	sp1pl	-hab	-laugh	-hab

<sup>13</sup>It must be noted that this is a common problem when one works on a language that has not been previously described.

<sup>14</sup>There seems to be some confusion in the translation in Mous (‘We are buying’), which should read as it appears in Nurse (2003) ‘We were laughing’.

From examples (60)-(62), it seems that the copula inflected in the perfect situates a process in the past. We will see in the following sections that when the lexical verb is stative, as opposed to dynamic, the copula *-idza* is used.

**2.14 Stative past habitual: (si-)sp-idza sp-ɔ-RAD-a.** This construction is made up of a verb inflected in the habitual preceded by the copula *-idza*, which serves to place the situation in the past. The aspectual values of the main verb are kept.

- (63) twiidza tɔkɪmba hantu tɔyɛnda, haha tɔtɪdʒa  
‘We used to sing while walking, now we run.’

tu -idza tu ɔ -k -imb -a ha -ntu tu ɔ -yɛnd -a  
sp1pl -cop sp1pl -hab -k -sing -hab ip16 -place sp1pl -hab -walk -hab  
haha tu ɔ -tɪdʒ -a  
now sp1pl -hab -run -hab

- (64) twiidza tɔkɪkala Kondo ma tukasaama na London  
‘We used to live in Kondo, then we migrated to London.’

tu -idza tu ɔ -k -ikal -a Kondo  
sp1pl -cop sp1pl -hab -k -reside -hab Kondo  
ma tu -ka -saam -a na London  
then sp1pl -nar -migrate -nar conn London

- (65) hantu nɔkɪkaala amerɪkani<sup>15</sup> siniidza nɔɔtumama bɛnkii tuku  
‘When I lived in America I didn’t use to work in a bank.’

ha -ntu ni ɔ -k -ikaal -a amerɪka -ni  
ip16 -place sp1sg -hab -k -reside -hab America -loc  
si -ni -idza ni ɔ -tumam -a Ø -bɛnki -i tuku  
p.pfx -sp1sg -cop sp1sg -hab -work -hab ip9 -bank -loc neg

**2.15 Stative past perfect: sp-idza sp-a-RAD-a.** In this construction the copula is combined with verbs inflected in the perfect aspect. The latter keeps its aspectual values, but is placed in the past.

<sup>15</sup> This locative suffix is borrowed from Swahili.

(66) niidza nɛɛnda tɪdʒa na tʃuuri ‘I used to like to run in the morning.’

nɪ -idʒa nɪ -a -ɛnd -a tɪdʒ -a na kɪ -uri  
sp1sg -cop sp1sg -pft -love -pft run -sfx conn ip7 -morning

(67) mwaasu wiidza waavanka ‘When the sun was shining.’  
(in response to: ‘When did you usually eat?’)

mʊ -asu ʊ -idʒa ʊ -a -var -ɪk -a  
ip3 -sun sp3 -cop sp3 -pft -shine -neut -pft

(68) ira siku iidza yaaboha ‘That day was beautiful.’

ira ∅ -siku ɪ -idʒa ɪ -a -bɔh -a  
dem9 ip9 -day sp9 -cop sp9 -pft -be.beautiful -pft

**2.16 Stative far past perfect: sp-a-idʒa sp-a-RAD-a.** This is one of the rare cases where one finds distinctions between degrees of pasts in Langi. The only other case is shown below (section 2.17 vs. 2.18). Unfortunately I have only one example of this conjugation, and no examples where this conjugation is in the negative.

(69) wɔkati naadʒa mududi, naadʒa naadudya sana  
‘When I was small, I was very small.’

ʊ -ɔkati nɪ -a -idʒa mʊ -dudi  
ip14 -moment sp1sg -pft -cop dp1 -small  
nɪ -a -dʒa nɪ -a -dudi -a sana  
sp1sg -pft -cop sp1sg -pft -be.small -pft very

**2.17 Stative past perfective: sp-idʒa (si)-sp-a-RAD-ire.** Verbs in the stative past perfective refer to situations which were current in the past.

(70) wiidza waatɛtɛ<sup>16</sup> waami ‘You used to have a corral.’

ʊ -idʒa ʊ -a -tɛt -ire ʊ -ami  
sp2sg -cop sp2sg -pft -have -pft ip14 -corral

<sup>16</sup> This verb is defective, appearing only in the perfective, where it shows an irregular form of imbrication. A comparable verb for ‘have’ is found in Chaga (M.-L. Montlahuc, pers. com.), where it is also defective (although to a lesser extent than in Langi).

- (71) niidza siniifyeene na mama wiitu tuku  
 ‘I used to not look like our<sup>17</sup> mother.’

ni -idza si -ni -a -i -fy -an -ire  
 splsg -cop p.pfx -splsg -pfv -refl -ressemble -asc -pfv  
 na Ø -mama u -a -itu tuku  
 conn ip1a -mother dp1 -det -poss1pl neg

We shall see in example (74) below that in the stative far past perfective, it is the copular verb which carries the negative pre-prefix.

### 2.18 Stative far past perfective: (si-)sp-a-idza sp-a-RAD-ire.

- (72) vaadza vaatete udzusi wooruta<sup>18</sup>  
 ‘They used to be blacksmiths.’ (lit. ‘They used to have the profession of pulling.’)

va -a -idza va -a -tet -ire u -dzusi u -o -rut -a  
 sp2 -pft -cop sp2 -pfv-have -pfv ip14 -profession pp14 -rel -pull -rel

- (73) uhu musinga hantu aadza mududi, aadza iifyeene na iyɔ waavɔ  
 ‘When this child was small he looked like their mother.’

uhu mu -singa ha -ntu a -a -idza mu -dudi, a -a -idza  
 dem1 ip1 -child ip16-place sp1-pft -cop dp1 -small sp1 -pft -cop  
 a -a -i -fy -an -ire na Ø -iyɔ u -a -vɔ  
 sp1 -pfv -refl -resemble -asc -pfv conn IP1a -mother dp3 -det -poss3pl

- (74) ava vasinga hantu vaadza vadudi sivaadza viifyeene na iyɔ waavɔ tuku  
 ‘When these children were small they didn’t used to look like their mother.’

ava va -singa ha -ntu va -a -idza va -dudi si -va -a -idza  
 dem2 ip2-child ip16 -place sp2 -pft -cop dp2 -small p.pfx -sp1 -pft -cop  
 va -a -i -fy -an -ire na Ø -iyɔ u -a -vɔ tuku  
 sp2-pfv -refl-ressemble -asc -pfv conn IP1a -mother dp1 -det -poss3pl neg

<sup>17</sup> Family members (and homes) are never possessed in the singular in Langi.

<sup>18</sup> Relative forms apparently share the same TAM markers as the habitual, only the prefix differs (the pronominal prefix is used as opposed to the subject prefix).

As can be seen from the examples in the preceding five sections, in accordance with its use independently, verb constructions with the past copula always refer to durative as opposed to punctual situations.

**2.19 Future: (ku-)RAD-a sp-ri.** This form denotes either an immediate or an indeterminate future, depending on the presence of the class 15 prefix *ku-*. I have grouped the two forms together for practical reasons: in several cases, such as in the negative or the interrogative, only one form is possible, so presenting the two forms together eliminates the need to go back and forth between sections.

The prefixless form denotes an immediate future, something that is about to happen.

(75) *ɲɛya ari* ‘He is about to sleep.’

*ɲɛy -a a -ri*  
sleep -sfx sp1 -cop

(76) *muti wiya uri* ‘The tree is about to fall.’

*mu -ti wiy -a u -ri*  
ip3 -tree fall -sfx sp3 -cop

The prefixed form is used to denote an indeterminate future.

(77) *muti kuwiya uri* ‘The tree will fall (some day).’

*mu -ti ku -wiy -a u -ri*  
ip3 -tree ip15 -fall -sfx sp3 -cop

The prefixed form is also used whenever a time or place is mentioned.

(78) *kukera turi muti lamutondo* ‘We will cut the tree tomorrow.’

*ku -ker -a tu -ri mu -ti lamutondo*  
ip15 -cut -sfx sp1pl -cop ip3 -tree tomorrow

(79) *kudoma ari na dodoma* ‘He will go to Dodoma.’

*ku -dom -a a -ri na dodoma*  
ip15 -go -sfx sp1 -cop conn Dodoma

- (80) mwaarimu kuvasomera arɪ vasiŋga kɪtabu ʃulii  
 ‘The teacher will read a book to the children at school.’

mu-arɪmu ku -va -sɔm -ɛr -a a -rɪ va -siŋga  
 ip1 -teacher ip15-obj2 -read -appl -sfx sp1 -cop ip2-child  
 kɪ -tabu Ø -ʃule -i  
 ip7 -book ip9 -school -loc

In conditional phrases, the prefixless form is used in the apodosis, probably to indicate that the action/event/state will immediately follow the fulfillment of the condition.

- (81) kɔni naadɔmirɛ kaayii, rya ndɛrɪ ‘If I go home, I will eat.’

kɔni ni -a -dɔm -irɛ Ø -kaaya -i ry -a ndɛ -rɪ  
 ifsp1 sg -pfv -go -pfv ip9 -house -loc eat -sfx sp1sg -cop

- (82) kɔni wɪmbirɛ, ni vina ndɛrɪ ‘If you sing, me, I will dance.’

kɔni u -a -ɪmb -irɛ ni vin -a ndɛ -rɪ  
 if sp2sg -pfv -sing -pfv pers1sg dance -sfx sp1sg -cop

However the prefixed form is used when there is an object marker in the verb form, certainly in part because of possible confusion between the object prefix and the infinitive prefix (in the following example, both *ku-*).

