

UNIVERSITY OF CALIFORNIA

Los Angeles

Verbal Tone in Kuria

A dissertation submitted in partial satisfaction of the
requirements for the degree Doctor of Philosophy
in Linguistics

by

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2008

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2008

Naitabaruku tasnifu hii kwa mke wangu Christine Chacha na watoto wangu Lydia Nchagwa, Jackline Boke, Sylvia Nyamboha, na Jonathan Mwita, kwa subira yao nilipokuwa ughaibuni.

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ABBREVIATIONS

a	=	augment / pre-prefix
ap	=	applicative
C	=	consonant
cau	=	causative
cp	=	class prefix
ext	=	extension
f	=	focus
fv	=	final vowel
H	=	high tone
H'	=	free, floating, or unassociated high tone
im	=	infinitive marker
inc	=	inchoative
L	=	low tone
M	=	mid tone
m-stem	=	macrostem
N	=	nucleus
n1	=	negative marker 1
n2	=	negative marker 2
ob	=	(object) benefactive
oc	=	(object) atte
om	=	object marker

op	=	(object) patient
or	=	(object) recipient
pas	=	passive
pf	=	perfective
R	=	rising tone
rec	=	reciprocal
rd	=	reduplication
rf	=	reflexive
ri	=	reversive intransitive
rt	=	reversive transitive
sm	=	subject marker
SR	=	surface representation
st	=	stative
syn	=	synchronizing
T	=	tone
t	=	tense (generally, tense, aspect, and mood)
TAM	=	tense, aspect, and mood
UR	=	underlying representation
V	=	vowel
V'	=	free vowel, not associated with tone
vi	=	intransitive verb
vt	=	transitive verb

ACKNOWLEDGEMENTS

My first thanks go to Russell Schuh, the chair of my dissertation committee. I am grateful for his patience, especially in the initial stages when he had to teach me how to “hear” tone. Many times he made me hum to the pitch of the words that we were listening to. He tirelessly worked with me from the beginning up to the completion of my project.

I would also like to thank Christopher Ehret for agreeing to serve as the external member of my committee. His vast knowledge of African linguistics was an asset to my work.

I am indebted to Thomas Hinnebusch for being my mentor and for his indispensable guidance on various issues in Bantu linguistics. His friendship and encouragement made all the difference and gave me the courage and strength to slog on. His presence at UCLA lessened the impact of the culture shock that I underwent when I arrived in America.

Next, I wish to thank Michael Marlo. His coming to UCLA was a blessing for me in many ways. Having worked on Bantu tone, his contribution was immense and he influenced the direction that my work took. I wish to thank him for the interest that he took in my dissertation, his readiness to meet me at short notice to discuss aspects of Kuria tone, and also for his friendship.

Special thanks go to Pamela Munro. The countless discussions that we had about my work were enlightening and helped me internalize and understand it better. From her, I received sound advice on the mechanics of dissertation writing, thoroughness, and of stating my thoughts and assumptions clearly.

I owe a major debt to Bruce Hayes. It was a great privilege working on phonology with him, and it is hard to imagine what this study would have looked like without his input. His ability to see through sets of data and draw theoretical implications awed me.

I would like to sincerely thank the Linguistics Department at UCLA for funding my studies; and the university for awarding me the Dissertation Year Fellowship which supported the writing of this dissertation.

My thanks also go to my wife, Christine Chacha. Although I generated most of the data used in this dissertation, I needed someone to countercheck and corroborate it. She came in handy and spent many hours on the phone answering my questions.

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ABSTRACT OF THE DISSERTATION

Verbal Tone in Kuria

by

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Doctor of Philosophy in Linguistics

University of California, Los Angeles, 2008

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This dissertation examines verbal tone in Kuria, an Eastern Bantu language spoken in Kenya and Tanzania. It shows that Kuria has a predictable tone system, in that, verbs are assigned high tones on the first, second, third, fourth, or first and fourth vowels of the macrostem, beginning at the left edge. It employs a mora or vowel count approach. Tense (TAM) emerges as the prime determiner of where the high tone is assigned. Other factors like syllable type and the length of the macrostem dictate how high tones are distributed. Furthermore, primary high tones are rarely assigned without modification. This is manifested through processes such as doubling, spreading etc., leading to a diversity in surface tonal patterns.

Five areas are covered. First, I examine the structure of the verb. The morphemes are identified according to their slots and functions. Secondly, an analysis of tone in the affirmative verbs follows. I suggest that primary high tone assignment and spreading processes are determined by specific features found in the verb. A set of interrelated phenomena in tone terracing such as downstep, downdrift, and downglide feature in the discussion. I also show that onsetless syllables and first person singular object prefixes make surface tone patterns opaque. Thirdly, I look at negative tenses. Two morphological negatives, /ta-/ and /te-/, are discussed. I show that these affect the tone on the verb differently since the former does not contribute a high tone but the latter does. Fourthly, verbal reduplication is looked at. Although reduplication is quite complex segmentally, it turns out that tone assignment in such forms is straightforward. I argue that in Kuria, the reduplicant and Base form a single domain of tone realization. In this case, a reduplicated verb is not any different from an unreduplicated verb, tone is distributed over the entire verb. Lastly, a discussion of Odden (1987) and Cammenga (2004) is given.

Chapter One

Introduction

1. Introduction

This dissertation gives a descriptive analysis of the tonal structure of both the infinitival and finite verbs in the Kuria language. The study was motivated by the scarcity of information about this language, especially in the area of tone. Verbal tone was chosen for the study, rather than nominal tone, because there is more variety of tonal patterns in the verbal system than in the nominal system. Furthermore, the Kuria language shows signs of being in rapid transition. The fact that most Kuria speakers also use Swahili, which is slowly but surely becoming the dominant language in “Kurialand”, complicates issues. A synchronic study will therefore capture the language’s present state in the transition. It will specifically employ a modified version of the vowel count approach used in Odden (1987).

Bantu languages in general have played a significant role in the recent development of the theory and description of linguistic tone (see Clements & Goldsmith (1984) for an overview). Kuria, as one of the understudied languages, provides further insights into these domains. Important contributions of this work will include detailed descriptions of the verbal tone as a result of observing more paradigms. Also, this dissertation establishes general principles of tone in Kuria thus making a specific contribution to the mechanics of predictable tone systems, and a general contribution to the understanding of tonal systems in world languages.

1.1 The Language and Its People

The ethnologue lists Kuria, Kikuria, Tende, Igikuria, and Kurya as names that have been used to refer to this language. The speakers of the language call it iyi[kúrjá]. It will simply be referred to here as “Kuria”. The people are referred to as aβa[kúrjá] and in singular umu[kúrjá]. Kuria is an Eastern Bantu language spoken in Kuria District, Nyanza Province, in southwest Kenya, and in the Mara region in northwest Tanzania, by approximately 500,000 people (Rose 2001).

Kuria belongs to the Eastern Bantu group of languages. Guthrie (1967) classifies Kuria as E43, that is, the third language in zone E, group 40. In this classification, Kuria is most closely related to Logooli (E41), Gusii (E42), Zanaki (E44), Nata (E45), Ngorimi and Simbiti. Nurse and Philippson (1980) show that Kuria is in the Lacustrine group of languages, in the subgroup of East Nyanza, where it is shown to be closely related to Ngurimi, Suba, Ikizu, Shasi, Zanaki, and Nata.

The Kuria are a Bantu-speaking community whose close geographical neighbors on the Kenyan side include the Luo and Maasai, who are non-Bantu. The history of the Kuria is closely tied with that of the various communities who surround them and it remains to be seen how much those neighbors have affected them linguistically (see Rose 2001).

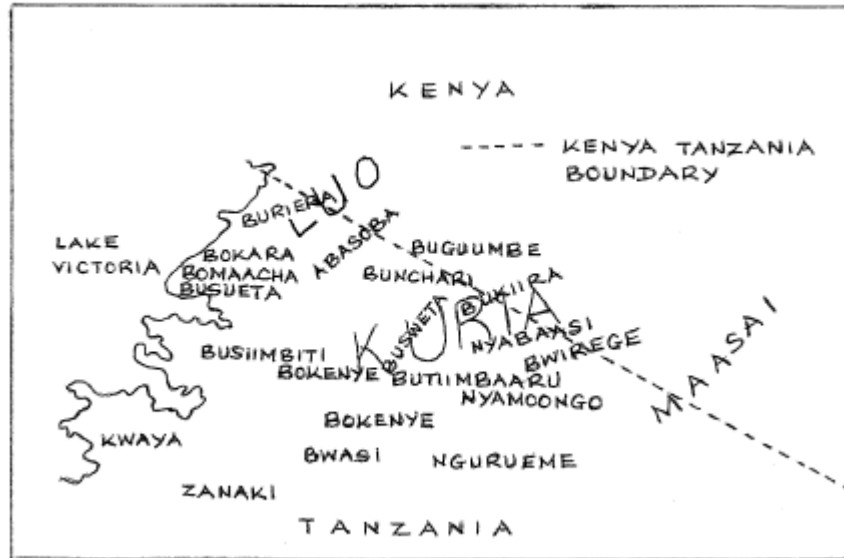


Figure 1.1: The Kuria and their neighbors (adapted from Cammenga 1994)

The Kuria are of diverse origins. Before the twentieth century they were not known as the Kuria, but rather by their clan names (Abuso 1980). It is from these clans that the present Kuria society emerged. Presently, the Kuria people are socially subdivided into fifteen clans (Cammenga 2004), as shown in (1). Since there has been orthographical variation in clan names, they are given below in both orthographic and phonetic form.

(1) Kuria clans and their locations

<i>Clans</i>		<i>Location</i>
a. Abanyabaasi	aβa[áɲá'βáásí]	βu[ɲaβáásí]
b. Abaireege	aβa[írééye]	βwi[írééye]
c. Abakiira	aβa[kíírǎ]	βu[kíírǎ]
d. Abaguumbe	aβa[ɣúúmbe]	βu[ɣuúmbe]
e. Abatiimbaaru	aβa[tíimbááru]	βu[tíimbááru]
f. Abaanchaari	aβa[ántʃaári]	βu[untʃáári]
g. Abamera	aβa[méɾa]	βo[meɾá]

h. Abakenye	aβa[kéɲɛ]	βo[kɛɲɛ]
i. Abanyamoongo	aβa[áɲámóóŋɡo]	[ɲaámóóŋɡo]
j. Abasweeta	aβa[swééta]	βu[sweéta]
k. Abaseembete	aβa[séémbété]	βo[seémbété]
l. Abakeroba	aβa[kérooβá]	βo[keróóβá]
m. Abahunyaga	aβa[húɲáɣa]	βu[hunáɣá]
n. Abatoboori	aβa[tóβoorí]	βo[toβóórí]
o. Ababwaasi	aβa[βwáási]	βu[βwaási]

Although all these clans speak one mutually intelligible language, slight differences in their discourse has developed. These differences are mainly at the lexical and phonological levels (Muniko et al 1996). The first four clans in (1) live in Kenya and Tanzania, and the rest are found only in Tanzania. The people of each clan live in specific locations that are referred to by a similar name to that of the clan but with the augment missing and a change in the class prefix from /βa-/ to /βo-/ or /βu-/ (see *Location* in 1 above). Previous work in this language used the Butiimbaaru variety (Whiteley 1955) and the Nyabaasi variety (Odden 1987; Cammenga 2004) but the present study will use the Buguumbe variety since this is the one that I speak.

1.2 Previous Research

Previous research on Kuria tone has been limited. Whiteley (1955) was the first formal study of tonal patterns in Kuria. It is generally a study of the verb system in Kuria exploring various shapes of the verb stem and the position of the verb in the sentence. A chapter is devoted to the tonal structure of the verb, and in particular there is an attempt to establish verbal tone classes. Whiteley also looks at phrasal variation of tones and some interrogative patterns. This work presents numerous examples of tone patterns in

different tenses but these tenses are not named and there is little analysis of the data. This work brought to the fore the following aspects of the Kuria tone system: (a) that there are two level tones; high and low, to which may be added a rising tone, (b) the presence of a grammatical tone (Whiteley 1955:103 – 104), as in the minimal pairs in (2).

- | | |
|-----------------------|---|
| (2) a. nnaaya[tuníre] | “(indeed) I have been looking for (today)”
- Hodiernal Past Progressive Anterior Focused |
| nnaayá[túníre] | “I used to look for (then)”
- Habitual Past Focused |
| b. naaka[maáhére] | “(indeed) I have been looking (today)”
- Hodiernal Past Progressive Anterior Focused |
| naaká[mááhére] | “I used to look (then)”
- Habitual Past Focused |

The most recent studies on Kuria tone are Odden (1987) and Cammenga (2004). These two are discussed in Chapter six where both finite and infinitival tone patterns are covered.

Hyman (1989) and Odden (1995) are not entirely on Kuria but they present samples of Kuria data and discuss their theoretical implications. Hyman (1989) presents Kuria tenses that assign H tones to V4 of the stem and shows that this is a problematic case for the metrical framework. One of the fundamental problems in understanding tone is determining what the tone-bearing unit is. Odden (1995) discusses this question and draws examples from Kuria to show that the tone-bearing unit in Kuria is the mora. This is because high tones are assigned by counting moras and not syllables. Another study that is of interest is Rose (2001). This discusses tense and aspect in Kuria. It relies

heavily on Whiteley (1955) and Cammenga (1994), and suggests that the Kuria language is in rapid transition.

1.3 Kuria Tonology

There is general consensus that whereas Bantu languages have a fairly simple nominal tonology, the verbal tonology is fairly complex due to the morphological complexity of the verb. Studies of other Bantu tone systems have revealed some similar characteristics (Clements & Goldsmith 1984; Nurse & Philippson 2003). Below, I briefly discuss two of these characteristics that feature prominently in Kuria tone.

1.3.1 High Tone Spreading

One of the common features in Bantu languages is the phenomenon of tone spreading and/or tone doubling where high tone is copied to the next tone bearing unit under conditions which vary across languages. Usually a high tone will be assigned on a certain position on the verb stem and if there is a sequence of “unassociated” vowels to its left or right then there is a likelihood of this H spreading leftwards or rightwards. For example, Kuria spreads H tones rightward in both bounded and unbounded fashion. In Lunyala, there is leftward spreading (Marlo 2007). As we will see in chapter three and four, spreading plays a major role in the surface tonal patterns in Kuria.

1.3.2 Non-Finality

Non-finality is a general tendency to avoid H tones at the end of certain phonological structures. The structures could be the intonational phrase (IP), phonological phrase, or the word. In Kuria, the effect of non-finality is clearly evident in

verbs that have five vowels or more on the stem. In such verbs, the high tone spreads up to the penult, ignoring the final vowel. For example, in *mbaa[kóóndókóóje]* “(indeed) they uncovered (then)”, all the vowels in the stem have a high tone except the last one.

1.4 Basic Surface Tones

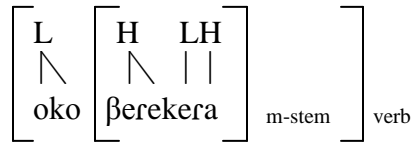
Kuria is has two basic surface tones, high (H) and low (L) (Whiteley 1955; Odden 1987; Cammenga 2004), as illustrated in (3) below. The following conventions are used in marking these tones: high tone is marked by an acute accent (') and low tones are unmarked.

- (3) a. oko[róma] “to bite”
 b. oko[βérékerá] “to call”

1.4.1 Downdrift

Kuria also exhibits downdrift, a phenomenon which lowers the pitch of a high tone after a low tone. The presence of the L tone between two H tones triggers a downward shift in tonal register. The process of downdrift is considered to be automatic in that, given any sequence of tones, every high after a low is always a step lower than the preceding high. For example, in (4), the final H tone in *oko[βérékerá]* “to call” is lower than the first H tone.

- (4) /o - ko - βereker - a/ → oko[βérékerá] “to call”
 a - im - call - fv



The tones in (4) can be graphically represented as in Figure 1.2 below.

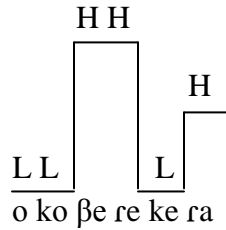


Figure 1.2: oko[βérékerá] “to call”

1.4.2 Downstep

Another phenomenon found in Kuria, which is similar to downdrift, is downstep. Odden (1987) refers to this as a “mid tone”. Where appropriate, I use macron (̄) when making reference to Odden’s “mid”, otherwise I will refer to this tone as a downstep. The examples in (5) show mid tone.

- (5) a. oyo[térékā] “to brew”
 b. oyo[kárāāngā] “to fry”

The rule producing the mid tone is optional. When it fails to apply, a rising tone is realized. This is represented by an inverted circumflex accent (˘).

- (6) a. oyo[térékă] “to brew”
 b. uyu[súkúră] “to rub”

Downstep is a kind of register lowering that can be defined as a drop in pitch which occurs on the second of two adjacent high tones. The second tone is therefore produced at a pitch lower than the first one, without reaching the level of a low tone. There is general consensus that a downstep is conditioned by a floating low tone occurring between two high tones (Welmers 1973, Schuh 1978, Hyman 1979, Pulleyblank 1983, Stewart 1983, Huang 1985, Clark 1993, Snider 1999, Connell 2001, Yip 2002). Downdrift seems to be the basis of downstep, with the L that is conditioning downdrift detached. Downstepped high is always non-initial in Kuria, that is, it never occurs word or phrase-initially. It will be marked by a raised exclamation mark followed by a H ('á).

(7) /o - ko - tɛɾɛk - a/ → oɣo[tɛ́ɾé'ká] “to brew”
 a - im - brew - fv

The rising and falling of the tones in (7) is graphically represented in Figure 1.3.

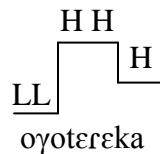


Figure 1.3: oɣo[tɛ́ɾé'ká] “to brew”

One characteristic of a downstepped high is that it sets a new pitch ceiling for all subsequent high tones. In other words, subsequent high tones do not rise above the height of the downstepped. The fact that the pitch level of the downstepped high and the following high tones stays level has been used to argue that the downstepped high cannot

be interpreted as a mid tone (Yip 2002). A mid tone can be followed by a high tone, but a high after a downstepped high will be at the same level.

1.4.3 Downglide

Kuria also distinguishes between a final low tone that falls (downglides) [˩̚] and a final L that does not fall [˩̰]. Downglide is a phenomenon where a L at the end of a verb or before a pause receives extra lowering, that is, L becomes superlow. When there are two or more low toned vowels at the end of a verb, the last vowel falls or downglides. Following Pulleyblank (1986), I assume that if a floating tone occurs after a sequence of low tones at the end of a verb, it serves to stabilize their level but if they are not followed by a floating tone, downglide occurs. I therefore consider a downglide as an allotone of a low tone. I will mark a downglide with a grave accent (`).

(8) Madatory Imperative

- | | |
|-----------------|------------|
| a. [koondókorà] | “open!” |
| b. [turuúŋanà] | “welcome!” |

Hortatory Imperative (2)

- | | |
|-----------------|-------------|
| c. ta[káraaŋgà] | “(do) fry” |
| d. ta[táándorà] | “(do) tear” |

1.4.4 Contour Tones

I will consider each written vowel to be a tone bearing unit (TBU). When only one of two consecutive vowels in a long syllable is marked for high tone, the syllable bears a contour. The rising contour (LH) is common in long syllables in Kuria.

- (9) a. $\beta\text{akara}\text{á}\text{ŋ}\epsilon$ “that they (may) fry” (LH) Subjunctive
 b. $\text{too}[\gamma\text{ai}\gamma\text{o}\text{o}\text{j}\epsilon]$ “we have just opened them-7” (LH) Immediate Past Anterior

The dialect studied by Odden (1987), Nyabaasi, has a falling contour (HL) but the Buguumbe dialect does not have a falling tone contour. When both vowels bear the same tone marking, the syllable is pronounced with one pitch.

- (10) a. $\text{uku}[\beta\text{í}\text{í}\text{má}]$ “to measure” (HH)
 b. $\text{o}\gamma\text{o}[\text{ká}\text{ra}\text{a}\text{ŋ}\text{gá}]$ “to fry” (LL)

1.5 Organization

The remaining six chapters are organized as follows: Chapter two presents Kuria verbal morphology. This isolates the inflectional and derivational morphemes so as to show the internal structure of the verb. Another important issue accounted for in this chapter is the process of imbrication.

Chapter three looks at tones in the affirmative verbs using a vowel count approach. The tone patterns of twenty two simple affirmative tenses and the infinitive verbs are discussed. This chapter reveals that Kuria has a rich and complex tense system. The issue of opacity is addressed in the analysis of vowel-initial verbs and verbs with first person singular object prefix. I present evidence to show that the macrostem domain is phrasal.

Chapter four shows the strategies that Kuria uses for negation and accounts for tonal patterns in the /ta-/ and /te-/ negative tenses. It is in this chapter that a complete list of ITAR and spreading rules is given.

The fifth chapter is about reduplication in Kuria. The basic principles of segmental reduplication are illustrated, and the assignment of tone in reduplicated forms is discussed. I demonstrate that a reduplicated verb is not any different from an unreduplicated verb in as far as tone is concerned.

Chapter six discusses provides a summary of Odden (1987) and Cammenga (2004). Odden uses a vowel count approach while Cammenga uses a tonal melody approach. A comparison between the two analyses is made and differences are noted.

The last chapter gives a concluding summary for all the chapters, notes issues of theoretical interest encountered in the study, and makes suggestions for future research.

Chapter Two

Segmental Phonology and Morphology

2. Introduction

This chapter provides a basic phonology of the Kuria language together with a descriptive sketch of its verbal morphology. It is not the intention of this chapter to provide a complete grammar of Kuria. Its purpose is to describe some segmental forms and processes that the reader needs to be aware of. A detailed segmental account is found in Cammenga (2004).

First, I will briefly examine Kuria segmental inventory, syllable structure, phonological processes, and the noun class system. Next, I will turn to verbal morphology where I will identify and describe the morphemes that are found in the Kuria verb. Lastly, I will discuss the phenomenon of imbrication.

2.1 Segmental Phonology

This section identifies the consonants and vowels found in the language. It also looks at the issue of vowel length, covers some basic phonological processes, and describes the types of syllables found in this language.

2.1.1 Consonants

The consonant segments of the Kuria sound system are set out in Table 2.1. They are adapted from Cammenga (2004) with slight modifications. The consonant segments in square brackets [] are not found underlyingly, they are derived.

Table 2.1: Consonants

	Bilabial	Alveolar	Palatal	Velar	Glottal
Stops oral		/t/		/k/	
prenasalized	[mb]	[nt] [nd]		[ŋk] [ŋg]	
Affricates oral			/tʃ/		
prenasalized			[ntʃ]		
Fricatives oral		/s/		/ɣ/	/h/
prenasalized	/β/	[ns]			
Nasals	/m/	/n/	/ɲ/	/ŋ/	
Trill		[rr]			
Flap		/ɾ/			
Glides	[w]		[j]		

The basic system consists of twelve consonants /t, k, s, ʃ, h, β, γ, m, n, ŋ, ɾ, and ɲ/ which comprise two voiceless stops; t and k, one affricate; ʃ, four fricatives; s, h, β and γ, with s and h voiceless and β and γ voiced; four nasals; m, n, ŋ and ɲ, and one flap; ɾ.

The language has a fair share of allophones. For example, [w] and [j] are positional variants of the high vowels /u/ and /i/ respectively. The two sets of sounds are in complementary distribution; glides occurring before vowels and the high vowels occurring before consonants or at the end of words. Also, the prenasalized consonants [mb], [nd], and [ŋg] only occur as allophones of the voiced continuants /β/, /ɾ/, and /γ/ respectively, when these are preceded by a nasal. Thus, [mb] and /β/ in (1a,b), [ŋg] and /γ/ in (1c,d), [nd] and /ɾ/ in (1e,f), are in complementary distribution.

(1) $N + \beta \rightarrow /mb/$

- a. /o - ko - $\gamma a N \beta$ - a/ \rightarrow oko[$\gamma \acute{a} \acute{a} m b \acute{a}$] “to speak”
a - im - speak - fv
- b. /o - ko - $\gamma a \beta$ - a/ \rightarrow oko[$\gamma \acute{a} \beta a$] “to share”
a - im - share - fv

$N + \gamma \rightarrow /ng/$

- c. /o - ko - $r a N \gamma$ - a/ \rightarrow oko[$r \acute{a} \acute{a} n g \acute{a}$] “to long for”
a - im - long for - fv
- d. /o - ko - $r a \gamma$ - a/ \rightarrow oko[$r \acute{a} \gamma a$] “to predict”
a - im - predict - fv

$N + r \rightarrow /nd/$

- e. /o - ko - $s \epsilon N r$ - a/ \rightarrow oyo[$s \acute{e} \acute{e} n d \acute{a}$] “to escort unhurriedly”
a - im - escort - fv
- f. /o - ko - $s \epsilon r$ - a/ \rightarrow oyo[$s \acute{e} r a$] “to deride, slight”
a - im - deride - fv

2.1.2 Vowels

Kuria has fourteen vowels, with seven contrasting qualities occurring in long and short pairs.

Table 2.2: Short Vowels

	front unrounded	central	back rounded			front unrounded	central	back rounded
high	i		u		high	ii		uu
mid	e		o		mid	ee		oo
mid	ϵ		ɔ		mid	$\epsilon \epsilon$		$\text{ɔ} \text{ɔ}$
low		a			low		aa	

Table 2.3: Long vowels

Long vowels can be either phonemic or derived. An example of the phonemic status of vowel length is seen in the minimal pair in (2).

- (2) a. iki[βíra] “the little finger”
 b. iki[βííra] “a plastic container”

Vowels that are underlyingly long can occur in any non-final position of the word. Derived vowel length arises in Kuria by compensatory lengthening. In such cases, vowels are predictably long in the following two environments:

- (3) a. after glide formation has occurred (see §2.1.4.2 for details).
 e.g. /o - ko - i - rom - a/ → ukwi[íróma] “to bite oneself”
 a - im - rf - bite - fv
- b. before prenasalized stops (see §2.1.4.3 for details)
 e.g. /o - ko - riNɣ - a/ → uku[rííngá] “to fold”
 a - im - fold - fv

2.1.3 Diphthongs

Kuria has a number of diphthongs underlyingly but many of these appear as glide-vowel sequences on the surface. Here are a few examples.

- (4) a. /io/ /o - ko - riok - a/ → uku[ɾjóóká] “to arise from the dead”
 a - im - arise - fv
- b. /iɔ/ /o - ko - siɔm - a/ → uɣu[sjóómá] “to peep into”
 a - im - peep - fv
- c. /ua/ /o - ko - suar - a/ → uɣu[swáárá] “to dress”
 a - im - dress - fv

d. /ue/ /o - ko - γuem - a/ → uku[γwéémá] “to hunt”
a - im - hunt - fv

e. /ui/ /o - ko - tui/ → uyu[twí] “ear”
a - cp15 - ear

There are only three surface diphthongs in Kuria. These have a low or mid vowel followed by a high vowel.

(5) a. /ai/ /o - ko - ηain - a/ → oko[ηáíná] “to cheat”
a - im - cheat - fv

b. /au/ /e - nauri/ → e[naúri] “fare”
a - fare

c. /ei/ /e - ke - ito/ → eye[íto] “ours”
a - cp7 - ours

2.1.4 Basic Phonological Processes

The phonological processes described in this section are the ones that will feature in the examples used in this dissertation. They are however not the focus of this study.

2.1.4.1 Dahl’s Law

This is a process of consonant voicing dissimilation named after Edmund Dahl. Besides Kuria, this process has been attested in a number of Eastern Bantu languages such as Nyamwezi, Kikuyu, Luhya, Gusii, Embu, Kamba, and Tharaka (Bennett 1967). Synchronically, the state of Dahl’s law varies in each of the languages stated above. In Kuria, this law applies across a morpheme boundary and it voices voiceless velar consonants before other voiceless consonants. The voicing dissimilation rule is formulated in (6).

(6) Dahl's law

$$\begin{bmatrix} \text{C} \\ - \text{voice} \\ + \text{back} \end{bmatrix} \rightarrow [+ \text{voice}] / \text{ ___ } V [- \text{voice}]$$

The rule provides for a $k \sim \gamma$ and $\eta k \sim \eta \gamma$ alternation. It affects words which have a voiceless velar in the class prefix. These are found in noun classes 7, 12, and 15 (see Table 2.4).

(7) Before voiceless initial stems

(a) /e - ke - kɛβi/ → eγe[kéβi] “a knife”
a - cp7 - knife

(b) /a - ka - seese/ → aγa[séésé] “a small dog”
a - cp12 - dog

I /o - ko - teremek - a/ → oγo[térémeká] “to be calm” (class 15)
a - im - be calm - fv

(8) Before voiced initial stems

(a) /e - ke - βaγɔ/ → eke[βáγɔ] “hoe”
a - cp7 - hoe

(b) /a - ka - meeri/ → aka[mééri] “a small ship”
a - cp12 - ship

(c) /o - ko - βiim - a/ → uku[βíímá] “to measure” (class 15)
a - im - measure - fv

2.1.4.2 Glide Formation

When two vowels are brought together, several outcomes are possible: glide formation, diphthongization, assimilation, or elision. In Kuria, glide formation occurs when a high vowel (/u/ or /i/) precedes another vowel.

(9) Glide Formation Rule

A high vowel followed by another vowel is realized as a non-syllabic glide.

$$\begin{array}{ccccc} \left[\begin{array}{c} + \text{syllabic} \\ + \text{high} \end{array} \right] & [+ \text{syllabic}] & \rightarrow & [- \text{syllabic}] & [+ \text{long}] \\ 1 & 2 & & 1 & 2 \end{array}$$

Glide formation normally triggers compensatory lengthening of the following vowel. The following examples illustrate both glide formation and compensatory lengthening.

- (10) a. /o - ko - yuem - a/ → uku[γwéémá] “to hunt”
 a - im - hunt - fv
- b. /o - ko - βiar - a/ → uku[βjáárá] “to give birth (animals)”
 a - im - give birth - fv

In (10a), the high vowel /u/ changes to the glide /w/ and the following vowel, /e/, is lengthened. Similarly, in (10b), the high vowel /i/ changes into the glide /j/ and the following vowel, /a/, is lengthened. The underlying representation for the verbs in (10) will be justified after looking at the forms in (11).

- (11) a. /iβ - a/ → [iβa] “steal!” Mandatory Imperative
 steal - fv
- b. /o - ko - iβ - a/ → ukwi[iβa] “to steal” Infinitive
 a - im - steal - fv

c. /o - ko - βiim - a/ → uku[βíímá] “to measure” Infinitive
a - im - measure - fv

In (11a) there is a vowel-initial verb without affixes. In (11b), the infinitival prefix is added, bringing the vowel from the verb root and that from the infinitival marker into proximity. Vowel raising takes place making the vowels in the augment and the infinitive marker high. The high vowel of the infinitival marker and the first vowel on the root meet the structural conditions for glide formation. The vowel on the infinitival marker turns into a glide and triggers lengthening in the next vowel. A contrast is provided in (11c) where no glide is formed because the verb root starts with a consonant.

If glide formation occurs word finally, that is, right before the final vowel, compensatory lengthening does not take place.

(12) a. /o - ko - rom - o - a/ → oko[rómwá] “to be bitten”
a - im - bite - pas - fv

b. /o - ko - i - a/ → uku[já] “to go”
a - im - go - fv

2.1.4.3 Prenasalization

This involves a sequence of a nasal followed by a consonant. This study holds that such a sequence in Kuria constitutes a single derived consonant. In Kuria, as in many Bantu languages, vowels are lengthened if they occur before prenasalized stops. A lengthening rule is formulated in (13).

(13) V → [+ long] / __ NC

There are seven types of prenasalized consonants listed in Table 1.1. These are exemplified in (14) below. They also illustrate lengthening of a vowel preceeding a prenasalized consonant.

- (14) a. /mb/ /o - ko - saNβ - a/ → oyo[sáámbá] “to burn”
 a - im - burn - fv
- b. /nt/ /o - mo - Nto/ → omo[ónto] “person”
 a - cp1 - person
- c. /nd/ /o - ko - γεNr - a/ → oko[γέéndá] “to walk”
 a - im - walk - fv
- d. /ŋk/ /o - ko - γεNk - a/ → oko[γέέŋká] “to disparage”
 a - im - disparage - fv
- e. /ŋg/ /eN - γaNβa/ → ee[ŋgáámbá] “way of speaking”
 a - speak
- f. /ns/ /eN - sui/ → ii[nswí] “fish”
 a - fish
- g. /ntʃ/ /o - ko - haNtʃ - a/ → oko[háántʃá] “to like”
 a - im - like - fv

After prenasalization has brought together a nasal and an obstruent (non-nasal) to form one phoneme, a process of assimilation occurs. Such a sequence becomes homorganic. The nasal assumes the place of articulation of the following consonant. The symbol N in the examples in (14) denotes a nasal unspecified for place of articulation. As seen in (14), /N/ is subject to applicable nasal rules. If the unspecified nasal is followed by a consonant, it assimilates to the place of articulation of the consonant and the

sequence surfaces as a prenasalized consonant: [mb] labial, [nd], [ns] or [ntʃ] coronal, or [ŋk], [ŋg] velar.

2.1.4.4 Vowel Coalescence

Vowel coalescence is a phonological process in which two consecutive vowels of different quality merge into one, often a long one. Vowels that coalesce come to be adjacent to each other because the morphemes they belong to have been joined or because they occur at the end and beginning of adjacent words. In some cases, the resulting vowel is not identical to any of the original vowels. An illustration follows in (15).

(15) o + a → ɔɔ

- | | | | |
|--|---|----------------------------|------------|
| a. /o - ko - aNrek - a/
a - im - write - fv | → | okɔ[ɔ́ndé ¹ ká] | “to write” |
| b. /o - ko - aɣ - a/
a - im - weed - fv | → | okɔ[ɔ́ɣa] | “to weed” |

(16) o + ɔ → ɔɔ

- | | | | |
|---|---|---------------------------|------------|
| a. /o - ko - ɔɣɔm - a/
a - im - squat - fv | → | okɔ[ɔ́ɣɔ ¹ má] | “to squat” |
| b. /o - ko - ɔβɔh - a/
a - im - fear - fv | → | okɔ[ɔ́βɔ ¹ há] | “to fear” |

2.1.4.5 Vowel Raising

There are many instances of vowel raising in Kuria. In one case, a high vowel on the stem causes mid vowels in the prefix to become high.

(17) a. /o - ko - βiim - a/ → uku[βíímá] “to measure”
 a - im - measure - fv

b. /o - ko - sukur - a/ → uɣu[súkú¹rá] “to rub”
 a - im - rub - fv

Vowel raising also applies to subject prefixes. If the stem has a high vowel, the subject prefix also gets a high vowel (18a-b), but if the stem has non-high vowels then the prefix also remains non-high (18c).

(18) Subjunctive

a. /o - βiim - ε/ → u[βiimé] “that you (may) measure”
 sm - measure - fv

b. /o - sukur - ε/ → u[sukuré] “that you (may) rub”
 sm - rub - fv

c. /o - heetok - ε/ → o[heetókε] “that you (may) remember”
 sm - remember - fv

Vowel raising can also be triggered by the causative extension, /-i/. This suffix causes stem vowels and preceding prefix vowels to raise to high vowels. These raised vowels may in turn raise vowels preceding them. Subsequently, the causative /-i/ becomes a glide.

(19) a. oko[róma] “to bite”

b. /o - ko - rom - i - a/ → uku[rúmjá] “to cause to bite”
 a - im - bite - cau - fv

(20) a. oko[héétóká] “to remember”

b. /o - ko - heetok - i - a/ → uku[híítúkjá] “to cause to remember”
 a - im - remember - cau - fv

Lower mid vowels, /ε/ and /ɔ/, will raise to upper-mid vowels, /e/ and /o/, respectively when they are followed by a high vowel.

(21) a. oγo[téré¹ká] “to brew”

b. /o - ko - tɛɾɛk - i - a/ → oγo[téré¹kjá] “to cause to brew”
a - im - brew - cau - fv

(22) a. oko[γóótá] “to hold”

b. /o - ko - γɔɔt - i - a/ → oko[γóótjá] “to cause to hold”
a - im - hold - cau - fv

2.1.4.6 Vowel Lowering

This applies within the stem and lowers a high vowel to an upper-mid vowel when the high vowel is followed by a mid vowel. This process is triggered by extensions such as the applicative /-er/, the stative /-ek/, and the reversives /-or/ and /-ok/ (Chacha & Odden 1998). This is regressive lowering because it applies to vowels preceding the trigger vowels.

(23) a. uku[βíímá] “to measure”

b. /o - ko - βiim - er - a/ → oko[βéémérá] “to measure for”
a - im - measure - ap - fv

(24) a. uku[βúna] “to break”

b. /o - ko - βun - ek - a/ → oko[βóné¹ká] “to be broken”
a - im - break - st - fv

Vowel lowering can also be progressive. This happens in derived verbs. If the stem has lower-mid vowels and the extensions have upper-mid vowels, the vowels of the extensions are lowered to lower-mid vowels.

- (25) a. /o - ko - tɛɾɛk - ɛɾ - a/ → oɔo[tɛ́ɾɛ́kɛrá] “to brew for”
 a - im - brew - ap - fv
- b. /o - ko - ɔɣ - ɛɾ - a/ → okɔ[ɔ́ɣɛ́rá] “to weed for”
 a - im - weed - ap - fv

For a detailed discussion of vowel processes in Kuria, see Cammenga (2004).

2.1.5 Syllable Structure

Kuria is a Bantu language with a predominantly CV syllable structure. This syllable is composed of an onset, which may be any consonant of the language, and a vowel.

(26) Mandatory Imperative

- a. [βe.re.ké.ra] “call!”
 b. [te.re.mé.ka] “be calm!”
 c. [su.ku.rá] “rub!”

The CV type syllable is also formed with prenasalized consonants. As shown in Table 2.1, Kuria has many consonants of this kind. These syllables are formed by a nasal-obstruent-vowel sequence. In the examples drawn from the Mandatory Imperative in (27), /-mba/, /-ŋga/, and /-nda/ are syllables with prenasalized consonants.

- (27) a. /saNβ - a/ → [saa.mbá] “burn!”
 burn - fv

- b. /karaNɣ - a/ → [ka.raá.ŋga] “fry!”
 fry - fv
- c. /taNror - a/ → [taa.ndó.ra] “tear!”
 tear - fv

It is possible to have a syllable with a consonant-glide cluster as onset. If a consonant is followed by two vowels, and the first vowel happens to be a high vowel /i/ or /u/, it will surface as a glide [j] or [w] respectively (see Glide Formation rule in §2.1.4.2).

- (28) a. /o - ko - ɣor - i - a/ → u.ku[ɣú.rjá] “to sell (cause to buy)”
 a - im - buy - cau - fv
- b. /o - ko - tu - a/ → u.ɣu[twá] “be pick”
 a - im - pick - fv

Syllables consisting of a single vowel occur word-initially. This syllable consists of a vowel nucleus without an onset, as shown in (29).

- (29) a. [i.ɣo.rá] “open!”
 b. [i.ɣóó.mba] “desire!”
 c. [a.ne.ké.ra] “lay out!”

As discussed in §2.1.2, vowel length in Kuria is distinctive; short vowels contrast with long vowels. A syllable with a short vowel will be referred to as a short syllable; while that with a long vowel or a diphthong will be called a long syllable. The first syllable in each of the verbs in (30) is long.

(30) Mandatory Imperative

- a. /saNβ - a/ → [saa.mbá] “burn!”
burn - fv
- b. /koNrokor - a/ → [koo.ndó.ko.ra] “uncover!”
uncover - fv

Immediate Past Anterior

- c. /βa - a - ihom - er - a/ → βai[hó.mé.ré] “they have just dried”
sm - t - dry - pf - fv

2.2 Noun Classes

Although this study does not deal directly with nouns, they form a focal point in the grammar of the language because they influence the concordial agreement which is also reflected on the verbs. Nouns in Kuria, as in other Bantu languages, are divided into classes. The nouns canonically consist of three parts: the pre-prefix or augment, the class prefix, and the root. The augment is always a copy of the vowel in the class prefix.

- (31) /o - mo - kari/
augment - class prefix - root
omo[kári] “woman”

Class 15 hosts noun classes derived from infinitival verbs such as *oko[róma]* “to bite”. This study will frequently make reference to this form. Kuria noun classes with their examples are found in Table 2.4. In this system, each noun class is referred to by number.