- (83) kɔni wɪmbirɛ kukuvinra ndɛrɪ ‘If you sing, I will dance for you.’

kɔni u -a -ɪmb -irɛ ku -ku -vin -rɪ -a ndɛ -rɪ  
 if sp2sg -pfv -sing -pfv ip15 -obj2sg -dance -appl -sfx sp1sg -cop

To the best of my knowledge, this constituent order (verb + copula) is limited to a very small number of Bantu languages. Among these languages, I believe a distinction must be made between those which accept SOV order and those with strict SVO order. In the first category are found languages from Guthrie’s zones B.40-50 and H.10-H.30. These have been studied by Hadermann (1996) who states:

La deuxième construction que nous avons analysée est celle où l’infinitif est antéposé à un verbe auxiliaire. Dans cette structure l’infinitif est généralement introduit par le préfixe locatif *mu-* et l’ensemble traduit l’aspect progressif du procès verbal en question. Donc, contrairement à ce qui se passe dans les constructions à verbe redoublé, le morphème locatif (ou sa trace) propre au temps du progressif (cf. la reconstruction \*PV-di-mu-NV) n’apparaît pas dans la forme verbale conjuguée mais dans la forme *nomino-verbale* antéposée. Cette caractéristique est un signe du fait que la structure ‘infinitif + auxiliaire’ est issue de la séquence ‘auxiliaire + infinitif’ mais à un moment où celle-ci pouvait encore s’interpréter en ‘verbe + complément<sub>[nomino-verbal]</sub>’. Puis, il y a eu antéposition du complément, ceci probablement pour des raisons d’emphase. De nouveau, l’existence de l’ordre SOV dans les langues en question a sans doute facilité l’antéposition du locatif infinitival. Au moment où la structure emphatique ‘(S) Loc-Inf Aux’ devient une structure non marquée, un processus de grammaticalisation peut se déclencher et le locatif infinitival sera réinterprété en noyau verbal, suivi d’un verbe-auxiliaire ‘être’. [p. 167]

The second category are languages with strict SVO order which nevertheless show constructions where the infinitival form precedes the auxiliary. In this category are found for example the closely related Gusii (E.42) and Kuria (E.43). In Gusii, the forms with an auxiliary (the copula *-re*) following a main verb correspond to what I call a narrative present (Whiteley 1960: 57) (tones not marked).

- (84) nkogenda<sup>19</sup> nde boono korigia embori  
 ‘Now I’m going looking for the goat.’

When the auxiliary carries the verbal prefix *-a-*, the form corresponds to what I call a narrative past progressive.

- (85) nkorema naare boono ngotimoka nde  
 ‘I’ve been hoeing and now I’m resting’

In Kuria, the forms with an auxiliary following the main verb correspond to something between what I call present progressive and habitual (Whiteley 1955: 92).

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<sup>19</sup> The class 15 prefix is *ko-*, these forms almost certainly bear the cliticized focus marker *n(i)*- (Nurse and Muzale 1999).



(86) ṅgokɔra are emeremo kira urusiku 'He's working every day.'

(87) ṅkorema nde bono ṅkumunya nde 'I'm hoeing and am resting.'

In Mbugwe (F.34) the situation is slightly different. All the tenses that make use of an auxiliary in combination with an infinitive show the order verb-auxiliary, in other words, the order never varies, contrary to what is found in Gusii, Kuria and Langi. In Mbugwe, three different auxiliaries may follow the main verb: the present progressive *-kende*, the future *-je* (which is the verb *ja* 'come' conjugated in the optative, marked by the suffix *-e*) and the habitual *-anda* (Mous 2000: 471).

(88) 'The rain falls with force.'

mbula o -tova e -kende na ngulu  
9:rain 15 -rain 9 -pres.prog with 9:force

(89) 'We will eat cassava.'

ora ko -je mohogo  
15:eat 1pl -come:subj 3:cassava

(90) 'Do you eat fish?'

ora w -anda nsiye?  
15:eat 2sg -hab 9:fish

One feature shared by Gusii, Kuria, Mbugwe and Langi is that they have long been surrounded by communities speaking non-Bantu languages, where the object precedes the verb (Nurse 2000b: 525-6), which seems to indicate that this phenomenon is areal (Dahl 2001: 1456 who states 'Areal linguistics is traditionally concerned with similarities between geographically contiguous languages, in particular when they cannot be ascribed to a common proto-language.'). Furthermore, the adoption of these structures may well have been facilitated by internal factors. In Langi, the order *infinitive + copula* is only attested in main clause affirmatives, and in all other cases the order *copula + infinitive* is found.

(91) nadi urɪ dɔma 'When will you go?'

nadi u -rɪ dɔm -a  
when sp2sg -cop go -sfx

(92) ɲɔmbɛ siiri ɲwa madʒi yɔɔsi tuku ‘The cow will not drink all the water.’

∅- ɲɔmbɛ si -ɪ -ɾɪ ɲw -a ma -dʒi ya- ɔsi tuku  
ip9- cow p.pfx -sp9 -cop drink -sfx ip6 -water dp6- all neg

(93) nɪ mwaarɪmu nɔ arɪ sɔma kɪtabu  
‘It is the teacher who will read a book.’

nɪ mu -arɪmu nɔ a -ɾɪ sɔm -a kɪ -tabu  
pres ip1 -teacher rel sp1 -cop read -sfx ip7 -book

(94) kuudʒa arɪ kɔnɪ arɪ rɛɛta tʃaakurya  
‘He can come if he brings food.’ (lit. ‘He will come if he is bringing food.’)

ku -udʒ -a a -ɾɪ kɔnɪ a -ɾɪ rɛɛt -a kɪ -a -ku -ry -a  
ip15-come -sfx sp1 -cop if sp1-cop bring -sfx ip7 -det -ip15 -eat -sfx

(95) hantu urɪ turɪra, kunɪʃana urɪ naalɔkɪrɛ  
‘When you appear, you will find me gone.’ (lit. ‘When you will appear...’)

ha -ntu u -ɾɪ tul -ɪr -a  
ip16 -place sp2sg -cop appear -appl -sfx  
ku -nɪ -ʃan -a u -ɾɪ nɪ -a -lɔk -ɪrɛ  
ip15 -obj1sg -find -sfx sp2sg -cop sp1sg -pfv -leave -pfv

We also saw that constituent order in Langi can change in other circumstances, namely for reasons of emphasis, such as in example (60).

**2.20 Imperatives: RAD-sfx.** Imperatives are characterized by the absence of both subject prefixes and pre-radical TAM markers. There are three affirmative imperative forms in Langi, distinguished by their suffixes.

(96)	2sg	dɔma	‘go!’	ɪmba	‘sing!’
		dɔm -a		ɪmb -a	
		go -imp2sg		sing -imp2sg	

(97)	1pl	pale	‘let’s count!’	sarɛ	‘let’s taste!’
		pal -ɛ		sa -ɪr -ɛ	
		count -imp1pl		taste -appl -imp1pl	



(103) adʒɛŋgɛ numba ‘that he build a house’

a -dʒɛŋg -ɛ ɲ -umba  
 sp1 -build -sub ip9 -house

(104) tiilare kirumɛ ‘that we show each other our magic’

tu -i -la -ɪr -ɛ kɪ -rumɛ  
 sp1pl -refl -show -appl -sub ip7 -magic

(105) mumpɛɛɛ madʒi ‘that you give me water’

mu -ŋ -hɛɛɪ -ɛ ma -dʒi  
 sp2pl -obj1sg -give -sub ip6 -water

The subjunctive mood does not have its own negative form, and instead shares that of the imperative. Furthermore, many negative subjunctive forms are rendered by verbs with negative meaning, such as *kudira* ‘to not go’.

(106) adiriwɛ ‘that she be made to not go’

a -dir -i -w -ɛ  
 sp1 -not.go -caus -pass -subj

**2.22 Advisory: sp-ka-RAD-a.** This form bears what is commonly called a distal marker, *-ka-*, in the 3<sup>rd</sup> position. This marker is thought to derive from a verb meaning ‘go’ (see Botne 1999 for a comprehensive study of the marker *-ka-*). In Langi, the distal imparts the notion of movement, even though the direction is not always itive. These forms are used to denote advice or weak orders.

(107) tukareɛta mpɛmbɛ ma dʒɪkavikɪrwa ira myɔɔda  
 ‘We must bring horns, and the horns must be filled with potion.’

tu -ka -rɛɛt -a m -hɛmbɛ ma dʒɪ -ka -vik -ɪr -w -a  
 sp1pl -adv -bring -adv ip10 -horn then sp10 -adv -put -appl -pass -adv  
 ɪ -ra mɪ -ɔɔda  
 dp4 -dem ip4 -potion

- (108) ukatahira madʒi vi, ukuudʒa na kaayii  
 ‘Just go and fetch water, and come back home.’

u -ka -tah -ir -a ma -dʒi vi u -ka -udʒ -a  
 sp2sg -adv-fetch -appl-adv ip6 -water only sp2sg -adv -come-adv  
 na Ø -kaaya -i  
 conn ip9 -house -loc

- (109) vakasakwa vaosi ‘Elders must be found.’

va -ka -sak -w -a va -osi  
 sp2 -adv -find -pass -adv ip2 -elder

**2.23 Injunctive: sp-ka-RAD-ε.** Combining the distal marker with the suffix -ε, these forms denote forceful orders. -ka- is the only pre-radical TAM marker attested in combination with the subjunctive suffix -ε.

- (110) uka uka ukalɔɔlwe ni mambeya vaa waari  
 ‘Come, come, you must be married to Mambeya vaa Waari.’

uk -a uk -a u -ka -lɔɔl -w -ε  
 come -imp2sg come -imp2sg sp2sg -inj -marry -pass -inj  
 ni mambeya va -a u -ari  
 pres Mambeya dp2 -det ip14 -porridge

- (111) tukanɛye ‘We must go sleep.’

tu -ka -ɲɛy -ε  
 sp1pl -inj -sleep -inj

### 3. Conclusion.

The Langi verbal system is similar to most Bantu, and indeed Niger-Congo languages in that it expresses tense, aspect and mood through both ‘simple’ verb forms and syntactic verbal constructions. However, it seems to have adopted certain areal features, which probably originated through contact with the neighboring Cushitic languages, Alagwa and Burunge. Langi also seems to have adopted a new system of distinctions within the verbal paradigm, favoring aspectual oppositions over temporal ones, as evidenced by the fact that temporal distinctions are expressed through verbal constructions, whereas aspectual and modal distinctions

are expressed directly by morphological verb form. Langi thus contributes to the study of how language contact, or perhaps more importantly, language enclavement, can lead to the adoption of grammatical elements, and even to a change in word order.

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## **THE IMPORTANCE OF WORD ORDER IN EXPLAINING TONE PATTERNS IN AVOKAYA VERBS**

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This paper presents a set of ordered rules accounting for tone changes that occur in Avokaya verbs. The most prevalent shape for Avokaya verbs is monosyllabic. Disyllabic verbs roots behave the same way as disyllabic verbs which are composed of a derivational prefix plus a monosyllabic verb root. The derivational prefixation process is the same for verbs in all grammatical constructions. Verbs in SVO constructions and SOV constructions are treated separately, since different rules apply for these two sets of constructions. Avokaya syllables may carry a high, mid, low or rising tone, but not a falling tone. In this analysis of Avokaya, we show that the expected HL tone pattern has merged to form a M tone in the verbal system.

### **1. Introduction.**

Avokaya belongs to the Moru-Ma'di sub-group of the Central Sudanic language family, a branch of the Nilo-Saharan family. The dialect of Avokaya used in this paper is spoken in southern Sudan. The data for this paper were gathered over approximately 23 years of work in the language. This paper provides a principled account of tonal alternations in the verbs in Avokaya.

Avokaya has a seven vowel system, three Advanced Tongue Root ([+ATR]) vowels [i], [u] and [ə], and four vowels that are [-ATR], [ɪ], [ɛ], [ɔ], and [a]. Vowel harmony causes a [-ATR] vowel in a verb prefix to assimilate to the corresponding [+ATR] vowel (Callinan 1981). The nominal system of Avokaya demonstrates three level tone patterns, High, Mid and Low. In addition, there is a Rising contour on short vowels, but no Falling contour on short vowels. Phonetically a Falling or Rising contour may occur on long vowels, but these long vow-

els are considered sequences of two Tone Bearing Units (TBU).<sup>1</sup> There are only a few examples of vowel sequences in Avokaya with either contour tones or level tones.

In the nominal system, there are no restrictions on the occurrence of the three level tones, as shown by the representative examples below.

(1) *Monosyllabic nouns*

H		M		L	
pá	‘leg’	fē	‘tree’	fà	‘bone’

(2) *Disyllabic nouns*

HH		HM		HL	
ídri	‘vein’	írī	‘eagle’	ínà	‘crocodile’

MH		MM		ML	
ĩmbá	‘net’	ōzē	‘rain’	ĩndrì	‘child minder’

LH		LM		LL	
ìfǒ	‘millet’	ìlī	‘wind’	ìzà	‘sadness’

A rising tone can occur on monosyllabic nouns.

(3) fǒ ‘flower’      sǐ ‘hail’

In multisyllabic nouns a rising tone occurs only on the first syllable of disyllabic nouns with a monosyllabic root.

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<sup>1</sup> The following abbreviations are used in this paper: **2S** second person singular, **3S** third person singular, **3<sup>rd</sup> IMP** third person imperative, **conj** conjunction, **DIR** direction toward speaker (ventive), **dpfx** derivational prefix, **EOC** end of embedded construction, **H** high tone, **IMP** imperative, **INFIN** infinitive, **L** low tone, **M** mid tone, **neg** negation, **O-FOC** focus on object, **PERF** perfective aspect, **PURP** purpose marker, **R** rising tone, **SM** subject marker for sequential action and relative clauses, **SEQ** verb marker for sequential action, **S-FOC** focus on subject, **sfx** suffix, **vbrt** verb root.

(4) yĩ-wá ‘fly type’<sup>2</sup>

Rising tone also occurs on the first syllable of multisyllabic multi-morphemic nouns with syllabic reduplication.

(5) dǎdǎ-yá ‘bird type’      dǔdǔ-wá ‘headache type’

Since contour tones on short vowels are restricted to initial syllables, this could be analyzed as right-to-left association of tone, but in-depth discussion of this is beyond the scope of this paper.

There are contour tones on phonetically long vowels, analyzed as vowel sequences, in Avokaya nouns as follows.

(6)	dǎi	‘person’	(High-Mid)
	ràtáà	‘chant’	(High-Low)
	gǎpírí	‘mosquito’	(Low-High)

By way of contrast, the tone patterns of Avokaya verbs have shown some interesting restrictions. There are only four tone patterns in evidence.<sup>3</sup>

(7)	<i>Class 1</i>	<i>Class 1A</i>	<i>Class 2</i>	<i>Class 2A</i>
	<i>Mid</i>	<i>Mid-Mid</i>	<i>Low</i>	<i>Mid-Low</i>
	cā <sup>4</sup> ‘arrive’	ājī ‘accompany’	nì ‘go’	ǎ̀tì ‘lean (against)’

<sup>2</sup> A group of multisyllabic verbs derive from nouns. These verbs, which are not within the scope of this paper, have regular surface tone patterns of Mid High (High) (High) Low, e.g. *ĩbádík* ‘tie around (something)’, *ĩbábátzà* ‘baptize’ The first syllable is a derivational prefix with preassigned HL tone. The verb root has a HL melody. The tone changes in the various verb forms of this class of verbs are similar to the changes in the Mid-Low verb class.

<sup>3</sup> There are a group of multisyllabic verbs derived from nouns. These verbs, which are not within the scope of this paper, have regular surface tone patterns of Mid High (High High) Low. The first syllable is a derivational prefix with preassigned HL tone. The verb root has a HL melody. The tone changes in the various verb forms of this class of verbs are similar to the changes in the Mid-Low verb class.

<sup>4</sup> The symbol *c* represents a phoneme that alternates between [ts] and [tʃ] depending on context, and the symbol *j* represents a phoneme that alternates between [dz] and [dʒ] depending on context.

Class 1 and Class 2 are always monosyllabic verbs. Class 1A and Class 2A are always disyllabic verbs. Traditionally the verbal system has been viewed as having four verb classes (Callinan 1986). Analyses of the verbal system of other Moru-Ma'di languages are based on tone without determining whether some verb classes could be derived from others (Wright 1995, Andersen 1984).

To date, there has been no attempt to provide an analysis of the verb system of Avokaya that accounts for all the tonal changes evident in the data. A full listing of those changes is found in example (1). Each structure listed will be handled separately.

(8)	<i>Class 1</i>	<i>Class 1A</i>	<i>Class 2</i>	<i>Class 2A</i>	<i>Morphological Structure</i>
	<i>SVO constructions</i>				
a.	cā	ājī	nì	ǎ̀tì	citation form <sup>5</sup> (imp.: 3.1)
b.	cá-lé bē <sup>6</sup>	ājí-lí bē	nì-lí bē	ǎ̀tì-lí bē	when (tail-head linkage: 3.2)
c.	cá kō	ājí kō	nǐ kō	ǎ̀tí kō	neg. statement: 3.3
	<i>(S)OV constructions</i>				
d.	cà -zó	ājí-zó	nì-zó	ǎ̀tì-zó	aspect/mode inflection: 4.1
e.	cǎ	ājí	nǐ	ǎ̀tí	S conj. O V: 4.2
f.	cà kā	ājí kā	nì kā	ǎ̀tì kā	genitive: 4.3
g.	cà cà	ājí ājī	nì nì	ǎ̀tì ǎ̀tì	participle: 4.4
	'arrive'	'accompany'	'go'	'lean'	

Looking down the columns, it is clear that there are significant tonal changes from construction to construction, especially in the Class 1 verbs.

<sup>5</sup> There are no uninflected forms of the verb in Avokaya. Therefore the underlying form for verbs in classes 1 and 1A cannot stand alone. The imperative has been used as the citation form since it has no affixes containing segmental phonemes. The resulting mid tone in this form is explained in section 3.1.

<sup>6</sup> Both this and the infinitive suffix, also *-lé*, are manifested as *-lí* after the [-ATR] vowel *ɪ*, and as *-lí* after the [+ATR] vowels *u* and *i*. See section 3.1.1 for the discussion of this tail-head linkage construction.

In this paper, we show that Avokaya has two basic tone classes of verbs, and that the forms found in 1A and 2A are subsets of those basic tone classes. When a derivational prefix is added to a verb root, the resulting verb has the same tone patterns as the verb forms found in Classes 1A and 2A. In this case, the derivational prefix does not change the verb to a different word class, but changes the syllable structure of the verb, resulting in tone patterns distinct from the monosyllabic verb roots. A series of rules are presented that account for all the tonal changes which occur in the verbal system.

This analysis assumes that the underlying tones of the verb roots are either High or Low. However, it should be noted that the underlying High tone form never occurs in isolation in the monosyllabic verbs. The Low tone verbs do not present as much of a problem, but the tone changes in the High tone verbs are of particular interest since the High tone monosyllabic verbs often surface as having a Mid tone. It is assumed that there is an additional Low tone morpheme that results in a lowering of the surface tone from High to Mid. This morpheme is discussed in section 3.1.

As is often the case, derivational affixes are added to a root before inflectional ones. Also, derivational affixes may have a more extensive effect on the word than inflectional affixes do. It is assumed in this analysis that any derivational affixation will be completed before any inflectional affixation.<sup>7</sup> The order of the nuclear constituents of a clause determines the tonal pattern of verbs in some constructions. The underlying word order is SVO, but there are certain constructions that have an SOV order. First, we will discuss underlying tone, then the tones of verbs in the SVO order, and finally the tones of verbs in the SOV order.

## 2. Underlying Tones.

Two lexical tone classes are posited for (monosyllabic) verb roots in Avokaya. In the first class, a High tone is posited as the underlying tone while the second class has a Low pattern. There is a disyllabic subset of verbs within each of these two classes. (Historically the disyllabic verbs were composed of a derivational prefix plus monosyllabic verb root.) When a derivational prefix (which is always Mid toned) is added to the High tone monosyllabic verb roots of Class 1, the behavior

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<sup>7</sup> In fact, if a derivational prefix were to be added after the application of the rules affecting tone changes in the verb, an ungrammatical form would result. For instance, if the directional prefix *ā-* were to be added to the root *cá* 'arrive' after the rules of level 2 were applied, the following ungrammatical forms would result: *\*ācàlé* 'to arrive here', *\*ācǎ* '(lest...) arrive'.

of the new verb stems is identical to the verbs of Class 1A. Also the derivational prefix added to the monosyllabic verb roots of Class 2 behave like the verbs of Class 2A. Therefore the disyllabic verbs of Class 1A are assumed to have the underlying tone pattern Mid High, while those of Class 2A have the underlying tone pattern of Mid Low.

(9) *Underlying tonal assignments*

<i>Class 1</i>	<i>Class 1A</i>	<i>Class 2</i>	<i>Class 2A</i>
H	M    H	L	M    L
CV	(C)V + CV	CV	(C)V + CV

**1.1 Derivational prefixes.** There are various derivational verb prefixes which, when added to verbs, form new verb stems. Examples of these prefixes are given below. These prefixes differ from inflectional prefixes in that their addition results in a disyllabic verb with all the tone changes that disyllabic verb stems have. Inflectional prefixes, on the other hand, do not affect the tone of the verb root.