Table 2.4: Noun Classes

<i>Class Number</i>	<i>Preprefix (Augment)</i>	<i>Class prefix</i>	<i>Example</i>	<i>Gloss</i>
1	o -	- mo -	omokári	“woman”
2	a -	- βa -	aβakári	“women”
3	o -	- mo -	omoté	“tree”
4	e -	- me -	emeté	“trees”
5	i -	- ri -	iriiyí	“egg”
6	a -	- ma -	amayí	“eggs”
7	e -	- ke -	eyeénto	“thing”
8	i -	- βi -	iβiínto	“things”
9	e -	Ø	eβatá	“duck”
9a	eN-	Ø	eembéyo	“seed”
10	i -	- tʃi -	iʃiíβatá	“ducks”
10a	i -	- tʃi -	iʃiimbéyo	“seeds”
11	o -	- ro -	oroβáγɔ	“hedge”
12	a -	- ka -	ayaʃfúβa	“small bottle”
14	o -	- βo -	oβokáánó	“sesame seed”
15	o -	- ko -	oyosóma	“to read”
16	a -	- ha -	ahasé	“a place”
17	Ø	ko -	γuusúkúúri	“in/at school”
18	Ø	mo -	moónse	“inside”
19	i -	- hi -	ihiβéyo	“small seeds”
20	u -	- γu -	uyutʃfúβa	“big bottle”

Cammenga (2004)

As can be seen in Table 2.5, the noun class system found in Kuria involves pairs of classes which encode the singular and plural for a given noun. The nouns in singular will get their plural in another class.

Table 2.5: Noun class pairings

Class Number	Singular	Gloss	Pairs	Class Number	Plural	Gloss
1	omoónto	“person”	↔	2	aβaánto	“people”
3	omoté	“tree”	↔	4	emeté	“trees”
5	iriiyéna	“stone”	↔	6	amayéna amatwí	“stones” “ears”
7	eyeénto	“thing”	↔	8	iβiínto	“things”
9	eβatá	“duck”	↔	10	iṭṭíβatá iṭṭiimbáyɔ	“ducks” “hedges”
11	oroβáyɔ	“hedge”				
12	ayaṭṭúβa	“small bottle”				
15	uyutwí	“ear”				
				19	ihṭṭúβa	“small bottle(s)”

2.3 Verbal Morphology

In both the tensed and the non-tensed forms, the *root* is the core of the verb. Most verb roots in Kuria are CVC but other forms also exist. For example, in *oko[róm-a]* “to bite”, *rom-* is the root. The minimal verbal structure, however, consists of the root and the final vowel. These are elements which must always be present in the verb. This form can however be extended. This study adopts the terminology in (32) and (33) for the various types of verbal morphemes found in Bantu languages.

(32) Verbal morphemes based on Infinitive

/o - ko - rom - er - an - a/

1 2 3 4 4 5

a - im - bite - ap - rec - fv

oko[róméraná] “to bite for each other”

1. augment / preprefix
2. class prefix
3. root
4. extension
5. final vowel

These morphemes occur in a fixed order. The extension is made up of several suffixes (see Table 2.7) which, when added to the root, extend both the form and meaning of the root. The morphemes shown in (32) above can be categorized as follows:

(33) 1 + 2 augmented prefix

1 – 5 extended verb

3 – 4 base

3 – 5 stem

The *augmented prefix* is made up of the augment and the class prefix. The *extended verb* is a verb which has been expanded through affixation. The *base* is made up of the root, and the extension suffixes, without the final vowel. A simple *stem* is made up of the root and the final vowel but a complex stem is composed of the root, extension suffixes, and the final vowel.

Another term that is commonly used in Bantu linguistics is the *macrostem* (see Odden 1998). This is the domain within which high tone alternations are restricted. This is a set of morphological constructions comprising the object marker (when present), the root, extension suffixes, and the final vowel. In this sense, the macrostem is larger than a

regular stem but the minimum macrostem is a stem. To aid in delineating the macrostem, square brackets are used to mark it off from the pre-macrostem domain.

(34) Macrostem

[_{macrostem} (Object) – Root – (Extension) – Final Vowel]

A hierarchical arrangement (Poletto 1998) in Figure 2.1 will serve to illustrate the position of the macrostem in the verb.

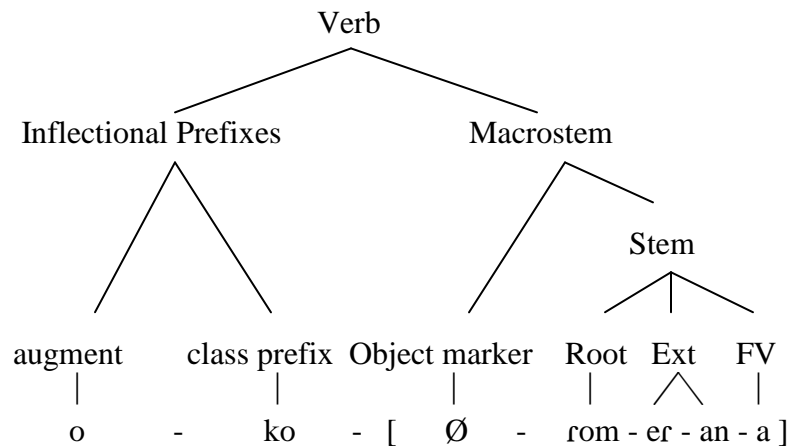


Figure 2.1: oko[róméraná] “to bite for each other”

2.3.1 Verbal Structure

2.3.1.1 Order of Morphemes

Kuria, like other Bantu languages, has a complex agglutinating morphology. Whiteley (1955) was the first attempt to examine the Kuria verb in some detail. He postulated the verbal structure in (35).

(35) subject marker – tense – object marker – root – extension suffixes – tense suffix

It is possible to arrange the morphemes of verbs in this language in a strict linear order into slots or position classes. Each of these positions reflects a morphological function. Table 2.6 below shows various structural positions of the Kuria verbal structure as well as elements that fill those slots (Cammenga 2004).

Table 2.6: Kuria Verbal Structure

Pre-root domain										Root	Post-root domain							
Pre-object domain					Object domain						Extension domain					Inflection		
f	n1	sm	n2	t	op	ob	oc	rd	root	inc	st	ap (ap)	rec	cau	t	pas	fv	
a		im			rf						rt							
											ri							

This structural arrangement can be used in the tensed or non-tensed verb forms. The major subdivisions in Kuria verbal structure are the root, the pre-root domain, and the post-root domain. The most important part is the verbal root (see §2.3.1.2). Table 2.7 contains morphemes that fill the slots in Table 2.6.

Table 2.7: Morphemes and their Functions

<i>Symbol</i>	<i>Terminology</i>	<i>Morpheme</i>	<i>Meaning or Function</i>
f	focus	ne-	“it is”, emphasis
a	augment or pre-prefix	o-	prefixed to im
n1	negative marker 1	te-	“not”, usually followed by <i>hai</i>
sm	subject marker		
im	infinitive marker	ko-	
n2	negative marker 2	ta-	“not”
t	tense, mood, aspect marker		
om	object markers		

<i>Symbol</i>	<i>Terminology</i>	<i>Morpheme</i>	<i>Meaning or Function</i>
op rf ob oc	patient reflexive benefactive cause	i-	expresses reflexiveness or intransitivity
rd	reduplication		intensifies the core meaning of the verb
root	verbal root		core meaning of the verb
inc	inchoative suffix	-(V)h	derives deadjectival verbal roots with inchoative or stative meaning
ext	extension		
st	stative	-ek	expresses state, intransitivity, or inchoation
rt	reversive-transitive	-or	changes intransitive core meaning to transitive
ri	reversive-intransitive	-ok	makes meaning intransitive
ap	applicative	-er	may express semantic roles of beneficiary, patient, and recipient
rec	reciprocal	-an	adds the idea of reciprocity
cau	causative	-i	adds the concept of causative
syn	synchronizing	-er-an-i	expresses simultaneity of actions or events
pas	passive marker	-(β)o	passive voice marker
fv	final vowel	-a -e -ε -i	marks infinitives and indicative tenses marks the perfective marks subjunctive marks some imbricated verbs

I now proceed to a more elaborate discussion of the verbal elements shown in Table 2.6 and Table 2.7. I will first deal with verb root before turning to the pre-root and post-root morphemes.

2.3.1.2 Verb Root

The root constitutes the morphological and semantic core of the verb. It is the most basic form of the verb to which affixes may be added. It is made up of an unextended stem minus the final vowel. The verb root cannot be used without a final vowel.

Inchoative Suffix /-(V)h/

The inchoative suffix derives deadjectival verb roots with inchoative or stative meaning (Cammenga 2004:252). They are derived by the allomorphy rule in (36).

(36) Inchoative Allomorphy

- a. -Vh / [+cons] ____
- b. -h / [-cons] ____

Such verbs generally mean “to become, hence to be, the quality expressed by the adjective”, or in the perfective tense, “to have become, hence to be, the quality expressed by the adjective”. This suffix may be used to express inchoative or stative meaning but the former is more basic.

- (37) a. /-aru/ “many”
- /o - ko - aru - h - a/
 a - im - many - inc - fv
 oko[óru^hhá] “to become many”
- b. /-roNye/ “straight”
- /o - ko - roNye - h - a/
 a - im - straight - inc - fv
 oko[róónghá] “to become straight”
- c. /-ɔβ-/ “afraid”
- /o - ko - ɔβ - ɔh - a/
 a - im - afraid - inc - fv
 oko[ɔβ^hhá] “to become afraid”

Some verbs are however inherently inchoative, that is, they are not overtly marked as such (see 38).

- (38) a. oko[rósa] “to become tired”
 b. oko[βóónǵǎ] “to become thin”
 c. oyo[tóβa] “to become cheap, ripe”

2.3.2 Pre-Root Morphemes

2.3.2.1 Focus

The purpose of the focus morpheme is to give emphasis. Cammenga (2004) gives the focus morpheme as /ne-/. The focus morpheme is usually analyzed as a verbal

element rather than a pre-clitic. While the assertive focus is active in some verbs, as in (39a), it seems to be grammaticalized¹ in certain tenses, as in (39c).

(39) a. Assertive Focus

/ne - βa - a - heetok - a/
 f - sm - t - remember - fv
 focus-they-past-remember-fv
 mβaa[héetóka] “(indeed) they have (already) remembered”
 (Untimed Past Anterior Focused)

Versus

b. Non-assertive

/βa - a - heetok - a/
 sm - t - remember - fv
 they-past-remember-fv
 βaa[heetóka] “they have (already) remembered” (Untimed Past Anterior)

c. Grammaticalized

/ne - βa - aká - heetok - er - e/
 f - sm - t - remember - pf - fv
 focus-they-past-remember-perfective-fv
 mβaaká[héetókére] “they used to remember” (Habitual Past Focused)

The tense in (39c) does not have a non-assertive equivalent.

2.3.2.2 Negation

There are two ways of marking morphological negation in Kuria. The most common way is by using a single negative marker, /ta-/. This negative morpheme occurs as part of the verb. The order of the morphemes on the verb in (40b) follow the order:

¹ The morpheme is present but the focus meaning is lost. Alternative terms are ‘fossilized’ or ‘lexicalized’.

subject marker – negative marker – tense – root – final vowel. In this case, the negative is found between the subject marker and the tense or the object marker, if one is present.

(40) a. Remote Future Focused

/ne - βa - re - βereker - a/
f - sm - t - call - fv
focus-they-future-call-fv
mβare[βerekéra] “they will call (then)”

b. Remote Future n2

/βa - ta - re - βereker - a/
sm - n2 - t - call - fv
they-not-future-call-fv
batare[βerekéra] “they will not call (then)”

The affirmative verb in (40a) is focused but the negative verb in (40b) is not focused. A negated verb cannot have a focus morpheme because negation is inherently focused.

Another way of indicating negation in Kuria is by using a double particle negative /te-/ in a pre-initial verbal position followed by a post-verbal *hai*. This strategy employs negatives at different ends of the verb but as a discontinuous constituent (te ... hai). This is similar to what is seen in French (Payne 1985). The second particle serves to reinforce the first one.

(41) a. Remote Future Focused

/ne - βa - re - rom - a/
f - sm - t - bite - fv
focus-they-future-bite-fv
mβare[ro'má] “they will bite (then)”

b. Remote Future n1

/te - βa - re - rom - a hai/

n1 - sm - t - bite - fv not

not-they-future-bite-fv not

teβaré[róma háí] “they will not bite (then)”

2.3.2.3 Infinitive Marker

The infinitive is made up of a pre-prefix or augment, and the class prefix. This is known as the augmented prefix and has a function similar to the English infinitive marker “to”. These elements are represented in (42).

(42) The Infinitive

/o - ko - maah - a/

a - im - see - fv

to-see-fv

oko[mááhá] “to see”

The augmented prefix marks all verbal nouns. The infinitive verb may be used as a verbal noun without changing its form. Formally, the infinitive is a noun of class prefix 15, marked by the prefix /ko-/. It is usually preceded by the augment (43a) or focus. In complex tenses it is possible for it to appear without the augment or focus.

Augment

The augment is also called the pre-prefix. It consists of an initial segment before the nominal class prefix. When the infinitive is used as a verbal complement in complex tenses,² it is regularly non-augmented and focused, as in (43d). The alternation between

² These are tenses that have more than one verb e.g. an auxiliary and a main verb. For example, in (43d) *roma* is the main verb and *βare* is the auxiliary verb.

the augment and the focus suggests that they occupy the same morpheme slot on the verb.

Examples follow in (43).

(43) a. Augmented verb

/o - ko - rom - a/
a - im - bite - fv
oko[róma] “to bite”

b. Non-augmented verb

/ne - ko - rom - a ke
f - im - bite - fv what
focus-infinitive-bite-fv what
[ɲkoromáke] “what type of biting?”

c. Non-focused infinitive in complex tense

/βa - ta - V - re o - ko - rom - a/
sm - n2 - t - be a - im - bite - fv
they-not-past-were-augment-to-bite-fv
[βataare kóromà] “they were not biting (yesterday)”

d. Focused infinitive in complex tense

/ne - ko - rom - a βa - re/
f - im - bite - fv sm - be
focus-infinitive-bite-fv they-be
[ɲkoromá páre] “they are biting, they bite”

2.3.2.4 Subject Marker

This is a morpheme that encodes the subject category on the verb. It provides information about the person, number, and class (see Table 2.4). The subject marker has the following representations for the various morphosyntactic classes.

(44) a. Personal

Singular	1 /ne-/	“I”
	2 /o-/	“you”
	3 see class 1 below	
Plural	1 /to-/	“we”
	2 /mo-/	“you”
	3 see class 2 below	

b. Non-personal (including classes 1 and 2)

The singular non-personal subject marker may be referred to as ‘it’, and the plural one as ‘they’. The Immediate Past Anterior tense is used in the examples below.

Class	Prefixes	Examples	
1	/a-/	aa[rééntérwé]	“s/he has been brought”

The example in Class 1 above can be segmented as follows:

/a - a - rɛNt - er - o - e/³
 sm - t - bring - pf - pas - fv
 s/he-past-bring-perfect-passive-fv
 aa[rééntérwé] “s/he has been brought”

2	/βa-/	βaa[rééntérwé]	“they have been brought”
3	/γo-/	γoo[rééntérwé]	“it has been brought”
4	/γe-/	γee[rééntérwé]	“they have been brought”
5	/re-/	ree[rééntérwé]	“it has been brought”
6	/γa-/	γaa[rééntérwé]	“they have been brought”
7	/ke-/	kee[rééntérwé]	“it has been brought”
8	/βi-/	βii[rééntérwé]	“they have been brought”
9	/e-/	ee[rééntérwé]	“it has been brought”
10	/ʃi-/	ʃii[rééntérwé]	“they have been brought”
11	/ro-/	roo[rééntérwé]	“it has been brought”
12	/ka-/	kaa[rééntérwé]	“it has been brought”

³ The lower mid vowel [ɛ] in the root undergoes raising triggered by the perfective suffix.

14	/βo-/	βoo[rééntérwé]	“they have been brought”
15	/ko-/	koo[rééntérwé]	“it has been brought”
16	/ha-/	haa[rééntérwé]	“it has been brought”
19	/hi-/	hii[rééntérwé]	“they have been brought”
20	/γo-/	γoo[rééntérwé]	“it has been brought”

Subject prefixes do not follow the process of consonantal voicing dissimilation known as Dahl’s Law (see §2.1.4.1). Dahl’s Law is blocked here because applying it would neutralize the voicing distinction between class prefixes. The following subject markers have a contrast in voicing.

(45)	12 /ka-/	vs	6 /γa-/
	7 /ke-/	vs	4 /γe-/
	15 /ko-/	vs	3 /γo-/
			20 /γo-/

In this regard, class 7 will always have /ke-/ as the subject marker as in *kee[témé’rwé]* and not **γee[témé’rwé]* “it has been beaten”.

2.3.2.5 Object Marker

The following are the underlying forms of the verbal object markers in Kuria arranged according to the noun classes.

(46) a. Personal			
Singular	1	/ne-/	“me”
	2	/ko-/	“you”
	3	see class 1 below	
Plural	1	/to-/	“us”
	2	/βa-/	“you”
	3	see class 2 below	

b. Non-personal (including classes 1 and 2)

Class	Morpheme	Examples
1	/mo-/	uku[múβí'sá]

The example in class 1 above can be segmented as follows:

/o - ko - mo - βis - a/
a - im - om - hide - fv
to-him/her-hide-fv
uku[múβí'sá] “to hide him/her”

2	/βa-/	oko[βáβí'sá]	“to hide them”
3	/γo-/	uku[γúβí'sá]	“to hide it”
4	/γe-/	uku[γíβí'sá]	“to hide them”
5	/re-/	uku[ríβí'sá]	“to hide it”
6	/γa-/	oko[γáβí'sá]	“to hide them”
7	/ke-/	uγu[kíβí'sá]	“to hide it”
8	/βi-/	uku[βíβí'sá]	“to hide them”
9	/γe-/	uku[γíβí'sá]	“to hide it”
10	/tʃi-/	uγu[tʃíβí'sá]	“to hide them”
11	/ro-/	uku[rúβí'sá]	“to hide it”
12	/ka-/	oγo[káβí'sá]	“to hide it”
14	/βo-/	uku[βúβí'sá]	“to hide them”
15	/ko-/	uγu[kúβí'sá]	“to hide it”
16	/ha-/	oko[háβí'sá]	“to hide it”
19	/hi-/	uku[híβí'sá]	“to hide them”
20	/γo-/	uku[γúβí'sá]	“to hide it”

Dahl's law is at play in the examples in (46) with the object marker consonants acting as the triggers and the velar consonants in the prefix acting as the targets.

A number of objects may be identified according to their semantic roles (47).

These are usually encoded on the verb.

- (47) a. patient (op)
b. beneficiary (ob)
c. cause (oc)

A maximum of three object markers may co-occur in one verb form. This only happens in the applicative verb. Here are illustrations:

(48) a. two objects

patient – benefactive

/o - ko - mo - βa - tɛm - er - a/
 a - im - om1 - om2 - beat - ap - fv
 op ob
 to-him-them-beat-applicative-fv
 oko[móβátɛméra] “to beat him for them”

patient – benefactive

/ne - βa - re - ke - mo - rom - er - a/
 f - sm - t - om7 - om1 - bite - ap - fv
 op ob
 focus-they-future-it-him-bite-appl-fv
 mbare[kemorómera] “they will bite it for him”

b. three objects

patient - cause - benefactive

/o - ko - ke - βa - mo - rom - er - i - a/
 a - im - om7 - om2 - om1 - bite - ap - cau - fv
 op oc ob
 to-it-them-him-bite-applicative-causative-fv
 oγo[kéβámurúmírja] “to cause them to bite it for him”

The order of the object prefixes in (48b) is patient-causee-beneficiary. This contradicts Cammenga (2004: 251), where the order is given as: patient-beneficiary-recipient-causee.

2.3.2.6 Reflexive Prefix /i-/

The reflexive prefix usually expresses an action that is directed back on the subject. In a reflexive verb, the semantic agent and patient are the same. Some verbs containing this prefix are given in (49).

- (49) a. /o - ko - i - rom - a/
a - im - rf - bite - fv
ukwi[író¹má] “to bite oneself”
- b. /o - ko - i - tɛm - a/
a - im - rf - hit - fv
uɣwi[íté¹má] “to hit oneself”

The reflexive may mark the object of a verb. In this case, the reflexive is signified by a verbal prefix which replaces the object agreement marker. In (50a), the object marker precedes the root and in (50b) an reflexive precedes the root.

- (50) a. /o - ko - mo - aɣ - a/
a - im - om1 - scratch - fv
oko[móóɣá] “to scratch him/her” (vt)
- b. /o - ko - i - aɣ - a/
a - im - rf - scratch - fv
ukwi[íjá¹ɣá] “to scratch oneself” (vi)

The reflexive can co-occur with the benefactive object marker as shown in (51).

- (51) /o - ko - βa - i - tɛm - er - a/
a - im - om - rf - hit - ap - fv
ob op
oko[βáitéméra] “to hit oneself for them”

2.3.2.7 Reduplication

This involves total or partial copying of the word or stem. In Kuria, the stem is wholly or partially copied to the left of the input.

- (52) a. oyo[téré¹ká] “to brew”
 b. oyo[téréteréka] “to brew repeatedly”
 c. oyo[térékatéréka] “to brew repeatedly”

Reduplication is described in detail in Chapter 5.

2.3.3 Tense, Mood and Aspect

Kuria possesses a rich tense system that exhibits a great diversity of forms. In this work, the term “tense” is used in a broad sense that includes not only tense proper, but also aspect and mood (TAM). Tenses appear in two positions in the verb, as prefixes or suffixes. Most of them are prefixes except the perfective /-er/ which is a suffix. This suffix co-occurs with the final vowel /-e/. Because of this division, I discuss tenses separately from pre-root morphemes and extension suffixes.

Tenses in Kuria can generally be grouped into simple versus complex, and affirmative versus negative. Those consisting of one verb form are termed simple tenses (one-word tenses). Concatenations of tenses containing a finite form plus another finite form or an infinitive are called complex or multiple tenses (Whiteley 1955; Cammenga 2002). Complex tenses are not discussed here since they are beyond the scope of this work.

This study adapts the organization of the tenses as presented in Cammenga

(2004). In Kuria, there is a distinct morphology for past, present, and future tenses. It is however possible to make finer distinctions in each of the tenses. These finer distinctions can, for example, be used to indicate degrees of remoteness in time.

2.3.3.1 Present Tense

This refers to a time of an event happening when the utterance is taking place. It therefore covers imperfective situations unless it is used together with the future or the past so as to make clear the futurity of the event or past narrative (Rose, Beaudoin-Lietz, and Nurse 2002).

(53) a. Current (simultaneous with the time referred to)

e.g. /ne - to - ke - karaNγ - er - e/ f - sm - t - fry - pf - fv	→	ntoye[karaángére]	“(indeed) we are still frying”
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b. Untimed (expressing a fact not related to time)

e.g. /to - karaNγ - a/ sm - fry - fv	→	to[karáángga]	“we fry (fact)”
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2.3.3.2 Past Tense

Past tense refers to an activity or event occurring before a point of time that serves as a reference point. Kuria differentiates the following types of past.

(54) a. Immediate (just now)

e.g. /to - a - karaNγ - er - e/ sm - t - fry - pf - fv	→	too[karaangére]	“we have just fried”
---	---	-----------------	-------------------------

b. Hodiernal (today)

e.g. /ne - to - aka - karaNγ - er - e/ f - sm - t - fry - pf - fv	→	ntooγa[karáángére]	“(indeed) we have been frying (today)”
--	---	--------------------	--

c. Habitual (extended period of time)

e.g. /ne - to - aka - karaNɣ - er - e/ → ntɔɔɣá[káraáŋgére] “we used to fry (then)”
f - sm - t - fry - pf - fv

d. Remote (further removed from event i.e. yesterday and earlier)

e.g. /ne - to - a - karaNɣ - er - e/ → ntɔɔ[káraáŋgére] “(indeed) we fried”
f - sm - t - fry - pf - fv

e. Narrative (consecutive and/or subsequent event)

e.g. /to - ká - karaNɣ - a/ → toɣá[káraaŋgá] “(and) we fried”
sm - t - fry - fv

f. Anterior (an event which occurred earlier before another, near or recent)

e.g. /ne - to - karaNɣ - er - e/ → nto[káraáŋgére] “(indeed) we fried (earlier today)”
f - sm - fry - pf - fv

2.3.3.3 Future Tense

This is a tense category referring to events occurring after the moment of reference. It can have the following distinctions in the simple affirmative in Kuria.

(55) a. Immediate (occurring within a short while)

e.g. /ne - to - raá - karaNɣ - ε/ → ntoraá[káraáŋge] “(indeed) we will fry (now)”
f - sm - t - fry - fv

b. Hodiernal (today)

e.g. /to - kaa - karaNɣ - a/ → toɣaa[káraaŋgá] “perhaps⁴ we will fry (today)”
sm - t - fry - fv

c. Remote (far or distant)

e.g. /to - ree - karaNɣ - a/ → toree[káraaŋgá] “we will fry”
sm - t - fry - fv

2.3.3.4 Mood and Aspect

Finer gradations in the tenses can further be derived from the interaction of the

⁴ “Perhaps” is not part of the meaning of hodiernal but is implied in the given example.

aspect markers and mood indicators with the tense markers proper. The well known moods are indicative, imperative, and subjunctive. Others are the conditional, ability, and possibility. In Kuria, there is a morphological contrast between the final vowel /-a/ in a verb, marking indicative, and /-ε/, marking the subjunctive. Mood can further be categorized as real time certain or uncertain. Imperatives also convey mood. These can be categorized according to degrees of volition, ranging from a polite request to a command, as permissive, hortatory, and mandatory (Cammenga 2004). Mandatory Imperative and Hortatory Imperative are used in this work, the first referring to a direct command and the second referring to a wish of the speaker. Aspect is reflected through the perfect, imperfect, persistive, habitual, and progressive. The tenses may also be either focused or non-focused as in (55a) and (55b) respectively or timed or untimed.⁵

2.3.3.5 Simple Affirmative Tenses

Twenty two simple affirmative tenses (combining tense, aspect, mood, and focus) are considered in this study. These are identified in Table 2.8 by their tense affixes.

Table 2.8: Simple Affirmative Tenses

	<i>Focus</i>	<i>Tense Morpheme</i>	<i>Terms used in Cammenga (2004)</i>
1.		Ø	Untimed present
2.		...ke...er...	Current present persistive (archaic)
3.		...a...	Untimed past anterior

⁵ Timed tenses refer to facts at specific periods of time while untimed tenses express facts non-specifically related to time. Timed tenses are unmarked, so the term “timed” is not used when designating the categories.

	<i>Focus</i>	<i>Tense Morpheme</i>	<i>Terms used in Cammenga (2004)</i>
4.	ne -	...a...	Untimed past anterior focused
5.	ne -	...Ø...er...	Hodiernal past anterior focused
6.		...a...er...	Immediate past anterior
7.	ne -	..aka...er...	Hodiernal past progressive anterior focused
8.	ne -	...a...er...	Remote past focused
9.		...ká...	Narrative past
10.	ne -	...aká...er...	Habitual past focused
11.	ne -	...raá...	Immediate future focused
12.		...kaa..	Hodiernal future uncertain possibility
13.		...ree...	Remote future
14.	ne -	...re...	Remote future focused
15.		...ε	Subjunctive
16.		...ta...	Hortatory imperative (1)
17.		Ø	Hortatory imperative (2)
18.		...ra...	Hortatory imperative (3)
19.		Ø	Mandatory imperative
20.	ne -	...kaa...	Untimed ability focused
21.	ne -	Ø	Untimed real uncertain condition focused
22.		...kaa...er...	Untimed past anterior condition

A detailed discussion of the tonal patterns of the affirmative tenses appears in Chapter three.

2.3.4 Post-Root Morphemes

The minimal verbal structure consists of the root and the final vowel. This minimal structure may be extended through suffixation of extension affixes, and the final vowel. Extension is a process that adds to the root both morphologically and semantically. The extension affixes are listed in (56).

(56) Extension Affixes

- a. /-ek/ stative (st)
- b. /-or/ reversive-transitive (rt)
- c. /-ok/ reversive-intransitive (ri)
- d. /-er/ applicative (ap)
- e. /-an/ reciprocal (rec)
- f. /-i/ causative (cau)
- g. /-erani/ synchronizing (syn)
- h. /-(β)o/ passive suffix (pas)

The order in which the extension suffixes occur is fixed, as shown in Table 2.9.

Table 2.9: Order of extension suffixes

root	st, rt, ri	ap	rec	cau	pas
	-ek	-er (-er)	-an	-i	-(β)o
	-or				
	-ok				

The suffixes (st) /-ek-/, (rt) /-or-/, and (ri) /-ok-/ are grouped together as (st, rt, ri) in Table 2.9 because they are mutually exclusive semantically. They never co-occur.

2.3.4.1 Stative Suffix /-ek/

This suffix has inchoative or stative, and sometimes intransitive, meaning. It is also known as the agentless passive. It is used when the speaker wants to avoid naming the agent of the action or if the agent is unknown to the speaker. It adds to the core meaning of the root the semantic element of “becoming” or “entering into a state”.

- (57) a. /sɔm-/ “read”
/o - ko - sɔm - ek - a/
a - im - read - st - fv
oɣo[sómɛ́ká] “to be legible”

- b. /βun-/ ”break”
/o - ko - βun - ek - a/
a - im - break - st - fv
oko[βóné'ká] “to be broken”

2.3.4.2 Reversive-transitive /-or/

The reversive-transitive changes the meaning of the verb into its semantic opposite. It makes the verb meaning transitive, that is, any intransitive meaning is converted to a transitive one. It does not appear to be very productive because it is not found in many verbs.

- (58) /raNr-/ “creep”
/o - ko - raNr - a/
a - im - creep - fv
oko[ráándá] “to creep (e.g., of vines)” (vi)

/o - ko - raNr - or - a/
 a - im - creep - rt - fv
 oko[ráándórá] “to pull off (e.g. vines)” (vt)

The examples in (58) above clearly show that there is a reversal of the core meaning of the root; “to creep” becomes “to pull off”. This is a shift from intransitive to transitive.

2.3.4.3 Reversive-intransitive /-ok/

The reversive-intransitive reverses the meaning of the root into its semantic opposite and makes the core meaning intransitive. Just like the reversive-transitive, it does not appear to be very productive.

(59) a. /riβ-/ “close, block”

/o - ko - riβ - a/
 a - im - block - fv
 uku[ríβa] “to block” (vt)

/o - ko - riβ - ok - a/
 a - im - block - ri - fv
 oko[réβó^hká] “to become open for use”, “to have a hole through” (vi)

b. /riNγ-/ “fold”

/o - ko - riNγ - a/
 a - im - fold - fv
 uku[rííngá] “to fold” (vt)

/o - ko - riNγ - ok - a/
 a - im - fold - ri - fv
 oko[rééngóká] “to unfold by itself” (vi)

2.3.4.4 Applicative Suffix /-er/

This suffix adds one argument to the verb. The additional argument is an applied object. It expresses a host of meanings which are conveyed by means of prepositions in English. It may express various semantic thematic roles. First, it is used to express the benefactive, as in (60).

- (60) a. /o - ko - sɔm - er - a/
a - im - read - ap - fv
oɣo[sómé¹rá] “to read for”
- b. /o - ko - mo - βin - er - a/
a - im - om1 - sing - ap - fv
ob
oko[móβénerá] “to sing for him/her” or “to sing to him/her”

The suffix may also have the instrumental sense “by means of”, that is, using something as an instrument to do another thing, as in (61).

- (61) a. /o - ko - keβ - er - a e - ke - keβi/
a - im - cut - ap - fv a - cp7 - knife
oɣo[kéβéra éyékéβi] “to cut with a knife”
- b. /o - ko - ke - keβ - er - a/
a - im - om7 - cut - ap - fv
oɣo[kékéβerá] “to cut it-7 with”, “to cut it-7 for”

The applicative in the verb in (61b) is ambiguous; it may express either an instrumental or a beneficiary.

The applicative suffix may be reduplicated to express “intensity and/or duration of action” (Cammenga 2004:261).

- (62) a. /o - ko - βin - er - er - a/
 a - im - sing - ap - ap - fv
 oko[βénéerra] “to keep on singing”
- b. /o - ko - tɛm - er - er - a/
 a - im - beat - ap - ap - fv
 oyo[téméerra] “to hammer into, to pound”

This phenomenon that expresses an action or state perceived as lasting for some length of time has been referred to as durative aspect (Rose et al 2002). The examples in (62) also show that reduplication of the applicative suffix introduces semantic specialization and causes total or partial loss of the original meaning. In these examples, the prepositional concept of the verbs is missing and the concept of intensity has totally taken over.

Sometimes the reduplication of the applicative makes the verb have the meaning of “something being done at the expense of another”. This malefactive meaning is relayed in (63b).

- (63) a. /o - ko - sɛk - er - er - a/
 a - im - laugh - ap - ap - fv
 oyo[séké^lrá] “to laugh for”
- b. /o - ko - sɛk - er - er - a/
 a - im - laugh - ap - ap - fv
 oyo[sékéerra] “to laugh at”

2.3.4.5 Reciprocal Suffix /-an/

The suffix /-an/ usually expresses the concept of reciprocal action; that is, an action is performed by two or more subjects on one another. Reciprocal verbs require more than one agent, and the agents are patients of each other’s actions. Examples follow in (64).

- (64) a. /o - ko - tɛm - an - a/
 a - im - beat - rec - fv
 oyo[témá'ná] “to beat each other”
- b. /o - ko - βiim - an - a/
 a - im - measure - rec - fv
 uku[βíímáná] “to measure each other”

2.3.4.6 Causative Suffix /-i/

The causative extension also increases the valency of the verb by one. This suffix shows that somebody (or something) causes someone (or something) else to do something.

- (65) a. /o - ko - sɛk - i - a/
 a - im - laugh - cau - fv
 oyo[sékjá] “to cause to laugh”
- b. /o - ko - βa - βiim - i - a/
 a - im - om2 - measure - cau - fv
 oko[βáβiimjá] “to cause them to measure”

The usage in (65a) above shows that a causative makes an intransitive meaning become transitive.

The causative suffix has become lexicalized in some verbs in Kuria. For example, the glide in the verb [*sookjá*] “finish” is the causative of a verb *[*sooká*] (Sillery 1936) which no longer exists in the language. Also, the verb [*riisjá*] “to herd cattle” looks like it has a causative, but there is no basic verb *[*riisá*].

2.3.4.7 Synchronizing Suffix /-erani/

The applicative, the reciprocal, and the causative join together to form the synchronizing suffix. When they occur together they express simultaneity of the action expressed by the core meaning of the root and some other action or event. The combination of the morphemes has an idiosyncratic, non-compositional meaning. Examples follow in (66).

- (66) a. /o - ko - tɛm - erani - a/
a - im - beat - syn - fv
oɣo[témé¹ránjá] “to beat while doing something else simultaneously”
- b. /o - ko - it - erani - a/
a - im - kill - syn - fv
uɣwi[ítéranjá] “to kill while doing something else simultaneously”

2.3.4.8 Passive Suffix /-(β)o/

The passive extension is used when the agent is “demoted” to an oblique position and the object is promoted to the subject role. It has two allomorphs which can be accounted for as in (67)

(67) Passive Allomorphy rule

- a. -βo / [- cons] ____
b. -o / [+ cons] ____

This allomorphy rule stipulates that after a vowel, the passive voice marker is /-βo/, and after a consonant, the form /-o/ is used. In both cases the vowel /o/ surfaces as a glide [w].

- (68) a. /o - ko - rom - o - a/
 a - im - bite - pas - fv
 oko[rómwá] “to be bitten”
- b. /o - ko - oyi - βo - a/
 a - im - clean - pas - fv
 oko[óyí¹βwá] “to be cleaned”

2.3.4.9 /-ar/ Suffix

An /-ar/ suffix also occurs in Kuria (Cammenga 2004). It appears in verbs such as the following.

- (69) a. /tiγ-/ “leave”
- /o - ko - tiγ - a/
 a - im - leave - fv
 uyu[tíya] “to leave”
- /o - ko - tiγ - ar - a/
 a - im - leave - ar - fv
 uyu[tíyá¹rá] “to leave behind”
- b. /riNγ-/ “fold”
- /o - ko - riNγ - a/
 a - im - fold - fv
 uku[rííngá] “to fold”
- /o - ko - riNγ - ar - er - a/
 a - im - fold - ar - ap - fv
 uku[rííngáárá] “to frown, to be wrinkled”

According to Cammenga, the basic meaning of this element is “to be in, or to enter into, a state”, usually detransitivising the core meaning of the root. It is not a very productive suffix. Sometimes it occurs together with the applicative suffix, as in (69b).

2.3.4.10 Final Vowel

This occurs in the verb-final slot. The final vowel /-a/ occurs in indicative tenses, in the infinitives, and some imperatives (70a-c). The final vowel /-ε/ occurs in the subjunctive and the Immediate Future Focused (71d-e). The final vowel /-e/ co-occurs with the perfective suffix /-er/, and /-i/ is found in imbricated verbs (70h-i).

(70) a. oko[róma]	“to bite”	Infinitive
b. ta[róma]	“(do) bite!”	Hortatory Imperative (2)
c. βaká[róma]	“(and) they bit”	Narrative Past
d. βa[ro ¹ mé]	“that they (may) bite”	Subjunctive
e. mbaraá[rómε]	“(indeed) they will bite (now)”	Immediate Future Focused
f. βaa[rómé ¹ ré]	“they have just bitten”	Immediate Past Anterior
g. mbaaká[rómére]	“they used to bite (then)”	Habitual Past Focused
h. βaa[rómainí]	“they have just bitten each other”	Immediate Past Anterior
i. βaa[túruunjáini]	“they have just welcomed”	Immediate Past Anterior

2.3.5 Clitics

After the final vowel, the verb may be followed by clitics such as /-hɔ/, /-kɔ/, and /-mɔ/. These clitics express the location or direction of an action or event. They refer to noun classes 16, 17 and 18 respectively and have the specific meanings in (71).

- (71) a. /hɔ/ “on, at”
 b. /kɔ/ “there”
 c. /mɔ/ “in, inside, in there”

Although these morphemes have syntactic characteristics of a word, they cannot stand alone. They attach to other words and carry tone, as illustrated in (72).

- (72) a. /o - ko - γεNr - a/
 a - im - walk - fv
 oko[γέéndá] “to walk”
- b. /o - ko - γεNr - a kɔ/
 a - im - walk - fv loc17
 oko[γέéndákó] “to walk on (it)”
- c. /o - ko - γεNr - a mɔ/
 a - im - walk - fv loc18
 oko[γέéndámó] “to walk in there”
- d. /o - ko - γεNr - a hɔ/
 a - im - walk - fv loc16
 oko[γέéndáhó] “to walk there”

After identifying and briefly discussing various verbal morphemes, I now proceed to describe a phenomenon which fuses some of these morphemes rendering them opaque.

2.4 Imbrication

The Kuria verb, as in most Bantu languages, has a highly complex but regular verbal structure with morphemes that are easily segmentable, with each morpheme having a clearly identifiable function. Occasionally, however, affixation triggers some phonological processes that interfere with this organization. This section looks at the

perfective verbal suffix, focusing on the differences in its surface representations. The perfective suffix denotes completed action, is marked by /-er/, and assigns /-e/ as the final vowel (see (73a)). However, in (73b & c) the /-er/ is not reflected and the post-root domain morphemes are difficult to discern. The generalizations that follow were arrived at after examining a total of 1005 verb roots. For consistency, all examples in this section are in the Immediate Past Anterior tense. This tense is marked by a vowel prefix /a-/ which is subject to assimilation.

		3 rd Person Plural	
(73) a.	heetok-a	“remember”	βaa[héetóké re] “they have just remembered”
b.	iʔor-a	“open”	βai[γóó jé] “they have just opened”
c.	turuuŋan-a	“welcome”	βaa[túruuŋ áini] “they have just welcomed”

Various terms have been used to refer to this process; “modified base” (Ashton et al 1954; Givón 1970; Mould 1972), “fusion” (de Blois 1975), “ablaut” (Kisseberth & Abasheik 1976), and “imbrication” (Bastin 1983, Hyman 1995, Cammenga 2004). This study uses the term “imbrication”.

Imbrication is a word that is derived from the Latin meaning “to cover as with tiles in a way that the edges overlap each other” (OED). It is used here to refer to a morphological process that fuses the perfective with other post-root domain morphemes of the verb, making the surface form of the morphemes opaque. Specifically, imbrication is marked by the process where the perfective consonant /r/ is weakened when preceded by a long vowel. Imbricated forms may be identified by the presence of [j] as in (73b) or

[n] as in (73c) in the surface realization of the perfective suffix. This section will demonstrate that:

- a. The minimum requirement for imbrication to occur is at least a disyllabic root or base.
- b. Roots or bases ending in -n or -r will imbricate if they meet the minimum size requirement in (a) above.
- c. Roots that end in a long vowel do not imbricate.
- d. Imbrication can be well described using prosodic and morphemic circumscription.

The perfective form in (73a) has been called “regular” and those in (73b,c) “irregular” (Givón 1970, Kula 2001). Imbrication can be viewed as resulting from fusion whereby the perfective /-ere/ surfaces as /-Vje/ or /-ini/. I will first present a pre-theoretical description of the data by showing the non-imbricating forms, then the imbricating forms, and finally discuss the imbricating forms in light of the theory of Prosodic Morphology.

2.4.1 Non-Imbricating Forms

The perfective morpheme /-er/ is suffixed in a regular fashion to all roots. The final /-e/ of the perfective takes the place of the regular Bantu final vowel /-a/. The data in (74) is arranged according to the shape of the root. In these examples, the perfective suffix shows up with its basic shape phonetically intact. The morphemes can easily be parsed.

		<i>sm-t-root</i>	<i>-pf-fv</i>	
(74) a. C-	tʃ - a	βa-a-[tʃ	-ér-é]	“they have just come”
b. ØVC	iβ - a	βa-i- [β	-ír-é]	“they have just stolen”
c. CVC	tum - a	βa-a-[túm	-íʳ-é]	“they have just sewn”
d. CVVC	βiim - a	βa-a-[βíim	-ír-é]	“they have just measured”

e. CVCVC	təɾək - a	βa-a-[térék - er -é]	“they have just brewed”
f. CVVCVC	heetok - a	βa-a-[héétók - ér -e]	“they have just remembered”
g. CVCVVC	karaaŋg - a	βa-a-[káraaŋg - ér -e]	“they have just fried”

The perfective suffix has two allomorphs occurring in complementary distribution: [-er] if the root has a non-high vowel and [-ir] if the root has a high vowel. The quality of the first perfective vowel (/i/ or /e/) is determined by the following rule of vowel height harmony.

(75) Vowel Height Harmony Rule 1

$$\begin{array}{c} V \\ [- \text{low}] \end{array} \rightarrow [\alpha \text{ high}] / \begin{array}{c} V \quad C_o \\ [\alpha \text{ high}] \end{array} \text{root} \text{ ---}$$

The vowel height harmony rule is a general rule applying between the root and the suffixes; it is not confined to the perfective suffix only.

2.4.2 Imbricating Forms

The examples in (76) illustrate a surface form of the perfective that at a glance looks irregular. In the post-root domain of these examples, the morphology is invisible, that is, it is not clear where the root ends and the perfective suffix begins. I hold that these forms are not irregular. The product is an agglutination of several extension suffixes into a single form resulting in imbrication.

	<i>sm-t-root</i>	<i>-pf-fv</i>	<i>Surface Form</i>	
(76) a. C	/βa-a-h	-er-e/	βaa[háájé]	“they just have given”
b. CV	/βa-a-re	-er-e/	βaa[rééjé]	“they have just eaten”
c. VCVC	/βa-a-iyor	-er-e/	βai[γóójé]	“they have just opened”
d. VCVCV	/βa-a-ahuri	-er-e/	βaa[húújí]	“they have just shouted”
e. CVCVC	/βa-a-γoyon	-er-e/	βaa[γóyoiní]	“they have gnawed”
f. CVVCVC	/βa-a-γaąkan	-er-e/	βaa[γáąkáíni]	“they have just trembled”
g. CVCVVCVC	/βa-a-turuąan	-er-e/	βaa[túruąáini]	“they have just welcomed”

2.4.3 Perfective Formation in Roots

After showing the non-imbricating and the imbricating forms in (74) and (76) respectively, there is need to find out the conditions that trigger imbrication. It has been shown that the occurrence of imbrication depends on a number of factors (Bastin 1983; Hyman 1995).

- (77) a. the size of the base.⁶
b. the nature of the final consonant of the base.
c. the nature of the vowel preceding the final consonant of the base.
d. the identity of the last morpheme of the base.

Below is a survey of various verb forms to find out how imbrication occurs in Kuria.

2.4.3.1 V-, C- and CV- Roots

There are fifteen V-, C-, and CV- verb roots in Kuria, all of which are presented in (78). Most of these verb forms do imbricate when in the perfective (a – k) but there are four that do not imbricate (l – o). Three of the non-imbricating forms have a high back vowel, but so does *ɲua* “drink” in (78g). The verb forms in (78) have a peculiar way of

⁶ It seems that Bastin (1983) and Hyman (1995) use the terms base and root interchangeably. This study makes a distinction between the two (see §2.3).

forming the perfective; they do not display any regularity as to when they imbricate or not imbricate. These have been treated here as exceptional cases and are not included in the analysis.

<i>verb</i>		<i>sm - t - root-pf - fv</i>	
(78) a. β-a	“be”	/βa - a - β - er - e/	βaa[βáájé] “they have become”
b. h-a	“give”	/βa - a - h - er - e/	βaa[háájé] “they have just given”
c. i-a	“go”	/βa - a - i - er - e/	βaa[γééjé] ⁷ “they have just gone”
d. γo-a	“fall”	/βa - a - γo - er - e/	βaa[γóójé] “they have just fallen”
e. re-a	“eat”	/βa - a - re - er - e/	βaa[rééjé] “they have just eaten”
f. ne-a	“defecate”	/βa - a - ne - er - e/	βaa[nééjé] “they have just defecated”
g. ju-a	“drink”	/βa - a - ju - er - e/	βaa[nóójé] “they have just drunk”
h. he-a	“burn”	/βa - a - he - er - e/	βaa[hééjé] “they have just burned”
i. ke-a	“dawn”	/βo - a - ke - er - e/	βoo[kééjé] “it has just dawned”
j. to-a	“rain”	/e - a - to - er - e/	ee[tóójé] “it has just rained”
k. se-a	“grind”	/βa - a - se - er - e/	βaa[sééjé] “they have just ground”
l. ku-a	“die”	/βa - a - ku - er - e/	βaa[kúúré] “they have just died”
m. tu-a	“pick”	/βa - a - tu - er - e/	βaa[túúré] “they have just picked”
n. ru-a	“leave”	/βa - a - ru - er - e/	βaa[rúúré] “they have just left”
o. ʈ-a	“come”	/βa - a - ʈ - er - e/	βaa[ʈéré] “they have just come”

In all the cases that imbricate in (78) above, the perfective consonant /-r/ is replaced with the glide /-j/.

2.4.3.2 CVC- Roots

CVC- is a common root type in Kuria. It has several variants: one with an empty onset (ØVC), a similar form that ends in a glide (CVCG and ØVCG), another with a long vowel (CVVC), and one with a long vowel and ending in a glide (CVVCG). The

⁷ This perfective is unpredictable because it has a voiced velar fricative which cannot be predicted by looking at the root form of the verb.

perfective forms of these roots do not undergo imbrication. Verbs ending in a glide [j] will have /i/ as the final vowel in the perfective, as in (79e-f, g-h and k-l).

(79) ØVC

a. aɣ-a	/βa - a - aɣ - er - e/	βaa[ɣéré]	“they have just scratched”
b. eɣ-a	/βa - a - eɣ - er - e/	βae[ɣéré]	“they have just learned”

CVC-

c. reβ-a	/βa - a - reβ - er - e/	βaa[réβé ¹ ré]	“they have just paid”
d. βun-a	/βa - a - βun - er - e/	βaa[βúní ¹ ré]	“they have just broken”

CVCG-

e. βary-a	/βa - a - βari - er - e/	βaa[βáárri]	“they have just raved”
f. βohy-a	/βa - a - βohi - er - e/	βaa[βóhí ¹ rí]	“they have just intimidated”

ØVCG-

g. aty-a	/βa - a - ati - er - e/	βaa[tírí]	“they have just broken”
h. iky-a	/βa - a - iki - er - e/	βai[kírí]	“they have just lowered”

CVVC-

i. riin-a	/βa - a - riin - er - e/	βaa[ríní ¹ ré]	“they have just climbed”
j. hoor-a	/βa - a - hoor - er - e/	βaa[hóórré]	“they have just threshed”

CVVCG-

k. βiiry-a	/βa - a - βiir- er - e/	βaa[βíírrí]	“they have just repeated”
l. hoony-a	/βa - a - hoon - er - e/	βaa[hóóní ¹ rí]	“they have just sold”

The examples in (79e,j,k) have a long vowel and a trill. I do not consider these as imbricated since they do not undergo the complete process of imbrication. The examples in (79i-k) show that monosyllabic roots, even if they have two moras, do not imbricate. There are however seven exceptions emanating from the CVVC form which were detected in the data. These are laid out in (80).

- (80) a. βεεr-a /βa - a - βεεr - er - e/ βaa[βέέρééje] “they have just remained”
 b. γεεr-a /re - a - γεεr - er - e/ ree[γέέρééje] “it has just gone into the eye”
 c. raar-a /βa - a - raar - er - e/ βaa[ráájé] “they have just slept”
 d. ϣεεr-a /βa - a - ϣεεr - er - e/ βaa[ϣέέρééje] “they have just shouted”
 e. reerr-a /βa - a - reerr - er - e/ βaa[réérééje] “they have just been irritated”
 f. heerr-a /βa - a - heerr - er - e/ βaa[héreejé] “they have just rumbled”
 g. tεεr-a /βa - a - tεεr - er - e/ βaa[téεεjé] “they have just slipped”

While it can be said that examples (80a – c) are just exceptions because there are many other CVVC roots ending in -r that do not imbricate, the examples in (80d – g) are totally different. Their roots end in a trill. Whenever two or more flaps (r) are adjacent to each other in the course of a derivation, they are collapsed into a trill (Cammenga 2004:116); and whenever the root ends in a trill then imbrication takes place. Examples (80d – g) are repeated in (81).

(81) Roots ending in Trills

- | | | |
|---------------|---|---------|
| a. ϣεerer - a | → | ϣεεr-a |
| b. heerer - a | → | heerr-a |
| c. reerer - a | → | reerr-a |
| d. tεerer - a | → | tεεr-a |

I hold that the verbs in (81) are not basic roots. They are frozen bases whose initial roots no longer have an independent meaning. It is therefore not surprising that they undergo imbrication. They behave just like the extended roots or bases (see §2.4.4).

2.4.3.3 CVCVC- & ØVCVC- Roots

A look at disyllabic roots shows that there is some regularity. Some of these roots do imbricate as can be seen in (82).

- | | | | |
|----------------|---------------------------|--------------|-------------------------|
| (82) a. ʃʌnɔr- | /βa - a - ʃʌnɔr - ɛr - e/ | βaa[ʃʌnoojé] | “they have just combed” |
| b. ɣɔnɛr- | /βa - a - ɣɔnɛr - ɛr - e/ | βaa[ɣónɛɛjé] | “they have just snored” |
| c. ɣoɣon- | /βa - a - ɣoɣon - ɛr - e/ | βaa[ɣóɣoiní] | “they have just gnawed” |
| d. sikan- | /βa - a - sikan - ɛr - e/ | βaa[síkainí] | “they have just met” |

But there are other roots that are disyllabic and do not imbricate.

- | | | | |
|----------------|---------------------------|---------------|---------------------------|
| (83) a. maɣak- | /βa - a - maɣak - ɛr - e/ | βaa[máyákeré] | “they have just panicked” |
| b. βuruɣ- | /βa - a - βuruɣ - ɛr - e/ | βaa[βúruɣiré] | “they have just stirred” |
| c. mitit- | /βa - a - mitit - ɛr - e/ | βaa[mítítiré] | “they have become cold” |
| d. sukum- | /βa - a - sukum - ɛr - e/ | βaa[súkúmiré] | “they have just pushed” |

A look at the examples in (82) shows that they end in -n or -r while those in (83) end in different consonants. All disyllabic roots imbricate if the final consonant of the root is a flap /-ɾ/ or a nasal /-n/. The examples in (82) show that the minimum root size required for imbrication is disyllabic. This has been referred to as the minimality condition (Hyman 1995). All other polysyllabic roots will imbricate unless stated otherwise (see (86)).

Another factor necessary for imbrication, and is introduced in (84), is the nature of the final consonant of the root. If the verb root ends in -r and is followed by the perfective suffix, then imbrication occurs.

	<i>root</i>	<i>sm - t - root</i>	<i>- pf - fv</i>	<i>Surface Form</i>	
(84) a.	iyor-	/βa - a - iyor	- er - e/	βai[γóójé]	“they have just opened”
b.	soyor-	/βa - a - soyor	- er - e/	βaa[sóyoójé]	“they have just limped”
c.	βaaror-	/βa - a - βaaror	- er - e/	βaa[βááróóje]	“they have just divided”
d.	βereker-	/βa - a - βereker	- er - e/	βaa[βérékééje]	“they have just called”
e.	temor-	/βa - a - temor	- er - e/	βaa[témoojé]	“they have just demolished”

In (84), the pre-perfective consonant /-r/ is deleted and the perfective consonant /-r/ is substituted for the glide /-j/.

Likewise, polysyllabic roots that end with a nasal /-n/ and are followed by the perfective will undergo imbrication. The perfective final vowel /-e/ surfaces as /-i/.

(85) a.	takun-	/βa - a - takun	- er - e/	βaa[tákwiiní]	“they have just chewed”
b.	hakan-	/βa - a - hakan	- er - e/	βaa[hákainí]	“they have just paid back”
c.	kiinan-	/βa - a - kiinan	- er - e/	βaa[kíínáíni]	“they have just wrestled”
d.	γaaŋkan-	/βa - a - γaaŋkan	- er - e/	βaa[γááŋkáíni]	“they have just trembled”
e.	turuuŋan-	/βa - a - turuuŋan	- er - e/	βaa[túruuŋáíni]	“they have just welcomed”

For the roots ending with a nasal /-n/, the practice is to delete the last consonant of the root together with the perfective and add /-ini/. This gets more complex when more suffixes are added.

On the basis of examples in (84) and (85) we can distinguish two types of imbrication in Kuria: the first one replaces the perfective suffix /-ere/ with a /V:jV/ ending (see (84)), and the other replaces the last consonant of the verb and the perfective with an /-ini/ ending (see (85)). These different types are the result of different phonological processes.

2.4.3.4 Other Polysyllabic Roots

Though it has been stated above that all polysyllabic roots will imbricate, there are exceptions. The polysyllabic roots in (86) do not imbricate when they are in the perfective unless they have a trill. In each of the verb pairs below, the first example shows a non-imbricating form while the second imbricates because it has a trill.

(86) CVCVVC-

- | | | |
|--|---|--|
| a. $\gamma\text{ahaat}\text{f}-\text{a}$ | / $\beta\text{a} - \text{a} - \gamma\text{ahaat}\text{f} - \text{er} - \text{e}/$ | $\beta\text{aa}[\gamma\text{áhaat}\text{fére}]$ “they have just built” |
| b. $\text{te}\gamma\text{eerr}-\text{a}$ | / $\beta\text{a} - \text{a} - \text{te}\gamma\text{eerr} - \text{er} - \text{e}/$ | $\beta\text{aa}[\text{té}\gamma\text{eerrééje}]$ “they have just listened” |

\emptyset VVCVVC-

- | | | |
|---|--|--|
| c. $\text{a}\gamma\text{aa}\gamma-\text{a}$ | / $\beta\text{a} - \text{a} - \text{a}\gamma\text{aa}\gamma - \text{er} - \text{e}/$ | $\beta\text{aa}[\gamma\text{áá}\gamma\text{ére}]$ “they have just stroked” |
| d. $\text{imeerr}-\text{a}$ | / $\beta\text{a} - \text{a} - \text{imeerr} - \text{er} - \text{e}/$ | $\beta\text{ai}[\text{méé}\text{rééje}]$ “they have just stopped” |

CVCVVCG-

- | | | |
|-------------------------------|--|--|
| e. $\text{siriingy}-\text{a}$ | / $\beta\text{a} - \text{a} - \text{siriingi} - \text{er} - \text{e}/$ | $\beta\text{aa}[\text{síriingíri}]$ “they have just sang” |
| f. $\text{saiirry}-\text{a}$ | / $\beta\text{a} - \text{a} - \text{saiirri} - \text{er} - \text{e}/$ | $\beta\text{aa}[\text{sáyíirríji}]$ “they have just stirred” |

\emptyset VVCVVCG-

- | | | |
|------------------------------|---|--|
| g. $\text{imaary}-\text{a}$ | / $\beta\text{a} - \text{a} - \text{imaari} - \text{er} - \text{e}/$ | $\beta\text{ai}[\text{máá}\text{rri}]$ “they have just ignored” |
| i. $\text{ariirry}-\text{a}$ | / $\beta\text{a} - \text{a} - \text{ariirri} - \text{er} - \text{e}/$ | $\beta\text{aa}[\text{rírrí}\text{íji}]$ “they have just placed on top of” |

CVVCVVC-

- | | | |
|--------------------------------|--|--|
| j. $\text{taandaas}-\text{a}$ | / $\beta\text{a} - \text{a} - \text{taNraas} - \text{er} - \text{e}/$ | $\beta\text{aa}[\text{táándáásére}]$ “they have just spread” |
| k. $\text{taangoorr}-\text{a}$ | / $\beta\text{a} - \text{a} - \text{taNyoorr} - \text{er} - \text{e}/$ | $\beta\text{aa}[\text{táángóórrééje}]$ “they have just lead” |

CVVCVVCG-

- | | | |
|--------------------------------|---|---|
| m. $\text{jaamuury}-\text{a}$ | / $\beta\text{a} - \text{a} - \text{jaamuuri} - \text{er} - \text{e}/$ | $\beta\text{aa}[\text{jáámúúrri}]$ “they have just scattered” |
| n. $\text{suukiirry}-\text{a}$ | / $\beta\text{a} - \text{a} - \text{suukiirri} - \text{er} - \text{e}/$ | $\beta\text{aa}[\text{súúkírrí}\text{íji}]$ “they have just shamed” |

A closer look at these examples (86) shows that the last vowel of the root is long in all cases. All verb roots that end in a long syllable will not imbricate unless they end in a trill. So, the size of the root, and the nature of the final consonant of the root are not the

only conditions for imbrication. The nature of the vowel preceding the final consonant of the root is also important. For a verb form to imbricate, the final syllable of its root must be short.

All other polysyllabic verbs not described in (83) and (86) undergo imbrication. Below is a summary of the types of roots looked at in this section and comments on whether they do or do not undergo imbrication.

Table 2.10: Imbricating and Non-Imbricating Verb Forms

	<i>Type of Verb Root</i>	<i>Total</i>	<i>Imbrication</i>	<i>Imbricates when root ends in -r</i>	<i>Imbricates when root ends in -n</i>	<i>Imbricates when root ends in -rr</i>
1.	V-, C-, CV-	15	✓ (4 exceptions)	-	-	-
2.	CVC- ØVC-	188				-
3.	CVCG- ØVCG-	36				-
4.	CVVC-	206	(3 exceptions)	(3 exceptions)		✓ 4
5.	CVCVC- ØVCVC-	186	✓	✓	✓	-
6.	CVCVVC- ØVCVVC-	58				✓ 3
7.	CVCVCG- ØVCVCG-	27	✓	✓	✓	-
8.	CVVCG-	40				-
9.	CVVCVC-	76	✓	✓	✓	-
10.	CVCVVCG-	9				✓ 4
11.	CVCVCVC-	22	✓	✓	✓	-
12.	CVCVVCVC-	16	✓	✓	✓	-
13.	CVVCVVC-	55				✓ 5

	Type of Verb Root	Total	Imbrication	Imbricates when root ends in -r	Imbricates when root ends in -n	Imbricates when root ends in -rr
14.	CVCVCVCG-	8	✓	✓	✓	-
15.	CVVCVCG-	13	✓ (1 exception)	✓	✓	-
16.	CVVCVVCG-	14	✓ (1 exception)			✓ 5
17.	CVVCVCVC-	12	✓	✓	✓	-
18.	CVCVCVVC-	4				-
19.	CVVCVVCVC-	6	✓	✓	✓	-
20.	CVCVCVVCG-	2				-
21.	CVCVVCVCG- ØVCVVCVCG-	3	✓	✓	✓	-
22.	CVVCVCVVCG-	3	✓	✓	✓	✓ 1
23.	Other Roots	5	✓	✓	✓	-

(key: ✓ = yes; blank = no; - = not attested)

Summing up the discussion of perfective formation in roots, it can be said that when the perfective is added to disyllabic and polysyllabic roots that end with -n or -r and have a short vowel in the final syllable, imbrication occurs. Verbs which end in a trill will always imbricate. Also, verbs that end in a glide [j] will have /i/ as their final vowel instead of /e/.

2.4.4 Perfective Formation in Bases

As seen above, suffixation of the perfective alone is not enough to create imbrication: also, -n or -r must be the last consonant of the root. Thus, if the root is

extended with the reversion transitive /-or/, applicative /-er/ or reciprocal /-an/, imbrication will occur (see (87)).

- (87) a. /-or/ /βa - a - raNr - or - er - e/ → βaa[ráándóóje] “they have
sm - t - creep - rt - pf - fv just pulled off (e.g. vines)
- b. /-er/ /βa - a - rom - er - er - e/ → βaa[rómééjé] “they have just
sm - t - bite - ap - pf - fv bitten for”
- c. /-an/ /βa - a - rom - an - er - e/ → βaa[rómainí] “they have
sm - t - bite - rec - pf - fv just bitten each other”

In the examples that follow (88), verbs with the perfective suffix alone do not imbricate. Once the perfective is combined with an extension like the applicative, imbrication occurs.

- | | <i>root</i> | <i>root+perf</i> | <i>sm-t-root-ap-pf-fv</i> | <i>Surface Form</i> |
|--------------|--------------------------|-----------------------------|---------------------------|---------------------|
| (88) a. maɲ- | aa[máɲé ¹ ré] | /a-a-maɲ -er- er -e/ | aa[máɲeejé] | “he has known for” |
| b. saamb- | aa[sáámbéré] | /a-a-saɲβ-er- er -e/ | aa[sáámbééje] | “he has burnt for” |
| c. keɲ- | aa[kéɲé ¹ ré] | /a-a-keɲ -er- er -e/ | aa[kéɲeejé] | “he has run for” |

The examples in (88) show that we cannot consider imbrication to be an inherent property of a particular set of verbs, since the non-imbricating verb roots (see (79) and (88)) undergo imbrication when they are extended. As Cammenga (2004) has shown, some extended roots imbricate and others do not. A summary is provided in Tables 2.11 and 2.12.

2.4.4.1 Non-Imbricating Bases

Table 2.11: Extension Suffixes and the Non-Imbricating Perfective

	<i>Verbal Type</i>	<i>UR</i>	<i>SR</i>	<i>Examples</i>	<i>Gloss</i>
1.	basic	/- er -e/	[-ere]	/a-a-sɔm- er -e/ → aa[sómé'ré]	“s/he has just read”
2.	pas	/- er -o-e/	[-erwe]	/ke-a-sɔm- er -o-e/ → kee[sómé'rwé]	“it has just been read”
3.	st	/- ek - er -e/	[-ekere]	/ke-a-sɔm- ek - er -e/ → kee[sómékeré]	“it has just been legible”
4.	ri	/- ok - er -e/	[-okere]	/ke-a-riNɣ- ok - er -e/ → kee[réɛŋgókéré]	“it has just unfolded”
5.	cau	/- er -i/	[-iri]	/a-a-sɔm- er -i/ → aa[sómí'rí]	“s/he has just educated”

It is evident from Table 2.11 that imbrication does not occur where a verb has these extensions: passive only (2), stative only (3), reversive-intransitive only (4), and a causative (5). The extended verbs in Table 2.11 do not have -n or -r as the last consonant of the root or base, which is one of the conditions for imbrication.

The imbricated forms seen in Table 2.12 are a result of fusion of the extension suffixes, the perfective suffix, and the final vowel. The endings applicative-reciprocal-passive, reversive intransitive-passive, and the reciprocal-passive do not occur because they are not semantically viable. In causative perfectives, the causative suffix /-i/ always functions as the final vowel. This then means that in passive causative perfectives the suffix order changes to passive-causative.

2.4.4.2 Imbricating Bases

Table 2.12: Extension Suffixes and the Imbricating Perfective

	<i>Verbal Type</i>	<i>UR</i>	<i>SR</i>	<i>Examples</i>	<i>Gloss</i>
1.	st-rec	/-ek-an- er -e/	[-ekaini]	/e-a-kɔr-ek-an- er -e/ → ee[kórékáini]	“it has happened”
2.	rt	/-or- er -e/	[-ooje]	/a-a-riNɣ-or- er -e/ → aa[réɛŋgóóje]	“s/he has just unfolded”
3.	rt-pas	/or- er -o-e/	[-oojwe]	/ro-a-riNɣ-or- er -o-e/ → roo[réɛŋgóójwe]	“it has just been unfolded”
4.	ap	/er- er -e/	[-eeje]	/βa-a-sɔm-er- er -e/ → βaa[sómeejé]	“they have just read for”
5.	ap-pas	/-er- er -o-e/	[-eejwe]	/βi-a-sɔm-er- er -o-e/ → βii[sómeejwé]	“they have just been read for”
6.	ap-rec	/-er-an- er -e/	[-eraini]	/βa-a-sɔm-er-an- er -e/ → βaa[sóméraíni]	“they have just read for each other”
7.	ap-rec-pas			does not occur	
8.	ap-cau	/er- er -i/	[-iiji]	/βa-a-sɔm-er- er -i/ → βaa[sómiijí]	“they have just been educated for”
9.	ap-cau-pas	/-er- er -o-i/	[-eriiβwi]	/βa-a-sɔm-er- er -o-i/ → βaa[sómíriiβwi]	“they have just been educated for” (lit. caused to learn for)

	<i>Verbal Type</i>	<i>UR</i>	<i>SR</i>	<i>Examples</i>	<i>Gloss</i>
10.	ap-rec-cau	/-er-an- er -i/	[-eraini]	/βa-a-səm-er-an- er -i/ → βaa[sóméraíni]	“they have just read while doing something else simultaneously”
11.	ap-rec-cau-pas	/-er-an- er -o-i/	[-eraniíβwi]	/βa-a-səm-er-an- er -o-i/ → βaa[sóméranííβwi]	“they have just been read while something else is going on simultaneously”
12.	ri-pas			does not occur	
13.	rec	/-an- er -e/	[-aini]	/βa-a-maah-an- er -e/ → βaa[mááháíni]	“they have just seen each other”
14.	rec-cau	/-an- er -i/	[-aini]	/βa-a-səm-an- er -i/ → βaa[sómainí]	“they have just observed each other” (lit. caused to learn each other)
15.	rec-cau-pas	/-an- er -o-i/	[-aniiβwi]	/βa-a-maah-an- er -o-i/ → βaa[mááhánííβwi]	“they have just been made to see each other”
16.	rec-pas			does not occur	
17.	cau-pas	/- er -o-i/	[-iiβwi]	/a-a-səm- er -o-i/ → aa[sómiiβwí]	“s/he has just been educated” (lit. caused to learn)

The summary provided in Table 2.12 confirms the two types of imbrication in Kuria earlier illustrated in (84) and (85): the first one replaces the perfective suffix /-ere/ with a /V:jV/ ending (see (89)).

(89) a. or-er-e	→	-ooje
b. er-er-e	→	-eeje
c. er-er-i	→	-iiji
d. er-o-i	→	-iiβwi

The second type of imbrication replaces the last consonant of the verb and the perfective with an /-ini/ ending (see (90)).

(90) a. an-er-i	→	-aini
b. an-er-e	→	-aini

I hypothesize that these different types of imbrication are a result of different phonological processes and can be accounted for using the Prosodic Morphology Theory.

2.4.5 Prosodic Morphology

Prosodic Morphology is a theory that shows how morphological and phonological forms interact with one another in grammatical systems (McCarthy & Prince 1998). The typical morphological operation is affixation to a root or base. In most cases affixation will occur without regard to the phonological nature of the base. Once affixation takes place, phonological rules can apply. There are, however, cases in which the affixation process takes into account the phonology and even the morphology of the base. The basic

idea is that morphological and phonological representations can be cut into two pieces where rules of affixation and phonological change apply to one of the pieces before they are brought back together. In this section, prosodic and morphemic circumscription are used to show how fusion and morpheme transposition takes place.

2.4.5.1 Prosodic Circumscription

Prosodic circumscription is concerned with the ordering of morphs with respect to certain phonological constituents. Circumscription takes place when the final consonant of the root or base is -n.

(91) a. Prosodic circumscription

$n \rightarrow \langle n \rangle / ____]_{\text{base or root}}$

At the right edge of a verb base or root, circumscribe (i.e. mark as invisible) the final C if it is a nasal -n, subject to the minimality condition.

b. The minimality condition is given as follows:

Minimality Condition

$\Sigma > \sigma$: a stem must be longer than one syllable (Hyman 1995)

This condition suggests that words in Kuria should be disyllabic or longer. The condition ensures that only roots longer than a syllable are subject to imbrication.

c. Perfective Suffixation.

Suffix the perfective -er onto the base.

d. Final Vowel.

Add the final vowel -e.

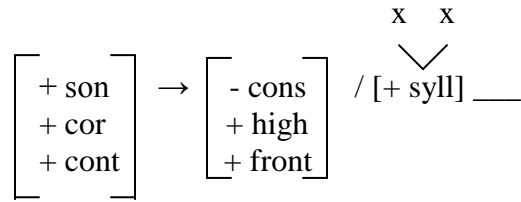
e. Vowel assimilation

$e \rightarrow a / a ____$

f. Perfective R-Gliding

Change the liquid /-r/ of the perfective suffix into a high front vowel /i/, if it is

preceded by a long vowel.



g. Vowel coalescence

$$V_1 V_1 V_2 \rightarrow V_1 V_2$$

h. Vowel Height Harmony 1

(see (75))

This rule affects mid vowels, raising them by one degree, whenever they are followed either immediately or in the next syllable by a high vowel.

The rules above can be illustrated by the following derivation.

(92) UR	/turuuŋa-/ “welcome”	/haka-/ “pay back”	/βin-/ “dance”
Prosodic Circum.	turuuŋa< n >	haka< n >	_____
Perf. Suffixation	turuuŋa-er < n >	haka-er < n >	βin-er
Final Vowel	turuuŋa-ern-e	haka-ern-e	βin-er-e
Vowel Assimilat.	turuuŋa-arn-e	haka-arn-e	_____
Perf. R-Gliding	turuuŋa-ain-e	haka-ain-e	_____
Vowel Coalesc.	turuuŋaine	hakaine	_____
Vowel H. Harm.1	turuuŋaini	hakaini	βinire
SR	[turuuŋaini]	[hakaini]	[βinire]

Three roots: *turuuŋa-* “welcome”, *haka-* “pay back” and *βin-* “dance” have been put through a derivation in (92). There is no special rule intended only for imbrication. The final consonants of the verb roots *turuuŋa-* and *haka-* are circumscribed at the right edge leaving *turuuŋa-* and *haka-* which are longer than a syllable (see minimality condition in (91b)). The CVC- root *βin-* does not undergo circumscription because if it

2.4.5.2 Morphemic Circumscription

(93) /βa - a - sɔm - er - i - er/ order of morphemes

Output: βaa[sómiiǰí] “they have just educated for”

Deletes the postvocalic liquid /-r/ that precedes the perfective suffix.

$$\begin{bmatrix} + \text{son} \\ + \text{cor} \\ + \text{cont} \end{bmatrix} \rightarrow \emptyset / [+ \text{syll}] \text{ ____ } [\text{perf er}]$$

d. Perfective R-Gliding

Change the liquid /-r/ of the perfective suffix into a high front vowel /i/, if it is preceded by a long vowel.

$$\begin{bmatrix} + \text{son} \\ + \text{cor} \\ + \text{cont} \end{bmatrix} \rightarrow \begin{bmatrix} - \text{cons} \\ + \text{high} \\ + \text{front} \end{bmatrix} / [+ \text{syll}] \text{ ____ } \begin{matrix} \text{x} & \text{x} \\ & \diagdown \diagup \end{matrix}$$

The rule turns the lateral liquid /r/ into a high front vowel /i/ whenever this suffix is preceded by a long vowel.

e. Glide Formation

$$\begin{bmatrix} + \text{syll} \\ + \text{high} \end{bmatrix} \begin{matrix} 1 & 2 \end{matrix} [+ \text{syll}] \rightarrow [- \text{syll}] \begin{matrix} 1 & 2 \end{matrix} [+ \text{syll}]$$

Change the front vowel /i/ into a glide /j/ if followed by another vowel.

f. Vowel Height Harmony 2

$$\begin{matrix} V & \rightarrow & [\alpha \text{ high}] / \text{ ____ } C_o & V \\ [- \text{low}] & & & [\alpha \text{ high}] \end{matrix}$$

The rules above can be illustrated by the following derivation.

(95) UR	/βa-a-səm-i-er/ “they have just educated for”
Morphemic circumscription	βaasəmer < i >
Perfective Suffixation	βaasəmer-er < i >
Pre-Perfective R-Deletion	βaasəme-eri
Perfective R-Gliding	βaasəmeeii
Glide Formation	βaasəmeeji
Vowel Height Harmony 2	βaasəmeeji
Vowel Height Harmony 2	βaasomiiji
SR	βaa[sómiiji]

The derivations in Table 2.13 incorporate both morphemic and prosodic circumscription and show that they can apply to the same form with morphemic preceding prosodic circumscription.

Table 2.13: Rules and illustrative derivations

	/sɔm-erani - / “read while doing something else”	/turuuŋan - / “welcome”	/sɔm - er - / “read for”
a. Morphemic circumscription (94a) At the right edge of a verb base or root, circumscribe the final morph if it is a causative.	sɔmeran < i >	.....	.....
b. Prosodic circumscription (91a) $n \rightarrow < n > / \text{ ______ }]_{\text{root or base}}$ At the right edge of the base or root, circumscribe (ie. mark as invisible) the final C if it is a nasal –n.	sɔmera < n - i >	turuuŋa < n >	.....
c. Perfective Suffixation Suffix perfective -er onto the root/base.	sɔmera-er < n - i >	turuuŋa-er < n >	sɔmer-er
d. Final Vowel Add the final vowel –e if not causative verb.	.....	turuuŋaern-e	sɔmerer-e
e. Pre-Perfective R-Deletion (see 91c) Delete the postvocalic liquid /-r/ that precedes the perfective suffix.	.....	.....	sɔmeere
$\left[\begin{array}{l} + \text{son} \\ + \text{cor} \\ + \text{cont} \end{array} \right] \rightarrow \emptyset / [+ \text{syll}] \text{ ______ } [_{\text{perf}} \text{er}]$			

f. Vowel Assimilation (91e)	someraarni	turuuṅaarne	.....
g. Vowel Height Harmony 2 (94f)	someraarni	.....	someere
h. Perfective R-Gliding (94d) Change the liquid /-r/ of the perfective suffix into a high front vowel /i/, if it is preceded by a long vowel.	someraaini	turuuṅaaine	someeie
$\left[\begin{array}{c} + \text{son} \\ + \text{cor} \\ + \text{cont} \end{array} \right] \rightarrow \left[\begin{array}{c} - \text{cons} \\ + \text{high} \\ + \text{front} \end{array} \right] / \begin{array}{c} \text{x} \quad \text{x} \\ \diagdown \quad \diagup \\ [+ \text{syll}] \end{array} \text{ \_\_\_\_}$	.....	.....	someeje
i. Glide Formation (94e) Change the front vowel /i/ into a glide /j/ if followed by another vowel.			
j. Vowel Coalescence (a + a = a), if they are followed by a high vowel /i/ then a nasal -n.	someraini	turuuṅaine	.....
k. Vowel Height Harmony 1 (75)	.....	turuuṅaini	.....

The derivations in Table 2.13 serve as a uniform suffixation process for both the non-imbricating and the imbricating perfectives.

2.5 Conclusion

In this chapter, I have discussed Kuria verbal morphology by identifying the morphemes found in the verb and illustrating, with examples, the functions of each of those morphemes. I have also shown that some of these morphemes undergo fusion or imbrication resulting in opacity. Imbrication is a synchronically active phenomenon in Kuria as evidenced in the examples given. Suffice to say that all the morphemes found in a verb do not co-occur but positional slots are important in determining the order of the ones that do co-occur. With this background about the Kuria verb structure, we are now in a position to introduce and discuss Kuria tone in the next chapter.

Chapter Three

Verbal Tone

3. Introduction

This chapter presents an account of tonal patterns in simple affirmative verbs in Kuria. The tone patterns discussed are those of finite and infinitival verbs pronounced in isolation; phrasal and sentential tones are not included. As in some other Bantu languages, tone patterns in Kuria are described in terms of where the high tones are placed, letting the low tones be derived by a default rule, that is, only high tones are manipulated in tone rules. The only time reference is made to the low tone is in the downstep process. As we will see, some tenses allow only one H tone on the macrostem but others allow two.

Kuria lacks lexical tonal contrasts; any high tones appearing at the surface are assigned by rule. Thus, it has a predictable tone system similar to what is found in Guthrie's Zone P languages such as Makua and Kimatumbi (Odden 1987; Kisseberth & Odden 2003); and the Lukhayo, Lunyala (West), Lusaamia, and Lutura dialects of Luhya, a Zone E language (Poletto 1998, Marlo 2007). The fundamental property of these languages is that surface tones are assigned depending on the phonological shape and morphological category of the verb. I will demonstrate that tense (TAM) is the prime determiner of where primary H tones are placed on the verb macrostem. After primary high tones have been assigned, other factors such as syllable type (long, short, onsetless),

length of verb (long, short), and the presence of certain object prefixes modify the patterns creating a tonal diversity.

The vowel count approach (Odden 1987) will be used in this dissertation to account for surface tones. This is an approach that counts moras or vowels starting at the left edge of the macrostem rightwards, and assigns H tones on the n^{th} mora or vowel depending on the tense. The assignment of tone is to the vowel, not the syllable, hence a long syllable will count the same as two short syllables. I am guided by the claim that tone rules in Kuria operate on the basis of vowel count, assigning H to the first vowel, the second vowel, the third vowel, the fourth vowel, or the first and fourth vowels of the macrostem (Odden 1987).

3.1 Paradigm Set

In carrying out this analysis, I looked at the tonal patterns found in paradigms derived from eighteen different verb roots with the forms in (1). I checked at least two examples in each type of verb form. The Mandatory Imperative forms of the verbs are used in (1) because this tense occurs with a null tense affix (\emptyset). Although in (1) I use the monosyllabic forms [*ha*] “give”, [*rea*] “eat”, [*sea*] “grind”, and [*ia*] “go” in their bare forms, in §3.2.5.3 I will show that there is a disyllabic minimality for stems which compels these forms to take on extra material.

(1) List of Verb Roots

(a) Consonant Initial Verbs

	<i>Mandatory Imperative (Root + Final Vowel)</i>	<i>Gloss</i>
C	[h-a]	“give”
CV	[re-a]	“eat”
	[se-a]	“grind”
CVC	[rom-a]	“bite”
	[βun-a]	“break”
CVVC	[βiim-á]	“measure”
	[saamb-á]	“burn”
CVCVC	[tɛɾɛk-á]	“brew”
	[sukur-á]	“rub”
CVVCVC	[heetók-a]	“remember”
	[taandór-a]	“tear”
CVCVVC	[karaáng-a]	“fry”
	[hayaátʃ-a]	“build”
CVVCVVC	[taaŋgáás-a]	“announce”
	[siitáák-a]	“accuse”, “sue”
CVCVCVC	[teremék-a]	“be calm”
	[βerekér-a]	“call”
CVCVVCVC	[turuúnan-à]	“welcome”
CVVCVCVC	[koondókor-à]	“uncover”
CVVCVVCVC	[hootóóter-à]	“reassure”

(b) Vowel Initial Verbs

V	[i-a]	“go”
VC	[aɣ-a]	“weed”
VCVC	[iɣor-á]	“open”
	[ɔβoh-á]	“fear”
VCVVC	[iɣɔómb-a]	“desire”
VCVCVC	[anekér-a]	“lay out”
VCVVCVC	[araátʃan-à]	“cross, fold”

These forms provide contrasts in the application of the rules: short versus long, branching nucleus versus non-branching nucleus, and consonant initial versus vowel initial verbs. I will consider verbs with four or fewer vowels in the macrostem to be short and those with

five or more vowels to be long. The distinction between tone patterns is revealed best in long verb stems (Odden 1988) while the branching nucleus brings in special rules based on differences in syllable structure.