The derivational prefixes that can be added to Avokaya verbs are as follows. The first is “direction toward speaker” (ventive)  $\bar{a}$ -.<sup>8</sup>

(10)	$\bar{c}\bar{a}$	‘arrive (there)’	$\bar{a}\text{-}\bar{c}\bar{a}$	‘arrive (here)’
	$\bar{n}\bar{i}$	‘go’	$\bar{a}\text{-}\bar{n}\bar{i}$	‘come’

This prefix is highly productive. The second is the multiplicative, denoting multiple action or participants,  $\bar{b}$ - or  $\bar{l}\bar{b}$ -<sup>9</sup> depending on the specific verb.

(11)	$\bar{f}\bar{u}$	‘kill’	$\bar{u}\text{-}\bar{f}\bar{u}$	‘kill (many)’
	$\bar{b}\bar{a}$	‘put, make’	$\bar{l}\bar{b}\text{-}\bar{b}\bar{a}$	‘make (many things)’

This prefix is also highly productive. The third is the transitivizer,  $\bar{v}$ -,  $\bar{l}\bar{v}$ -,<sup>10</sup> or  $V_1$ - depending on the specific verbs, where  $V_1$  is a mid toned vowel matching the features of the root vowel.

<sup>8</sup> This prefix is manifested as  $\bar{b}$ - before verb roots with [+ATR] vowels and as  $\bar{a}$ - elsewhere.

<sup>9</sup> In both cases, the prefix  $\bar{b}$ - is manifested as  $\bar{u}$ - before verbs with [+ATR] vowels and  $\bar{b}$ - elsewhere.

<sup>10</sup> The prefix  $\bar{l}\bar{v}$ - is manifested as  $\bar{l}\bar{u}$ - before verb roots with [+ATR] vowels.

(12)	a.	rā	‘run’	ō - rā	‘strain (liquid) out’
	b.	fī	‘enter’	lō - fī	‘bring (something) in’
	c.	fō	‘exit’	lō - fō	‘take out (of a house)’
	d.	drā	‘bubble/parboil’	ā- drā	‘parboil (something)’
	e.	trē	‘shout/make noise’	ē- trē	‘clear (throat)’
	f.	cī	‘be lit’	ī- cī	‘light (fire)’

This type of prefix is fairly productive.

For each derivational prefix the prefix tone surfaces as a Mid tone. There are also restrictions as to which derivational prefixes can be added to which verb roots. For instance, intransitive motion verbs can take a directional prefix, but not the prefix denoting multiple action.

Verbs in Class 1 are monosyllabic verbs with a High tone root, and Class 2 are monosyllabic verbs with a Low tone root. These are the two basic verb classes. Verb Classes 1A, disyllabic verbs with MH tone pattern, and 2A, disyllabic verbs with ML tone pattern, are linked to Class 1 and Class 2 respectively, since disyllabic verbs stems derived from the monosyllabic verb roots of Class 1 act exactly like verb roots of Class 1A, and disyllabic verb stems derived from the monosyllabic verb roots of Class 2 act exactly like the verb roots of Class 2A. The same tone changes occur in the corresponding grammatical constructions. Compare the tone patterns of the monosyllabic verb roots of Class 1 and 2 in (13) below having the added directional prefix *ā-*, with the verbs of Class 1A and 2A.



(13)	<i>Prefixed Class 1 MH 'arrive (here)'</i>	<i>Class 1A MH 'accompany'</i>	<i>Prefixed Class 2 ML 'come'</i>	<i>Class 2A ML 'lean'</i>	<i>Morphological Structure</i>
a.	ā-cā	ājī	ā-nì	ētì	citation (imp.)
b.	ā-cá-lé bē 'when.. arrived'	ājí-lí bē 'when... accompanied'	ā-nì-lí bē 'when... came'	ētì -lí bē 'when... leaned'	when (tail-head linkage) <sup>11</sup>
c.	ā-cá kō 'did not arrive'	ājí kō 'did not accompany'	ā-nǐ kō 'did not come'	ētí kō 'did not lean'	negative statement
d.	ā-cá-zó 'arrived'	ājí-zó 'accompanied'	ā-nì-zó 'came'	ētì-zó 'leaned'	aspect/mode inflection
e.	ā-cá '(lest)... arrive'	ājí '(lest).. accompany'	ā-nǐ '(lest)... come'	ētí '(lest)... lean'	S conj. O V
f.	ā-cā kā 'of arriving'	ājí kā 'of accompanying'	ā-nì kā 'of coming'	ētì kā 'of leaning'	genitive
g.	ā-cā ā-cā 'arriving'	ājí ājī 'accompanying'	ā-nì ā-nì 'coming'	ētì ētì 'leaning'	participle

<sup>11</sup> Tail-head linkage is a means of slowing down the action of a discourse. Information of a previous clause is repeated in a when-clause introducing the next sentence. An example would be 'John went to town. When he went, he met an old man on the way. When he met the old man, the man asked him for a ride.' In Avokaya this is a grammatical construction that is distinct from other temporal clauses.

At level I, prefixed verbs of Class 1 become Class 1A verbs, and prefixed verbs of Class 2 become Class 2A verbs.

**1.2 Patterns for the initial syllable of a disyllabic verb.** The only four patterns for the initial syllable of a disyllabic verb are as follows.<sup>12</sup> The most common initial syllable of a disyllabic verb is *ā-* and its [+ATR] equivalent, *ā̄-* (see (8)).

(14) *ājī*            ‘accompany’            *ā̀tì*    ‘lean’

The prefixes *ī-*, and *ī̄-* are equally possible and can occur on verbs regardless of the vowel of the verb root.

(15) *īcā*            ‘be able’            *ōpī*    ‘shell (peanuts)’

There are also disyllabic vowel initial verbs where the same vowel occurs in both the first and second syllables.

(16) *ēdē*            ‘prepare’            *ījī*    ‘ask’  
       *ūgù*            ‘steal’            *īpì*    ‘press down’

The first syllable of disyllabic verbs may also be *lō-*, *lā̄-*, or *lī-*.

(17) *lōpē*            ‘extend’            *lāvī*    ‘play’            *lībā*    ‘creep’

The first syllables of all disyllabic verbs in Avokaya are restricted to these forms, which are similar to the forms of known derivational prefixes.

There are only a small number of disyllabic verbs which can take a recognized derivational prefix.<sup>13</sup> To date, only two examples have been encountered in which a disyllabic verb takes the derivational prefix. In both cases, the initial vowel of the verb root is deleted when the derivational prefix is added.

(18) *ājī*    ‘accompany’            *lōjī*    ‘accompany many’  
       *ā̀tì*    ‘lean’            *lū̀tì*    ‘support a leaning object’

The deletion of this initial root vowel is shown in the following rule.

<sup>12</sup> There is no restriction to the inventory of phonemes that can occur in disyllabic nouns.

<sup>13</sup> All verbs can take inflectional prefixes.

## (19) Root Vowel Deletion Rule (RVD)

$$V \rightarrow \emptyset / V\text{-dpfx} \text{ \_\_\_\_ } CV\text{ \_\_\_\_ } \text{vbrt}$$

This vowel deletion does not occur when an inflectional prefix is added.

## (20) á-ājī ‘be accompanied’ (agentless passive)

**1.3 Derivational prefixation process.** In light of the above examples, the process involved in adding derivational prefixes to the underlying form (UF) of a verb root is as follows.

(21)	<i>Class 1</i>	<i>Class 1A</i>	<i>Class 2</i>	<i>Class 2A</i>	<i>UF of root</i>
	H	M H	L	M L	
	ca	a jī	ni	ə ti	
	‘arrive’	‘accompany’	‘go’	‘lean’	
	M + H	M + M H	M + L	M + M L	<i>Prefixes form</i>
	a + ca	lɔ + a jī	a + ni <sup>14</sup>	lɔ + ə ti	
	(dir.)	(mult.)	(dir.)	(trans)	
	M + H	M + H	M + L	M + L	<i>RVD</i>
	a + ca	lɔ + jī	a + ni	lɔ + ti	
	[ācá]	[lɔjī]	[āni]	[lūtì]	<i>Uninflected form</i>
	‘arrive’	‘accompany here’	‘come many’	‘support a leaning object’	

Having given evidence for the underlying tones of the two basic classes of verbs and having demonstrated their similarities through derivational processes, the next section will demonstrate how the tone patterns shown in (8a-c) are derived.

<sup>14</sup> Different derivational prefixes are used in the examples due to semantic restrictions on which prefixes each verb can take.

### 3. Tonal Patterns For Verbs In SVO Constructions.

In this section, SVO constructions will be considered. Initially there will be a discussion of the constructions using the citation form of the verb found in (8a). In each of these constructions there is a floating L tone attached to the verb which accounts for the Mid tone pattern of Class 1 verbs and the Mid-Mid pattern of Class 1A verbs. This is followed by the dependency construction found in the ‘when’ clauses for tail-head linkage (example 8b). Finally, the negative statement verb form of example (8c) will be discussed.

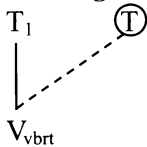
**3.1 SVO constructions with floating low tone.** There are a number of SVO constructions which have an inflectional suffix on the verb consisting of a floating Low tone. With the exception of the imperative clause, the constructions also have a particle that occurs later in the clause. These constructions include Perfective, with the particle *trá*; Focus constructions, with the particles *nì* or *ʔi*, and, the Imperative construction. In these constructions, when the floating low tone is added, the H+L combination results in a phonetic Mid tone. When the underlying tone is Low (as in Class 2 verbs), the L+L combination does not change the surface form. Furthermore, this floating low tone does not result in downstep as in many African languages. The level of the High tone in *trá* is the same level as the High tone of *má*.

- (22) *Perfective*
- |    |                              |        |                                |
|----|------------------------------|--------|--------------------------------|
| a. | /má cá ` trá/                | [cā]   | ‘I arrived’                    |
|    | I arrive PERF                |        |                                |
| b. | /má ājí ` gólā trá/          | [ājī]  | ‘I accompanied him’            |
|    | I accompany 3S PERF          |        |                                |
| c. | /má nì ` trá/                | [nì]   | ‘I went’                       |
| d. | /má ɛ̀tì ` gólā trá (fē rú)/ | [ɛ̀tì] | ‘I leaned it (against a tree)’ |
- (23) *Focus*
- |    |                      |        |                               |
|----|----------------------|--------|-------------------------------|
| a. | /má cá ` nì/         | [cā]   | ‘I am the one who arrived’    |
|    | I arrive S-FOC       |        |                               |
| b. | /má ājí ` gólā ʔi/   | [ājī]  | ‘he is the one I accompanied’ |
|    | I accompany 3S O-FOC |        |                               |
| c. | /má nì ` nì/         | [nì]   | ‘I am the one who went’       |
| d. | /má ɛ̀tì ` gólā nì/  | [ɛ̀tì] | ‘I am the one who leaned it’  |

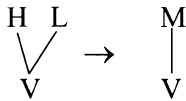
(24) *Imperative*

a. /ní cá ̀/	[cā]	‘arrive (at a certain place)’
b. /ní ājí ̀gólā/	[ājī]	‘accompany him’
c. /ní nì ̀vólé/	[nì]	‘go away’
d. /ní ǎtì ̀gólā fē rú/	[ǎtì]	‘lean it against a tree’

In the constructions in (22-24), there is a floating grammatical Low tone that comes after the verb root (as well as a particle that comes later in the clause to distinguish the clause type). This floating Low tone attaches to the verb root according to the Floating Tone Association rule shown in (25). It also coalesces with the High tone on the root of the Class 1 verbs to form a Mid tone according to the Tone Coalescence rule (26).

(25) *Floating Tone Association Rule (FTA)*

The Low tone morpheme is added to the underlying tone on the root vowel. In these constructions with a floating Low tone, there is coalescence of tone where a HL tone coalesces to a Mid tone.

(26) *Tone Coalescence (TC)*

This rule accounts for certain Mid tones that exist in the surface level form in (22-24). The result of this rule is a neutralization of tones; a HL sequence could give rise to a M, as well as an underlying /M/ surfacing as a M. This coalescence of HL into M explains why there are no falling tones on short vowels while there are rising tones. The output of these constructions was used as the “citation” form (tone patterns Mid, Mid-Mid, Low, and Mid-Low) of example (8a).

The following derivation of the Perfective, Focus and Imperative verb forms show how these rules apply.

(27) <i>Class 1</i>	<i>Class 1A</i>	<i>Class 2</i>	<i>Class 2A</i>
H (L)   ca	M H (L)     a j i	L (L)   ni	M L (L) <i>Perf, Foc, Imp</i>     ə t i
H L   / ca	M H L   / a j i	L L   / ni	M L L <i>FTA (25)</i>   / ə t i
M   ca [cā] ‘arrive’	M M     a j i [ā jī] ‘accompany’	L   ni [nī] ‘go’	M L <i>TC (27)</i>     ə t i [ə̀tì] ‘lean’

We assume that the grammatical Low tone merges with the Low tone of the melodies of the Class 2 verbs, in accordance with the Twin Sister Convention expounded by Clements and Keyser (1983).

**3.2 ‘When’ dependency construction.** There is only one SVO construction where the verb stem takes a segmental inflectional suffix, the ‘when’ construction which repeats the action of the previous clause and takes the suffix *-lé*. The repeated verb provides tail-head linkage in order to slow down the progress of the narrative. This suffixed verb form<sup>15</sup> undergoes no tone changes but keeps the underlying tone of the verb stem (see 8b). Consider the examples below.

- (28)
- a. (má ndrē á má á tá trá.) má ndrē -lé bē á má á tá rī...  
 1S see my father PERF 1S see -when when my father EOC  
 ‘(I saw my father.) When I saw my father...’
- b. má ājí -lí bē á má á tá rī...  
 1S accompany -when when my father EOC  
 ‘When I accompanied my father,..’

<sup>15</sup>There is also a form of this construction which has no segmental suffix. In that construction, the verb form has a floating low tone attached, like the constructions in section 3.1.

c. *máni -lí bē rī...*

1S go -when when EOC

‘When I went...’

d. *gólā ǎtì -lí bē rī...*

3S lean -when when EOC

‘When he/it leaned...’

In each case, the verb stem retains the underlying tones.

(29)	<i>Class 1</i>	<i>Class 1A</i>	<i>Class 2</i>	<i>Class 2A</i>
	<i>cá-lé</i>	<i>ǎjí-lí</i>	<i>nì-lí</i>	<i>ǎtì-lí</i>
	‘when arrived’	‘when accompanied’	‘when went’	‘when leaned’

The only change that occurs is in the vowel quality of *-lé*, in that it harmonizes with the height of the previous vowel. Since the tone of the suffix *-lé* is invariably High, it is assumed that it bears a pre-assigned High tone.

The tone assignments for the verb of the dependency construction are:

(30)	H H	M H H	L H	M L H
	<i>ca + lé</i>	<i>a jí + lé</i>	<i>nì + lé</i>	<i>ǎ t i + lé</i>
	[ <i>cá-lé</i> ]	[ <i>ǎjí-lí</i> ]	[ <i>nì-lí</i> ]	[ <i>ǎtì-lí</i> ]

**2.3 Negative statement.** The final SVO verbal construction with distinct tone patterns is the Negative Statement (8c) with a negation morpheme on the verb as well as a negation word.

(31) *Negative statement*

a. *gólā cá kō* ‘he did not arrive’

3S arrive not

b. *gólā ǎjí mā kō* ‘he did not accompany me’

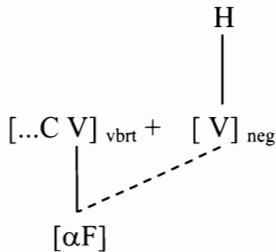
3S accompany me not

c. *gólā nìí kō* ‘he did not go’

d. *gólā ǎtìí kō* ‘he did not lean’

The negation morpheme on the verb is realized as a single empty V slot with H tone suffixed to the verb root. Since this V is empty of all features except tone, it takes all other features from the final V of the verb stem. This is explained by the following Vowel Identity Rule, which is applied in this construction.

(32) *Vowel Identity Rule (VI)*



In this rule, the vowel features from the root, except for the tone, are spread to the empty set of features in the vowel slot of the suffix. The High tone is preassigned to the empty vowel slot. For verbs of Class 1 and 1A, a vowel reduction rule is also in effect.

The rules involved in producing the Negative Statement form of the verb are shown below.

(33)	$  \begin{array}{c}  \text{H} \\    \\  \text{ca}  \end{array}  $	$  \begin{array}{cc}  \text{M H} \\      \\  \text{a ji}  \end{array}  $	$  \begin{array}{c}  \text{L} \\    \\  \text{ni}  \end{array}  $	$  \begin{array}{cc}  \text{M L} \\      \\  \text{ə ti}  \end{array}  $ <i>underlying</i>
	$  \begin{array}{cc}  \text{H H} \\      \\  \text{ca V}  \end{array}  $	$  \begin{array}{ccc}  \text{M H H} \\        \\  \text{a ji V}  \end{array}  $	$  \begin{array}{cc}  \text{L H} \\      \\  \text{ni V}  \end{array}  $	$  \begin{array}{ccc}  \text{M L H} \\        \\  \text{ə ti V}  \end{array}  $ <i>neg sfx</i>
	$  \begin{array}{cc}  \text{H H} \\      \\  \text{ca a}  \end{array}  $	$  \begin{array}{ccc}  \text{M H H} \\        \\  \text{a ji i}  \end{array}  $	$  \begin{array}{cc}  \text{L H} \\      \\  \text{ni i}  \end{array}  $	$  \begin{array}{ccc}  \text{M L H} \\        \\  \text{ə ti i}  \end{array}  $ <i>VI</i>
	[cáá]	[ājíí]	[nǎ]	[ətíí]

At the post-lexical level, there is a vowel reduction rule. If the vowel features including tone are identical and create a long vowel, then the vowel is shortened. If the tone is different, then the two vowels must be retained.



- (34) *Vowel Reduction Rule (VR)*<sup>16</sup>  
 ́́ → ́

When the Vowel Reduction Rule is applied, the outcome (shown in (36)) has an identical surface form to the examples in (8c).

- (35) [cá]                      [áj]                      [nǐ]                      [ǎtǐ]  
 ‘didn’t arrive’      ‘didn’t accompany’      ‘didn’t go’      ‘didn’t lean’

All of the tonal patterns for the verbs in SVO constructions have now been accounted for.

**3.4 Inflectional prefixes on the verbs of SVO constructions.** At this stage inflectional prefixes may be added to the verbs in SVO clauses. There are two inflectional prefixes in Avokaya: ́- indicates an agentless passive, and ̀- indicates irrealis. The agentless passive prefix can be added to the verb in any SVO construction. The irrealis prefix is used in conditional clauses, for indicating reported speech, and for indicating a third person imperative. These constructions have SVO word order with a floating Low tone on the verb like the constructions in Section 3.1. Both of these inflectional prefixes assimilate fully to the initial vowel of a vowel initial verb stem, and they assimilate to the vowel *u* before consonant initial verb stems containing [+ATR] vowels. They remain *o* before consonant initial verbs with [-ATR] vowels. Both of these prefixes may be added to a single verb stem. Neither one affects the tones of the verb stem.

In the example below, we represent each tone class by a transitive verb. The inflectional prefixes are added to the citation form of the verb (8). This citation form is used to indicate, among other things, perfective aspect or imperative mode.

<sup>16</sup>This rule applies only to vowels in verb roots/stems, as shown by such examples in other word classes as *ííí* ‘for a long time’, *ɲmbāā* ‘open’, *fāā* ‘aimlessly’

(36) *Verb forms with inflectional prefixes*

<i>Class 1</i>	<i>Class 1A</i>	<i>Class 2</i>	<i>Class 2A</i>	
ndré 'see'	ājī 'accompany'	ḅà 'put'	ētì 'lean'	<i>UF of verb</i>
ndrē	ājī	ḅà	ētì	<i>basic citation</i>
óndrē 'he was seen'	áājī 'he was accompanied'	óḅà 'it was put'	éētì 'it was leaned'	<i>Passive</i>
gólā òndrē 'let him see'	gólā àājī 'let him accompany'	gólā òḅà 'let him put'	gólā èētì 'let him lean'	<i>3<sup>rd</sup> IMP</i>
ôòndrē 'let it be seen'	áàājī 'let him be accompanied'	ôòḅà 'let it be put'	éèētì 'let it be leaned'	<i>both prefixes</i>

Since the above prefixes do not affect the tone of the verb stem, no tone rules are necessary. In the last line of data of (36), note that a sequence of two vowels has a High Low sequence, not a Mid tone as would occur on a short vowel.

#### 4. SOV Tonal Patterns.

There are certain grammatical constructions in which there is an SOV word order. The first of these includes constructions which have segmental inflectional suffixes for aspect or mode on the verb (see (8d)). An example of this type of construction is the sequential action construction used in procedural texts and to trace the event line in narrative texts.