3.2 Verbal Tonology in Affirmative Tenses

I now proceed to consider the tonology of verbs in the simple affirmative tenses. A paradigm for the verbs in (1) in the first, second, and third person, in singular and plural, with and without object prefixes, was prepared using all the tenses shown in Table 3.1 (see Appendix 1). Before an attempt is made to describe tones in the various tenses, I provide a summary of the patterns in Table 3.1 using a paradigm of the verb *[koondókorà]* “uncover”

Table 3.1: Tonal Patterns in Finite Verbs

<i>Tone Melody</i>	<i>Tense</i>	<i>Example</i>	<i>Gloss</i>
V1 (Spread)	Habitual Past Focused	mbaayá[kóóndókóóje]	“(indeed) they used to uncover (then)”
	Untimed Past Anterior Focused	mbaa[kóóndókóra]	“(indeed) they have (already) uncovered”
	Remote Past Focused	mbaa[kóóndókóóje]	“(indeed) they uncovered/ did uncover (then)”
	Untimed Past Anterior Condition Focused	mbayaa[kóóndókóóje]	“(indeed) they would have uncovered

<i>Tone Melody</i>	<i>Tense</i>	<i>Example</i>	<i>Gloss</i>
			(anytime before now/then)”
	Immediate Future Focused	mbaraá[kóóndókóre]	“(indeed) they will uncover (now)”
	Untimed Ability Focused	mbayaa[kóóndókóra]	“(indeed) they are able to uncover”
	Untimed Present	βa[kóóndókóra]	“they uncover (fact)”
V1 (No Spread)	Hortatory Imperative (2)	ta[kóóndokorà]	“(do) uncover”
V2 (Spread)	Hodiernal Past Progressive Anterior Focused	mbaaya[koóndókóóje]	“(indeed) they have been uncovering (today)”
V3 (Spread)	Subjunctive	βa[koondókóre]	“that they (may) uncover”
	Hodiernal Past Anterior Focused	mba[koondókóóje]	“(indeed) they uncovered (earlier today)”
	Untimed Past Anterior	βaa[koondókóra]	“they have (already) uncovered”
	Remote Future Focused	mbare[koondókóra]	“(indeed) they will uncover (then)”
	Current Present Persistive Focused	mbaye[koondókóóje]	“(indeed) they are still uncovering”
	Untimed Real Uncertain Condition Focused	mba[koondókóra]	“(indeed) they could

<i>Tone Melody</i>	<i>Tense</i>	<i>Example</i>	<i>Gloss</i>
			“uncover”
V3 (No Spread)	Mandatory Imperative	[koondókorà]	“uncover!”
V4 (1 st and 2 nd Person) (Spread)	Immediate Past Anterior	too[koondokóóje]	“we have just uncovered”
	Hortatory Imperative (3)	tora[koondokóra]	“we are going/ about to uncover”
V1 and V4 (All Persons) (Spread)	Narrative Past	βαγά[kóóndokóra]	“(and) they uncovered”
	Hodiernal Future Uncertain Possibility	βαγaa[kóóndokóra]	“perhaps they will uncover (today)”
	Remote Future	βaree[kóóndokóra]	“they will uncover (then)”
V1 and V4 (3rd Per ^{son}) (Spread)	Immediate Past Anterior	βaa[kóóndokóóje]	“they have just uncovered”
	Hortatory Imperative (3)	βara[kóóndokóra]	“they are going/about to uncover”
No H	Hortatory Imperative (1)	βατά[koondokorà]	“let them uncover”

An examination of the data in Table 3.1 reveals that most of the tenses have at least one H tone which is assigned to the verb macrostem. This is then mapped onto the first, second, third, fourth, or first and fourth vowels. The tone that is realized on a verb is determined by the tense of the verb. Each tense or a group of tenses assign a different tonal melody on the verb macrostem. In some tenses, such as the Immediate Past Anterior and Hortatory Imperative (3), the subject prefixes have an effect on the tone patterns;

verbs with third person subject prefixes have H tones on V1 and V4 while those with first and second person subject prefixes have a high tone on V4 only.

The system of melodic tone used to categorize the tenses reduces them to six tonal groups (V1, V2, V3, V4, V1 and V4, and No H), described by the position where the melodic or primary H is assigned on the macrostem. I consider the verbs in these tenses to be underlyingly toneless, except for a few tenses with lexical high tones on the tense prefix, and that H tones are assigned to specific positions on the macrostem by morphologically conditioned rules⁸.

Generally, two trends emerge in the assignment of tone in the tenses. First, a few tenses select a two-tone pattern with the H being on the first and fourth vowels of the macrostem. In the second group, a high tone is assigned on one of the first four vowels of the stem depending on the tense of the verb. This is then followed by unbounded spreading of the rightmost H up to the penult. It has been shown that the penult is targeted for a variety of prosodic phenomena and it plays a role in Bantu tone (Kisseberth & Odden 2003), and in this regard Kuria is no exception. I now proceed to describe and provide illustrations from each of these tonal groups. I will begin with tenses with one primary H tone before proceeding to those with two H tones.

3.2.1 Tone Assignment Principle 1a: Melodic V1H (Spread)

The first tone assignment principle is V1H. This principle assigns a primary H tone on the first vowel of the verb macrostem. The *Initial Tone Association Rule (ITAR)* will be used to assign a melodic H tone to the macrostem, and I will call it ITAR (1)

⁸ These are rules that make reference to morphological features.

because it targets V1.

(2) Initial Tone Association Rule I (ITAR (I))

$$\left[\begin{array}{c} \text{m-stem} \\ \text{V} \end{array} \right] \rightarrow \left[\begin{array}{c} \text{H} \\ | \\ \text{m-stem} \\ \text{V} \end{array} \right]$$

“Associate a high tone to the first vowel of the macrostem.”

What is given in (2) is a general rule. In (3), the rule is modified to state specific tenses (TAM) that govern its application in Tone Assignment Principle 1a.

(3) Initial Tone Association Rule I (ITAR (I))

$$\left[\begin{array}{c} \text{m-stem} \\ \text{V} \end{array} \right] \rightarrow \left[\begin{array}{c} \text{H} \\ | \\ \text{m-stem} \\ \text{V} \end{array} \right] \text{ in } \left\{ \begin{array}{l} [+ \text{ Habitual Past Focused}] \\ [+ \text{ Untimed Past Anterior Focused}] \\ [+ \text{ Remote Past Focused}] \\ [+ \text{ Untimed Past Anterior Condition}] \\ [+ \text{ Immediate Future Focused}] \\ [+ \text{ Untimed Ability Focused}] \\ [+ \text{ Untimed Present}] \end{array} \right\}$$

“Associate a high tone to the first vowel of the macrostem in the given tenses.”

The ITAR (I) rule given in (3) is just schematic. There seems to be no common basis for tenses in ITAR (I) which could reveal where the rule applies. A similar trend will also be witnessed in ITAR (II), (III) and (IV) rules. The first vowel of the macrostem is a special position for H tone assignment in Bantu languages because it is found at a constituent edge and is easy to identify (Odden 1999).

Since all the tenses in (3) have the same pattern, only two tenses will be discussed; the Remote Past Focused as a representative of the group, and the Habitual

Past Focused because it has a high tone on the tense prefix, an unusual feature that is found in only four out of the twenty two affirmative tenses studied (the other three being the Narrative Past, the Immediate Future Focused, and the Hortatory Imperative (1)).

3.2.1.1 Remote Past Focused

This tense is marked by the morphemes /...a...er.../. It exhibits a tone assignment principle which assigns the melodic H to the first vowel of the macrostem. After associating the melodic H with a vowel, the tone spreads unboundedly up to the penult. As can be seen in (4), the final vowel bears no H tone in this tense. In (4a,e), the verb forms undergo imbrication (see §2.4).

- | | | |
|--|---------------------|-----------------------------------|
| (4) a. /ne - βa - a - h - er - e/
f - sm - t - give - pf - fv | → mbaa[hááje] | “(indeed) they gave (then)” |
| b. /ne - βa - a - rom - er - e/
f - sm - t - bite - pf - fv | → mbaa[rómére] | “(indeed) they bit (then)” |
| c. /ne - βa - a - terek - er - e/
f - sm - t - brew - pf - fv | → mbaa[térékére] | “(indeed) they brewed (then)” |
| d. /ne - βa - a - heetok - er - e/
f - sm - t - remember - pf - fv | → mbaa[héétókére] | “(indeed) they remembered (then)” |
| e. /ne - βa - a - koNrokor - er - e/
f - sm - t - uncover - pf - fv | → mbaa[kóóndókóóje] | “(indeed) they uncovered (then)” |

The tonal patterns in (4) can be accounted for by using three rules: ITAR (1), High Tone Spread, and L Tone Default. I will now proceed to derive the verb *mbaa[kóóndókóóje]* “(indeed) they uncovered (then)” step by step for illustration. I will start with the underlying representation (5).

$$(5) \left[\begin{array}{c} \text{ne} - \beta\text{a} - \text{a} \\ \text{f} - \text{sm} - \text{t} \end{array} \right] \left[\begin{array}{c} \text{koNrokor} - \text{er} - \text{e} \\ \text{uncover} - \text{pf} - \text{fv} \end{array} \right]_{\text{m-stem}} \quad / \quad \text{UR: “(indeed) they} \\ \text{uncovered (then)”}$$

The first rule that applies is the ITAR (1) rule. This was formalized in (3).

$$\left[\text{mbaa} \left[\begin{array}{c} \text{H} \\ | \\ \text{koondokooje} \end{array} \right]_{\text{m-stem}} \right]_{\text{verb}} \quad \text{ITAR (I)}$$

The initial association of tone rarely occurs without modification. The next rule to apply is the High Tone Spread. This is formalized in (6).

(6) High Tone Spread

$$\begin{array}{c} \text{H} \\ | \quad \diagdown \\ \text{V} \quad \text{V} \end{array} \quad (\text{spreads iteratively up to penult})$$

High Tone Spread applies unboundedly up to the penult, leaving the final vowel without a high tone. Kuria, like Kimatumbi, has restrictions against word-final H (Odden 1988). This is a common occurrence in Bantu languages and has been referred to as “non-finality” (§1.3.2).

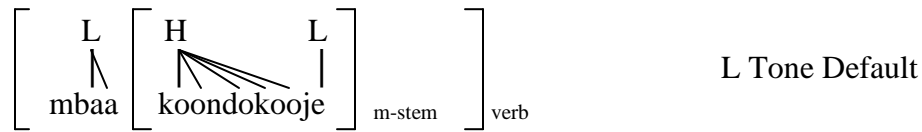
$$\left[\text{mbaa} \left[\begin{array}{c} \text{H} \\ \diagup \quad \diagdown \quad \diagdown \\ \text{koondokooje} \end{array} \right]_{\text{m-stem}} \right]_{\text{verb}} \quad \text{High Tone Spread}$$

After high tones have been assigned and rules referring to high tones have applied, a *L Tone Default Rule* assigns low tones to all the vowels left without a high tone.

(7) L Tone Default Rule

$$V' \rightarrow \begin{array}{c} L \\ | \\ V \end{array}$$

“Assign a low tone to every unassociated vowel.”



mbaa[kóóndókóóje]

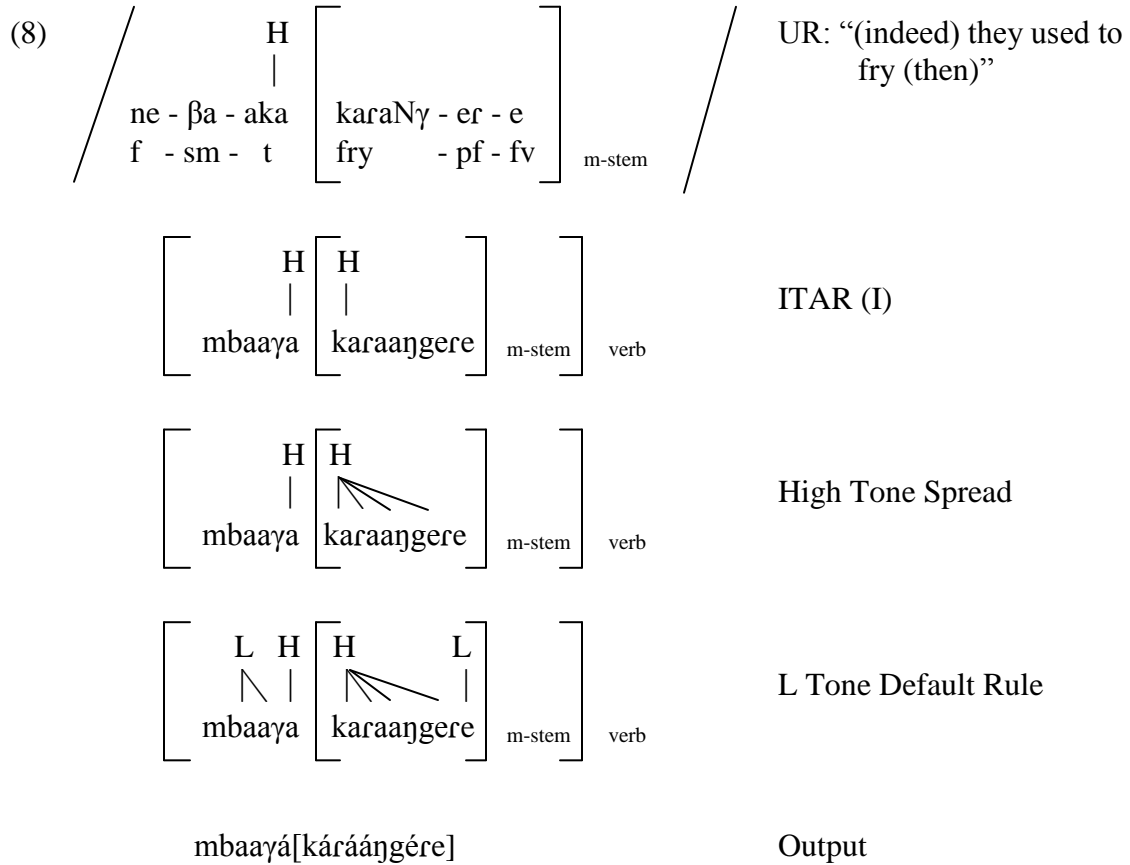
Output

Three rules, namely, ITAR, High Tone Spread, and L Tone Default, are all that is needed to derive *mbaa[kóóndókóóje]* “(indeed) they uncovered (then)” from its underlying representation to its surface representation. These are basic tonal rules.

3.2.1.2 Habitual Past Focused

The habitual marks an event which occurs regularly. The Habitual Past Focused indicates that the event used to occur regularly in the past. This tense is formed with the prefix /aká-/⁹. The tense assigns a high tone on the first vowel of the macrostem and this H undergoes unbounded spreading to the penult. The spread is not syllable sensitive and the tense cannot be used without the focus element. I will derive *mbaayá[karáángéere]* “(indeed) they used to fry (then)” step by step to show how its tones are realized.

⁹ Whiteley (1955: 81) notes that the /aká/ prefix is quite modern, the older form /anga-/ having disappeared from Kuria.



Only three rules apply in this tense: ITAR (I), High Tone Spread, and L Tone Default rule. As mentioned earlier, the Habitual Past Focused has a high tone on the tense prefix, /aká/. This H tone is outside the macrostem and we cannot account for it by rule. The only possible explanation is that it is a lexical high tone. This prefixal H tone does not affect the assignment of tone on the macrostem.

3.2.2 Tone Assignment Principle 1b: Melodic V1H (No Spread)

The next melodic pattern that is examined occurs only in a single tense in Kuria, the Hortatory Imperative (2). This being a V1 tense, ITAR (1) applies in the assignment

of the primary H tone.

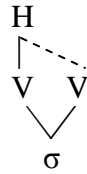
3.2.2.1 Hortatory Imperative (2)

This form operates without subject markers but has the imperative marker /ta-/ in the prefix domain. It is used in issuing direct commands restricted to second person subjects. It has an emphatic and urgent sense. The tonal principle assigns a high tone to the first vowel of the macrostem.

- | | | | |
|---|---|--------------|-----------------|
| (9) a. /ta - rom - a/
t - bite - fv | → | ta[róma] | “(do) bite” |
| b. /ta - sukur - a/
t - rub - fv | → | ta[súkurà] | “(do) rub” |
| c. /ta - karaNɣ - a/
t - fry - fv | → | ta[káaŋgà] | “(do) fry” |
| d. /ta - βiim - a/
t - measure - fv | → | ta[βííma] | “(do) measure” |
| e. /ta - heetok - a/
t - remember - fv | → | ta[héétokà] | “(do) remember” |
| f. /ta - taNrɔr - a/
t - tear - fv | → | ta[táándorà] | “(do) tear” |

When a long syllable is in the stem initial position, the high tone assigned to the first vowel spreads to the second vowel of the syllable through a rule called Intra-Syllabic H Spread, as in (9d-f), thus avoiding a falling contour. The primary H does not spread to the penult as witnessed in tenses discussed in §3.2.1. The Intra-Syllabic H Spread is ordered after ITAR.

(10) Intra-Syllabic H Spread

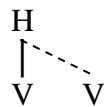


“In a long vowel, spread a primary H from the first to the second vowel.”

This is the first time we are seeing complexities in tonal patterns arising due to the presence of a long syllable in the macrostem.

In (9), we see that the melodic H tone does not spread. There is need to restate the High Tone Spreading rule given in (6) so that it captures the fact that in the Hortatory Imperative (2) and Mandatory Imperative (see §3.2.5) the melodic high tone does not spread. My assumption is that spreading is an automatic rule but certain morphological features can block it.

(11) High Tone Spread (restated)



(spreads iteratively up to the penult except in the Hortatory Imperative (2) and the Mandatory Imperative)

Next, a phenomenon called downglide, which was discussed in §1.4.3, is observed in (9b,c,e,f). When there are two or more low toned vowels at the end of a verb, the last vowel falls or downglides.

I will derive now *ta[héétokà]* “(do) remember” to show that only three rules actively apply; ITAR (I), Intra-Syllabic H Spread, and L Tone Default Rule.

(12)	$\left[\begin{array}{c} \text{ta} \\ \text{t} \end{array} \left[\begin{array}{cc} \text{heetok} & - \text{a} \\ \text{remember} & - \text{fv} \end{array} \right]_{\text{m-stem}} \right]$	UR: “(do) remember”
	$\left[\begin{array}{c} \left[\begin{array}{c} \text{H} \\ | \\ \text{heetoka} \end{array} \right]_{\text{m-stem}} \\ \text{ta} \end{array} \right]_{\text{verb}}$	ITAR (I)
	$\left[\begin{array}{c} \left[\begin{array}{c} \text{H} \\ \diagdown \\ \text{heetoka} \end{array} \right]_{\text{m-stem}} \\ \text{ta} \end{array} \right]_{\text{verb}}$	Intra-Syllabic H Spread
	<hr/>	High Tone Spread
	$\left[\begin{array}{c} \text{L} \\ | \\ \text{ta} \end{array} \left[\begin{array}{cc} \text{H} & \text{L} \\ \diagdown & \diagdown \\ \text{heetoka} \end{array} \right]_{\text{m-stem}} \right]_{\text{verb}}$	L Tone Default Rule
	ta[héétokà]	Output

3.2.2.2 Monosyllabic Stems and Macrostem Adjustment

In the Hortatory Imperative (2), if the stem is monosyllabic, the high tone surfaces on the tense prefix, that is, the penult (see (13)).

- (13) a. tá[ha] “(do) give”
b. tá[rya] “(do) eat”
c. tá[sya] “(do) grind”

Why do the monosyllabic forms in (13) have a high tone in the prefix while similar forms in (18) have a high tone on the first vowel of the macrostem? The minimality condition can be used to account for the position of the H tones in (13). This

is a constraint some languages exhibit which requires well-formed words or stems to be of a certain minimal length. In Kuria, the minimal length is disyllabic. In fact, it has been attested in many Bantu languages that monosyllabic verbs incorporate affixal material in order to make the stem disyllabic (Poletto 1996, Mtenje 2002, Odden 2006). We can see that in (14) the tense prefix /ta-/ acts as part of the macrostem and carries the tone. This is because the macrostem is made disyllabic before tone is assigned.

- (14) a. /ta - h - a/ → [táha] “(do) give”
 t - give - fv
- b. /ta - re - a/ → [tárja] “(do) eat”
 t - eat - fv
- c. /ta - se - a/ → [tásya] “(do) grind”
 t - grind - fv

To account for the shift of the left bracket of the macrostem so as to incorporate additional material, I posit a Macrostem Adjustment Rule (15).

(15) Macrostem Adjustment Rule (I)

$$\sigma [\sigma]_{\text{m-stem}} \rightarrow [\sigma \sigma]_{\text{m-stem}}$$

“Adjust a monosyllabic macrostem to incorporate an additional syllable from the prefix, if there is one”

This is a morphological rule which operates between the stem and the prefix. I will derive [táha] “(do) give” to illustrate how its surface form is realized.

(16) / ta $\begin{bmatrix} \text{h} & - & \text{a} \\ \text{give} & - & \text{fv} \end{bmatrix}$ m-stem / UR: “(do) give”

$\begin{bmatrix} \begin{bmatrix} \text{ta} - \text{h} & - & \text{a} \\ \text{t} - \text{give} - \text{fv} \end{bmatrix} \text{ m-stem} \end{bmatrix}$ verb Microstem Adjustment (1)

$\begin{bmatrix} \begin{bmatrix} \text{H} \\ | \\ \text{taha} \end{bmatrix} \text{ m-stem} \end{bmatrix}$ verb ITAR (I)

Intra-Syllabic H Spread

High Tone Spread

$\begin{bmatrix} \begin{bmatrix} \text{H L} \\ | \quad | \\ \text{taha} \end{bmatrix} \text{ m-stem} \end{bmatrix}$ verb L Tone Default

[táha]

Output

Surprisingly, not all tenses invoke the disyllabicity requirement. To the best of my knowledge, Kuria monosyllabic stems limit disyllabicity to verbs of certain tenses only. Here are V1H tenses that apply minimality (17).

(17) a. /a - h - a/ sm - give - fv	→	[áha]	“he gives”	Untimed Present
b. /ta - h - a/ t - give - fv	→	[táha]	“(do) give”	Hortatory Imperative (2)

V1 tenses that do not apply the minimality condition are given in (18).

- (18) a. naa[há] “(indeed) he has (already) given” Untimed Past Anterior Focused
 b. naakaa[há] “(indeed) he is able to give” Untimed Ability Focused

The data in (17) and (18) leads me to conclude that sometimes Kuria tolerates monosyllabic stems, but not always. When they are not tolerated, some repair strategy is used to make the stems longer.

The other tenses that assign a high tone to V1, but are not listed in (17) and (18), lengthen the monosyllabic stems by the addition of the perfective suffix /-er/, as shown in (19).

- (19) a. βaa[háájé] “they have just given” Immediate Past Anterior
 b. mbaaká[háájé] “they used to give (then)” Habitual Past Focused
 c. mbaa[háájé] “(indeed) they gave” Remote Past Focused
 d. mbakaa[háájé] “they would have given” Untimed Past Anterior Condition Focused

3.2.3 Tone Assignment Principle 2: Melodic V2H (Spread)

The only tense with this melodic system is the Hodiernal Past Progressive Anterior Focused. This tense has also been referred to as the Recent Past (Odden 1987). It denotes an action which took place on the day of speaking. The H tone is assigned to the second vowel of the macrostem. Thereafter, the H undergoes unbounded spreading up to the penult. Only three rules apply in this tense: ITAR, High Tone Spread, and L Tone Default. In this melodic pattern, there is need to modify the ITAR rule so that it assigns the H tone to the second vowel of the macrostem. This is formalized in (20). I will refer to this rule as ITAR (II).

(20) ITAR (II)

$$\left[\begin{array}{c} \text{m-stem} \\ \text{V V} \end{array} \right] \rightarrow \left[\begin{array}{c} \text{H} \\ | \\ \text{m-stem} \\ \text{V V} \end{array} \right] \text{ in } \left\{ [+Hodiernal \text{ Past Progressive Anterior Focused}] \right\}$$

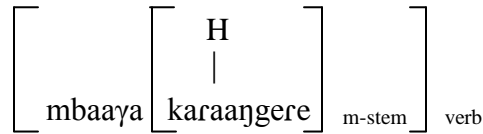
“Associate the melodic H tone to the second vowel of the macrostem in the Hodiernal Past Progressive Anterior Focused.”

A complete illustration of the Hodiernal Past Progressive Anterior Focused, showing all persons, in singular and plural, is given in (21).

- (21) a. /ne - na - aka - karaNγ - er - e/ → nnaaya[karáángére] “(indeed) I
f - sm - t - fry - pf - fv have been frying (today)”
- b. /ne - o - aka - karaNγ - er - e/ → waaya[karáángére] “(indeed) you
f - sm - t - fry - pf - fv have been frying (today)”
- c. /ne - a - aka - karaNγ - er - e/ → naaya[karáángére] “(indeed) he
f - sm - t - fry - pf - fv has been frying (today)”
- d. /ne - to - aka - karaNγ - er - e/ → ntooya[karáángére] “(indeed) we
f - sm - t - fry - pf - fv have been frying (today)”
- e. /ne - mo - aka - karaNγ - er - e/ → mmooya[karáángére] “(indeed)
f - sm - t - fry - pf - fv you (pl) have been frying (today)”
- f. /ne - βa - aka - karaNγ - er - e/ → mbaaya[karáángére] “(indeed)
f - sm - t - fry - pf - fv they have been frying (today)”

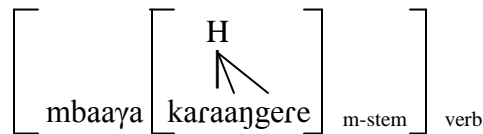
I will derive the verb *mbaaya[karáángére]* “(indeed) they have been frying (today)”.

(22) / ne - βa - aka [karaNɣ - er - e] / UR: “(indeed) they have been
f - sm - t fry - pf - fv m-stem frying (today)”



ITAR (II)

Intra-Syllabic H Spread



High Tone Spread



L Tone Default Rule

mbaaya[karááŋgére]

Output

This tense includes the perfective suffix /-er/. In monosyllabic stems, this perfective suffix augments the stem size to three vowels, as in (23).

- | | | | |
|------------|---------|---------------|---|
| (23) a. ha | “give” | mbaaka[haáje] | (indeed) they have been giving (today)” |
| b. rya | “eat” | mbaaka[reéje] | (indeed) they have been eating (today)” |
| c. sya | “grind” | mbaaka[séeje] | (indeed) they have been grinding (today)” |

The Hodiernal Past Progressive Anterior Focused can be compared to the Habitual Past Focused (see §3.2.1.2) because both use the same segmental tense morpheme, /aka-/. There are, however, some differences between the two tenses. First, the Habitual Past Focused has a high tone on the tense prefix but the Hodiernal Past

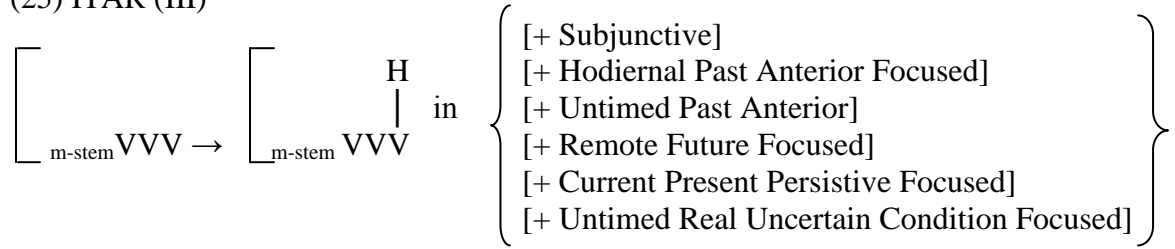
Progressive Anterior Focused has low tones only in the prefix. Second, the Habitual Past Focused assigns a primary H tone on the first vowel of the macrostem but the Hodiernal Past Progressive Anterior Focused assigns it to the second vowel. These tenses are segmentally homophonous but tonally distinct. They are near minimal pairs.

- | | | |
|------------------------|--|------------------------------------|
| (24) a. nnaaká[rómére] | “(indeed) I used to bite (then)” | Habitual Past Focused |
| b. nnaaka[romére] | “(indeed) I have been biting (today)” | Hodiernal Past
Anterior Focused |
| c. mmooká[rómére] | “(indeed) you used to bite (then)” | Habitual Past Focused |
| d. mmooka[romére] | “(indeed) you have been biting (today)” | Hodiernal Past
Anterior Focused |
| e. mbaaká[rómére] | “(indeed) they used to bite (then)” | Habitual Past Focused |
| f. mbaaka[romére] | “(indeed) they have been biting (today)” | Hodiernal Past
Anterior Focused |

3.2.4 Tone Assignment Principle 3a: Melodic V3H (Spread)

The next set of verbs exhibit a high tone on the third vowel of the macrostem. This H tone then undergoes unbounded spreading up to the penult. In (25), the ITAR rule is restated so that it assigns a melodic H to the third vowel of the macrostem. The tenses that have this pattern are incorporated in the ITAR rule in (25). I will refer to the restated rule as ITAR (III).

(25) ITAR (III)

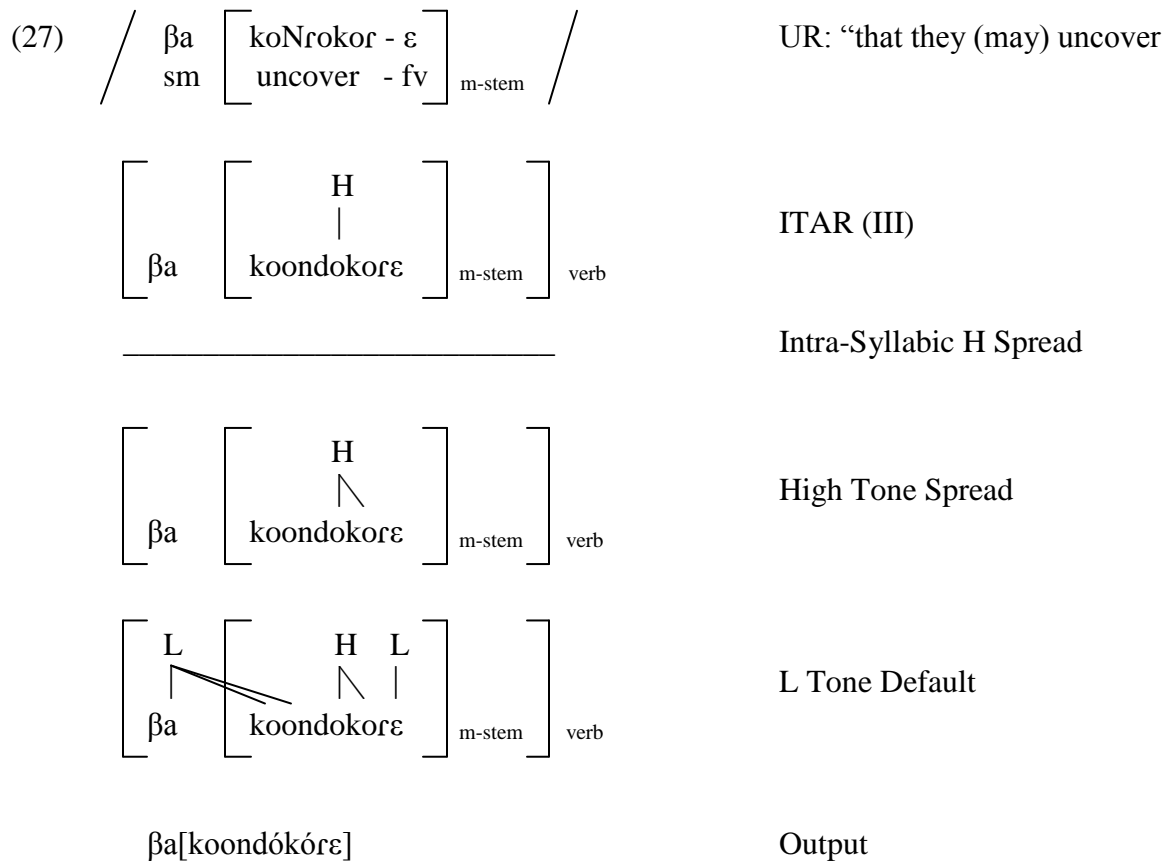


“Associate the melodic H tone to the third vowel of the macrostem in the tenses listed.”

The Subjunctive has been chosen to illustrate how tonal patterns are assigned in this group. In Kuria, the Subjunctive is marked by a final /-ε/; it assigns a high tone to the third vowel of the macrostem, as seen in (26).

- (26) a. /βa - saNβ - ε/ → βa[saambé] “that they (may) burn”
sm - burn - fv
- b. /βa - heetok - ε/ → βa[heetókε] “that they (may) remember”
sm - remember - fv
- c. /βa - koNrokor - ε/ → βa[koondókóρε] “that they (may) uncover”
sm - uncover - fv

A further illustration in (27) shows that only three rules are needed for a complete derivation in the Subjunctive. The first rule, ITAR (III), associates the melodic H to the third vowel. The next rule, the High Tone Spread, spreads the H tone up to the penult. The last rule assigns L tones on all the vowels that are still toneless after the H tones have been assigned.



We have seen that in the Subjunctive the melodic H tone is linked to the third vowel of the macrostem resulting in forms such as $\beta a[koondókóre]$ “that they (may) uncover”, $\beta a[taandóre]$ “that they (may) tear”, and $\beta a[\beta iimé]$ “that they (may) measure”. This shows that the melodic tone can be placed on the final vowel if the macrostem has just three vowels, regardless of non-finality (see §1.3.2). If the verb macrostem has four vowels, the H tone is placed on the third vowel but cannot spread to the fourth, which is final, because of non-finality. If the verb stem has five or more vowels, the melodic H spreads to the penult.

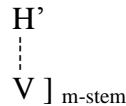
What happens when a verb is short and it does not have enough vowels for the

tone mapping rule to apply? If the macrostem has two vowels, the result is a downstepped H as in (28).

- (28) a. /βa - rom - ε/ → βa[ro¹mÉ] “that they (may) bite”
 sm - bite - fv
- b. /βa - βun - ε/ → βa[βu¹nÉ] “that they (may) break”
 sm - break - fv

For the forms in (28) to be realized, the melodic H, which is left floating at the end of the verb, attaches to the last vowel of the macrostem by a rule of *Floating Tone Docking*.

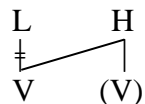
(29) Floating Tone Docking



“Link a stranded H to the last vowel of the macrostem.”

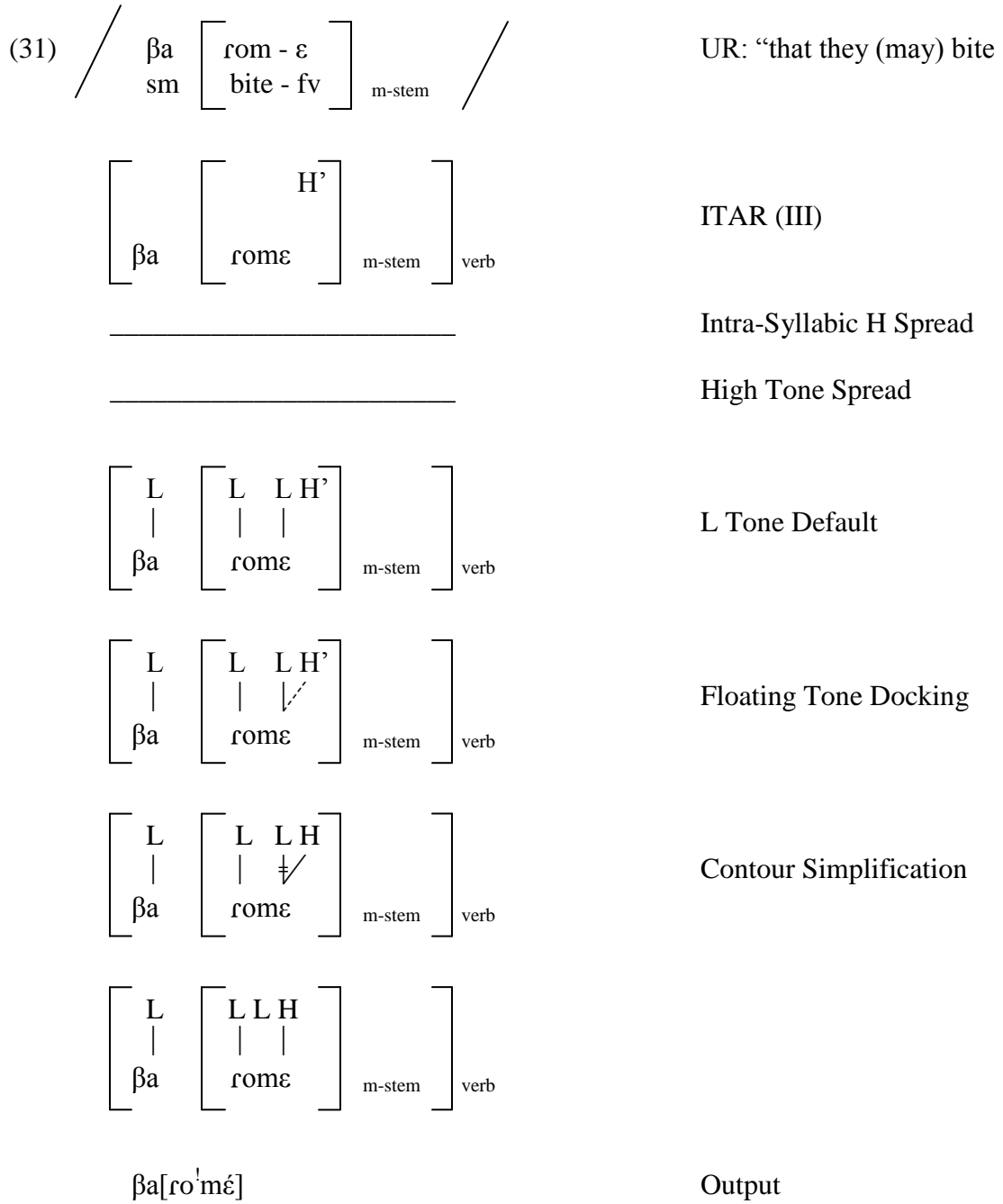
This rule links the final floating H onto the last vowel of the macrostem, producing a LH contour. Floating Tone Docking is ordered after L Tone Default Rule in a counterbleeding relationship. Another rule, Contour Simplification (30), has the effect of turning this LH contour into a H tone, and in doing so it creates a floating low tone which is a requirement for the realization of downstep in Kuria (see §1.4.2).

(30) Contour Simplification



“When L and H tones are linked to one vowel, delink the L so that it remains floating”

A derivation of $\beta a[ro'm\acute{e}]$ “that they (may) bite” follows in (31).



In (28) and (31), a downstepped H is preceded by low vowels. This is rather surprising given that in most languages a downstepped high occurs after another high (Huang 1985),

but this unusual state of affairs is not only found in Kuria, it has also been attested in Bamileke-Dschang (Hyman 1979:11, Pulleyblank 1986:39).

If the macrostem is monosyllabic in a melodic V3 tense, such as the Subjunctive, the H is not realized (32).

- (32) a. /βa - re - ε/ → βa[rε] “that they (may) eat”
 sm - eat - fv
- b. /βa - h - ε/ → βa[hε] “that they (may) give”
 sm - give - fv
- c. /βa - se - ε/ → βa[sε] “that they (may) grind”
 sm - grind - fv

In these examples (32), downgliding does not take place because the low tones are followed by a floating tone. A derivation of βa[rε] “that they (may) eat” follows in (33).

- (33) $\left[\begin{array}{c} \beta a \\ sm \end{array} \left[\begin{array}{c} re - \epsilon \\ eat - fv \end{array} \right] \right]_{m-stem}$ / UR: “that they (may) eat”
- $\left[\begin{array}{c} \beta a \end{array} \left[\begin{array}{c} H' \\ r\epsilon \end{array} \right] \right]_{m-stem} verb$ ITAR (III)
- _____ Intra-Syllabic H Spread
- _____ High Tone Spread
- $\left[\begin{array}{c} L \\ | \\ \beta a \end{array} \right] \left[\begin{array}{c} L \quad H' \\ | \\ r\epsilon \end{array} \right]_{m-stem} verb$ L Tone Default

_____	Floating Tone Docking
_____	Contour Simplification
βa[rɛ]	Output

3.2.5 Tone Assignment Principle 3b: Melodic V3H (No Spread)

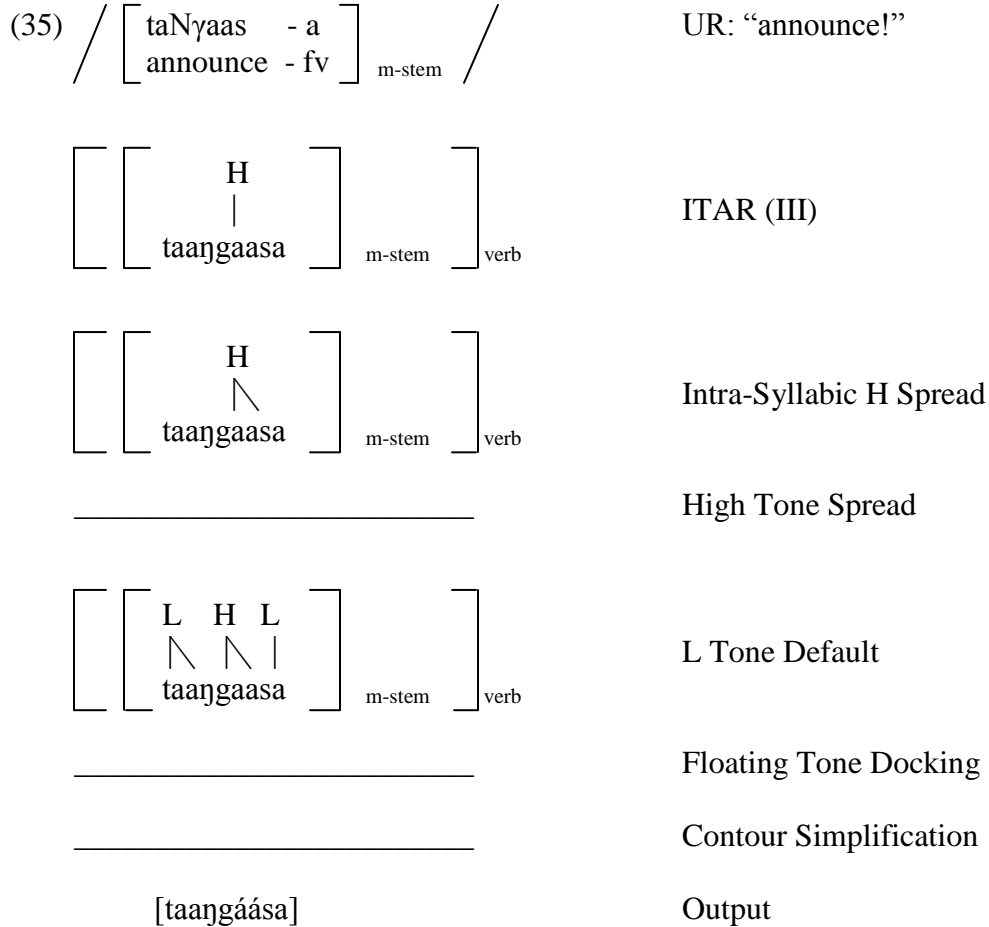
The next tonal principle assigns a high tone on the third vowel of the macrostem but no spreading takes place. If the third vowel of the macrostem is the first half of a long syllable, Intra-Syllabic H Spread applies so as to avoid a falling contour (see 34h). The Mandatory Imperative is the only tense with this melody.