(37)	S	O	V		
	gólā	drí	ámā	sà	-zó
	he	SM	me	slap	SEQ
					'(next) he slapped me'

The other construction occurs when certain subordinate conjunction constructions have an S conj O V order (see also (8e)).

- (38) S     conj   O     V  
 gólā   òzò   áamá   fũ<sup>17</sup>   rī                    ‘lest he kill me’  
 he     lest   me     kill   EOC

The two examples (37) and (38) have Class 1 verbs. The High tone Class 1 verb root has a Low tone in SOV constructions which have segmental inflections on the verb (37). The High tone Class 1 verb root has a rising tone in the S conj O V constructions (38). To account for all tone changes in Class 1 verbs, it is proposed that monosyllabic verb roots of Class 1 and Class 2 undergo a second derivational process, that of tone replacement in these SOV constructions. This rule only applies to monosyllabic verb stems without derivational prefixes. The tone of the monosyllabic verb stem is replaced by a Low tone.<sup>18</sup> For Class 1 verbs without derivational prefixes, High tone is replaced by Low tone. For Class 2 verbs the tone replacement results in a Low tone, since Low is replaced by Low. The tones of the remaining verb classes remain the same. This process applies after any derivational prefix is added. The addition of a derivational prefix produces a disyllabic verb stem which does not undergo the tone replacement derivation. Therefore the two derivational processes are ordered.

- (39) *Tone Replacement Rule (TR)*  
 T → L                    for monosyllabic verb stems in (S)OV constructions

The resulting tone assignments for verbs in SOV constructions are shown in (40).

- |      |                |                 |                |                 |           |
|------|----------------|-----------------|----------------|-----------------|-----------|
| (40) | <i>Class 1</i> | <i>Class 1A</i> | <i>Class 2</i> | <i>Class 2A</i> |           |
|      | H              | M H             | L              | M L             | <i>UF</i> |
|      |                |                 |                |                 |           |
|      | ca             | a jī            | nī             | ə tī            |           |
|      | L              | M H             | L              | M L             | <i>TR</i> |
|      |                |                 |                |                 |           |
|      | ca             | a jī            | nī             | ə tī            |           |
|      | [cà]           | [ájí]           | [nī]           | [ə̀tí]          |           |
|      | ‘arrive’       | ‘accompany’     | ‘go’           | ‘lean’          |           |

<sup>17</sup> The rising tone in this construction is explained in section 4.2.

<sup>18</sup> We would like to express our appreciation to Keith Snider for bringing to our attention the phenomenon of tone replacement.

The SOV constructions are of two types, those with a segmental inflectional suffix on the verb, and those with a conjunction intervening between the Subject and Object (S conj O V). Each of these two types have their own tone pattern, so will be treated separately in this paper.

**4.1 SOV constructions with segmental inflectional suffixes.** The possible verb suffixes for SOV constructions include *-ʔá* ‘imperfective’, *-zó* ‘sequential action, purpose’, *-lé* ‘dependent/infinitive “to”,’ and *-rɛ* ‘embedded dependent’. Each of these morphemes surfaces as a *-CV*.<sup>19</sup> As with the “when” *-lé* construction, the addition of these suffixes has no effect on the tone of the verb stem. However, as mentioned above, the SOV word order results in the Low tone replacement. When the verbal suffixes mentioned above are added to the verb stem, the tone of each of these verb suffixes is pre-assigned to the suffix, as shown below. This pattern can apply to all the inflected forms mentioned at the beginning of this section with the result shown in (41).

(41) *With mode inflection -zó*

<i>Class 1</i>	<i>Class 1A</i>	<i>Class 2</i>	<i>Class 2A</i>	<i>UF</i>
H   ca	M H     a jɪ	L   ni	M L     ə ti	
L   ca	M H     a jɪ	L   ni	M L     ə ti	<i>TR</i>
L    H        cá + zó	M H    H          a jɪ + zó	L    H        ni + zó	M L    H          ə ti + zó	<i>+ mode</i> <i>-zó</i>
[cà-zó] ‘arrived’	[ájɪ-zó] ‘accompanied’	[ni-zó] ‘went’	[ə̀ti-zó] ‘leaned’	

**4.2 S conjunction O V.** The second major set of SOV constructions have a conjunction between the S and the O. The possible conjunctions in this construction

<sup>19</sup> Only one inflectional suffix at a time may be added to a verb stem.

type are  $\grave{\text{d}}\text{z}\acute{\text{o}}$  ‘lest’,  $\grave{\text{d}}\text{í}\text{r}\grave{\text{i}}$  ‘when’ for actions in the past that have not previously been mentioned, and  $\grave{\text{d}}\text{r}\acute{\text{o}}$  ‘if’ for contrary-to-fact actions.

An example of such a construction is given below in (42).

- (42)  $\text{g}\acute{\text{o}}\text{l}\bar{\text{a}}$   $\grave{\text{d}}\text{z}\acute{\text{o}}$   $\text{c}\check{\text{a}}$   $\text{r}\bar{\text{i}}$  ‘lest he arrive’  
 3S lest arrive:conj EOC

In this construction the verb  $\text{c}\check{\text{a}}$  has a rising tone. Due to the fact that this is an SOV construction, the Tone Replacement rule accounts for the Low tone on the verb. In addition, we posit a conjunction morpheme after the verb stem which consists of a floating High tone. This floating High tone associates leftwards. There is a strong tendency in Avokaya for right to left association. (See the discussion of floating low tone in section 3.1.)

In example (43) the processes involved in the tone associations for the ‘lest’ construction are shown.

- (43)
- | <i>Class 1</i>               | <i>Class 1A</i>                | <i>Class 2</i>               | <i>Class 2A</i>                |            |
|------------------------------|--------------------------------|------------------------------|--------------------------------|------------|
| H + $\textcircled{\text{H}}$ | M H + $\textcircled{\text{H}}$ | L + $\textcircled{\text{H}}$ | M L + $\textcircled{\text{H}}$ | <i>UF</i>  |
|                              |                                |                              |                                |            |
| cā                           | a jī                           | nī                           | ə tī                           |            |
|                              |                                |                              |                                |            |
| L + $\textcircled{\text{H}}$ | M H + $\textcircled{\text{H}}$ | L + $\textcircled{\text{H}}$ | M L + $\textcircled{\text{H}}$ | <i>TR</i>  |
|                              |                                |                              |                                |            |
| cā                           | a jī                           | nī                           | ə tī                           |            |
|                              |                                |                              |                                |            |
| L H                          | M H H                          | L H                          | M L H                          | <i>FTA</i> |
| \                            | \                              | \                            | \                              |            |
| cā                           | a jī                           | nī                           | ə tī                           |            |
| [cǎ]                         | [ájí]                          | [nǐ]                         | [ə̀tì]                         |            |
| ‘(lest) arrive’              | ‘(lest) accompany’             | ‘(lest) go’                  | ‘(lest) lean’                  |            |

The two High tones on  $\text{ájí}$  merge since they are the same tone, so only a level High tone results. The Low-High combination on the other verb roots surfaces as a short rising tone on the root vowel. The same pattern applies to all constructions using the conjunctions listed above.

**4.3 Genitive construction and participial form.** In the genitive construction (8f), the word order of the phrase is noun head + O + V +  $\text{k}\bar{\text{a}}$ . We posit a floating

Low tone occurring before *kā* ‘of’ which will associate to the word to its left, in this case the verb. Due to the OV word order, the Tone Replacement rule operates on the monosyllabic verb roots of Class 1 and Class 2. If we look at the verbs of Classes 1, 2 and 2A, there would be no need to posit the floating low tone. However the derivation of Class 1A would be incorrect without the floating low tone (\**ājī*). By positing the floating low tone, the High and Low tones combine to form a phonetic Mid tone on the short vowel, which is the correct form (*ājī*).

(44)	<i>Class 1</i>	<i>Class 1A</i>	<i>Class 2</i>	<i>Class 2A</i>	<i>UF</i>
	H + (L)M	M H + (L)M	L + (L)M	M L + (L)M	
	ca + ka	a j i + ka	ni + ka	ə ti + ka	
	L + (L)M	M H + (L)M	L + (L)M	M L + (L)M	<i>TR</i>
	ca + ka	a j i + ka	ni + ka	ə ti + ka	
	L L M	M H L M	L L M	M L L M	<i>FTA</i>
	ca + ka	a j i + ka	ni + ka	ə ti + ka	
	[cə k̄a]	[ājī k̄a]	[nì k̄a]	[ə̀tì k̄a]	
	‘of arriving’	‘of accompanying’	‘of going’	‘of leaning’	

For a transitive verb the participial form of the verb occurs in an OV construction. As with the genitive construction, the participle is formed by the verb stem, followed by a floating Low tone, then the whole verb stem is reduplicated, as shown below. The presence of the floating Low tone is necessary to account for the tone on the verbs of Class 1A.

(45)	<i>Class 1</i>	<i>Class 1A</i>	<i>Class 2</i>	<i>Class 2A</i>	<i>UF</i>
	H + (L)	M H + (L)	L + (L)	M L + (L)	
	ca	a j i	ni	ə ti	
	L + (L)	M H + (L)	L + (L)	M L + (L)	<i>TR</i>
	ca	a j i	ni	ə ti	

L L   \ / ca	M H L     \ / a jɪ	L L   \ / nɪ	M L L     \ / ə tɪ	<i>FTA</i>
L   ca	MH L     / a jɪ	L   nɪ	M L     ə tɪ	<i>tone merge</i>
[cà-cà] 'arriving'	[ājī-ājī] 'accompanying'	[nì-nì] 'going'	[ə̀tì-ə̀tì] 'leaning'	<i>redup</i>

Thus all reduplicated verb forms surface with either L or M tones. No High tones occur in this construction.

## 5. Conclusion.

All tone changes in Avokaya verbs can be accounted for through a series of rules operating on the verb forms in different grammatical constructions. We have shown that derivational prefixation occurs before other processes which affect the tone of verbs. We have also shown that the processes involved in SVO constructions differ from the processes in SOV constructions, in that monosyllabic verb roots undergo the derivational process of tone replacement affecting SOV constructions before inflectional changes operate.

The ordering of the derivational processes account for why the tone patterns change when a derivational prefix is added to a Class 1 verb in an SOV construction.

- (46) [[cà]-zɔ́]            'arrive (there)'  
[[ā-[cá]]-zɔ́]        'arrive (here)'

The addition of the derivational prefix changes the Class 1 verb to Class 1A before the derivational process of tone replacement, which only affects Class 1 and Class 2 verbs.

Our analysis of tone replacement also accounts for why the Class 1 verb forms in the following constructions are different, even though the two suffixes are homophonous.

- (47) má ndrɛ́ -lé    bē   nī   rī            'when I saw you'  
I    see   -when when 2S EOC





**Table 1: Summary chart of the changes**

<i>Verb Class</i>	<i>1</i>	<i>1A</i>	<i>2</i>	<i>2A</i>
<i>Root/Stem forms</i>	H	M H	L	M L
<i>Prefix Derivation</i>	H	M H	L	M L
<i>Floating Low, SVO, Perf, Focus, Imper, Surface</i>	HL M	M HL M M	LL L	M LL M L
<i>High tone on empty V slot SVO, Negative, Surface</i>	HH H	M HH M H	L H LH	M L H M L H
Derivation (SOV)				
Tone Replacement	L	M H	L	M L
Floating High, SOV	L H	M HH	L H	M L H
<i>S Conj O V, Surface Tone</i>	R	M H	R	M R
<i>Floating Low, SOV Genitive, Surface Tone</i>	L L L	M HL M M	L L L L	M LL M L

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## PUBLICATIONS RECEIVED

Akinlabi, Akinbiyi & Oluseye Adesola. *Proceedings of the 4<sup>th</sup> World Congress of African Linguistics, New Brunswick 2003*. (World Congress of African Linguistics, vol. 4). Cologne: Rüdiger Köppe Verlag. 2004. Pp. x, 575. 3 b/w photos, 3 maps, numerous tables and charts. ISBN 3-89645-338-6. Hardcover. €64.00

This volume presents a selection of papers from the 4<sup>th</sup> WOCAL, held June 17-22, 2003 at Rutgers University in New Brunswick, NJ. There are 3 papers from plenary sessions: "Cognition Percentages in Benue-Congo: Implications for Internal Classification" by Ben Elugbe & Tayo Bankale; "Why Describe African Languages?" by Larry Hyman; "Segments and Prosodies in Chadic: On Descriptive and Explanatory Adequacy, Historical Reconstructions, and the Status of Lamang-Hdi" by Ekkehard Wolff. The remaining 39 papers are from the general sessions. The section on phonetics and phonology [67-164] covers coda deletion in Yoruba (Adesola), Lokaa vowel harmony (Akinlabi & Iwara), Kɔnni tone (Cahill), pitch realization in Mambila (Connell), phrasing in Sandawe (Dobashi), complex segments (Downing), and tone in Lokaa (Iwara). The 15 papers in the section on morphology, syntax and semantics [165-349] deal with negation in Urhobo (Aziza), object pronouns in Bantu (Beaudoin-Lietz, Nurse & Rose), split word-order / distributed predicate syntax in Doyayo (Elders), subjects in Hausa (Frajzyngier & Munkaila), predicate clefts in Nupe (Kandybowicz), serialization in West Ring (Bantoid) languages (Kiessling), cardinal numbers in Nilo-Saharan (Leyaw) and prefixal reduplication in Lusaamia (Marlo). Also included in that section are papers on the conversation function of *haya* in Swahili (Rudd), locative arguments in Bantu (Rugemalira), logophoricity (Safir), constructions for expressing biting, punching and hitting in Emai (Schaefer & Egbokhare), the discourse relevance of Toposa verb morphology (Schröder), circumfixes in Hone (Storch), and locative predication in Tigrinya (Weldyesus).

The section on computational linguistics [363-390] includes three papers, covering a quantitative study of Yoruba speech surrogacy (Adegbola), a corpus study of zulu *-kazi* (Gauton, de Schyver & Mohlala) and automatic disambiguation of Swahili nouns (Nganga). The section on historical linguistics [391-443] includes a study of comparative pottery terminology in Great Lakes Bantu (Bostoen), reconstruction of velars and labials in certain stages of Benue Congo (Ohiri-Aniche), changes in young people's speech in the Kotoko of Goulfey (Tourneux) and implosives in Mande-Atlantic-Congo (Williamson). The final section [445-571] has 10 papers organized under the rubric sociolinguistics: gender in Basaa (Banoum), language shift in Nama-speaking Herero (Batibo), problems of linguistic under-description in Bi-

lin (Fallon), the Sheng language of Nairobi (Ferrari), the status of Arabic versus African languages in Nyala, Darfuyr (Idris), development of Tanzanian Sign Language (Muzale), the endangered languages Sosan and Ukue (Oyebade & Agoyi) and the Akpes languages (Oyetade), African language contact in Brasil (Petter), and language marginalization (Urua).

Anyawu, Rose-Juliet. *Stress and Tone — The African Experience*. (Frankfurter Afrikanistische Blätter 15, 2003). Cologne: Rüdiger Köppe Verlag. 2003. Pp. 200. ISBN 3-89645-017-4. Paperback. €34.80.

Ten papers on topics of tone, stress and intonation in African languages are presented in this issue of FAB. “Tone and Accent in the Igbo verb” [5-22] by Anyawu presents a typological argument for an accentual analysis of Igbo tone. “The use of Feet to Account for Binary Tone Spreading: Evidence from Chilungu” by Bickmore [23-47] examines the utility of metrical foot structure in accounting for tone doubling, and shows that both metrical and pure tonal accounts of the process are tenable. “Some Remarks on Tonal Processes at Utterance Boundaries” by Creissels [49-58] looks at intonation-like phonological effects on tone in Baule, Kita Maninka and Tswana, which are conditioned by initial and final pauses. The fourth paper, “Stress, Tone and Focus in Chichewa and Xhosa” by Downing [59-81] discusses accent-like properties of tone in these Bantu languages and argues that tone realization is sensitive to word position in a phrase, whose shape is determined partially by focus. “Tone And Vowel Deletion, Insertion And Syllable Structure” by Frajzyngier [83-98] investigates tone and its interaction with other aspects of segmental phonology in the Chadic languages Mina, Gidar and Lele.

“The Feature of Stress in Nilotic” by Gilley [99-120] argues that Shilluk and Dinka have both contrastive tone and contrastive stress, the latter being realised phonetically, surprisingly, with decreased duration on stressed syllables. In “Tone Mapping in Leggbó” by Hyman & Uhoh [121-139], the authors argue for the significance of independent tone melodies in nouns and verbs, the issue of directional tone mapping, and the relevance of morphology for mapping. The eighth paper, “Tonogenesis in Southern Cushitic (Common West Rift)” by Kießling [141-161] investigates the nature of tone / accent in Southern Cushitic, and it is argued that the system arose historically from the interaction between intonation and a quantity-sensitive stress system. “The Prosodological Structure of Herero” by Möhlig [165-179] presents a range of prosodic properties relevant to Herero including tone, respiratory accent, loudness and intonation. The final paper, “Verbal Tone and Stress in ||Ani (Central Khoisan)” by Voßen [181-191] treats the prosody of this language in terms of 5 tone classes interacting with stress. The volume ends with a review by Anyawu of a festchrift in honor of the late Gabriel Manessy.

Hamidu, Assibi A. *Reflexives and Reflexivization in Kiswahili Grammar*. (East African Languages and Dialects, vol. 14). Cologne: Rüdiger Köppe Verlag. 2004. Pp. xviii, 527. ISBN 3-89645-028-X. Paperback. €49.50.

Numerous topics relating to transitivity and reflexivization in Kiswahili are investigated in this book, considered from various theoretical perspectives. Chapter 1, "Introduction" [1-8] sets the stage by introducing some of the facts and theoretical approaches to be considered, especially the author's data-oriented perspective which downplays the theoretical "Eurocentric Idiom" and focuses on the author's "Nilotic Idiom" approach. The pronominal root *-enyewe* (as in *mnazi wenyewe* 'the coconut tree itself') is investigated in Chapter 2, "The reflexive *-enyewe* in Kiswahili grammar" [9-41], where a wide range of the uses of this root are documented. Chapter 3, "Other reflexive nominals of Kiswahili" [42-51] covers *nafsi* 'soul, self', *roho* 'soul, life', *peke* 'alone', which are seen to have semantic connections to reflexives and *-enyewe*. The "classic" reflexive prefix *-ji-* is discussed in Chapter 4, "The reflexive affix of Kiswahili" [52-184], revealing a number of possibly surprising uses (e.g. *kimejipolea* 'it healed of itself'). There is much discussion of whether *-ji-* is an object marker, and the author uses data from reflexives to argue that passives are transitive constructions in Kiswahili. The fifth chapter, "Unaccusativity, ergativity, NP Crash and reflexivization in Kiswahili Bantu" [185-298] focuses on verbs such as *-enda* 'go' in connection with reflexivization, especially on the question of transitivity. Chapter 6, "Some implications of {ji} for transitiveness and class classification" [299-387] further pursues the matter of transitiveness and its relation to the verbal prefix *-ji-*, especially how *-ji-* functions as an incorporated NP. Chapter 7, "Reflexivization in Kiswahili and crosslinguistic studies" [388-416] raises the question whether Kiswahili poses a problem for Chomsky's binding principles, and the final chapter "Repeated MPs and other reflexive patterns in Kiswahili syntax" [417-502] reiterates the author's conclusion that *-ji-* is not an object prefix.

Jakobi, Angelika & Joachim Crass. *Grammaire de beria (langue saharienne)*. (Nilo-Saharan Linguistic Analyses and Documentation, vol. 18). Cologne: Rüdiger Köppe Verlag. 2005. Pp. xii, 292; 1 map, numerous tables. ISBN 3-89645-136-7). Paperback. €35.80

The Saharan language Beria, spoken in Chad and Sudan, is described in this book. The introduction [1-19] lays out the objectives and organization of the grammar, and provides historical context for research on the language and for its position within Nilo-Saharan. "Phonologie" [11-33] lists the 17 consonant and 9 vowel phonemes, their allophones, and notes some general phonological processes (ATR harmony; /y, j/ → *j* initially; *dd, gg* but not *bb* devoiced). This chapter also presents syllable structure (the maximum syllable CVVC has restricted distribution and syllables usually have the form CV(X)), phonotactic restrictions, and the three tone levels of Beria plus its rising and falling contour tones. "Morphophonologie" [35-45] documents the rich verbal morphophonemics, which includes processes of intervocalic lenition, fortition, harmony, sonorant vocalization (/kǎn-ṛ-é/ → [kǎṛé], /kór-ṛ-ī/ → [kóṛī]), and various

segmental deletions. Verbs can be separated into three groups: finite, the copula, and converbs. The structure of the finite verb is treated in the fourth chapter [47-98]. As is common in Saharan languages, there are 3 classes of verbs, reflecting person marking. Ten morphemic slots are available in the verb, but actual forms are often reduced due to morphophonological processes. Inflectional morphology often fuses person and number, aspect, and negation markers. Perfective and imperfective aspects are distinguished in part by tonal distinctions. Forms of the copula are treated in “Copule” [99-106], and the sixth chapter “Nom” [107-120] covers noun morphology. Nominal number is indicated via tone change, and nouns can be organised into 10 groups, according to the tone patterns of tone selected in the singular and the plural. This chapter also presents nominal derivation, including deverbal nouns.