3.2.5.1 Mandatory Imperative

This is a form of the verb used in issuing direct commands and it is restricted to the second person subject. It uses a bare verb stem, that is, subject prefixes and tense prefixes are omitted. This phenomenon of using zero-marking for imperatives is widespread in world languages (Bybee 1985, Whaley 1997).

- (34) a. [haaná] “give!”
 b. [ro¹má] “bite!”
 c. [βiimá] “measure!”
 d. [tɛɾeká] “brew!”
 e. [heetóka] “remember!”
 f. [karaáŋga] “fry!”
 g. [turuúŋanà] “welcome!”
 h. [taaŋgáása] “announce!”
 i. [tereméka] “be calm!”
 j. [koondókorà] “uncover!”

A derivation for (34h), *[taaŋgáása]* “announce!”, is given in (35). The illustration exemplifies the fact that when a verb has only one high tone and it falls on the first vowel of a long syllable, Intra-Syllabic H Tone applies so as to avoid a falling tone.



3.2.5.2 Alternations in Mandatory Imperative

Two patterns were found to be acceptable for imperative verbs with three or fewer vowels in the macrostem. The forms in (36A) conform to the Melodic V3H pattern, that is, they have a high tone on the third vowel of the macrostem but those in (36B) do not undergo any ITAR. They have a sequence of low tones followed by a fall or downglide

on the last vowel of the macrostem.

(36) Alternations in Mandatory Imperative

A	B	
(a) [haaná]	[haanà]	“give!”
(b) [ro ¹ má]	[romà]	“bite!”
(c) [βiimá]	[βiimà]	“measure!”
(d) [tɛɛká]	[tɛɛkà]	“brew!”
(e) [sukurá]	[sukurà]	”rub!”

When there are two or more consecutive low tones at the end of a verb in the Mandatory Imperative tense, the last low tone falls or downglides (see §1.4.3). The examples in (37) show that there is no free variation in long verbs.

(37) a. [heetóka]	*[heetokà]	“remember!”
b. [karaáŋga]	*[karaaŋgà]	“fry!”
c. [tereméka]	*[teremekà]	“be calm!”

A downglide can be seen in longer verb stems which have a high on V3 followed by at least two vowels with low tones.

(38) Mandatory Imperative

a. [turuúŋanà]	“welcome!”
b. [koondókorà]	“uncover!”

3.2.5.3 Minimality Repair in Mandatory Imperative

Monosyllabic verbs in the Mandatory Imperative are subminimal, that is, they fall short of the minimal size. Kuria employs various strategies so as to meet the disyllabic minimality requirement in this tense. In Table 3.2 below, I present all monosyllabic verbs

in Kuria and show how they acquire the extra syllable.

Table 3.2: Repair Strategy in Mandatory Imperative

	<i>UR</i>	<i>Hortatory Imperative (2)</i>	<i>Empty Morph /ka-/</i>	<i>Empty Morph /-an/</i>	<i>Irregular Form</i>	<i>Gloss</i>
1.	β-a	táβa	káβa			“be!”
2.	h-a	táha	káha	haaná		“give!”
3.	i-a	tája	kája			“go!”
4.	γu-a	táywa	γátwa			“fall!”
5.	re-a	tárja	kárja			“eat!”
6.	ne-a	tánja	kánja			“defecate!”
7.	ɲu-a	táɲwa	káɲwa			“drink!”
8.	he-a	táhja	káhja			“burn!”
9.	ke-a	tákja	γákja			“dawn!”
10.	to-a	tátwa	γátwa			“rain!”
11.	se-a	tásja	γásja			“grind!”
12.	ku-a	tákwa	γákwa			“die!”
13.	ru-a	tárwa	kárwa			“leave!”
14.	tu-a	tátwa	γátwa			“pick!”
15.	ʃ-a	tááʃa	*γááʃa		ńʃo	“come!”

When a speaker is confronted with a monosyllabic verb in this tense, one way of dealing with it so as to meet disyllabic minimality is to use the verb in its Hortatory Imperative (2) form. This, however, reduces the level of assertiveness in the command. Another way is to add an empty morph /ka-/ whose identity is determined idiosyncratically. This works well with all the verbs except *ʃa* “come”, which instead takes an irregular form [ńʃo] “come!”. Although I have indicated that most of the monosyllabic verbs in the Mandatory Imperative can take the dummy prefix /ka-/, some verbs are more acceptable when they are augmented with the prefix /ta-/. The tone

markings in these three strategies suggest that all these verb forms are in the Hortatory Imperative (2). It therefore seems that there is a paradigm gap in the Mandatory Imperative for monosyllabic verbs, except in *ha* “give”, which I now turn to.

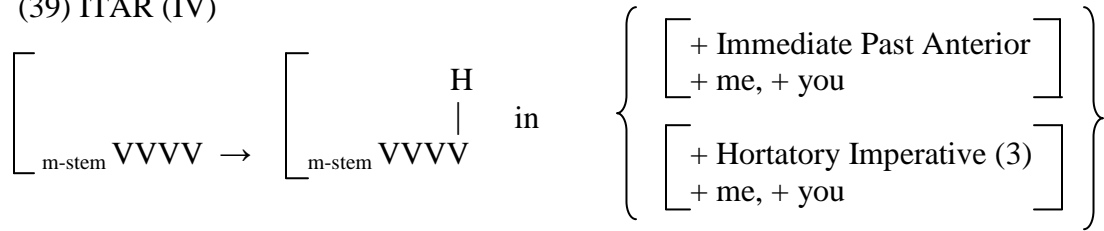
The filler morph /-an/ is also used but only with the verb *ha* “give”, changing it to [*haaná*] “give”. This morph is not productive. As seen in §2.3.4.5, /-an/ is a reciprocal affix in Kuria, but in this verb that meaning is absent. The most plausible explanation is that /-an/ is a filler morph that is used to fulfill the minimality condition.

3.2.6 Tone Assignment Principle 4: Melodic V4H (First and Second Person)

This melodic pattern occurs in the Immediate Past Anterior (first and second person) and the Hortatory Imperative (3) (first and second person). These tenses have tonal patterns that are sensitive to person. Verbs with first and second person have a high tone on the fourth vowel but verbs in the third person have high tones on the first and fourth vowels. A difference in the tonal behavior between verbs having third person versus first and second person subjects is common in Bantu languages (Odden 1990). Following Anderson (1981), I will represent first and second person with the morphological features [+ me, + you], and third person with [- me, - you].

This tonal principle assigns a high tone to the fourth vowel of the macrostem. In longer verbs, the H spreads to the penult. The ITAR rule for this tone assignment principle is given in (39).

(39) ITAR (IV)



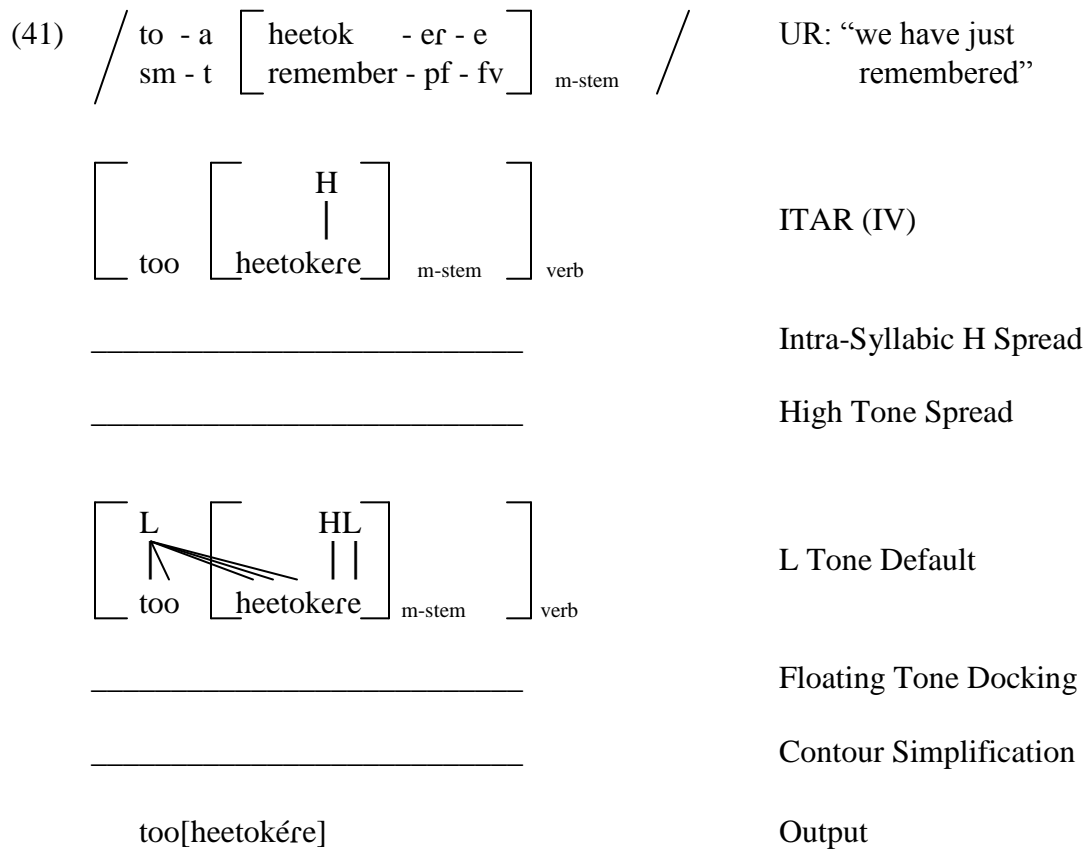
“Associate the melodic H tone to the fourth vowel of the macrostem in the tenses listed.”

I will give illustrations from each of the two tenses. The examples in (40) show that verbs with four or more vowels in the macrostem will have a high tone on the fourth vowel.

(40) Immediate Past Anterior

- | | | | |
|---|---|------------------|---------------------------|
| a. /to - a - saNβ - er - e/
sm - t - burn - pf - fv | → | too[saamberé] | “we have just burnt” |
| b. /to - a - sukur - er - e/
sm - t - rub - pf - fv | → | tuu[sukuujé] | “we have rubbed” |
| c. /to - a - heetok - er - e/
sm - t - remember - pf - fv | → | too[heetokére] | “we have just remembered” |
| d. /to - a - kiriyiit - er - e/
sm - t - scrub - pf - fv | → | tuu[kiriyiítire] | “we have just scrubbed” |
| e. /to - a - koNrokor - er - e/
sm - t - uncover - pf - fv | → | too[koondokóóje] | “we have just uncovered” |

It is clear from these examples that if a verb stem has four vowels, the primary H docks on the final vowel, without regard to the non-finality principle (see (40a,b)). When the verb is longer, the H links to the fourth vowel and spreads to the penult. I will derive *too[heetokére]* “we have just remembered” to illustrate how the rules apply.



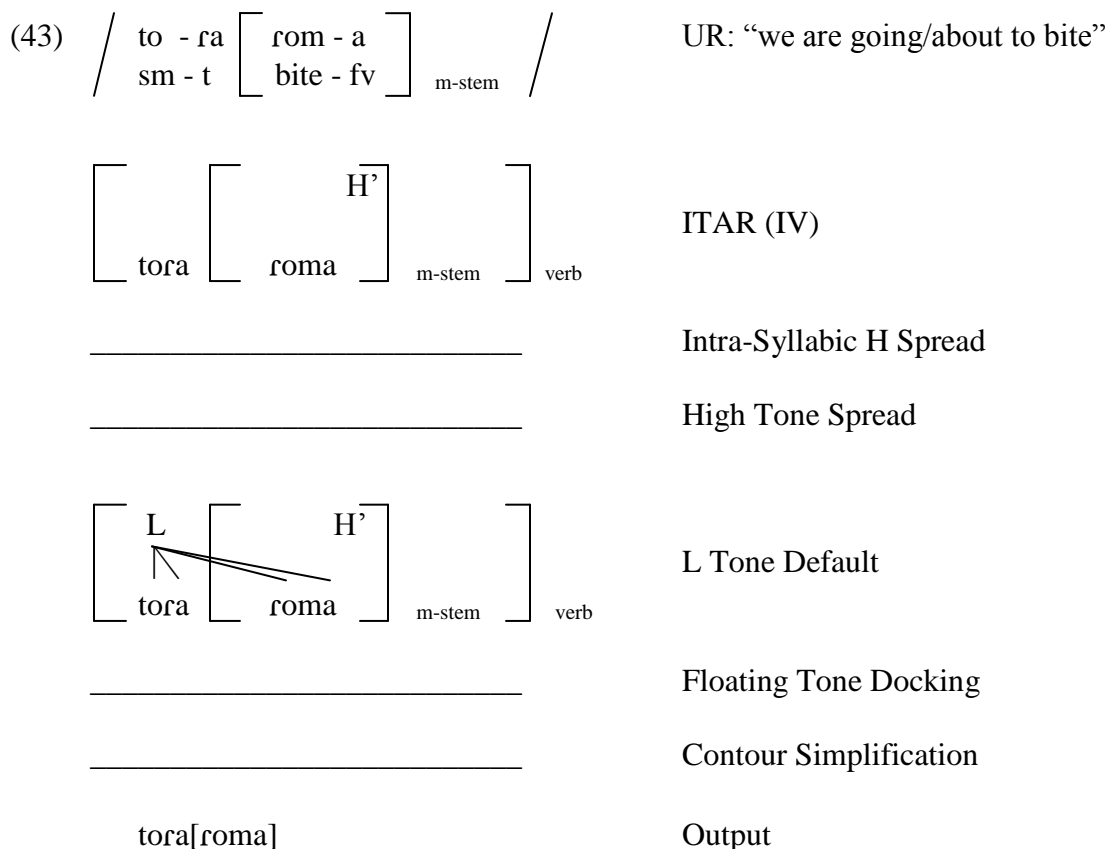
As seen in (41) above, only two rules are needed to complete the derivation of the verb *too[heetokére]* “we have just remembered”: ITAR and L Tone Default.

In the melodic V4 pattern, verbs with one or two vowels in the macrostem have only low tones (42).

- (42) Hortatory Imperative (3)
- a. /to - ra - se - a/ → tora[sja] “we are going/about to grind”
sm - t - grind - fv
- b. /to - ra - re - a/ → tora[rja] “we are going/about to eat”
sm - t - eat - fv
- c. /to - ra - rom - a/ → tora[roma] “we are going/about to bite”
sm - t - bite - fv

d. /to - ra - βun - a/ → tora[βuna] “we are going/about to break”
 sm - t - break - fv

The derivation in (43) shows how verbs with two syllable in the macrostem receive their tones in a V4 tense. I will use the form *tora[roma]* “we are going/about to bite”



When the tone mapping rule is blocked from applying (as in 43) because there are too few vowels in the macrostem, the melodic H tone is not lost. It remains floating and prevents downglide from taking place. This floating H manifests itself when another word is added onto the shorter verbs. I will add the noun *eye[tóóke]* “banana” to the forms in (44).

(44) Short Verb + Noun

- a. tora[sja eʔetóóke] “we are going/about to grind a banana”
- b. tora[rja eʔetóóke] “we are going/about to eat a banana”
- c. tora[roma eʔetóóke] “we are going/about to bite a banana”
- d. tora[βuna eʔetóóke] “we are going/about to break a banana”

In all the examples in (44), the floating H tone surfaces on V4 as expected.

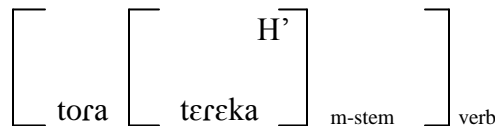
For verbs with three vowels in the macrostem, the floating tone links to the final vowel of the macrostem then takes over the whole tone bearing unit forcing the low tone previously docked there to delink. This causes an obligatory downstep.

(45) Hortatory Imperative (3)

- a. /to - ra - tɛɾɛk - a/ → tora[tɛɾɛ¹ká] “we are going/about to brew”
sm - t - brew - fv
- b. /to - ra - sukuɾ - a/ → tora[suku¹rá] “we are going/about to rub”
sm - t - rub - fv

I will derive *tora[tɛɾɛ¹ká]* “we are going/about to brew” to show how the rules apply.

- (46) / to - ra [tɛɾɛk - a] UR: “we have going/about to
sm - t [brew - fv] m-stem / brew”



ITAR (IV)

Intra-Syllabic H Spread

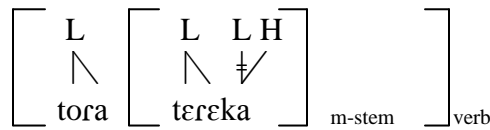
High Tone Spread



L Tone Default



Floating Tone Docking



Contour Simplification

tora[tere¹ká]

Output

If a noun is added to a verb with three vowels in the macrostem, the floating tone which causes a downstep in (46) will appear on V4 since there is enough segmental material to associate to. I will add the nouns *ama[rwá]* “beer” and *ama[yéna]* “stones” to three vowel verbs in (47).

- (47) a. tora[tereka ámarwá] “we are going/about to brew beer”
 b. tora[sukura ámayéna] “we are going/about to rub stones”

Examples in (44) and (47) show that the macrostem includes the following word. Tone is assigned at the phrasal level, counting vowels from the left edge of the macrostem.

3.2.7 Tone Assignment Principle 5a: Melodic V1H and V4H (All Persons)

I have been dealing with tenses that assign only one H tone to the macrostem. I now turn to melodies involving combinations of tone assignment principles. These come

with complications that require additional rules. A number of tenses in Kuria select a two-tone pattern where the primary H tones are realized on the first and fourth vowels of the macrostem. The tenses that we shall start with have a tone principle that assigns V1H and V4H in all persons. ITAR (I) and ITAR (IV) rules, formalized in §3.2.1 and §3.2.6 respectively, will apply as separate rules in this tone assignment principle. In (48), I give the tenses that combine these two rules.

$$(48) \left\{ \begin{array}{l} [+ \text{ Narrative Past}] \\ [+ \text{ Hodiernal Future Uncertain Possibility}] \\ [+ \text{ Remote Future}] \end{array} \right\}$$

Two tenses, the Hodiernal Future Uncertain Possibility and the Narrative Past, are described below. The first is a representative of tenses in this group, but the second is chosen because it does not follow all tone rules as expected.

3.2.7.1 Hodiernal Future Uncertain Possibility

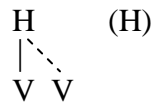
The Hodiernal Future Uncertain Possibility is formed with the tense prefix /kaa-/, and has H tones on the first and fourth vowels of the macrostem. As we saw earlier in §3.2.1 and §3.2.6, ITAR (I) and ITAR (IV) rules are used to assign H tones to the first and the fourth vowels of the macrostem respectively. After these primary H tones have been assigned, other rules apply as necessary. In V1 and V4 tenses, the basic tone pattern is best revealed by relatively long verb macrostems of the CV-type of syllable. Examples are given in (49).

$$(49) \text{ a. } \begin{array}{l} \beta a - k a a - r o m - e r - a n - a / \\ s m - t - b i t e - a p - r e c - f v \end{array} \rightarrow \beta a k a a [r \acute{o} m \acute{e} r a n \acute{a}] \text{ “perhaps they will bite for} \\ \text{each other (today)”}$$

- b. /βa - kaa - βereker - an - a/ → βakaa[βérékerána] “perhaps they will
sm - t - call - rec - fv call each other (today)”
- c. /βa - kaa - teremek - er - an - a/ → βayaa[téremekérána] “perhaps they will be
sm - t - fry - ap - rec - fv calm for each other (today)”

A number of observations can be made concerning the data in (49). In all the examples, the H tone assigned to V1 undergoes bounded spreading to V2, and there is no H tone on V3. In (49c), the H tone assigned to V4 spreads to the penult. If V4 is the last vowel of the macrostem, the H tone docks on it regardless of non-finality. A new rule, called *Doubling Rule*, is needed to account for the spread of V1 to V2 seen in (49).

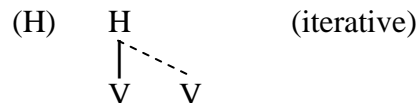
(50) Doubling Rule



“Spread a linked H one vowel to the right when there is another high tone on the right.”

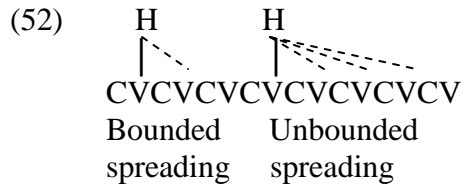
Also, the High Tone Spread rule stated in (6) and (11) needs to be restated to show that when there are two primary high tones on the macrostem, it is the second one that spreads up to the penult.

(51) High Tone Spread (restated)

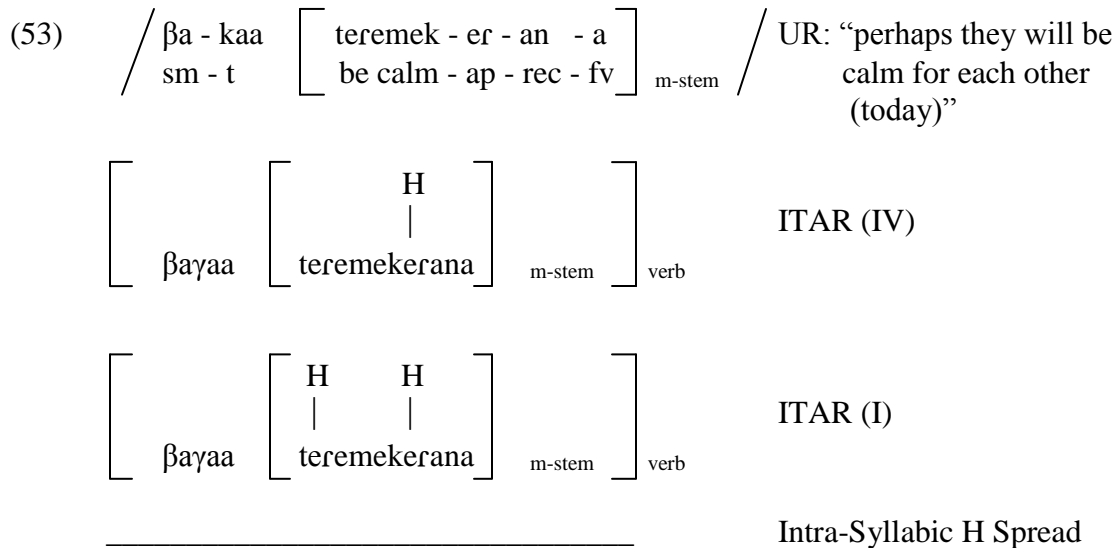


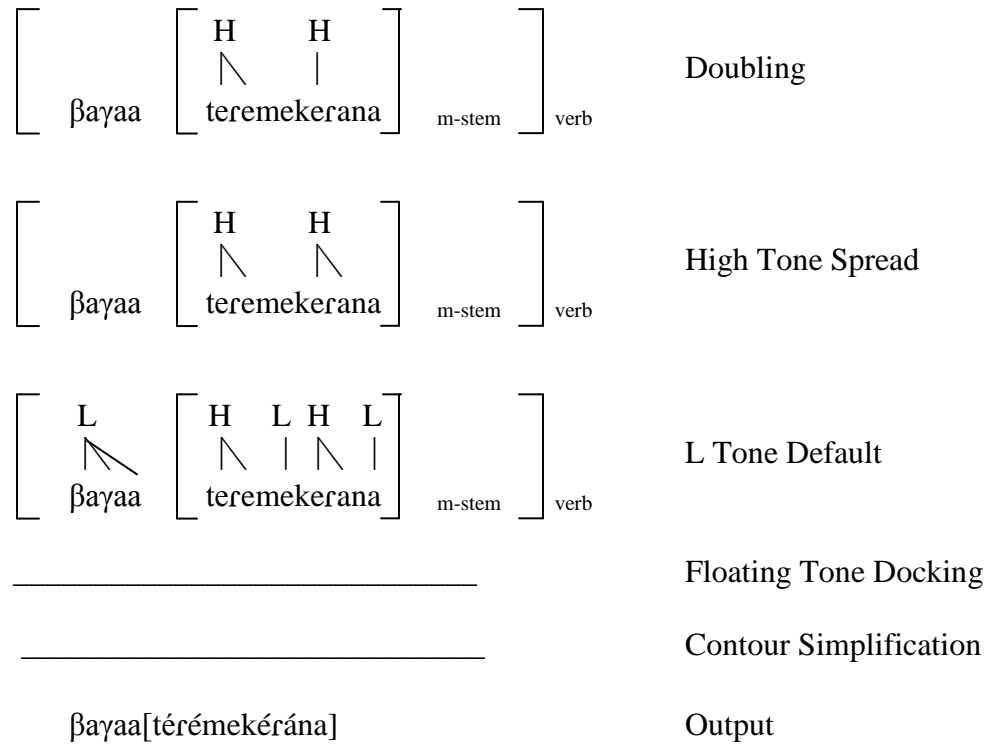
“Spread the rightmost H tone up to the penult except in Hortatory Imperative (2) and the Mandatory Imperative”

This rule will apply to a H tone when it is the only primary high tone in the macrostem or if it is the second high tone in the macrostem that has two primary high tones. The first primary H will be subjected to doubling. This means that if a tense has two primary high tones in the macrostem, the first high tone undergoes bounded spreading while the second undergoes unbounded spreading up to the penult (see (52)).



Although I have discussed ITAR rules starting from the lower number moving upwards (I, II, III IV), that is not suggestive of the way ITAR (I) and ITAR (IV) are ordered when they are combined in a melodic tone. As will be explained in §3.6.2, it is more economical to order ITAR (IV) before ITAR (I). I now proceed to derive (49c) *βayaa[téremekérána]* “perhaps they will be calm for each other (today)” step by step.





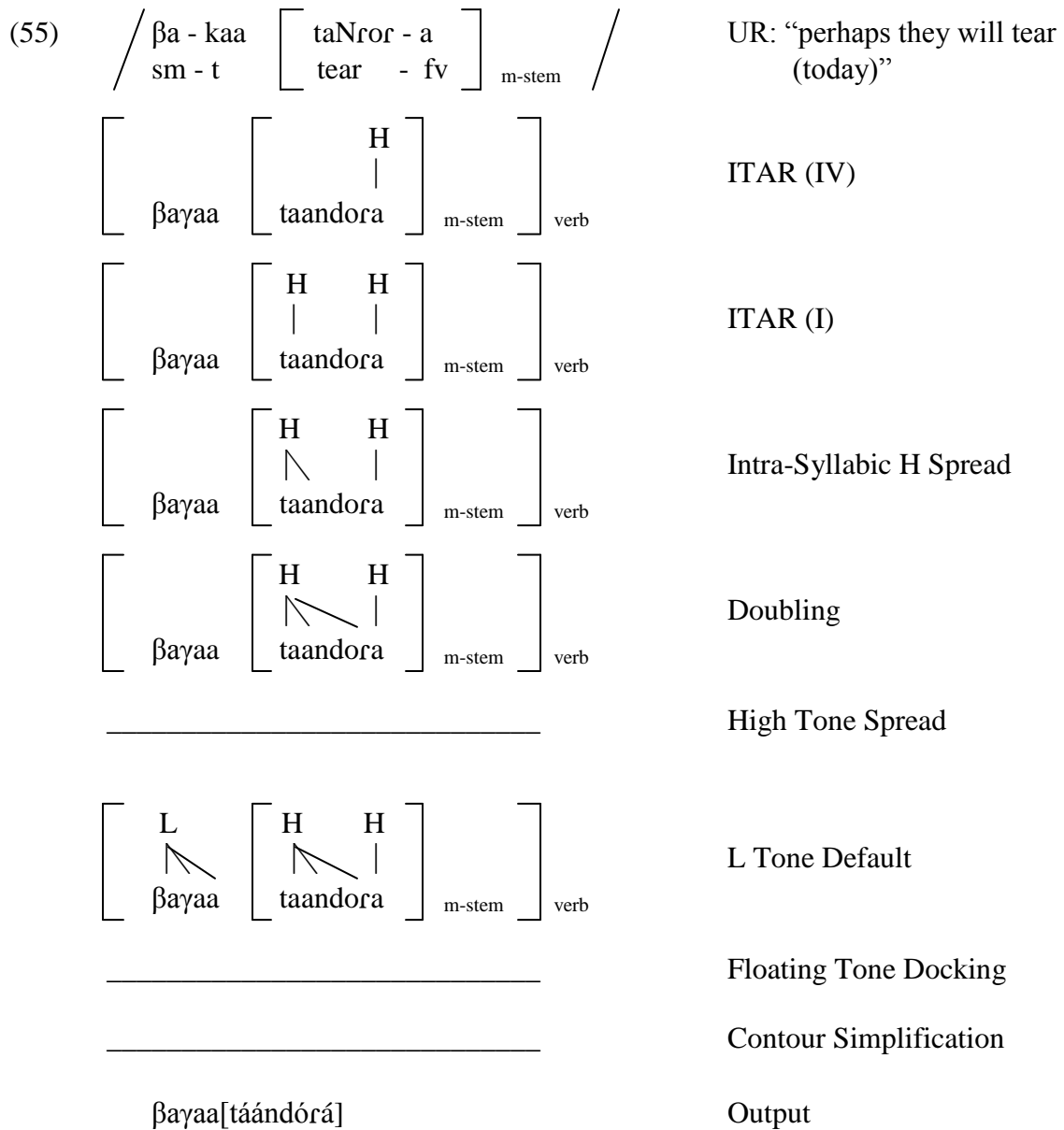
In (53), the ITAR rules associate the first and fourth vowels of the macrostem with the primary tones. This is followed by doubling, which spreads the first high tone to the second vowel of the macrostem. Then the primary high tone on V4 spreads to the penult. Lastly, low tones are assigned to the vowels which are still toneless.

As already mentioned, when long syllables are used in the verbs, complexities arise. Let us take a case where the first syllable in the macrostem is long, as in the examples in (54).

- (54) a. /βa - kaa - saNβ - a/ → βγaa[sáámbá] “perhaps they will burn
sm - t - burn - fv (today)”
- b. /βa - kaa - taNror - a/ → βγaa[táándórá] “perhaps they will tear
sm - t - tear - fv (today)”

c. /βa - kaa - koNrokor - a/ → βayaa[kóóndókóra] “perhaps they will uncover (today)”
 sm - t - uncover - fv

In all the examples in (54), Intra-Syllabic H Spread applies before Doubling. I proceed to derive (54b) βayaa[táándórá] “perhaps they will tear (today)” to show how the rules apply.



In (55), the ITAR rules associate the first and fourth vowels of the macrostem with the primary tones. Since the first primary tone is mapped on to the first vowel of a long syllable, Intra-Syllabic H Spread applies to spread that H tone to the second vowel of the syllable. This is followed by doubling, which spreads the first high tone to the third vowel of the macrostem, making all the vowels of the macrostem high. Lastly, low tones are assigned to the vowels in the prefix which are still toneless.

When the long vowel is on the second syllable of the macrostem, doubling is blocked so as to avoid a falling tone, as in (56).

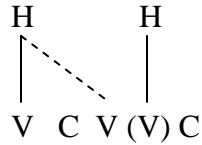
- (56) a. /βa - kaa - turuunjan - a/ → βayaa[túruunjána] “perhaps they will welcome (today)”
 sm - t - welcome - fv
- b. /βa - kaa - karaNɣ - a/ → βayaa[káraangá] “perhaps they will fry (today)”
 sm - t - fry - fv
- c. /βa - kaa - hayaaɬ - a/ → βakaa[háyaaɬá] “perhaps they will build (today)”
 sm - t - build - fv

The data in (57) shows that when the first and second syllables are long, in V1 and V4 tenses, both syllables carry high tone. Doubling onto the first vowel of a long syllable is allowed so long as the second vowel of the long syllable has a high tone.

- (57) a. /βa - kaa - taNɣaas - a/ → βayaa[táangáása] “perhaps they will announce (today)”
 sm - t - announce - fv
- b. /βa - kaa - βóóróó - a/ → βakaa[βóóróóra] “perhaps they will bully (today)”
 sm - t - bully - fv
- c. /βa - kaa - siitaak - a/ → βayaa[síitááka] “perhaps they will sue (today)”
 sm - t - sue - fv

At this point, there is need to write a doubling rule which caters for all the data in (49), (54), (56), and (57). The all inclusive doubling rule is stated in (58).

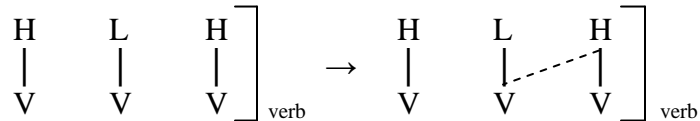
(58) Doubling Rule



“Spread a linked H one vowel to the right when there is another H tone on the right.”

The other rule that needs to be formalized is the *Leftward Spread*. This is an optional rule. The optionality creates two variants of the same form, for example, *βαγαα[térémeká]* alternating with *βαγαα[téré'méká]* “perhaps they will be calm (today)”.

(59) Leftward Spread (optional)



“Optionally spread the final H tone leftwards in a verb final HLH sequence”.

This rule is ordered before Contour Simplification so that they are in a feeding relationship. I will derive *βαγαα[téré'méká]* “perhaps they will be calm (today)” to show how the rule applies.

UR: “perhaps they will be calm (today)”

ITAR (IV)

ITAR (I)

Intra-Syllabic H Spread

Doubling

High Tone Spread

L Tone Default

Floating Tone Docking

Leftward Spread (optional)

Contour Simplification

Output

The output in (60) is optional depending on whether the Leftward Spread rule applies or not. Some speakers of this language will produce a downstep as shown in (60) while others will not. Sometimes one speaker will use the downstepped and non-downstepped variants interchangeably. This is not surprising since it has been suggested that many cases of downstep are in fact cases of downdrift made opaque due to marking the low tone as floating (Huang 1985).

3.2.7.2 Narrative Past

This tense is formed by prefixing the morpheme /ká-/ to the stem. It is used when talking about consecutive events in the past. The tense is dependent in the sense that it relies on a prior tense to give the time frame. The high tones are marked on the first and the fourth vowels of the stem in all persons just as in the infinitives and the Remote Future. The examples in (61) illustrate this pattern.

- (61) a. /βa - ká - heetok - a/ → βaká[héetoká] “(and) they remembered”
 sm - t - remember - fv
- b. /βa - ká - karaNγ - a/ → βaγá[káraaŋgá] “(and) they fried”
 sm - t - fry - fv
- c. /βa - ká - turuun̄an - a/ → βaγá[túruun̄ána] “(and) they welcomed”
 sm - t - welcome - fv
- d. /βa - ká - taN̄yaas - a/ → βaγá[táaŋgaása] “(and) they announced”
 sm - t - announce - fv
- e. /βa - ká - βereker - a/ → βaká[βérékerá] “(and) they called”
 sm - t - call - fv

What is notable with this tense is that the tense morpheme /ká-/, which is outside the macrostem, is marked by a high tone. This prefixal H tone however does not interfere with the assignment of tone in the macrostem. Also, not all our tone rules apply in this tense. For example, Doubling does not apply if Intra-Syllabic H Spread has applied (see (61a) and (61d)). Essentially, this means that the third vowel of the macrostem never bears a high tone in this tense.

Returning to (61a), we see that the ITAR (I) and ITAR (IV) rules assign high tones on the first and fourth vowels of the macrostem. Thereafter, Intra-Syllabic H Spread applies to spread the H on the first vowel to the second vowel of the macrostem. Even if the structural conditions for the doubling rule (for the first primary H tone) are met, the rule never applies. This is what makes this tense unique. The tense is however syllable sensitive, that is, tone is assigned with reference to the length of the syllables, as seen in (61b) and (61c). In these two examples, doubling fails to apply to forestall a falling contour.

I suggest that for this tense, the Intra-Syllabic H Spread and Doubling rules are in one block such that they are disjunctively ordered. When the structural description for Intra-Syllabic H Spread is met, the rule applies and Doubling does not. If they are not met but the ones for Doubling are met, then this second rule applies. Either way, the third vowel of the macrostem will be devoid of a high tone.

In this tense, monosyllabic verbs do not have any high tone on the macrostem. This is because of nonfinality and the disyllabic minimality condition. The H tone in the tense prefix in (62) could also be doubling up as a stem H.

- (62) a. /a - ká - h - a/ → a[káha] “(and) he gave”
 sm - t - give - fv
- b. /a - ká - re - a/ → a[kárja] “(and) he ate”
 sm - t - eat - fv
- c. /a - ká - se - a/ → a[γásja] “(and) he ground”
 sm - t - grind - fv

3.2.8 Tone Assignment Principle 5b: Melodic V1H and V4H (Third Person)

This tonal principle is found in the Immediate Past Anterior and the Hortatory Imperative (3). These tenses have tonal patterns that are sensitive to person. As noted in §3.2.6, verbs with first and second person in these tenses have a high tone on the fourth vowel but verbs in the third person have high tones on the first and fourth vowels. This means that verbs with first and second person subjects have one H tone in the macrostem while verbs with third person subject have two H tones. In this section, I will examine tenses with third person subject. These are listed in (63) as features.

(63) ITAR (I) and ITAR (IV)

$$\left\{ \begin{array}{l} \left[\begin{array}{l} + \text{Immediate Past Anterior} \\ - \text{me, - you} \end{array} \right] \\ \left[\begin{array}{l} + \text{Hortatory Imperative (3)} \\ - \text{me, - you} \end{array} \right] \end{array} \right\}$$

The Immediate Past Anterior is morphologically marked by the morphemes /a...er/. Tone assignment in the Immediate Past Anterior (third person) is similar to that found in the Hortatory Imperative (3), that is, there are two primary H tones on the macrostem assigned to the first and fourth vowels. This suggests that the first primary H

tone is triggered by the third person subject prefix while the second H tone is a property of the verb tense. I will derive the form *βaa[káraangére]* ‘they have just fried’ step by step to illustrate how the tones are assigned.

(64) / $\begin{matrix} \beta a - a \\ sm - t \end{matrix} \left[\begin{matrix} karaN\gamma - er - e \\ fry - pf - fv \end{matrix} \right]_{m-stem}$ / UR: “they have just fried”

$\left[\begin{matrix} \beta aa \\ \left[\begin{matrix} H \\ | \\ karaangere \end{matrix} \right]_{m-stem} \end{matrix} \right]_{verb}$ ITAR (IV)

$\left[\begin{matrix} \beta aa \\ \left[\begin{matrix} H & H \\ | & | \\ karaangere \end{matrix} \right]_{m-stem} \end{matrix} \right]_{verb}$ ITAR (I)

_____ Intra-Syllabic H Spread

_____ Doubling

_____ High Tone Spread

$\left[\begin{matrix} L \\ \diagdown \\ \beta aa \end{matrix} \left[\begin{matrix} HL & HL \\ | \diagdown & | \diagdown \\ karaangere \end{matrix} \right]_{m-stem} \right]_{verb}$ L Tone Default

_____ Floating Tone Docking

_____ Leftward Spread

_____ Contour Simplification

$\beta aa[káraangére]$ Output

High Tone Spread does not apply because of nonfinality. The position of a long syllable

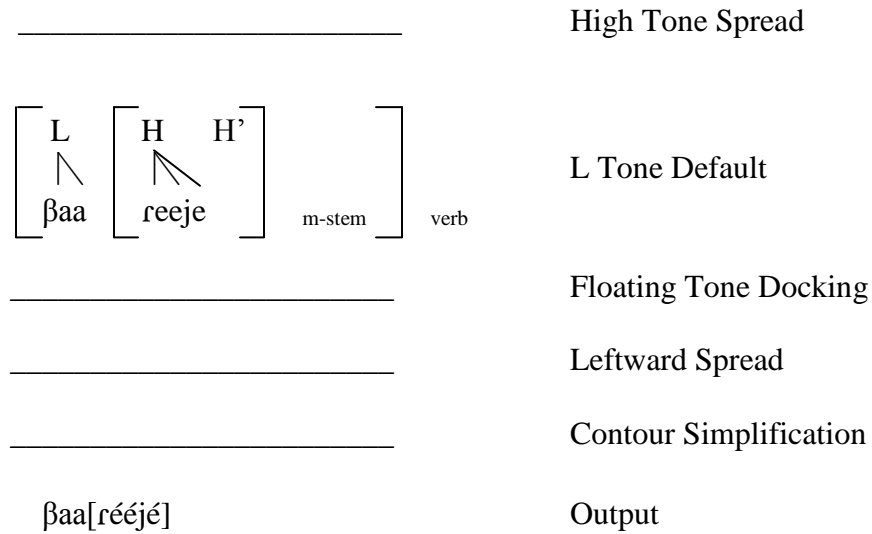
in the verb has an effect on how tones are assigned. For example, doubling fails to apply so as to avoid a falling contour in the second and third vowels of the macrostem.

Depending on the position of the long syllable in the macrostem and the length of the verb stem, doubling on to the final vowel may be allowed (65).

- (65) a. /βa - a - h - er - e/ → βaa[háájé] “they have just given”
 sm - t - give - pf - fv
- b. /βa - a - re - er - e/ → βaa[rééjé] “they have just eaten”
 sm - t - eat - pf - fv

Four tonal rules actively apply to give the output in (65); ITAR (I), Intra-Syllabic H Spread, Doubling, and L Tone Default, as seen in (66).

- (66) / βa - a [re - er - e] UR: “they have just eaten”
 sm - t [eat - pf - fv] m-stem /
- [βaa [[H']] m-stem] verb ITAR (IV)
 [reeje]
- [βaa [[H H']] m-stem] verb ITAR (I)
 [reeje]
- [βaa [[H H']] m-stem] verb Intra-Syllabic H Spread
 [reeje]
- [βaa [[H H']] m-stem] verb Doubling
 [reeje]



According to Odden (1987:320), the output of a case like (66) is the result of a conspiracy between Intra-Syllabic H Spread (Predoubling) and doubling to make the final vowel high.

3.2.9 Tone Assignment Principle 6: No Stem H Tone

Although a high tone is found in most verbs, I have shown that when verb macrostems are too short there is a likelihood of getting verbs with low tones only (see §3.2.6, (42)). In this section, I look at a tense that does not assign a high tone at all in the macrostem. This is the Hortatory Imperative (1). It has a subject marker and a tense marker /tá-/ that is lexically high. The verbs given in (67) illustrate this pattern.

- (67) a. /a - tá - h - a/ → atá[ha] “let him give”
 sm - t - give - fv
- b. /a - tá - rom - a/ → atá[romà] “let him bite”
 sm - t - bite - fv

- c. /a - tá - saNβ - a/ → atá[saambà] attehim burn”
 sm - t - burn - fv
- d. /a - tá - βereker - a/ → atá[βerekerà] “let him call”
 sm - t - call - fv
- e. /a - tá - haʔaaʔ - a/ → atá[haʔaaʔà] “let him build”
 sm - t - build - fv

Generally, it is common for imperatives to have a unique tone pattern. This has been attested in Lunyala, Lusaamia, and Llogoori (Marlo 2007). Just as in the Mandatory Imperative, the final vowel in Hortatory Imperative (1) verbs ends in a downglide.

3.3 Tone in Infinitive Verbs

This section describes tone patterns found in the infinitive. I start by providing a set of data. I will use the verb forms provided in §3.1 to lay out the data.

Table 3.3: List of Verbs in the Infinitive

<i>Root Shape</i>	<i>Example</i>	<i>Gloss</i>
Consonant Initial Verbs		
C	oko[há]	“to give”
CV	oko[rjá]	“to eat”
	oyo[sjá]	“to grind”
CVC	oko[róma]	“to bite”
	uku[βúna]	“to break”
CVVC	uku[βíímá]	“to measure”
	oyo[sáámbá]	“to burn”
CVCVC	oyo[téré ¹ ká]	“to brew”
	uyu[súkú ¹ rá]	“to rub”

<i>Root Shape</i>	<i>Example</i>	<i>Gloss</i>
CVVCVC	oko[héétóká]	“to remember”
	oyo[táándórá]	“to tear”
CVCVVC	oyo[káaraŋgá]	“to fry”
	oko[háyaatǵá]	“to build”
CVVCVVC	oyo[tááŋgáása]	“to announce”
	uyu[síitááka]	“to accuse, sue”
CVCVCVC	oko[βérékerá]	“to call”
	oyo[téremeká]	“to be calm”
CVCVVCVC	uyu[túruuŋána]	“to welcome”
CVVCVCVC	oyo[kóóndókóra]	“to uncover”
CVVCVVCVC	oko[hóótóótéra]	“to reassure”
Vowel Initial Verbs		
V	uku[já]	“to go”
VC	oko[óya]	“to weed”
VCVC	ukwi[íyó ¹ rá]	“to open”
	oko[óβó ¹ há]	“to fear”
VCVVC	ukwi[íyɔombá]	“to desire”
VCVCVC	oko[ónékerá]	“to lay out”
VCVVCVC	oko[óraatǵána]	“to cross, fold”

The verbs given in Table 3.3 can be made longer by the addition of extension suffixes.

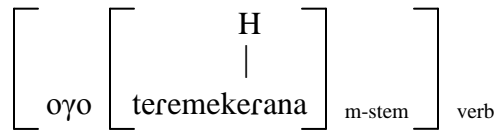
In the infinitives, H tone is assigned to the first and fourth vowels of the macrostem. It combines two tone assignment principles. We do not need new rules since ITAR (I) has already been formalized in §3.2.1 (2), and ITAR (IV) in §3.2.6, (39). As in

other V1 and V4 tenses, the basic tone in the infinitive is best revealed by a long macrostem of five or more vowels, of the CV-type.

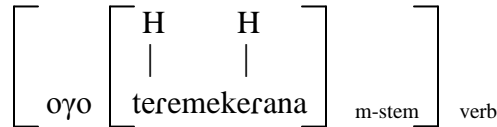
- (68) a. /o - ko - βereker - an - a/ → oko[βérékerána] “to call each other”
 a - im - call - rec - fv
- b. /o - ko - terek - er - an - a/ → oyo[térékerána] “to brew for each
 a - im - brew - ap - rec - fv other”
- c. /o - ko - teremek - er - an - a/ → oyo[térémekérána] “to be calm for each
 a - im - be calm - ap - rec - fv other”

A derivation of *oyo[térémekérána]* “to be calm for each other” follows in (69).

- (69) / o - ko [teremek - er - an - a] / UR: “they have just been
 a - im [be calm - ap - rec - fv] m-stem calm for each other”

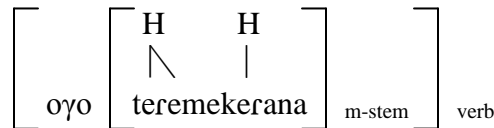


ITAR (IV)

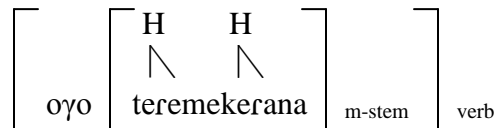


ITAR (I)

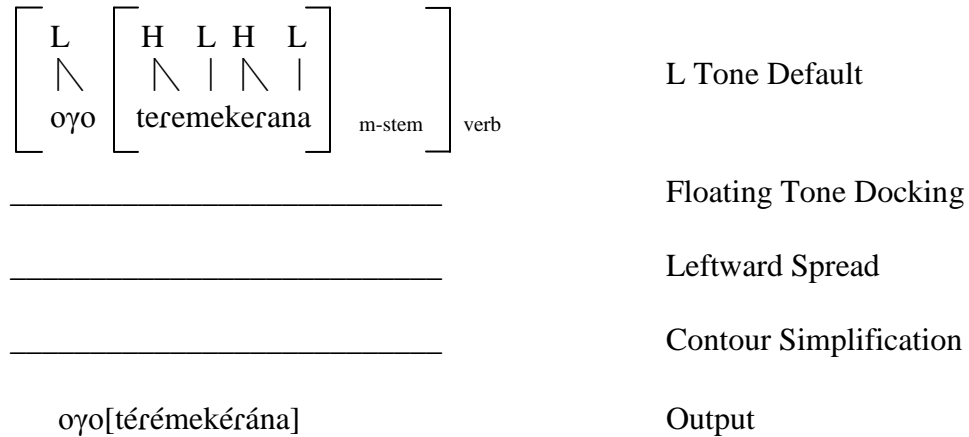
Intra-Syllabic H Spread



Doubling



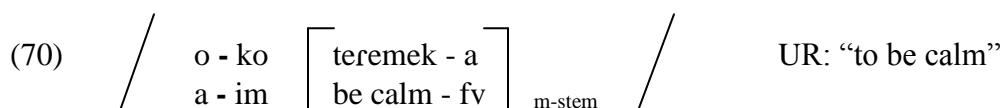
High Tone Spread

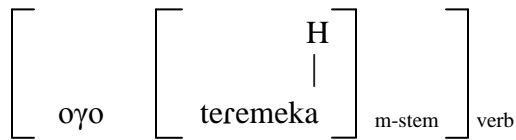


In (69), the ITAR rules associate the first and fourth vowels of the macrostem with the melodic high tones. Then, the high tone on V1 doubles to the second vowel, and the H on V4 spreads to the penult. Spreading onto the final vowel of the macrostem is avoided because of non-finality.

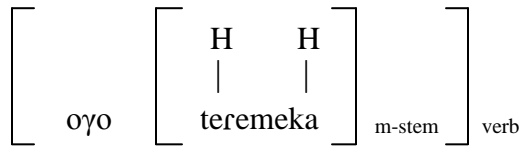
3.3.1 Short Verbs

In this section, I look at how the infinitival tone pattern applies in short verbs. As said in §3.1, I consider verbs with one, two, three, and four vowels in the macrostem to be short. Let us start with a verb that has four vowels in the macrostem, *oγo[térémeká]* “to be calm”. The fourth vowel, which is the final vowel in the verb, bears a H tone regardless of the non-finality principle. The derivation in (70) shows how the tones are assigned.





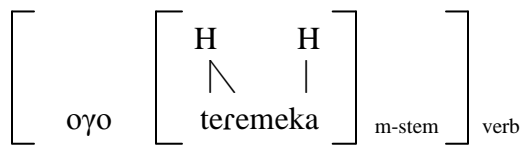
ITAR (IV)



ITAR (I)



Intra-Syllabic H Spread



Doubling



High Tone Spread



L Tone Default rule



Floating Tone Docking



Leftward Spread (optional)



Contour Simplification

oγo[térémeká]

Output

Some speakers produce the output in (70) with a downstep, as *oγo[téré^lméká]* “to be calm”. Others employ free variation between the two forms, *oγo[térémeká]* and *oγo[téré^lméká]*. As seen in §3.2.7.1, the optionality of the Leftward Spread rule helps us to account for this free variation. When Leftward Spread does not apply, the result is

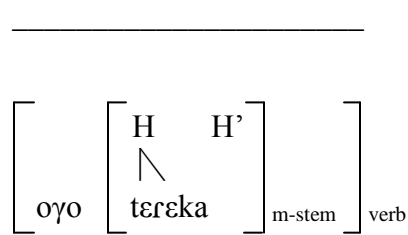
oyo[téremeká], as in (70). When the rule applies, we get the alternative form, *oyo[téré'méká]*.

The Leftward Spread rule is iterative. This means that it can apply repeatedly to all segments in a string which meet the structural description of the rule, as in (71).

- (71) a. /o - ko - karaNɣ - a/ → oyo[ká¹ráángá] “to fry”
 a - im - fry - fv
- b. /o - ko - haɣaaŋ - a/ → uku[há¹ɣááŋá] “to build”
 a - im - build - fv
- c. /o - ko - turuunjan - a/ → uɣu[tú¹ruúnána] “to welcome”
 a - im - welcome - fv

When an infinitive has three vowels in the macrostem, the second primary H tone cannot be assigned because there is no vowel for it to be associated with. The H tone remains floating (see §3.2.6) until the L Tone Default rule has applied. It then links to the final vowel, which has a low tone, resulting in an obligatory downstep. A derivation follows in (72).

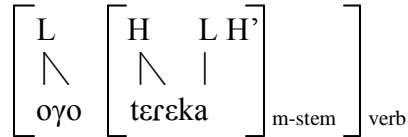
- (72) / o - ko [tɛɾɛk - a] UR: “to brew”
 a - im [brew - fv] m-stem /
- $$\left[\text{oyo} \left[\begin{array}{c} \text{H}' \\ \text{tɛɾɛka} \end{array} \right]_{\text{m-stem}} \right]_{\text{verb}} \quad \text{ITAR (IV)}$$
- $$\left[\text{oyo} \left[\begin{array}{cc} \text{H} & \text{H}' \\ | & \\ \text{tɛɾɛka} & \end{array} \right]_{\text{m-stem}} \right]_{\text{verb}} \quad \text{ITAR (I)}$$



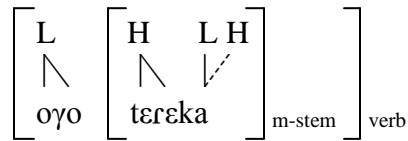
Intra-Syllabic H Spread

Doubling

High Tone Spread

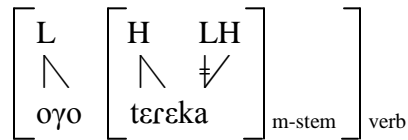


L Tone Default Rule



Floating Tone Docking

Leftward Spread



Contour Simplification



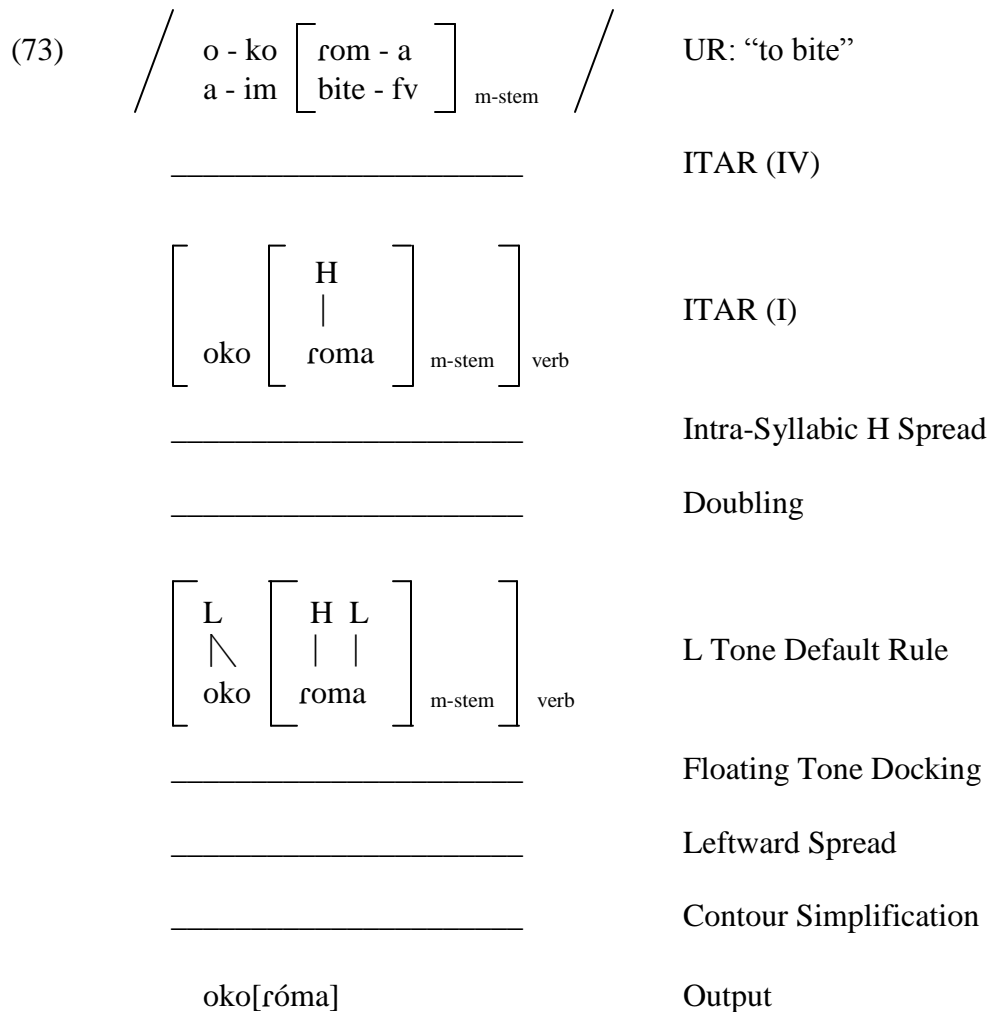
oγo[téré'ká]

Output

The downstep in the output of (72) is obligatory since there are no alternating forms.

When a verb stem has only one or two vowels, a number of rules such as ITAR (1V), Doubling, Floating Tone Docking, and Leftward Spread, do not apply. Doubling does not apply because of the non-finality principle. Floating Tone Docking never takes

place because the floating tone is several steps away from the final vowel to be able to link to it. The fourth vowel H tone is therefore not found in verbs with one or two-vowels in the macrostem. The derivation in (73) shows rules that apply in a verb with a two vowel macrostem.



Next, in (74), is a derivation of a verb with a single vowel on the macrostem.

(74)	$\begin{array}{c} \text{o - ko} \\ \text{a - im} \end{array} \left[\begin{array}{cc} \text{h} & \text{- a} \\ \text{give - fv} & \end{array} \right]_{\text{m-stem}}$	UR: “to give”
	_____	ITAR (IV)
	$\left[\begin{array}{c} \text{oko} \end{array} \left[\begin{array}{c} \text{H} \\ | \\ \text{ha} \end{array} \right]_{\text{m-stem}} \right]_{\text{verb}}$	ITAR (I)
	_____	Intra-Syllabic H Spread
	_____	Doubling Rule
	$\left[\begin{array}{c} \text{L} \\ \diagdown \\ \text{oko} \end{array} \left[\begin{array}{c} \text{H} \\ | \\ \text{ha} \end{array} \right]_{\text{m-stem}} \right]_{\text{verb}}$	L Tone Default Rule
	_____	Floating Tone Docking
	_____	Leftward Spread
	_____	Contour Simplification
	oko[há]	Output

In verbs with one vowel in the macrostem, the ITAR (I) rule associates the first high tone to the single vowel. This does not violate the non-finality principle since a primary H is allowed on the final vowel.

3.3.2 Long Syllables

As shown in §3.2.7.1, a long syllable in the macrostem leads to complexities in the tonal pattern. I will provide a derivation of *oyo[káraaŋgéra]* “to fry for” to illustrate an instance when the Doubling rule is blocked.

(75)	$\begin{array}{c} \text{o - ko} \\ \text{a - im} \end{array} \left[\begin{array}{c} \text{karaN}\gamma \text{ - er - a} \\ \text{fry - ap - fv} \end{array} \right]_{\text{m-stem}}$	UR: “to fry for”
	$\left[\begin{array}{c} \text{oyo} \\ \left[\begin{array}{c} \text{H} \\ | \\ \text{karaaŋgera} \end{array} \right]_{\text{m-stem}} \end{array} \right]_{\text{verb}}$	ITAR (IV)
	$\left[\begin{array}{c} \text{oyo} \\ \left[\begin{array}{cc} \text{H} & \text{H} \\ | & | \\ \text{karaaŋgera} \end{array} \right]_{\text{m-stem}} \end{array} \right]_{\text{verb}}$	ITAR (I)
	_____	Intra-Syllabic H Spread
	_____	Doubling
	_____	High Tone Spread
	$\left[\begin{array}{c} \text{L} \\ \diagdown \\ \text{oyo} \end{array} \left[\begin{array}{cc} \text{H L} & \text{H L} \\ | \diagdown & | | \end{array} \right]_{\text{m-stem}} \right]_{\text{verb}}$	L Tone Default Rule
	_____	Floating Tone Docking
	_____	Leftward Spread
	_____	Contour Simplification
	oyo[káraaŋgéra]	Output

In (75), doubling does not apply because, if it did, it would create a falling tone on the long syllable.

3.4 Object Prefixes

In some Bantu languages the object prefix has special tonal effects on the macrostem. For example, in the Luhya dialects of Lumarachi and Lunyala, an object prefix contributes a high tone to the verb stem (Marlo 2007). In Kuria, the object prefix neither has a high tone itself nor sponsors one. It only serves to increase the length of the macrostem by one syllable, as shown in (76).

(76) Immediate Past Anterior

- | | | |
|--|--------------------|---|
| a. /βa - a - tɛɾɛk - er - e/
sm - t - brew - pf - fv | → βaa[térékéré] | “they have just brewed” |
| b. /βa - a - γa - tɛɾɛk - er - e/
sm - t - om6 - brew - pf - fv | → βaa[γátérékére] | “they have just brewed
it-6” |
| c. /βa - a - γa - mo - tɛɾɛk - er - e/→
sm - t - om6 - om1 - brew - pf - fv | βaa[γámótérékééje] | “they have just brewed
it-6 for him-1” |

In (76a), the verb stem does not have an object prefix. In (76b), one object prefix is introduced. In (76c), there are two object prefixes. In all these examples, the primary H tones are assigned to the first and fourth vowels of the macrostem, before other rules such as doubling and spreading apply, regardless of whether the object prefix is present or not. This clearly shows that the object prefix does not change the tone pattern of the tense.

In the examples that follow (77), the third person singular object prefix is used together with tenses from different tonal melodies. The object prefix just adds to the

length of the verb, even when there are multiple object prefixes in the verb, as in (77e-f).

(77) a. V1 - Habitual Past Focused

/ne - βa - aká - mo - rom - er - e/ → mbaaká[mórómére] “(indeed) they
f - sm - t - om1 - bite - pf - fv used to bite him”

b. V2 - Hodiernal Past Progressive Anterior Focused

/ne - βa - aka - mo - rom - er - e/ → mbaaka[morómére] “(indeed) they
f - sm - t - om1 - bite - pf - fv have been biting him (today)”

c. V3 - Subjunctive

/βa - mo - rom - ε/ → βa[moromé] “that they
sm - om1 - bite - fv (may) bite him”

d. V4 - Immediate Past Anterior (1st and 2nd Person)

/to - a - mo - rom - er - e/ → too[moromeré] “we have just
sm - t - om1 - bite - pf - fv bitten him”

e. V1 & V4 - Immediate Past Anterior (3rd Person)

/βa - a - mo - βa - rom - er - er - e/ → βaa[móβáromééje] “they have just
sm - t - om1 - om2 - bite - ap - pf - f bitten him for them-2”

f. /βa - a - ke - βa - rom - er - er - e/ → βaa[kéβáromóomééje] “they have just
sm - t - om2 - om2 - bite - ap - pf - fv bitten it-7 for them-2”

When, however, the first person singular object prefix, /ne-/, is used in a verb, the resulting tonal pattern differs from those with the other object prefixes. Verbs with the first singular object prefix have similar tonal patterns to those of the vowel-initial verbs. I will discuss these patterns in §3.6.

3.5 Clitics

Kuria has three clitic morphemes which express the location or direction of an event or action (see §2.3.5). These are:

- (78) a. /hɔ/ “there”
 b. /kɔ/ “on, at”
 c. /mɔ/ “in, inside, in there”

The last two, (78b-c), are noun class prefixes for classes 17, and 18 respectively, while (78a) is a pronominal form for class 16, which has one noun, *ahase* “place”. These locatives cannot stand on their own as complete words. Phonologically, they have the capacity to attach to other words either as prefixes or suffixes, and syntactically, they can combine with words from different lexical categories. When these clitics are added to tensed verbs they do not change the tonal pattern, they just serve to increase the length of the word.

(79) Hodiernal Past Progressive Anterior Focused

- a. m-ba-aka-[βiím-ír-e] “(indeed) they have been measuring (today)”
 b. m-ba-aka-[βiím-ír-é-hɔ] “(indeed) they have been measuring there (today)”
 c. m-ba-aka-[βiím-ír-é-kɔ] “(indeed) they have been measuring on (it) (today)”
 d. m-ba-aka-[βiím-ír-é-mɔ] “(indeed) they have been measuring in there (today)”

The verbs in (79b-d) have locative clitics, *hɔ*, *kɔ*, and *mɔ*. They therefore have information about “place” which is not found in (79a). The places referred to by the clitics in (79b-d) must have been previously mentioned in the discourse. These clitics are therefore anaphoric.

The examples in (80), taken from the Immediate Past Anterior, illustrate that it is possible for a high tone to be assigned to the clitic in shorter verb macrostems.

- (80) a. /βa - a - rom - er - e hɔ/ → βaa[rómérehó] “they have just bitten there”
 sm - t - bite - pf - fv loc16

- b. /βa - a - rom - er - e kə/ → βaa[rómérékó] “they have just bitten on (it)”
 sm - t - bite - pf - fv loc17
- c. /βa - a - rom - er - e mə/ → βaa[róméremó] “they have just bitten in
 sm - t - bite - pf - fv loc18 there”

3.6 Vowel Initial Verbs

Up to this point, we have only interacted with consonant-initial verbs. In this section, I analyze tonal patterns in vowel-initial verbs. A comparison of the tonal patterns found in consonant-initial verbs with those of vowel-initial verbs shows that the vowel-initial verbs exhibit an unusual pattern of tone marking. This difference is observed in eight out of the twenty-two affirmative tenses under study (see Table 3.3). A few generalizations about these eight tenses are in order here. First, the consonant-initial verbs of the these eight tenses have a high tone on the first vowel of the stem. Second, the vowel-initial verbs that appear to have an unusual tone pattern have a long vowel just before the macrostem, this being a product of a tense marker with a long vowel or two vowels contributed by a subject marker and a tense marker. Third, the first vowel of the macrostem in the vowel-initial verbs does not bear a high tone. An exception to these generalizations is the Hortatory Imperative (1). In this tense, the change in the tonal pattern is realized by the H tone on the tense marker spreading to the first vowel in the macrostem. These can be seen at a glance in Table 3.4 below.

Table 3.4: Tonal Patterns in Consonant Initial vs Vowel Initial Verbs

	<i>Tense</i>	<i>Consonant Initial Verbs</i>	<i>Vowel Initial Verbs</i>
	<i>Changes in Tone Assignment</i>	<i>[karaŋga]</i> “fry”	<i>[iyóómba]</i> “desire”
1.	Immediate Past Anterior (Third Person) (First and Second Person)	βaa[káraangére] H on V1 and V4 oo[karaangére] H on V4	βa[iyóómbére] H on V2 and V4 wi[iyoombére] H on V4
2.	Hodiernal Future Uncertain Possibility	βayaa[káraangá] H on V1 and V4	βaka[iyóómbá] H on V2 and V4
3.	Remote Future	βaree[káraangá] H on V1 and V4	βari[iyóómbá] H on V2 and V4
4.	Untimed Past Anterior Focused	mbaa[karáángga] H on V1	mba[iyóómba] H on V2
5.	Remote Past Focused	mbaa[karáángére] H on V1	mba[iyóómbére] H on V2
6.	Untimed Past Anterior Condition Focused	mbayaa[karáángére] H on V1	mbaka[iyóómbére] H on V2
7.	Untimed Ability Focused	mbayaa[karáángga] H on V1	mbaka[iyóómba] H on V2
8.	Hortatory Imperative (1)	βatá[karaangà] No H	βatá[iyóómbà] H on V1
	<i>No Changes in Tone Assignment</i>		
9.	Narrative Past	βayá[káraangá] H on V1 and V4	βaká[iyóómbá] H on V1 and V4
10.	Hortatory Imperative (3) (Third Person) (First and Second Person)	βara[káraangá] H on V1 and V4 tora[karaangá] H on V4	βara[iyóómbá] H on V1 and V4 tora[iyóómbá] H on V4
11.	Habitual Past Focused	mbaayá[karáángére] H on V1	mbaaká[iyóómbére] H on V1
12.	Immediate Future Focused	mbaraá[karáángé] H on V1	mbara[iyóómbé] H on V1
13.	Untimed Present	βa[karáángga] H on V1	βa[iyóómba] H on V1

	<i>Tense</i>	<i>Consonant Initial Verbs</i>	<i>Vowel Initial Verbs</i>
14.	Hortatory Imperative (2)	ta[káraaŋgà] H on V1	ta[iyóómba] H on V1
15.	Hodiernal Past Progressive Anterior Focused	mbaaya[karááŋgére] H on V2	mbaaka[iyóómbére] H on V2
16.	Subjunctive	βa[karaáŋge] H on V3	βa[iyóómbɛ] H on V3
17.	Hodiernal Past Anterior Focused	mba[karaáŋgére] H on V3	mba[iyóómbére] H on V3
18.	Untimed Past Anterior	βaa[karaáŋga] H on V3	βa[iyóómba] H on V3
19.	Remote Future Focused	mbare[karaáŋga] H on V3	mbari[iyóómba] H on V3
20.	Current Present Persistive Focused	mbaye[karaáŋgére] H on V3	mbaki[iyoómbére] H on V3
21.	Untimed Real Uncertain Condition Focused	mba[karaáŋga] H on V3	mba[iyóómba] H on V3
22.	Mandatory Imperative	[karaáŋga] H on V3	[iyóómba] H on V3

The other tenses (9 – 22) in Table 3.4, have uniform surface tone patterns in both the consonant-initial verbs and the vowel-initial verbs. Three reasons can be given: some of these tenses assign H tone to the second, third, or fourth vowel of the macrostem, rather than to the first vowel; some tenses have a short vowel preceding the macrostem; and lastly, other tenses have a high tone on the tense prefix. This high tone tends to spread to the first vowel of the macrostem so as to avoid a falling contour.

The vowel-initial verbs have a stem that starts with an onsetless syllable. This section investigates the interaction between onsetless syllables and tone assignment in vowel-initial verbs. Studies have shown that there is a general dispreference for onsetless syllables in languages (Hyman and Katamba 1999; Odden 2006); optimal syllables have

onsets. This tends to limit the distribution of onsetless syllables mostly to word or phrase-initial positions. Such syllables tend to have exceptional prosody since they are often ignored in prosodic processes which refer to reduplication, stress assignment, and tone association (Odden 1995, 2006; Downing 1997, 1998). I will pursue the argument that onsetless syllables are not totally ignored for tone association in Kuria; they are counted when assigning tone but are not allowed to carry H tones. Downing (1997, 1998), working in an Optimality Theory approach, claims that what actually takes place is a misalignment between the prosodic and morphological constituents.

To account for the differences observed in Table 3.4 between consonant-initial and vowel-initial verbs in eight tenses, I will assume that the vowel-initial verbs follow similar tonal rules as the consonant-initial verbs and proceed to show why the tonal patterns in the vowel-initial verbs seem to be different. My description will be in three parts, as shown in (81).

(81) Tenses with adjusted macrostems in vowel-initial verbs

- a. Verbs with H on V2
 - Untimed Past Anterior Focused
 - Remote Past Focused
 - Untimed Past Anterior Condition
 - Untimed Ability Focused
- b. Verbs with H on V2 and V4
 - Immediate Past Anterior (3rd person)
 - Hodiernal Future Uncertain Possibility
 - Remote Future
- c. Verbs with H on V1
 - Hortatory Imperative (1)

3.6.1 Vowel Initial Verbs with H on V2

I will start the discussion with the simpler pattern first, that is, tenses with only one primary H tone. In the Untimed Past Anterior Focused, Remote Past Focused, Untimed Past Anterior Condition, and the Untimed Ability Focused tenses, the consonant-initial verbs have primary H tones on the first vowel of the macrostem but the vowel-initial verbs have a primary H tone on the second vowel of the macrostem. This can be seen in the examples in (82) and (83) which are drawn from the Remote Past Focused tense.

(82) Consonant Initial Verbs

- | | | | |
|---|---|-----------------|---------------------------------|
| a. /ne - βa - a - h - er - e/
f - sm - t - give - pf - fv | → | mbaa[háájé] | “(indeed) they gave (then)” |
| b. /ne - βa - a - rom - er - e/
f - sm - t - bite - pf - fv | → | mbaa[rómére] | “(indeed) they bit (then)” |
| c. /ne - βa - a - saNβ - er - e/
f - sm - t - burn - pf - fv | → | mbaa[sáámbére] | “(indeed) they burnt (then)” |
| d. /ne - βa - a - turuunjan - er - e/
f - sm - t - welcome - pf - fv | → | mbaa[túúújáíni] | “(indeed) they welcomed (then)” |

(83) Vowel Initial Verbs

- | | | | |
|--|---|----------------|--------------------------------|
| a. /ne - βa - a - ay - er - e/
f - sm - t - weed - pf - fv | → | mba[ayére] | “(indeed) they weeded (then)” |
| b. /ne - βa - a - iyor - er - e/
f - sm - t - open - pf - fv | → | mba[iyóóje] | “(indeed) they opened (then)” |
| c. /ne - βa - a - ɔβɔh - er - e/
f - sm - t - fear - pf - fv | → | mbo[oβóhére] | “(indeed) they feared (then)” |
| d. /ne - βa - a - iyɔNβ - er - e/
f - sm - t - desire - pf - fv | → | mba[iyóómbére] | “(indeed) they desired (then)” |

e. /ne - βa - a - araafan - er - e/ → mba[aráátǎíni] “(indeed) they folded
 f - sm - t - fold - pf - fv (then)”

A look at the data in (82) and (83), in terms of tone assignment, shows that V2 of the vowel-initial verb stem is equal to V1 of the consonant-initial stem. The first tone in the vowel-initial verbs is not aligned with the first vowel in the macrostem. In other words, the root-initial vowel does not count as the initial vowel of the macrostem. I argue that the vowel-initial verbs present us with a case of opacity and careful rule ordering can show how the surface forms are derived. To understand what is happening, I will derive *mbo[obóhére]* “(indeed) they feared” step by step. I start by giving its underlying representation in (84).

(84) /ne - βa - a - $\left[\begin{array}{l} \text{ɔβɔh - er - e} \\ \text{fear - pf - fv} \end{array} \right]_{\text{m-stem}} / \quad \text{UR: “(indeed) they feared (then)”}$

The underlying form in (84) shows that there is a vowel hiatus involving a vowel from the subject prefix, a vowel from the tense prefix, and the stem initial vowel. These are three consecutive vowels. The phonotactics of this language does not allow such a vocalic sequence, so one of the vowels is deleted.

(85) /ne - βa - a - ɔβɔh - er - e/ → mbaɔβɔhere
 $V_1 V_2 V_3 \rightarrow V_2 V_3 \text{ or } V_1 V_3$

The illustration in (85) shows that it is the first or second vowel that is deleted, not the third (macrostem initial vowel). But how do we know that it is the prefixal vowel and not the stem initial vowel that is deleted? Evidence for this can be found in the form

[iγɔ́mba] “desire” which retains the front high vowel /i/, the first vowel on the macrostem, after elision has occurred (86).

$$\begin{array}{ll} (86) \text{ /ne - } \beta\text{a - a - i}\gamma\text{ɔN}\beta\text{ - er - e/} & \rightarrow \text{mbai}\gamma\text{ɔmbere} \\ \text{V}_1 \text{ V}_2 \text{ V}_3 & \rightarrow \text{V}_2 \text{ V}_3 \text{ or V}_1 \text{ V}_3 \end{array}$$

The other segmental process that takes place is vowel assimilation. The stem vowels /ɔ...ɔ/ change to [o...o] due to vowel height assimilation triggered by the vowel of the perfective suffix /-er/, and the /a-/ of the tense prefix assimilates to this [o], yielding [oo].

$$(87) \text{ mba}\alpha\text{ɔ}\beta\text{ohere} \rightarrow \text{mbo}\alpha\text{ɔ}\beta\text{ohere}^{10}$$

After these segmental rules have applied, a macrostem adjustment takes place. The macrostem adjustment rule is given in (88).

(88) Macrostem Adjustment Rule II

$$\left[\begin{array}{c} \text{VC} \\ \text{m-stem} \end{array} \right] \rightarrow \text{V} \left[\begin{array}{c} \text{C} \\ \text{m-stem} \end{array} \right] \text{ in } \left\{ \begin{array}{l} [+Untimed \text{ Past Anterior Focused}] \\ [+Remote \text{ Past Focused}] \\ [+Untimed \text{ Past Anterior Condition Focused}] \\ [+Untimed \text{ Ability Focused}] \\ [+Immediate \text{ Past Anterior}] \\ [- \text{ me, - you}] \\ [+Hodiernal \text{ Future Uncertain Possibility}] \\ [+Remote \text{ Future}] \end{array} \right\}$$

“In the tenses stated, move the onsetless stem-initial vowel outside the macrostem”.

¹⁰ The $\alpha\text{ɔ} \rightarrow \alpha\text{o}$ change results from vowel harmony triggered by the perfective suffix -er.

The left bracket of the macrostem moves one position to the right so that the macrostem starts with a syllable that has an onset. This is motivated by two factors; first, the deletion of one of the prefixal vowels in (86) interfered with the morpheme boundaries and second, an effort to exclude the onsetless syllable in prosodic processes. Notice that the motivation for macrostem adjustment in (15) and in (89) is different in that (15) incorporates a syllable to its macrostem whereas (89) shifts the stem boundary to exclude an onsetless syllable from the macrostem.

(89) Macrostem Adjustment II

$$\text{mbo}[\text{o}\beta\text{ohere}]_{\text{m-stem}} \rightarrow \text{mboo}[\beta\text{ohere}]_{\text{m-stem}}$$

The adjustment of the macrostem squarely puts the onsetless vowel outside the macrostem; it becomes part of the prefix. Next, a melodic tone is associated with the first vowel in the new macrostem using the ITAR (I) rule, as in (90).

$$(90) \left[\text{mboo} \left[\begin{array}{c} \text{H} \\ | \\ \beta\text{ohere} \end{array} \right]_{\text{m-stem}} \right]_{\text{verb}} \quad \text{ITAR (I)}$$

After linking a H tone to the first vowel, other tonal rules apply. In this example, the High Tone Spread rule spreads the H tone to the penult.

$$(91) \left[\text{mboo} \left[\begin{array}{c} \text{H} \\ | \quad \diagdown \\ \beta\text{ohere} \end{array} \right]_{\text{m-stem}} \right]_{\text{verb}} \quad \text{High Tone Spread}$$

L Tone Default applies last, giving all the toneless vowels low tones.

(92)	$\left[\begin{array}{c} \text{L} \\ \diagdown \\ \text{mboo} \end{array} \left[\begin{array}{cc} \text{H} & \text{L} \\ \diagdown & | \\ \beta\text{ohere} \end{array} \right] \right]_{\text{m-stem}} \text{verb}$	L Tone Default
	mboo[βóhére]	Output

A derivation of *mba[iγóómbére]* “(indeed) they desired (then)”, from the Remote Past Focused, is given in (93). Notice the interplay between segmental and tonal rules.

(93)	$\left/ \begin{array}{l} \text{ne} - \beta\text{a} - \text{a} \\ \text{f} - \text{sm} - \text{t} \end{array} \right[\begin{array}{l} \text{i}\gamma\text{ɔN}\beta - \text{er} - \text{e} \\ \text{desire} - \text{pf} - \text{fv} \end{array} \right]_{\text{m-stem}} \left/ \right.$	UR: “(indeed) they desired (then)”
------	--	------------------------------------

/ne - βa - a - iγɔNβ - er - e/	→ mbaiγɔɔmbere	Vowel Elision (and compensatory lengthening before prenasal /mb/)
V ₁ V ₂ V ₃	→ V ₂ V ₃ or V ₁ V ₃	

mbaiγɔɔmbere	→ mbaiγoombere	Vowel Assimilation
--------------	----------------	--------------------

$\left[\text{mbai} \left[\gamma\text{oombere} \right]_{\text{m-stem}} \right]_{\text{verb}}$	Macrostem Adjustment II
--	-------------------------

$\left[\text{mbai} \left[\begin{array}{c} \text{H} \\ | \\ \gamma\text{oombere} \end{array} \right]_{\text{m-stem}} \right]_{\text{verb}}$	ITAR (I)
--	----------

_____ Intra-Syllabic H Spread

_____ Doubling

$\left[\text{mbai} \left[\begin{array}{c} \text{H} \\ \diagup \quad \diagdown \\ \gamma\text{oombere} \end{array} \right]_{\text{m-stem}} \right]_{\text{verb}}$	High Tone Spread
--	------------------

_____	Floating Tone Docking
_____	Leftward Spread
_____	Contour Simplification
mbai[γóómbére]	Output

The rules are ordered such that vowel elision precedes the macrostem adjustment. The application of vowel elision interferes with the morpheme boundaries. The macrostem adjustment rule also precedes the ITAR (I) rule. After the primary high tone has been assigned it spreads to the penult. The result is a misalignment in association between the vowels in the macrostem and the tones in the tonal tier.

3.6.2 Vowel Initial Verbs with H on V2 and V4

I now discuss more complex examples, that is, tenses that assign two primary H tones on the macrostem. The examples in (94) and (95), drawn from the Immediate Past Anterior (third person), illustrate the tone patterns in consonant-initial verbs and vowel-initial verbs respectively. While the consonant-initial verbs have primary H tones on the first and fourth vowels of the macrostem (94), this is not true of the vowel-initial verbs since their first vowel has no H tone and it is outside the macrostem (95).