The chapter “Quasi-nominaux” [121-132] presents pronouns, demonstratives, adjectives and numbers. “Syntagme nominal” [133-145] treats NP syntax. Basic NP structure is head-initial, except in “synthetic genitives” where the modifier precedes the head noun. Chapter 9 “Relations grammaticales primaires” [147-156] discusses the syntax of subjects, verbs, and objects. Word order is SOV, and the language exhibits split ergativity. Intransitive verbs split lexically as to whether their subject is encoded the same way as a transitive agent versus a transitive patient. Additionally, the language marks focus with enclitics which reflect grammatical relation, and a focused intransitive subject is marked the same way as a focused patient. Various adverbial phrases (place, manner, time etc.) are presented in “Syntagme adverbial” [157-163]. The penultimate chapter presents the converb [165-176], which is a reduced verb form marked for subject and aspect, but lacking mood inflection, and which (unlike finite verbs) does not come clause-finally. “Propositions subordonnées” [177-184] outlines sentence embedding: relative clauses, temporals, conditionals and others. Two texts [185-192] are provided along with translation and interlinear glosses, and an extensive appendix [193-236] provides verb inflectional paradigms covering various roots. A French-Beria glossary [237-274] gives about 1,000 words.

Kaji, Shigeki. *A Runyankore Vocabulary*. (Asian and African Lexicon, vol 44). Tokyo: Research Institute for Languages and Cultures of Asia and Africa, Tokyo University of Foreign Studies. 2004. Pp. xxxiii, 603, 1 map. ISBN 4-87297-867-6. Hardcover.

Aspects of the lexicon of Runyankore, a Bantu language of Uganda, are presented here. The main part of the book is a vocabulary of 1136 numbered entries covering 500 pages. The entries are semantically arranged, beginning with ‘head’ and ending with ‘thank you’, so that body parts are presented, then animal terms, then fruits and so forth. Each entry may contain a number of words, for example ‘flower’ contains two apparently synonymous nouns *ekirábyo* and *ekimuri*, as well as the more specific term *obuga:ra* ‘papyrus flower’. Thus, the entry ‘species of bird’ contains 37 specific bird species. Words are glossed in English and Japanese, and numerous examples are provided to illustrate phonological and grammatical properties. Since there are extensive phrasal phonological alternations especially in tone, nouns are given in numerous contexts to document these alternations. Noun class information is also provided; en-

tries for verbs also include nominalizations. Following the main vocabulary are three indices, in English, Japanese and Runyankore, with words followed by the entry number. Preceding the vocabulary is a 20 page grammatical synopsis explaining the phonemes and allophones, phonological processes, the noun class system, and verb derivation and inflection.

Kisseberth, Charles W. & Mohammad Imam Abasheikh. *The Chimwini Lexicon Exemplified*. (Asian and African Lexicon, vol 45). Tokyo: Research Institute for Languages and Cultures of Asia and Africa, Tokyo University of Foreign Studies. 2004. Pp. xxxiv, 533. ISBN 4-87297-868-8. Hardcover.

The Chimwini dialect of Swahili, historically spoken in the town of Brava (Mwiini) in southern Somalia, is the topic of this volume. The book begins by explaining the goals and organization of this lexicon followed by a 23 page morphological and phonological sketch of the language. This is followed by the 530 page Chimwini-English lexicon, organized alphabetically according to the stem of the head word; there are approximately 10,000 headword entries. Each headword entry encompasses some number of related words, each marked for grammatical category and includes relevant derivational and inflectional information. Thus noun entries will indicate noun class and also give the plural, and verb entries will give the perfective stem and numerous derivational forms such as the reciprocal, causative and applied. Words are very often exemplified sententially, and as such, the data of the book will be very useful for the study of syntactic conditions on Chimwini's famous vowel shortening rule. In addition, accent, which is lexically predictable but morphosyntactically complex, is widely marked in the data. Because Chimwini draws its vocabulary from both Bantu and Somali sources, information on source language is often given, including a page reference to one of the major lexical publications on Swahili or Somali.

Newman, Paul. *Klingenheben's Law in Hausa*. (Chadic Linguistics, vol. 2). Cologne: Rüdiger Köppe Verlag. 2004. Pp. 102. ISBN 3-89645-521-4. Paperback. €44.80

This volume treats Klingenheben's Law, a sound change historically affecting syllable-final consonants in Hausa. The book is composed of two parts. The second part [71-102] provides an annotated translation of the original article "Die Silbenlautgesetze des Hausa" published almost 80 years ago by August Klingenheben, which is the fountainhead for later work on what has come to be known as Klingenheben's Law. Besides making the article more widely accessible to linguists who do not read German, this translation provides a transliteration of Klingenheben's Arabic examples from the original Arabic script. The first part [1-69] provides Professor Newman's critical analysis of the law. After a preliminary explanation of transcription conventions and the phonological basics of Hausa, the book gives an overview of KL, which roughly speaking weakens syllable-final consonants: it is argued that word-medial contexts form the primary context for KL and that application word-finally is a secondary development. This section then treats exceptions to KL: geminate consonants are exceptions (a fact which has



been exploited in various theoretical phonological accounts of the phenomenon), as are ideophones and loanwords. Section 3 [12-39] makes up the bulk of this part, and analyzes the 4 separate changes which make up Klingenheben's Law, carefully scrutinizing examples and contexts of the rules' application. This section covers such oft-neglected questions as the development of the two r's and the question of how sibilants fit into KL. Section 4 covers the changes to syllable-final nasals, and the fifth section discusses the relative chronology of these changes. The sixth and seventh sections lay out the synchronic consequences of these rules, which have resulted in some synchronic alternations especially under reduplication.

Vycichl, Werner. *Berberstudien & A Sketch of Siwi Berber (Egypt)*. (Berber Studies, vol. 10). Cologne: Rüdiger Köppe Verlag. 2005. Pp. xxxvi, 258. numerous tables and charts. ISBN 3-89645-389-0. Paperback. €39.80

The first part of this book is an extract of a manuscript by Werner Vycichl (1909—1999), a leading specialist in Berber historical linguistics, which was intended to provide a comprehensive overview of Berber historical linguistics, phonetics and morphology. This publication presents part of that work in the form of article-like chapters in the first part of the book [1-151] written in German. The first chapter provides information on Berber from ancient onomastics; the second deals with historical phonology; the third presents a study of historical morphology. The fourth chapter gives sketches of Berber languages from Djerba (Qellāla) and Aith 'idhel. The second part [155-258] presents an English sketch of Siwi Berber, the easternmost Berber language. Following a couple dozen pages of background information on ethnography, history of study of the language and accounts of the author's years of personal experiences with the language, this section covers phonetics and etymology [179-195] and grammar [196-255], primarily noun and verb morphology, concluding with a short story.

**UPCOMING MEETINGS  
ON AFRICAN LANGUAGES / LINGUISTICS**

**2005**

Oct 6-8

INTERNATIONAL CONFERENCE ON FOCUS IN AFRICAN LANGUAGES. ZAS, Berlin, Germany.  
Contact: Focus in African Languages, ZAS, Jaegerstrasse 10-11, D-10117, Berlin, Germany; email [fial05@zas.gwz-berlin.de](mailto:fial05@zas.gwz-berlin.de)). 1-page abstract submission deadline April 3, 2005.

Oct 9

INFORMATION STRUCTURE IN BANTU LANGUAGES. ZAS, Berlin, Germany. (co-organized with the London-Leiden-Berlin Bantu Grammar network). Contact: email [lutz@soas.ac.uk](mailto:lutz@soas.ac.uk), website [http://mercury.soas.ac.uk/users/lm5/bantu\\_project.htm](http://mercury.soas.ac.uk/users/lm5/bantu_project.htm)

Oct 12-14

CONFERENCE ON GUR LANGUAGES. University of Bayreuth, Germany. Theme: "Current questions in Gur Language Research: Between Tone and Text". Contact: conference webpage <http://www.uni-bayreuth.de/departments/afrikanistik/tagu/gurcon1.html>, email to [manfred.vonroncador@uni-bayreuth.de](mailto:manfred.vonroncador@uni-bayreuth.de)

**2006**

April 6-9

ANNUAL CONFERENCE ON AFRICAN LINGUISTICS 37. University of Oregon. Abstract deadline: December 7, 2005. Contact: conference webpage <http://www.uoregon.edu/~acal2006>.

April 20-22

BANTU GRAMMAR: DESCRIPTION AND THEORY. SOAS, University of London. Abstract deadline: Dec. 19, 2005. 1 page A4 abstract 2 copies to Lutz Marten, Dept. of Africa, SOAS, Thornhaugh Street, Russell Square, London WC1H 0XG, England PDF or emailed to [BantuConference@soas.ac.uk](mailto:BantuConference@soas.ac.uk)). Further information on the conference and abstract re-

quirements: <http://mercury.soas.ac.uk/users/lm5/BantuConference.htm>.

July 10-12

WORLD CONGRESS ON AFRICAN LINGUISTICS, 5<sup>TH</sup>. Addis Ababa University, Addis Ababa, Ethiopia. Abstract acceptance dates: July 10-Dec 10, 2005. 1 page 12 pt. abstract as PDF or postscript attachment emailed to [afri ling@ding.aau.edu.et](mailto:afri ling@ding.aau.edu.et)) or Word document on 3.5 in. floppy mailed to WOCAL 5, Department of Linguistics, Addis Ababa University, P.O.Box 1176, Addis Ababa, Ethiopia. Further information at the conference website <http://www.aau.edu.et/faculties/linguistics/wocal.htm>.

### **Note on Forthcoming Supplement**

Volume 34 will include a supplement, *West African Linguistics: Papers in Honor of Russell G. Schuh* guest-edited by Paul Newman and Larry Hyman, approximately 250 pp. The volume will be available for \$10 to all subscribers of volume 34. The non-subscriber price will be \$20 plus shipping.