(94) Consonant Initial Verbs

- | | | | |
|---|---|---------------------------|-------------------------|
| a. /βa - a - h - er - e/
sm - t - give - pf - fv | → | βaa[háájé] | “they have just given” |
| b. /βa - a - rom - er - e/
sm - t - bite - pf - fv | → | βaa[rómé ¹ ré] | “they have just bitten” |

c. /βa - a - karaNɣ - er - e/ → βaa[káraaŋgére] “they have just fried”
 sm - t - fry - pf - fv

d. /βa - a - βereker - er - e/ → βaa[βérékééje] “they have just called”
 sm - t - call - pf - fv

(95) Vowel Initial Verbs

a. /βa - a - aɣ - er - e/ → βaa[γéré] “they have just weede”
 sm - t - weed - pf - fv

b. /βa - a - ɔβɔh - er - e/ → βoo[βóhééré] “they have just feared”
 sm - t - fear - pf - fv

c. /βa - a - iɣɔNβ - er - e/ → βai[γóómbére] “they have just admired”
 sm - t - admire - pf - fv

d. /βa - a - aneker - er - e/ → βaa[nékééje] “they have just laid out”
 sm - t - lay out - pf - fv

The analysis presented in §3.6.1 also holds for §3.6.2. The major differences are that in the latter, ITAR (I) and ITAR (IV) are needed to assign primary high tones to the first and fourth vowels of the macrostem respectively, and other tonal rules like Intra-Syllabic H Spread and Doubling apply when their structural conditions are met. To understand what is happening, I will derive (95d) βaa[nékééje] “they have just laid out” step by step. I start by giving its underlying representation (96).

(96) /βa - a [aneker - er - e] UR: “they have just laid out”
 sm - t [lay out - pf - fv]_{m-stem}

The underlying form in (96) shows that there is a vowel hiatus involving a vowel from the subject prefix, a vowel from the tense prefix, and the macrostem initial vowel. These are three consecutive vowels. The phonotactics of this language does not allow such a

vocalic sequence, so one of the vowels is deleted and the remaining two are fused into a long vowel.

$$(97) \begin{array}{ccc} \beta a - a - aneker - er - e/ & \rightarrow & \beta aanekeeje \\ V_1 V_2 V_3 & \rightarrow & V_2 V_3 \text{ or } V_1 V_3 \end{array} \quad \begin{array}{c} \text{Vowel Elision (and} \\ \text{imbrication)} \end{array}$$

From (85), we know that it is the first or second vowel that is deleted, not the third (stem initial vowel).

After these segmental rules have applied, the ITAR rules follow. If ITAR (I) is ranked before ITAR (IV), the Microstem Adjustment rule will place the onsetless vowel with a high tone outside the macrostem and we will need an extra rule to shift the high tone back to the macrostem. To avoid that, I will order ITAR (IV) before Macrostem Adjustment and the latter before ITAR (I). Starting with ITAR (IV), a primary high tone is associated with the fourth vowel of the macrostem, as in (98). The initial vowel in the macrostem counts in determining V4 but not V1.

$$(98) \quad \left[\beta a \quad \left[\begin{array}{c} H \\ | \\ anekeeje \end{array} \right] \quad m\text{-stem} \right] \text{verb} \quad \text{ITAR (IV)}$$

This is followed by macrostem adjustment. The left bracket of the macrostem moves to the right so that the macrostem starts with a syllable which has an onset.

$$(99) \quad \left[\beta a \quad \left[\begin{array}{c} H \\ | \\ anekeeje \end{array} \right] \quad m\text{-stem} \right] \text{verb} \rightarrow \left[\beta aa \quad \left[\begin{array}{c} H \\ | \\ nekeeje \end{array} \right] \quad m\text{-stem} \right] \text{verb}$$

The adjustment of the macrostem squarely puts the onsetless macrostem-initial vowel in

the prefix. Next, ITAR (I) is used to assign a high tone to the first vowel of the new macrostem.

$$(100) \left[\begin{array}{c} \beta aa \end{array} \left[\begin{array}{cc} H & H \\ | & | \\ ne & keeje \end{array} \right] \begin{array}{c} m\text{-stem} \end{array} \right] \begin{array}{c} verb \end{array} \quad \text{ITAR (I)}$$

After associating the first primary H tone to the macrostem, other tonal rules apply. In this example, predoubling does not apply but the doubling rule spreads the first H tone to the next vowel.

$$(101) \left[\begin{array}{c} \beta aa \end{array} \left[\begin{array}{cc} H & H \\ \diagdown & | \\ ne & keeje \end{array} \right] \begin{array}{c} m\text{-stem} \end{array} \right] \begin{array}{c} verb \end{array} \quad \text{Doubling}$$

High Tone Spreading does not apply to the second primary H because of nonfinality. L Tone Default applies last, assigning low tones to all the toneless vowels.

$$(102) \left[\begin{array}{c} L \\ \diagdown \\ \beta aa \end{array} \left[\begin{array}{cc} H & L \\ \diagdown & | \\ ne & keeje \end{array} \right] \begin{array}{c} m\text{-stem} \end{array} \right] \begin{array}{c} verb \end{array} \quad \text{L Tone Default}$$

$\beta aa[n\acute{e}k\acute{e}je]$

Output

For further illustration, a complete analysis of (74b) $\beta o[o\beta\acute{o}h\acute{e}r\acute{e}]$ “they have just feared” is given in (103).

(103) / $\beta a - a - \begin{bmatrix} \text{ɔ}\beta\text{ɔh} - \text{er} - \text{e} \\ \text{fear} - \text{pf} - \text{fv} \end{bmatrix}_{\text{m-stem}}$ / UR: “they have just feared”

$\beta a - a - \text{ɔ}\beta\text{ɔh} - \text{er} - \text{e} \rightarrow \beta a\text{ɔ}\beta\text{ɔhere}$ Vowel Elision
 $V_1 V_2 V_3 \rightarrow V_1 V_3 \text{ or } V_2 V_3$

$\beta a\text{ɔ}\beta\text{ɔhere} \rightarrow \beta oo\beta\text{ɔhere}$ Vowel Assimilation

$\begin{bmatrix} \beta o \end{bmatrix} \begin{bmatrix} \begin{bmatrix} \text{H} \\ | \\ \text{o}\beta\text{ɔhere} \end{bmatrix} \\ \text{m-stem} \end{bmatrix} \text{verb}$

ITAR (IV)

$\begin{bmatrix} \beta oo \end{bmatrix} \begin{bmatrix} \begin{bmatrix} \text{H} \\ | \\ \beta\text{ɔhere} \end{bmatrix} \\ \text{m-stem} \end{bmatrix} \text{verb}$

Macrostem Adjustment

$\begin{bmatrix} \beta oo \end{bmatrix} \begin{bmatrix} \begin{bmatrix} \text{H} & \text{H} \\ | & | \\ \beta\text{ɔhere} \end{bmatrix} \\ \text{m-stem} \end{bmatrix} \text{verb}$

ITAR (I)

Intra-Syllabic H Spread

$\begin{bmatrix} \beta oo \end{bmatrix} \begin{bmatrix} \begin{bmatrix} \text{H} & \text{H} \\ \diagdown & | \\ \beta\text{ɔhere} \end{bmatrix} \\ \text{m-stem} \end{bmatrix} \text{verb}$

Doubling

High Tone Spread

$\begin{bmatrix} \text{L} \\ \diagdown \\ \beta oo \end{bmatrix} \begin{bmatrix} \begin{bmatrix} \text{H} & \text{H} \\ \diagdown & | \\ \beta\text{ɔhere} \end{bmatrix} \\ \text{m-stem} \end{bmatrix} \text{verb}$

L Tone Default

Floating Tone Docking

Leftward Spread

Contour Simplification

$\beta oo[\beta\acute{o}h\acute{e}r\acute{e}]$

Output

The discussion in §3.6.1 and §3.6.2 shows that although the first vowel of the vowel-initial verbs in Kuria does not carry H tone, it is always counted when tone is being assigned, just as in the consonant-initial verbs. This state of affairs has also been attested in Lumarachi (Marlo 2007).

3.6.3 Vowel Initial Verbs with H on V1

Consonant-initial verbs in the Hortatory Imperative (1) have no H tone in the macrostem but their tense prefix has a lexical H (see (104)). The vowel-initial verbs have a high tone on the first vowel of the stem (see (105)) which is a result of Intra-Syllabic H Spread.

(104) Consonant Initial Verbs

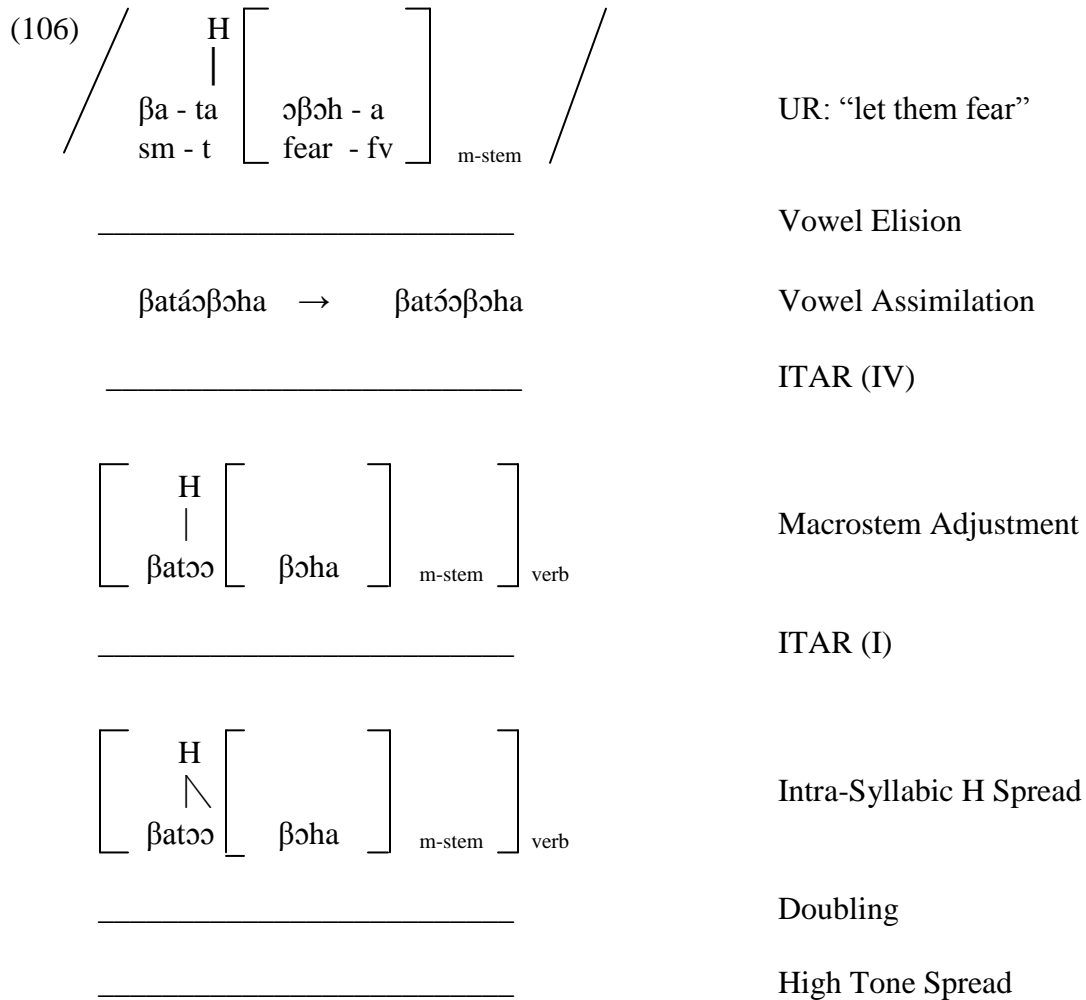
- | | | | |
|--|---|----------------|-----------------|
| a. /βa - tá - rom - a/
sm - t - bite - fv | → | βatá[roma] | “Let them bite” |
| b. /βa - tá - saNβ - a/
sm - t - burn - fv | → | βatá[saambà] | “Let them burn” |
| c. /βa - tá - karaNγ - a/
sm - t - fry - fv | → | βatá[karaangà] | “Let them fry” |
| d. /βa - tá - βereker - a/
sm - t - call - fv | → | βatá[βerekerà] | “Let them call” |

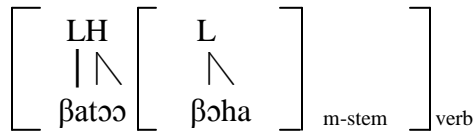
(105) Vowel Initial Verbs

- | | | | |
|--|---|---------------|-------------------|
| a. /βa - tá - iγor - a/
sm - t - open - fv | → | βatáí[γorà] | “Let them open” |
| b. /βa - tá - ɔβɔh - a/
sm - t - fear - fv | → | βatáí[βɔhà] | “Let them fear” |
| c. /βa - tá - iγɔNβ - a/
sm - t - admire - fv | → | βatáí[γɔɔmbà] | “Let them admire” |

d. /βa - tá - aneker - a/ → βatáá[nekerà] “Let them lay out”
 sm - t - lay out - fv

The vowel-initial verbs in (105) behave differently from those in §3.6.1 and §3.6.2. There is no vowel hiatus in (105). The two consecutive vowels, in bold, one from the tense prefix /tá-/ and the other being the initial vowel of the verb stem, either come together to form a diphthong (105a,c) or coalesce into a long vowel (105b,d). This means that vowel elision does not apply. A derivation of *batóó*[βóhà] “let them fear” follows in (106).





L Tone Default

Floating Tone Docking

Leftward Spread

Contour Simplification

Output

$\beta a t \omega \omega [\beta \omega h \grave{a}]$

3.6.4 Vowel Initial Verbs with Object Prefix

When an object prefix is added to a vowel-initial verb stem, it makes the stem consonant-initial. Compare the vowel-initial verbs in (105) with the same verbs with object prefixes in (107).

(107) Vowel initial verbs with object prefix

- a. $\beta a - t \acute{a} - \gamma a - i \gamma \omega r - a /$ → $\beta a t \acute{a} [\gamma a i \gamma \omega r \grave{a}]$ “Let them open them-6”
 sm - t - om6 - open - fv
- b. $\beta a - t \acute{a} - \gamma a - \omega \beta \omega h - a /$ → $\beta - t \acute{a} [\gamma \omega \omega \beta \omega h \grave{a}]$ “Let them fear them-6”
 sm - t - om6 - fear - fv
- c. $\beta a - t \acute{a} - \gamma a - i \gamma \omega N \beta - a /$ → $\beta a t \acute{a} [\gamma a i \gamma \omega \omega m b \grave{a}]$ “Let them admire them-6”
 sm - t - om6 - admire - fv
- d. $\beta a - t \acute{a} - \gamma a - a n e k e r - a /$ → $\beta a t \acute{a} [\gamma a a n e k e r \grave{a}]$ “Let them lay them-6 out”
 sm - t - om6 - lay out - fv

Notice that the H tone that was on the first vowel of the macrostem in (105) disappears when the object prefix is used in (107). I will derive the verb $\beta a t \acute{a} [\gamma a i \gamma \omega r \grave{a}]$ “Let them-2 open them-6” to show the rules that apply to produce such an output.

<p>(108)</p> <div style="display: flex; align-items: center; justify-content: center;"> <div style="text-align: center; margin-right: 10px;"> $\beta a - ta$ $sm - t$ </div> <div style="text-align: center; margin-right: 10px;"> H $$ </div> <div style="border: 1px solid black; padding: 5px; display: inline-block;"> $\gamma a - i\gamma or - a$ $om - open - fv$ </div> <div style="margin-left: 10px;"> $m-stem$ </div> </div>	<p>UR: “let them-2 open them-6”</p>
<hr/>	<p>ITAR</p>
<hr/>	<p>Intra-Syllabic H Spread</p>
<hr/>	<p>Doubling</p>
<hr/>	<p>High Tone Spread</p>
<div style="display: flex; align-items: center; justify-content: center;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;"> LH$$ $$| | βata </div> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;"> L \swarrow \swarrow \swarrow $\gamma ai\gamma ora$ </div> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;"> $m-stem$ </div> <div> $verb$ </div> </div>	<p>L Tone Default</p>
<hr/>	<p>Floating Tone Docking</p>
<hr/>	<p>Leftward Spread</p>
<hr/>	<p>Contuor Simplification</p>
<p>$\beta at\acute{a}[\gamma ai\gamma or\grave{a}]$</p>	<p>Output</p>

This tense, the Hortatory Imperative (1), does not have a high tone on the macrostem. The only rule that applies to a verb form in such a tense, as shown in (108) above, is the L Tone Default.

3.6.5 Consonant Initial Verbs with Reflexive

When a reflexive is added to any consonant-initial verb, it makes that verb vowel-initial. If the consonant-initial verb has a melodic V2, V3, or V4, the addition of the reflexive will have the same tonal effects as if any other object prefix was added, as

the examples in (109) show.

(109) V2 – Hodiernal Past Progressive Anterior Focused

- a. /ne - βa - aka - mo - βiim - er - e/ → mbaaka[muβíímíre] “(indeed) they
f - sm - t - om1 - measure - pf - fv have been measuring him (today)”
- b. /ne - βa - aka - i - βiim - er - e/ → mbaaka[iβíímíre] “(indeed) they
f - sm - t - rf - measure - pf - fv have been measuring themselves (today)”

V3 – Subjunctive

- c. /βa - mo - βiim - ε/ → βa[muβíímε] “that they (may)
sm - om1 - measure - fv measure him”
- d. /βa - i - βiim - ε/ → βa[iβíímε] “that they (may)
sm - rf - measure - fv measure themselves”

V4 – Immediate Past Anterior (2nd Person)

- e. /to - a - mo - βiim - er - e/ → tuu[muβíímíre] “we have just
sm - t - om1 - measure - pf - fv measured him”
- f. /to - a - i - βiim - er - e/ → twi[iβíímíre] “we have just
sm - t - rf - measure - pf - fv measured ourselves”

But when a reflexive is added to a melodic V1 tense, such as the Hodiernal Future Uncertain Possibility (110), the verb exhibits an opaque surface pattern. As we discussed in §3.6.1 and §3.6.2, the onsetless syllable in the vowel-initial verbs does not carry a high tone.

- (110) a. /βa - kaa - i - rom - a/ → βakai[rómá] “perhaps they will bite
sm - t - rf - bite - fv themselves (today)”
- b. /βa - kaa - i - saNβ - a/ → βakai[sáámbá] “perhaps they will burn
sm - t - rf - burn - fv themselves (today)”
- c. /βa - kaa - i - heetok - a/ → βakai[héétóka] “perhaps they will remember
sm - t - rf - remember - fv themselves (today)”

The tone patterns in consonant-initial verbs with the reflexive are identical to those of the vowel-initial verbs discussed in §3.6.1 and §3.6.2 above.

The use of the reflexive, in any one of the first eight tenses in Table 3.4, produces tone patterns that are different than when the other object prefixes are used. The examples in (111), from the Immediate Past Anterior, are used to compare the tone patterns of verbs without an object prefix (111a), with a reflexive (111b), and with other object prefixes (111c-f).

(111) Immediate Past Anterior

- | | | | |
|---|---|-----------------|--|
| a. /βa - a - saNβ - er - e/
sm - t - burn - pf - fv | → | βaa[sáámbéré] | “they have just burnt” |
| b. /βa - a - i - saNβ - er - e/
sm - t - rf - burn - pf - fv | → | βai[sáámbére] | “they have just burnt themselves” |
| c. /βa - a - γo - saNβ - er - e/
sm - t - om1 - burn - pf - fv | → | βaa[γósaambére] | “they have just burnt you-1” |
| d. /βa - a - mo - saNβ - er - e/
sm - t - om1 - burn - pf - fv | → | βaa[mósaambére] | “they have just burnt him-1” |
| e. /βa - a - to - saNβ - er - e/
sm - t - om2 - burn - pf - fv | → | βaa[tósaambére] | “they have just burnt us-2” |
| f. /βa - a - βa - saNβ - er - e/
sm - t - om2 - burn - pf - fv | → | βaa[βásaambére] | “they have just burnt you (pl) / them-2” |

The verb without an object prefix (111a) has H tones on V1, V2, V3, and V4. The one with a reflexive (111b) has H tones in V1, V2, and V3. The verbs with object prefixes (111c-f) have H tones on V1 and V4. Notice that in (111b) the stem-initial vowel is outside the macrostem and does not receive a high tone. Verbs with a reflexive behave

like other vowel-initial verbs.

3.6.6 First Person Singular Object Prefix

When the first person singular object prefix is used in a verb, it produces tonal patterns identical to the ones seen in vowel-initial verbs. The examples in (112a) and (112c) have first person singular object prefix but those in (112b) and (112d) have second person plural object prefix. A comparison of (112a) with (112b), and (112c) with (112d) reveals that the tonal patterns are different for each pair.

(112) Immediate past Anterior

- a. /βa - a - ne - rom - er - e/ → βaa[ndóméré] “they have just bitten me-1”
sm - t - om1 - bite - pf - fv
- b. /βa - a - to - rom - er - e/ → βaa[tórómeré] “they have just bitten us-2”
sm - t - om2 - bite - pf - fv
- c. /βa - a - ne - βereker - er - e/ → βaa[mbérékééje] “they have just called me-1”
sm - t - om1 - call - pf - fv
- d. /βa - a - to - βereker - er - e/ → βaa[tóβérékééje] “they have just called us-2”
sm - t - om2 - call - pf - fv

I will proceed to explain what takes place in verbs with first singular object prefix. First, I start with the segmental process involved. I will use the verb *βaa[ndóméré]* “they have just bitten me-1” Its underlying representation is given in (113).

(113) / βa - a [ne - rom - er - e] / UR: “they have just bitten me”
sm - t [om1 - bite - pf - fv] m-stem

Next, there is a deletion of the vowel in the first person singular object prefix so that the product is a nasal next to the tap¹¹.

(114) $\beta\text{aaneromere} \rightarrow \beta\text{aanromere}$

Prenasalization occurs and this is accompanied by assimilation of place between the nasal and the tap.

(115) $\beta\text{aanromere} \rightarrow \beta\text{aandomere}$

As mentioned in §2.1.4.3, prenasalization is followed by compensatory lengthening.

(116) $\beta\text{aandomere} \rightarrow \beta\text{aaandomere}$

This causes a vowel hiatus, and to resolve it one vowel is deleted. As argued in §3.6.1, it is the first or second vowel of the hiatus that is deleted, not the third.

(117) $\beta\text{aaandomere} \rightarrow \beta\text{aandomere}$
 $V_1V_2V_2 \rightarrow V_1V_3 \text{ or } V_2V_3$

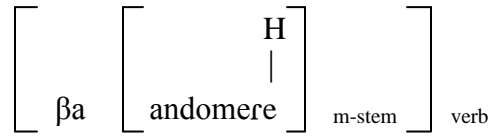
The vowel that was gained by compensatory lengthening is not deleted, it becomes the first vowel of the macrostem.

(118) $\beta\text{a[andomere]}$

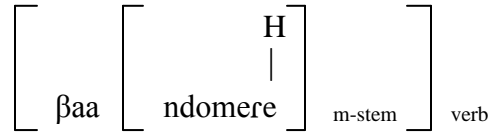
Let us see how this affects tone assignment. I will now apply the tonal rules.

¹¹ Another approach would be to consider /N-/ and /ne-/ as allomorphs of the first person singular object prefix.

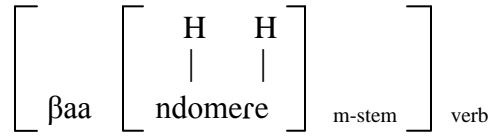
(119)



ITAR (IV)



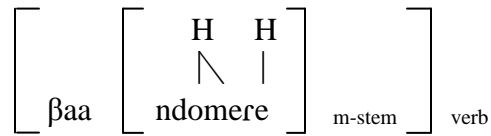
Macrostem Adjustment (II)



ITAR (I)



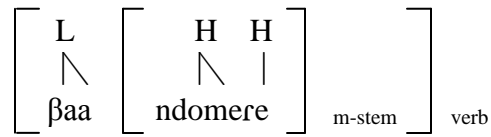
Intra-Syllabic H Spread



Doubling



High Tone Spread



L Tone Default



Floating Tone Docking



Leftward Spread (optional)



Contour Simplification

$\beta aa[\text{ndó}mé\acute{r}\acute{e}]$

Output

If the first person singular object prefix appears before the glottal fricative /h/, it is deleted, as in (120b).

- (120) a. /βa - ra - heetok - a/ → βara[héétóká] “they are going/about to remember”
 sm - t - remember - fv
- b. /βa - ra - ne - heetok - a/ → βara[áheetóka] “they are going/about to remember me”
 sm - t - om1 - remember - fv

However, the object prefix does not delete without a trace. The vowel in the first person singular prefix /ne-/ is deleted, leaving a nasal sound /n-/ before the first segment of the verb stem, which is a consonant. That forms a prenasalized /nh/. Compensatory lengthening takes place as discussed in §2.1.4.3. The nasal deletes leaving the vowel added by compensatory lengthening to take V1 high tone.

In (121), I compare the tonal patterns of verbs with a reflexive to those with a first person singular object prefix.

- (121) a. /βa - a - i - saNβ - er - e/ → βai[sáámbére] “they have just burnt themselves-2”
 sm - t - rf - burn - pf - fv
- b. /βa - a - ne - saNβ - er - e/ → βaa[nsáámbére] “they have just burnt me-1”
 sm - t - om1 - burn - pf - fv
- c. /βa - a - i - rom - er - e/ → βai[róméré] “they have just bitten themselves-2”
 sm - t - rf - bite - pf - fv
- d. /βa - a - ne - rom - er - e/ → βaa[ndóméré] “they have just bitten me-1”
 sm - t - om1 - bite - pf - fv

It is evident that the verbs with the first person singular object prefixes have the same tone patterns with verbs with the reflexive, and by extension, vowel-initial verbs. The analysis of the verbs with first person singular object prefixes will therefore be the same as that of the vowel-initial verbs given in §3.6.1 and §3.6.2, except for the fact that in

verbs with first person singular object prefix the NC segment causes compensatory lengthening.

3.6.7 Vowel Initial Verbs with Reflexive

Let us now see what happens when a reflexive prefix is added to a vowel-initial verb stem. The grammar responds to this situation by inserting a high glide between the reflexive and the onsetless vowel of the stem. The verb remains vowel-initial and the onsetless vowel of the stem does not carry a high tone. A rule inserting the glide is given in (122).

(122) Glide Insertion

$$\emptyset \rightarrow [-\text{syll}] / \begin{matrix} i \\ [+ \text{rf}] \end{matrix} \quad [\text{stem} \text{ ___ } V]$$

“Insert a consonant between a reflexive vowel /i-/ and the stem-initial vowel in a vowel-initial verb”

Examples, drawn from the Immediate Past Anterior, are given in (123).

- (123) a. /βa - a - i - iγor - er - e/ → βai[jíγóóje] “they have just opened
sm - t - rf - open - pf - fv themselves”
- b. /βa - a - i - ɔβoh - er - e/ → βai[jóβóhére] “they have just feared
sm - t - rf - fear - pf - fv themselves”
- c. /βa - a - i - iγɔNβ - er - e/ → βai[jíγóómbére] “they have just admired/
sm - t - rf - admire - pf - fv desired themselves”

A derivation of the verb *βai[jóβóhére]* “they have just feared themselves” is given in (124) below.

(124)	$\left[\begin{array}{c} \beta a - a \\ sm - t \end{array} \left[\begin{array}{c} i - \text{ɔ} \beta \text{ɔ} h - er - e \\ rf - open - pf - fv \end{array} \right] \right]_{m\text{-stem}}$	UR: “they have just feared themselves”
	$\beta a a i \text{ɔ} \beta \text{ɔ} h e r e \rightarrow \beta a i \text{ɔ} \beta \text{ɔ} h e r e$	Vowel Elision
	$\beta a i \text{ɔ} \beta \text{ɔ} h e r e \rightarrow \beta a i \text{ɔ} \beta \text{ɔ} h e r e$	Vowel Assimilation
	$\beta a i \text{ɔ} \beta \text{ɔ} h e r e \rightarrow \beta a i j \text{ɔ} \beta \text{ɔ} h e r e$	Glide Insertion
	$\left[\begin{array}{c} \beta a \\ i j \text{ɔ} \beta \text{ɔ} h e r e \end{array} \right]_{m\text{-stem}} \text{verb}$	ITAR (IV)
	$\left[\begin{array}{c} \beta a i \\ j \text{ɔ} \beta \text{ɔ} h e r e \end{array} \right]_{m\text{-stem}} \text{verb}$	Macrostem Adjustment
	$\left[\begin{array}{c} \beta a i \\ \begin{array}{cc} H & H \\ | & | \\ j \text{ɔ} & \beta \text{ɔ} h e r e \end{array} \end{array} \right]_{m\text{-stem}} \text{verb}$	ITAR (I)
		Intrasyllabic H Spread
	$\left[\begin{array}{c} \beta a i \\ \begin{array}{cc} H & H \\ \diagdown & | \\ j \text{ɔ} & \beta \text{ɔ} h e r e \end{array} \end{array} \right]_{m\text{-stem}} \text{verb}$	Doubling
		High Tone Spread
	$\left[\begin{array}{c} L \\ \beta a i \\ \begin{array}{cc} H & H L \\ \diagdown & | | \\ j \text{ɔ} & \beta \text{ɔ} h e r e \end{array} \end{array} \right]_{m\text{-stem}} \text{verb}$	L Tone Default
		Floating Tone Docking
		Leftward Spread
		Contour Simplification
	$\beta a i [j \text{ɔ} \beta \text{ɔ} h \acute{e} r e]$	Output

3.7 Conclusion

This chapter has shown that tone in both finite and infinitive verbs is predictable. The complex system of tonal patterns in the affirmative verbs can be accounted for by general principles that target the position where the melodic H tones are placed. In this respect, Kuria tone has been described above by six principles of tone assignment: V1H, V2H, V3H, V4H, V1H and V4H, and No H tone. I have shown that tense (TAM) is the prime determiner of H tone placement on the verb macrostem. While some tenses have two primary H tones on the macrostem, others have a single H tone. Tenses that have two H tones assign them to the first and fourth vowels of the macrostem. Such tenses have syllable-sensitive rules. Furthermore, primary H tones are rarely assigned without modification. Phonological processes such as spreading and doubling lead to the diversity of surface tonal patterns. Other factors such as syllable type and length of verb dictate how tones are distributed. It has also been shown that the rightmost primary H tone in the macrostem undergoes unbounded spreading up to the penult, except for the Imperatives.

Another interesting issue covered in this chapter involves the strategies that the language uses to fulfill disyllabic minimality in the monosyllabic verbs. These include insertion of a dummy affix as a prefix or suffix, shifting to a closely related tense, or using irregular forms.

Chapter Four

Verbal Negation

4. Introduction

In the previous chapter, I confined my analysis to affirmative verbs. This chapter provides a descriptive analysis of tonal patterns in negative verbs in Kuria. Negatives constitute a different speech act from the affirmatives, that is, while affirmatives convey new information, negatives are used to deny that an event did happen. Negatives are marked while affirmatives are unmarked. In this chapter, I attempt to find out how tonal patterns in the affirmative verbs differ from those of the negative verbs in various tenses.

There are five sections in this chapter. In section 4.1, I briefly discuss negation strategies with reference to Kuria and identify the ones to be focused on in this chapter. In section 4.2, I briefly introduce the interaction between negation and focus. Section 4.3 shows tonal patterns in various negative tenses. These are discussed with reference to tonal patterns in the corresponding simple affirmative tenses (see chapter three). Section 4.4 is a brief discussion of tone in negative infinitives. In section 4.5, I give a comprehensive list of all ITAR rules. In section 4.6, there are concluding remarks on the chapter.

4.1 Negation Strategies

In Kuria, both finite and non-finite verbal forms may be negated. The language employs a number of strategies in marking negation. These include periphrastic negation, a negative affix, and the use of a negative auxiliary verb. The listed strategies can be used

to indicate negation in various constituents such as sentences, clauses, phrases, or words (verbs). I now proceed to discuss each of these strategies.

4.1.1 Periphrastic Negation

One way of indicating negation in Kuria is by using the periphrastic verb *aṅga* “refuse”. This verb has a negative meaning and co-occurs with another verb which it negates. The verb *aṅga* “refuse” has all the properties of regular verbs such as inflection for mood, tense, aspect, person, or number. This form is used for actions that have not yet been performed. For example, to negate the Mandatory Imperative, the subjunctive form of the verb *aṅga* “refuse” is placed before a verb in its inflectional form (see (2)).

(1) Mandatory Imperative

- | | |
|-----------------|-------------|
| a. [karaáṅga] | “fry!” |
| b. [taandóra] | “tear!” |
| c. [heetóká] | “remember!” |
| d. [koondókorà] | “uncover!” |

(2) Negative Mandatory Imperative

- | | | | |
|---|---|----------------------|------------------|
| a. /o - aNɣ - ε o - ko - karaNɣ - a/ | → | [waṅge γókarááṅgá] | “don’t fry” |
| sm - refuse - fv a - im - fry - fv | | | |
| b. /o - aNɣ - ε o - ko - taNrɔr - a/ | → | [waṅge γótáándórá] | “don’t tear” |
| sm - refuse - fv a - im - tear - fv | | | |
| c. /o - aNɣ - ε o - ko - heetok - a/ | → | [waṅge kóhéétóká] | “don’t remember” |
| sm - refuse - fv a - im - remember - fv | | | |
| d. /o - aNɣ - ε o - ko - koNrɔkor - a/ | → | [waṅge γókóóndókóra] | “don’t uncover” |
| sm - refuse - fv a - im - uncover - fv | | | |

In (2), the negative verb *an̄ga* “refuse” is inflected with the second person singular prefix /o-/ and the subjunctive final vowel /-ε/ and the verb being negated has the infinitival marker prefix.

Other periphrastic forms such as *tiya* “stop, leave, refrain from” and *haatera* “leave, stop” are normally used for actions that are in progress. This strategy will not be pursued further in this study because such forms fall within the set of complex tenses, and these are beyond the scope of this work.

4.1.2 Morphological Negation

The primary means of indicating negation in Kuria is by affixing negative morphemes on the verb, thus changing it from affirmative to negative. These are bound morphemes and they form part of the inflectional morphology of the verb. Since Kuria is an agglutinating language, the negative morphemes correspond to already established morphotactic positions or slots, as shown in (3).

- (3) a. N1 SM TAM [MACROSTEM OM [STEM ROOT EXT TAM FV hai
 b. SM N2 TAM [MACROSTEM OM [STEM ROOT EXT TAM FV

The illustration in (3) shows that Kuria has two negative morphemes. These are /te-/ and /ta-/, glossed in (4b-c) as negative 1 (n1) and negative 2 (n2) respectively. /te-/ precedes but /ta-/ follows the subject marker. /te-/ is always accompanied with a post-verbal *hai*.

(4) Untimed Ability Focused

- a. /ne - βa - kaa - βereker - a/ → mbakaa[βérékéra] “(indeed) they
 f - sm - t - call - fv are able to call”

- b. /te - βa - kaa - βereker - a hai/ → teβákaa[βérékérá hai] “they are
n1 - sm - t - call - fv not unable to call”
- c. /βa - ta - kaa - βereker - a/ → βatakaa[βérékéra] “they are
sm - n2 - t - call - fv unable to call”

The two negative morphemes, n1 and n2, have a regular morphological distribution which places them in pre-initial and post-initial slots of the verb. I will refer to n1 as pre-initial negation and n2 as post-initial negation. It is not by accident that both are prefixes since it has been shown that there is a cross-linguistic tendency for languages with affixal negation to use the morphemes as prefixes (Bybee 1985). Many Bantu languages have two negatives and show a regular, syntactically conditioned distribution of pre- and post-initial negatives (Güldemann 1999:550). Two negatives are also assumed for Proto-Bantu. The two negative prefixes in Kuria never co-occur.

Sillery (1936) and Güldemann (1999) concur that the post-initial /ta-/ is the unmarked way of indicating negation in Kuria. This kind of negation has only one negation morpheme in the whole sentence, clause, or verb constituent. The negative morpheme can be used on the main verb, as seen in (4c), or it can be carried by the auxiliary in complex tenses (see §4.1.3). The post-initial /ta-/ is not associated with the post-verbal particle *hai*.

The examples in (4b) and (5b) attest a double negation¹² form /te...hai/ made up of the pre-initial negation /te-/ and the post-final invariant form *hai*. This is akin to the

¹² Two origins of double negation have been postulated. Payne (1985) says that double negation usually starts with a single pre-verbal particle. It seems there is a strong tendency for particle negatives to be emphasized and reinforced by an additional particle elsewhere in the sentence, forming a pair of linked negatives. Another explanation is that negation tends to be attracted leftward, and generally precedes

more familiar French double negation *ne...pas*. It forms a pattern of discontinuous negation with the two morphemes marking the scope of negation in a way which indicates where negation starts and where it ends.

(5) Habitual Past Focused

a. Affirmative

/ne - βa - aká - βereker - er - e/	→	mbaaká[βérékééje]	“(indeed) they
f - sm - t - call - pf - fv			used to call”

b. Negative

/te - βa - aká - βereker - er - e hai /	→	téβaaká[βérékééje hai]	“they never
f - sm - t - call - pf - fv not			used to call”

It seems that the *hai* particle of Kuria double negation is used adverbially to put emphasis on and confirm the initial negation.

There are however a few instances when *hai* can be used without the pre-initial /te-/. This happens in special circumstances such as when responding to exhortations in the Hortatory Imperative (2) or requests.

(6) /ta - j - a sukuuri/	→	[tájá súkúúri]	“go to school”
t - go - fv school			

Response

/o - ni hai/	→	[uní háí]	“not I”
cp - I not			

/sukuuri hai/	→	[súkúúrí háí]	“not school”
school not			

material over which it has scope. So, negation is signaled as early as possible in the constituent for ease of processing. As the sentence moves along, the negative marker is gradually weakened, then reinforced, and ultimately the replacement becomes permanent.

The construction in (6) is similar to French when *pas* is used alone instead of *ne...pas*. Notice that for the responses in (6), *hai* has a high tone.

Also, sometimes /te-/ can be used without *hai*. This happens in the context of a question. In the examples that follow, note that (7b) does not have *hai* like (7a), but both have the same meaning.

- (7) a. /te - βa - a - o - ko - tun - a hai/
n1 - sm - t - a - im - want - fv not → [teβááyutúná hai] “Don’t they want?”
- b. /te - βa - a - o - ko - tun - a/
n1 - sm - t - a - im - want - fv → [teβááyutúná] “Don’t they want?”

Morphological negatives will be used in this study because they apply in simple tenses.

4.1.3 Negative Auxiliary Verb

In this section, I consider the negative forms of complex tenses whose affirmative form consists of an auxiliary verb and a main verb. In this kind of negation, the auxiliary verb carries the negation morphemes /te-/ and /ta-/, which have been discussed in §4.1.2, and occurs immediately before the main verb. In most cases, it is marked with all the basic verbal categories like person, number, and tense. The main verb may be infinitival or finite in form.

(8) Infinitive in a complex tense

- (a) Affirmative
/ne - βa - a - re o - ko - rom - a/
f - sm - t - be a - im - bite - fv → [mbaaré kórómá] “(indeed) they were biting (then)”

(b) Negative

/βa - ta - a - re o - ko - rom - a/ → [βataare kóromà] “they were not
sm - n2 - t - be a - im - bite - fv biting (then)”

/te - βa - a - re o - ko - rom - a hai/ → [téβaaré kórómá hái] “they were not
n1 - sm - t - be a - im - bite - fv not biting (then)”

(9) Finite verb in a complex tense

(a) Affirmative

/ne - βa - a - re βa - rom - er - e/ → [mbaáaré βárómeré] “(indeed) they
f - sm - t - be sm - bite - pf - fv bit (yesterday)”

(b) Negative

/βa - ta - a - re βa - rom - er - e/ → [βataare βárómére] “they did not
sm - t - t - be sm - bite - pf - fv bite (yesterday)”

/te - βa - a - re βa - rom - er - e hai → [teβaáaré βáróméré hai] “they did not
n1 - sm - t - be sm - bite - pf - fv not bite (yesterday)”

Since the scope of this study is limited to simple tenses, examples such as those in (8) and (9) will not be analyzed.

4.2 Negation and Focus

In Kuria, focus is indicated by the prefix /ne-/ (see §2.3.2.1). Pre-initial negation and focus are deemed to occupy the same morphological slot or position. This is because they both occur in the initial position of a verb, and generally negation does not co-occur with focus in the same sentence, clause, or verb. In many Bantu languages, negation appears to be an inherently focused category (Güldemann 1999). As such it becomes difficult to focus on different information in a negated constituent because that will amount to double focus.

Out of twenty two affirmative tenses that formed the data for this study, eleven are focused. The focused tenses drop the focus marker when they are negated.

4.3 Tone Patterns in Negation

After the initial survey of various strategies of applying negation in Kuria, we can now look at how tone is assigned in negative tenses. As said above, I will confine myself to morphological negation since I am restricting my analysis to simple tenses. Table 4.1 below provides a summary of the ITAR rules that apply in the assignment of melodic H tones in all the affirmative tenses with their corresponding morphological negatives. The shaded cells indicate that the specific morphological negative does not apply in those tenses.

Table 4.1: ITAR Rules in Affirmative and Negative Tenses

	<i>Tense</i>	<i>Affirmative</i>	<i>/ta-/ Negation</i>	<i>/te-/ Negation</i>
1.	Habitual Past Focused	ITAR (I)	No H	ITAR (I)
2.	Untimed Past Anterior Focused	ITAR (I)	ITAR (III)	ITAR (I)
3.	Remote Past Focused	ITAR (I)	ITAR (III)	ITAR (I)
4.	Untimed Past Anterior Condition Focused	ITAR (I)	ITAR (I & IV)	ITAR (I)
5.	Immediate Future Focused	ITAR (I)		
6.	Untimed Ability Focused	ITAR (I)		
7.	Untimed Present	ITAR (I)		
8.	Hortatory Imperative (2)	ITAR (I)		
9.	Hodiernal Past Progressive Anterior Focused	ITAR (II)		
10.	Subjunctive	ITAR (III)		

	<i>Tense</i>	<i>Affirmative</i>	<i>/ta-/ Negation</i>	<i>/te-/ Negation</i>
11.	Hodiernal Past Anterior Focused	ITAR (III)		
12.	Untimed Past Anterior	ITAR (III)		ITAR (I)
13.	Remote Future Focused	ITAR (III)		
14.	Current Present Persistent Focused	ITAR (III)		
15.	Untimed Real Uncertain Condition Focused	ITAR (III)		
16.	Mandatory Imperative	ITAR (III)		
17.	Immediate Past Anterior (1 st & 2 nd Person)	ITAR (IV)	ITAR (III)	
18.	Hortatory Imperative (3) (1 st & 2 nd Person)	ITAR (IV)		
19.	Narrative Past	ITAR (I & IV)	ITAR (III)	
20.	Hodiernal Future Uncertain Possibility	ITAR (I & IV)		
21.	Remote Future	ITAR (I & IV)	ITAR (III)	
22.	Immediate Past Anterior (3 rd Person)	ITAR (I & IV)	ITAR (III)	
23.	Hortatory Imperative (3) (3 rd Person)	ITAR (I & IV)		
24.	Hortatory Imperative (1)	No H	ITAR (I & IV)	

We see that in the Immediate Future Focused, the Untimed Ability Focused, and the Untimed Present, ITAR (I) is used to assign the melodic H in both the affirmative and

negative tenses. The Hodiernal Progressive Anterior Focused also uses ITAR (II) across the board. Lastly, the affirmative and negative tenses in the Hodiernal Past Anterior Focused, the Remote Future Focused, and the Current Present Persistent Focused are assigned a melodic H by ITAR (III). In other cases, the affirmative and negative tenses use different ITAR rules. After this summary, I start by analyzing negative tenses with only one negative morpheme.

4.3.1 Single Morpheme Negation

As discussed in §4.1.2, the /ta-/ prefix can be added to a verb to change it into a negative form. Table 4.2 below presents sixteen of the twenty two simple affirmative tenses with their corresponding negative forms. The tenses are arranged according to the tone melodies in the negative tenses. The affirmative tenses are provided for comparison. Six tenses (Hortatory Imperative (2), Subjunctive, Untimed Real Uncertain Condition Focused, Mandatory Imperative, Hodiernal Future Uncertain Possibility, and Hortatory Imperative (3)) have intentionally been left out of Table 4.2 because they do not undergo morphological negation.

Table 4.2: Tonal Patterns in Finite Verbs with /ta-/ Negation

<i>Negative Tense Tone Melody</i>	<i>Tense</i>	<i>Example</i>	<i>Gloss</i>
V1 (No Spread)	Immediate Future Focused	mbaraá[βérékéɛ]	“(indeed) they will call (now)”
		n2 bataa[βérekɛ̀]	“they will not call (now)”
V1 (Spread)	Untimed Ability Focused	mbakaa[βérékéra]	“(indeed) they are able to call”
		n2 batakaa[βérékéra]	“they cannot/are unable to call”
	Untimed Present	βa[βérékéra]	“they call (fact)”
		n2 bataako[βérékéra]	“they do not/are no longer calling”
V2 (No Spread)	Hodiernal Past Progressive Anterior Focused	mbaaka[βérékééje]	“(indeed) they have been calling (today)”
		n2 bataaka[βérékééjè]	“they have not been calling (today)”
V3 (No Spread)	Untimed Past Anterior Focused	mbaa[βérékéra]	“(indeed) they have (already) called”
		n2 bataa[βerekéra]	“they have not (yet) called (up to now)”
	Remote Past Focused	mbaa[βérékééje]	“(indeed) they called/ did call (then)”
		n2 bataa[βerekééje]	“they did not call (then)”
	Hodiernal Past Anterior Focused	mba[βerekééje]	“(indeed) they called (earlier today)”
		n2 bata[βerekééje]	“they have not called (today)”
	Untimed Past Anterior	βaa[βerekéra]	“they have (already) called”
		n2 bataa[βerekéra]	“they have not (yet) called”
	Remote Future Focused	mbare[βerekéra]	“(indeed) they will call (then)”
		n2 batare[βerekéra]	“they will not call (then)”

<i>Negative Tense Tone Melody</i>	<i>Tense</i>	<i>Example</i>	<i>Gloss</i>
	Current Present Persistent Focused	mbake[βerekééje]	“(indeed) they are still calling”
		n2 βatake[βerekééje]	“they are no longer calling”
	Narrative Past	βaká[βérékerá]	“(and) they called”
		n2 βataa[βerekééje]	“(and) they did not call”
	Remote Future	βaree[βérékerá]	“they will call (then)”
		n2 βatare[βerekéra]	“they will not call (then)”
	Immediate Past Anterior (3 rd Person)	βaa[βérékééje]	“they have just called”
		n2 βata[βerekééje]	“they have not yet called”
	Immediate Past Anterior (1 st and 2 nd Person)	too[βerekééje]	“we have just called”
		n2 tota[βerekééje]	“we have not yet called”
V1 & V4 (V1 Doubles) (V4 Spreads)	Untimed Past Anterior Condition Focused	mbakaa[βérékééje]	“(indeed) they would have called (anytime before now/then)”
		n2 βatakaa[βérékééje]	“they would not have called (anytime before now/then)”
	Hortatory Imperative (1)	βatá[βerekera]	“let them call”
		n2 βatakaa[βérékerá]	“let them not call”
No H Tone	Habitual Past Focused	mbaaká[βérékééje]	“(indeed) they used to call (then)”
		n2 βataaká[βerekééje]	“they never used to call”

The first fact worthy of notice is that the presence of the /ta-/ negative morpheme on a verb does not trigger an additional high tone. All the prefixes have low tones and any exception to this is as a result of a lexical high on the tense prefix. Only three affirmative tenses; Habitual Past Focused, Narrative Past, and Immediate Future Focused, have a lexical H tone on the tense prefix. This lexical H manifests itself in the Negative Habitual Past (10b) but not the Negative Narrative Past (11b) and the Negative Immediate Future (12b).

(10) a. Habitual Past Focused

/ne - βa - aká - βereker - er - e/ f - sm - t - call - pf - fv	→	mbaaká[βérékééje]	“(indeed) they used to call (then)”
---	---	-------------------	--

b. Negative Habitual Past

/βa - ta - aká - βereker - er - e/ sm - n2 - t - call - pf - fv	→	βataaká[βerekeejè]	“they never used to call”
--	---	--------------------	------------------------------

(11) a. Narrative Past

/βa - ká - βereker - a/ sm - t - call - fv	→	βaká[βérékerá]	“(and) they called”
---	---	----------------	------------------------

b. Negative Narrative Past

/βa - ta - a - βereker - er - e/ sm - n2 - t - call - pf - fv	→	βataa[βérékééje]	“(and) they did not call”
--	---	------------------	------------------------------

(12) a. Immediate Future Focused

/ne - βa - raá - βereker - ε/ f - sm - t - call - fv	→	mbaraá[βérékééré]	“(indeed) they will call (now)”
---	---	-------------------	------------------------------------

b. Negative Immediate Future

/βa - ta - a - βereker - ε/ sm - n2 - t - call - fv	→	βataa[βérekerè]	“they will not call (now)”
--	---	-----------------	-------------------------------

Although spreading was seen to be the norm in the affirmative tenses, only four of the sixteen /ta-/ negative tenses in Table 4.2 undergo spreading. The tenses that do not

undergo spreading will have a downglide if its structural conditions are met (see §1.4.3). These negative tenses are thus similar to the Hortatory Imperative (1), Hortatory Imperative (2), and the Mandatory Imperative which do not undergo spreading. Consider the examples in (13).

(13) a. Negative Immediate Future (V1)

/βa - ta - a - βereke - ε/ sm - n2 - t - call - fv	→	βataa[βérékerè]	“they will not call (now)”
---	---	-----------------	-------------------------------

b. Negative Habitual Past (V2)

/βa - ta - aká - βereke - er - e/ sm - n2 - t - call - pf - fv	→	βataaká[βerekeejè]	“they never used to call”
---	---	--------------------	------------------------------

c. Negative Hodiernal Past Progressive Anterior (No H)

/βa - ta - aka - βereker - er - e/ sm - n2 - t - call - pf - fv	→	βataaka[βérékeejè]	“they have not been calling (today)”
--	---	--------------------	---

A comparison of tonal patterns in the affirmative tenses and their corresponding negative tenses in Table 4.2 shows that in some tenses there is no tonal difference between the affirmative and their negative counterparts.

(14) a. Untimed Ability Focused

mbakaa[βérékéra]	“(indeed) they are able to call”
------------------	----------------------------------

b. Negative Untimed Ability

βatakaa[βérékéra]	“they cannot/are unable to call”
-------------------	----------------------------------

(15) a. Untimed Present

βa[βérékéra]	“they call (fact)”
--------------	--------------------

b. Negative Untimed Present

βataako[βérékéra]	“they do not/are not calling”
-------------------	-------------------------------

- (16) a. Remote Future Focused
 mbare[βerekéra] “(indeed) they will call (then)”
- b. Negative Remote Future
 batare[βerekéra] “they will not call (then)”
- (17) a. Current Present Persistent Focused
 mbake[βerekéje] “(indeed) they are still calling”
- b. Negative Current Present Persistent
 bataké[βerekéje] “they are no longer calling”

As seen in Table 4.1, the negative tenses do not always use the same ITAR as the corresponding affirmative tenses.

The /ta-/ negative tenses can be categorized into five tonal groups (V1, V2, V3, V1 and V4, and No H). The same tone assignment principles used for affirmative tenses also apply in the negative tenses. I now proceed to discuss each of these groups.

4.3.1.1 Tone Assignment Principle 1a: Melodic V1H (Spread)

This principle assigns a primary high tone on the first vowel of the macrostem. The high tone then spreads to the penult. There are only two /ta-/ negative tenses that assign a melodic H to V1, followed by spreading. These are the Negative Untimed Ability and the Negative Untimed Present. The same formalism that was used to assign a melodic H to V1 in the affirmative tenses in §3.2.1 will also apply here, but with modifications so as to introduce the features [+ negative] and [- negative].

(18) ITAR (I) (additions to §3.2.1, (3))

$$\left[\begin{array}{c} \text{m-stem} \\ \text{V} \end{array} \right] \rightarrow \left[\begin{array}{c} \text{H} \\ | \\ \text{m-stem} \\ \text{V} \end{array} \right] \quad \text{in} \quad \left\{ \begin{array}{l} \left[\begin{array}{l} + \text{Untimed Ability} \\ + \text{Negative} \end{array} \right] \\ \left[\begin{array}{l} + \text{Untimed Present} \\ + \text{Negative} \end{array} \right] \end{array} \right\}$$

“Associate a high tone to the first vowel of the macrostem in the tenses listed in (18)”.

Notice that the focus particle found in some affirmative tenses is absent in the negative tenses since negation is inherently focused and a negative tense cannot take another focus. For example, the negative counterpart of the Untimed Ability Focused is the Negative Untimed Ability. In both tenses, a high tone is assigned to V1 and it spreads to the penult. The difference between them is found in the pre-macrostem domain. The Untimed Ability Focused has a focus marker preceding the subject marker and the Negative Untimed Ability has a negative marker following the subject marker (see Table 4.3).

Table 4.3: Comparing affirmative with negative tense

<i>Untimed Ability Focused</i>	<i>Negative Untimed Ability</i>
m -ba-γaa-[kóóndókór-a] “(indeed) they are able to uncover”	βa- ta -γaa-[kóóndókór-a] “they are unable to uncover”
m -ba-kaa-[βérékér-a] “(indeed) they are able to call”	βa- ta -kaa-[βérékér-a] “they are unable to call”
m -ba-kaa-[róm-a] “(indeed) they are able to bite”	βa- ta -kaa-[róm-a] “they are unable to bite”

The Untimed Present and the Negative Untimed Present are tonally identical in that they are V1H tenses with the melodic H tone spreading up to the penult.

(19) a. Untimed Present

/βa - βereker - a/ → βa[βérékéra] “they call (fact)”
sm - call - fv

b. Negative Untimed Present

/βa - ta - ako - βereker - a/ → βataako[βérékéra] “they do not call
sm - n2 - t - call - fv (fact)”

What however marks them as different is that the Untimed Present has a /Ø-/ tense marker while the Negative Untimed Present has /ako-/ as the tense marker.

A derivation of the verb form *βatakaa[βérékéra]* “they are unable to call”, from the Negative Untimed Ability, will illustrate how tones are assigned through Tone Assignment Principle 1a.

(20) / βa - ta - kaa [βereker - a] UR: they are unable to call”
sm - n2 - t call - fv m-stem /

[βatakaa [H βerekera] m-stem] verb

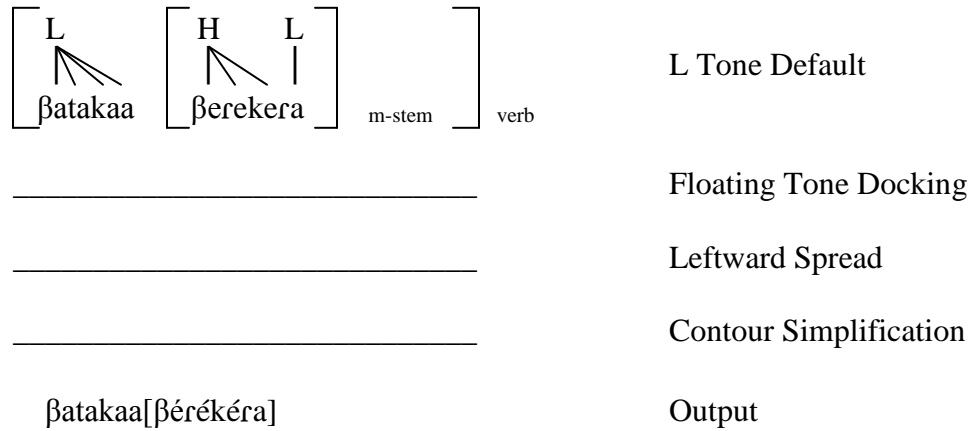
ITAR (I)

Intra-Syllabic H Spread

Doubling

[βatakaa [H βerekera] m-stem] verb

High Tone Spread



4.3.1.2 Tone Assignment Principle 1b: Melodic V1H (No Spread)

This melodic pattern occurs in the Negative Immediate Future. The high tone is found on the first vowel of the macrostem in short syllables but on the first two vowels if the first syllable is long. Since both /ta-/ and /te-/ negative tenses use ITAR (I) (see Table 4.1), it is not necessary to specify them in the ITAR rules, a [+ negative] feature will suffice. The same formalism that was used for the affirmative tenses in §3.2.1 will also apply for the negative tenses.

(21) ITAR (I)

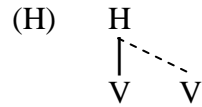
$$\left[\begin{array}{c} \text{m-stem} \\ \text{V} \end{array} \right] \rightarrow \left[\begin{array}{c} \text{H} \\ | \\ \text{m-stem} \\ \text{V} \end{array} \right] \quad \text{in} \quad \left\{ \left[\begin{array}{c} + \text{ Immediate Future} \\ + \text{ Negative} \end{array} \right] \right\}$$

“Associate the melodic H tone to the first vowel of the macrostem in the Negative Immediate Future”.

So far, my assumption has been that spreading is an automatic rule but it is blocked by certain morphological features. In §3.2.2.1, (11), I restated the spreading rule

so as to capture exceptions to its application. Since in the /ta-/ Negative Immediate Future the high tone does not spread, I will include it in the exceptions. The modified spreading rule is now given in (22).

(22) High Tone Spread (restated)



Spreads iteratively up to the penult except in

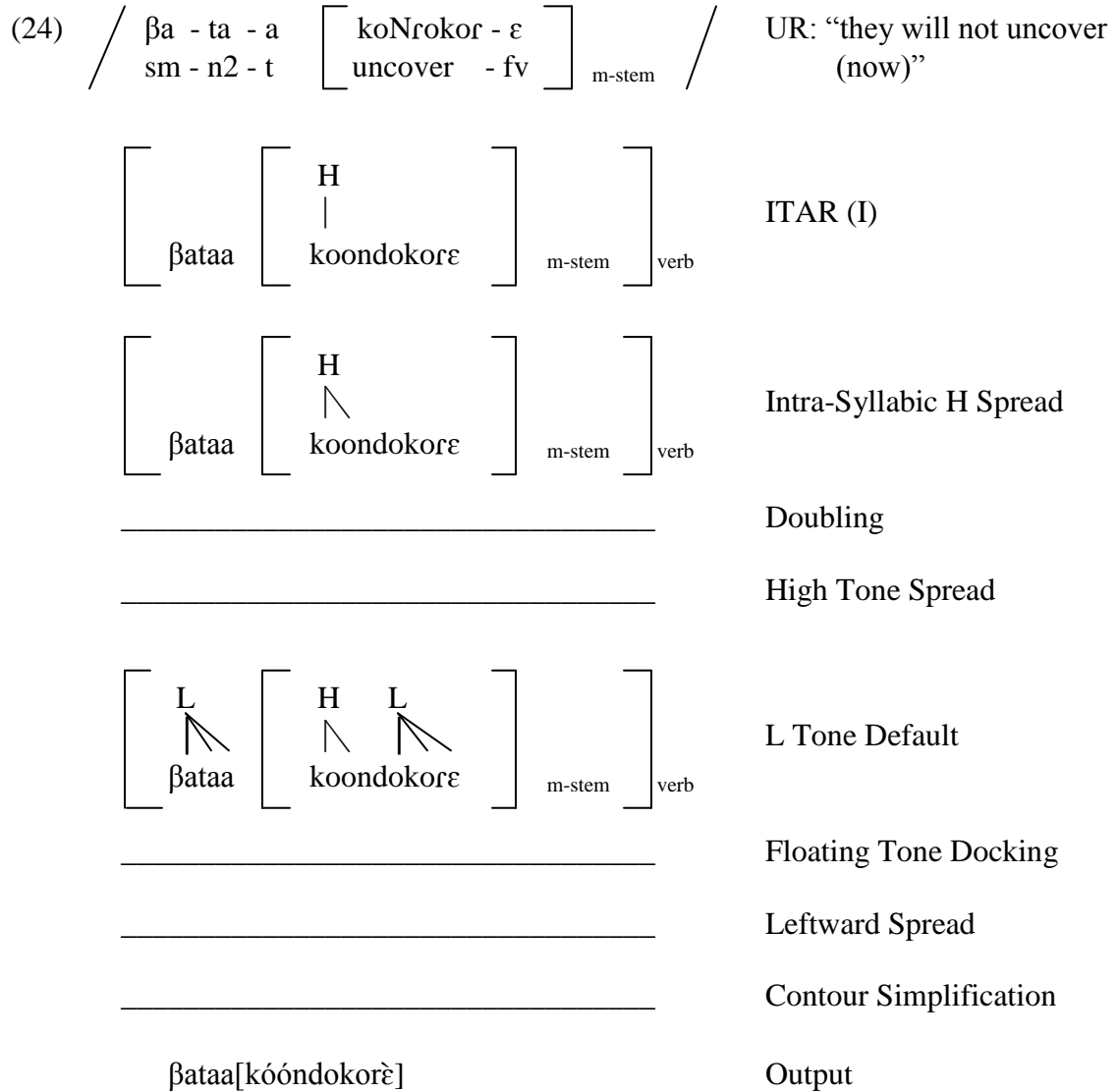
$$\left\{ \begin{array}{l} \left[\begin{array}{l} + \text{Mandatory Imperative} \\ - \text{Negative} \end{array} \right] \\ \left[\begin{array}{l} + \text{Hortatory Imperative (2)} \\ - \text{Negative} \end{array} \right] \\ \left[\begin{array}{l} + \text{Immediate Future} \\ + /ta-/ \text{Negative} \end{array} \right] \end{array} \right\}$$

In (23), verbs with stems of two, three, and four syllables are provided to show how tone applies in the Negative Immediate Future.

(23) Negative Immediate Future

a. /βa - ta - a - rom - ε/ sm - n2 - t - bite - fv	→	βataa[rómɛ]	“they will not bite (now)”
b. /βa - ta - a - tɛɾɛk - ε/ sm - n2 - t - brew - fv	→	βataa[tɛɾɛkɛ̀]	“they will not brew (now)”
c. /βa - ta - a - βɛɾɛker - ε/ sm - n2 - t - call - fv	→	βataa[βɛɾɛkerɛ̀]	“they will not bite (now)”
d. /βa - ta - a - koNrokor - ε/ sm - n2 - t - uncover - fv	→	βataa[kóóndokorɛ̀]	“they will not uncover (now)”

The example in (23d) shows that when the first syllable of the macrostem is long, the high tone on V1 spreads to V2 so as to avoid a falling tone. A derivation of *βataa[kóóndokorè]* “they will not uncover (now)” illustrates the analysis.



Like the Untimed Present, the Negative Immediate Future differs from the Immediate Future Focused in that they use different tense markers (see 25).

(25) a. Immediate Future Focused

/ne - βa - raá - koNrokor - ε/ → mbaraá[kóóndókóre] “(indeed) they will
f - sm - t - uncover - fv uncover (now)”

b. Negative Immediate Future

/βa - ta - a - koNrokor - ε/ → βataa[kóóndokorè] “they will not uncover
sm - n2 - t - uncover - fv (now)”

4.3.1.3 Tone Assignment Principle 2: Melodic V2H (No Spread)

The only tense with this melodic pattern is the Negative Hodiernal Past Anterior Progressive. This tense is segmentally similar to its affirmative counterpart, the Hodiernal Past Anterior Progressive Focused, but they differ in their tonal patterns. In both tenses, the melodic H tone is assigned to V2 but it spreads up to the penult in the affirmative tense, while in the negative tense it does not spread. I now modify ITAR (II) given in §3.2.3, (20), to add more features.

(26) ITAR (II)

$$\left[\begin{array}{c} \text{H} \\ | \\ \text{m-stem V V} \end{array} \right] \rightarrow \left[\begin{array}{c} \text{H} \\ | \\ \text{m-stem V V} \end{array} \right] \text{ in } \left\{ \left[\begin{array}{c} + \text{Hodiernal Past Progressive Anterior} \\ + \text{Negative} \end{array} \right] \right\}$$

“Associate the melodic H tone to the second vowel of the macrostem in the Hodiernal Past Progressive Anterior.”

The examples provided in (27) confirm that the melodic high tone is assigned to the second vowel of the macrostem regardless of the length of the verb and it does not spread.

(27) a. /βa - ta - aka - re - er - e/ → βataaka[reéje] “they have not
sm - n2 - t - eat - pf - fv been eating (today)”

- b. /βa - ta - aka - rom - er - e/ → βataaka[romére] “they have not
sm - n2 - t - bite - pf - fv been biting (today)”
- c. /βa - ta - aka - βereker - er - e/ → βataaka[βerékeejè] “they have not
sm - n2 - t - call - pf - fv been calling (today)”
- d. /βa - ta - aka - koNrokor - er - e/ → βataaya[koóndokoojè] “they have not
sm - n2 - t - uncover - pf - fv been uncovering (today)”

It is also logical that the /ta-/ Negative Hordernal Past Progressive Anterior be added to the list of exceptions in the Spreading rule.

4.3.1.4 Tone Assignment Principle 3b: Melodic V3H (No Spread)

This tonal principle assigns a high tone on the third vowel of the macrostem but no spreading takes place. In the affirmative tenses, this principle applies to the Mandatory Imperative only. In the negative tenses, it applies to many tenses (see (28)). This is surprising because the affirmative counterparts for the negative tenses in (28) are V1H, V3H, or V1H and V4H, and they all spread up to the penult. I will start by modifying the ITAR (III) rule given in §3.2.4. Where the same ITAR rule is used in corresponding /ta-/ and /te-/ negative tenses (see Table 4.1), I simply use the feature [+ Negative], but when the corresponding negative tenses use different ITARs, I refer to each separately as either [+ /ta-/ negative] or [+ /te-/ negative].

(28) ITAR (III)

$$\left[\text{m-stem VVV} \right] \rightarrow \left[\text{m-stem VVV} \begin{array}{c} \text{H} \\ | \end{array} \right] \quad \text{in} \quad \left\{ \begin{array}{l} \left[\begin{array}{l} + \text{Untimed Past Anterior} \\ + /ta-/ \text{negative} \end{array} \right] \\ \left[\begin{array}{l} + \text{Remote Past} \\ + /ta-/ \text{negation} \end{array} \right] \\ \left[\begin{array}{l} + \text{Hodiernal Past Anterior} \\ + \text{Negative} \end{array} \right] \\ \left[\begin{array}{l} + \text{Remote Future} \\ + \text{Negative} \end{array} \right] \\ \left[\begin{array}{l} + \text{Current Present Persistent} \\ + \text{Negative} \end{array} \right] \\ \left[\begin{array}{l} + \text{Narrative Past} \\ + /ta-/ \text{negative} \end{array} \right] \\ \left[\begin{array}{l} + \text{Immediate Past Anterior} \\ + \text{Negative} \end{array} \right] \end{array} \right\}$$

“Associate a melodic H tone to the third vowel of the macrostem in the tenses named in (28).”

The seven negative tenses in (28) are counterparts to nine affirmative tenses. This is because two pairs of affirmative tenses share a negative counterpart. The Untimed Past Anterior Focused and the Untimed Past Anterior have a common negative tense, the Negative Untimed Past Anterior. Also, the Remote Future Focused and the Remote Future have a common negative tense, the Negative Remote Future. The affirmative tenses that share negative forms are clearly those with similar features, the only variation being [+ focus] and [- focus]. This confirms that focus and negation cannot co-occur in the same verb since [+ negative] implies [+ focus], that is, negative forms are inherently focused (Güldemann 1999).

Another thing worth noticing is specific to the Negative Immediate Past Anterior. While in the affirmative tense the subject prefixes (first and second versus third) are important in determining how tone is assigned on the macrostem, these are irrelevant for tone in the negative tense.

I have chosen the Negative Remote Future as a representative of this group for illustration purposes.

(29) Negative Remote Future

- | | | | |
|--|---|--------------------|-----------------------------------|
| a. /βa - ta - re - koNrokor - a/
sm - n2 - t - uncover - fv | → | βatare[koondókorà] | “they will not uncover
(then)” |
| b. /βa - ta - re - βereker - a/
sm - n2 - t - call - fv | → | βatare[βerekéra] | “they will not call
(then)” |
| c. /βa - ta - re - terek - a/
sm - n2 - t - brew - fv | → | βatare[terekà] | “they will not brew
(then)” |
| d. /βa - ta - re - rom - a/
sm - n2 - t - bite - fv | → | βatare[romà] | “they will not bite
(then)” |
| e. /βa - ta - re - re - a/
sm - n2 - t - eat - fv | → | βatare[rjà] | “they will not eat
(then)” |

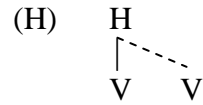
This tense assigns a melodic high tone to the third vowel of the macrostem and there is no spreading; as seen in examples (29a). When there are successive low tones at the end of the verb, the tone on the last vowel falls or downglides. This phenomenon was also discussed in §1.4.3. This state of affairs is found in all /ta-/ negative tenses that have a melodic high tone that does not spread. The verbs in (29d,e) have only low tones and end in a downglide. The tones that I have assigned to (29d) differ from what Cammenga (2004:292) assigned to a verb of similar length in the same tense, *βátaré[sóma]* “they

will not read (then)”. This could be a dialectal difference since Cammenga used the Nyabaasi variety while I used the Buguumbé variety.

Tone assignment in (29c) introduces an interesting angle to the downglide phenomenon. It is surprising that (29c) has a downglide on the third vowel of the macrostem where we expected a high tone. Indeed, I have established that in tenses that allow a downglide, if a high tone falls on the final vowel of the macrostem, it is replaced by a downglide except in the Mandatory Imperative where it is possible to have alternating forms (see §3.2.5.2, (34)). This is a case of non-finality pre-empting the assignment of a non-spreading high tone.

The tenses or features listed in (28) should be added as exceptions to the spreading rule which is now restated in (30).

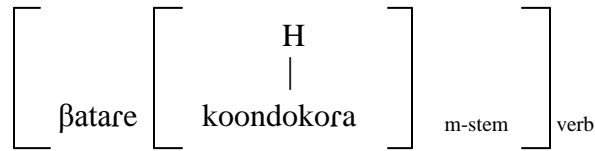
(30) High Tone Spread (restated)



Spreads iteratively up to penult except in	$\left[\begin{array}{l} + \text{Mandatory Imperative} \\ - \text{Negative} \end{array} \right]$
	$\left[\begin{array}{l} + \text{Hortatory Imperative (2)} \\ - \text{Negative} \end{array} \right]$
	$\left[\begin{array}{l} + \text{Immediate Future} \\ + /ta-/ \text{Negative} \end{array} \right]$
	$\left[\begin{array}{l} + \text{Hodiernal Past Progressive Anterior} \\ + /ta-/ \text{Negative} \end{array} \right]$
	$\left[\begin{array}{l} + \text{Untimed Past Anterior} \\ + /ta-/ \text{Negative} \end{array} \right]$
	$\left[\begin{array}{l} + \text{Remote Past} \\ + /ta-/ \text{Negative} \end{array} \right]$
	$\left[\begin{array}{l} + \text{Hodiernal Past Anterior} \\ + /ta-/ \text{Negative} \end{array} \right]$
	$\left[\begin{array}{l} + \text{Remote Future} \\ + /ta-/ \text{Negative} \end{array} \right]$
	$\left[\begin{array}{l} + \text{Current Present Persistent} \\ + /ta-/ \text{Negative} \end{array} \right]$
	$\left[\begin{array}{l} + \text{Narrative Past} \\ + /ta-/ \text{Negative} \end{array} \right]$
	$\left[\begin{array}{l} + \text{Immediate Past Anterior} \\ + /ta-/ \text{Negative} \end{array} \right]$

I will illustrate how tones are assigned in the Negative Remote Future by deriving *βatare[koondókorà]* “they will not uncover (then)”.

(31) / βa - ta - re [koNrokor - a] / UR: “they will not uncover
 sm - n2 - t uncover - fv m-stem (then)”



ITAR (III)

Intra-Syllabic H Spread

Doubling

High Tone Spread



L Tone Default

Floating Tone Docking

Leftward Spread

Contour Simplification

βatare[koondókora]

Output

In (32), I present the Narrative Past and the Negative Narrative Past tenses, ordered one after the other for ease of comparison.

(32) a. Narrative Past

/βa - ká - koNrokor - a/ → βαγά[kóóndokóra] “(and) they uncovered”
 sm - t - uncover - fv

b. Negative Narrative Past

/βa - ta - a - koNrokor - er - e/ → bataa[koondókoojè] “(and) they did not
 sm - n2 - t - uncover - pf - fv uncover”

The Narrative Past is a dependent tense and cannot form its own negative. It uses the Negative Remote Past, *βataa*[*koondókoojè*] “they did not uncover (then)”, as its negative form.

4.3.1.5 Tone Assignment Principle 5a: Melodic V1H and V4H (All Persons) (Spread)

I now turn to melodies involving combinations of tone assignment principles. This section explains the tone patterns of tenses which are characterized by a combination of V1H and V4H. As argued in §4.3.1.4, subject prefixes have no bearing on the assignment of tone in the negative tenses. There are only two tenses with this type of tonal pattern: Negative Untimed Past Anterior Condition and Negative Hortatory Imperative (1).

(33) ITAR (1) and (IV)

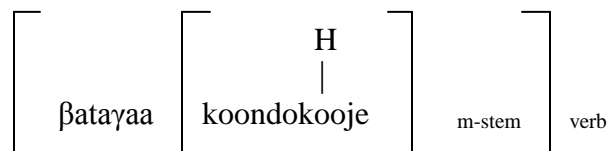
$$\left\{ \begin{array}{l} \left[\begin{array}{l} + \text{Untimed Past Anterior Condition} \\ + /ta-/ \text{ negative} \end{array} \right] \\ \left[\begin{array}{l} + \text{Hortatory Imperative (1)} \\ + /ta-/ \text{ negative} \end{array} \right] \end{array} \right\}$$

Examples of verbs from the Negative Untimed Past Anterior Condition follow in (34).

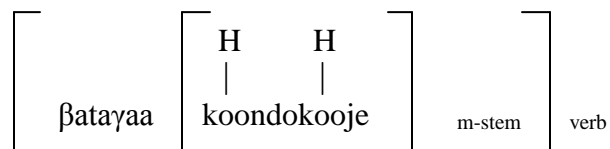
- (34) a. /βa - ta - kaa - βereker - er - e/ → βatakaa[βérékééje] “they would
sm - n2 - t - call - pf - fv not have called (then)”
- b. /βa - ta - kaa - koNrokor - er - e/ → βatayaa[kóondókóóje] “they would
sm - n2 - t - uncover - pf - fv not have uncovered (then)”

I now proceed to derive *βatayaa*[*kóondókóóje*] “they would not have uncovered (then)”.

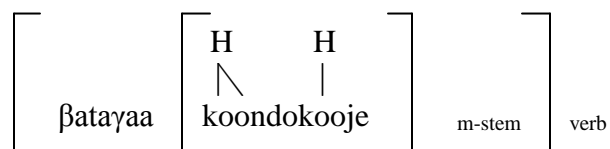
(35) / βa - ta - kaa [koNrokor - er - e] UR: “they would not have
 sm - n2 - t [uncover - pf - fv] m-stem uncovered (then)”



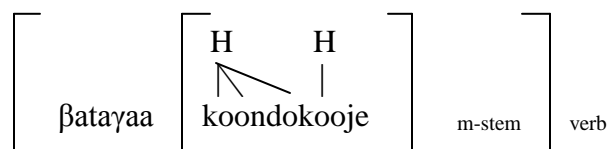
ITAR (IV)



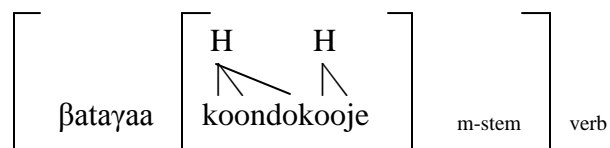
ITAR (I)



Intra-Syllabic H Spread



Doubling



High Tone Spread



L Tone Default

Floating Tone Docking

Leftward Spread

Contour Simplification

βatayaa[kóondókóóje]

Output

4.3.1.6 Tone Assignment Principle 6: No Stem H

Although a high tone is found in most verb tenses, there are contexts where macrostems do not have high tones. In the /ta-/ negative group of tenses, a long macrostem devoid of a high tone is only attested in the Negative Habitual Past. It is however important to note that this particular tense has a lexical high tone on the tense prefix.

(36) Negative Habitual Past

- a. /βa - ta - aká - βereker - er - e/ → βataaká[βerekeejè] “they never used to call (then)”
sm - n2 - t - call - pf - fv
- b. /βa - ta - aká - teremek - er - e/ → βataayá[teremekerè] “they never used to be calm (then)”
sm - n2 - t - be calm - pf - fv

In (36a,b), the last vowel of the macrostem undergoes a downglide. I now turn to morphological negation that has two negative morphemes, /te...hai/, the first one being bound and the second one unbound.

4.3.2 Double Negation

Table 4.4 presents fourteen out of the twenty two affirmative tenses that form the core of the data for this study. It shows the affirmative tenses and their respective /te...hai/ negative tenses with examples from [βerekéra] “call” and [koondókorà] “uncover” verbs. The tenses are arranged following the melodic H tones of the negative tenses. The tenses in (37) are not included in Table 4.4 because they do not undergo morphological negation.

- (37) a. Hortatory Imperative (1)
 b. Hortatory Imperative (2)
 c. Hortatory Imperative (3)
 d. Subjunctive
 e. Mandatory Imperative
 f. Narrative Past
 g. Hodiernal Future Uncertain Possibility
 h. Untimed Real Uncertain Condition Focused

A comparison between the affirmative and the negative paradigms shows that the additional post verbal morpheme *hai*, not only reinforces negation but also lengthens the domain of spreading. In such cases, the melodic high tone in the macrostem spreads one additional vowel to the right to reach the penult (compare 38a with 38b).

- (38) a. Remote Past Focused

/ne - βa - a - βereker - er - e/ f - sm - t - call - pf - fv	→	mbaa[βérékééje]	“(indeed) they called (then)”
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- b. Negative Remote Past

/te - βa - a - βereker - er - e hai/ f - sm - t - call - pf - fv not	→	téβaa[βérékééjé hai]	“they did not call (then)”
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A look at Table 4.4 reveals three tone assignment principles; V1H, V2H, and V3H, and that all these /te-/ negative tenses undergo spreading.

Table 4.4: Tonal Patterns in Finite Verbs with /te...hai/ Negation

<i>Negative Tense Tone Melody</i>	<i>Tense</i>	<i>Example</i>	<i>Gloss</i>
V1 (Spread)	Habitual Past Focused	mbaaká[βérékééje]	“(indeed) they used to call (then)”
		n1 téβaaká[βérékééje hai]	“they never used to call”
		mbaayá[kóóndókóóje]	“(indeed) they used to uncover (then)”
		n1 téβaayá[kóóndókóóje hai]	“they never used to uncover”
	Untimed Past Anterior Focused	mbaa[βérékéra]	“(indeed) they have (already) called”
		n1 téβaa[βérékéra hai]	“they have not (yet) called (up to now)”
		mbaa[kóóndókóra]	“(indeed) they have (already) uncovered”
		n1 téβaa[kóóndókóra hai]	“they have not (yet) uncovered (up to now)”
	Untimed Past Anterior	βaa[βerekéra]	“they have (already) called”
		n1 téβaa[βérékéra hai]	“they have not (yet) called”
		βaa[koondókóra]	“they have (already) uncovered”
		n1 téβaa[kóóndókóra hai]	“they have not yet uncovered”
	Remote Past Focused	mbaa[βérékééje]	“(indeed) they called/ did call (then)”
		n1 téβaa[βérékééje hai]	“they did not call (then)”
		mbaa[kóóndókóóje]	“(indeed) they uncovered/did uncover (then)”
		n1 téβaa[kóóndókóóje hai]	“they did not uncover (then)”

<i>Negative Tense Tone Melody</i>	<i>Tense</i>	<i>Example</i>	<i>Gloss</i>
	Untimed Past Anterior Condition Focused	mbakaa[βérékééje]	“(indeed) they would have called (anytime before now/then)”
		n1 teβákaa[βérékééje hai]	“they would not have called (anytime before now)”
		mbayaa[kóóndókóóje]	“(indeed) they would have uncovered (anytime before now/then)”
		n1 teβáyaa[kóóndókóóje hai]	“they would not have uncovered (anytime before now/then)”
	Immediate Future Focused	mbaraá[βérékére]	“(indeed) they will call (now)”
		n1 teβáraá[βérékére hai]	“they will not call (now)”
		mbaraá[kóóndókóre]	“(indeed) they will uncover (now)”
		n1 teβáraá[kóóndókóre hai]	“they will not uncover (now)”
	Untimed Ability Focused	mbakaa[βérékéra]	“(indeed) they are able to call”
		n1 teβákaa[βérékéra hai]	“they cannot/are unable to call”
		mbayaa[kóóndókóra]	“(indeed) they are able to uncover”
		n1 teβáyaa[kóóndókóra hai]	“they cannot/are unable to uncover”
	Untimed Present	βa[βérékéra]	“they call (fact)”
		n1 teβááko[βérékéra háí]	“they are no longer calling”
		βa[kóóndókóra]	“they uncover (fact)”
		n1 teβááyo[kóóndókóra hai]	“they are no longer uncovering”

<i>Negative Tense Tone Melody</i>	<i>Tense</i>	<i>Example</i>	<i>Gloss</i>
V2 (Spread)	Hodiernal Past Progressive Anterior Focused	mbaaka[βerekééje]	“(indeed) they have been calling (today)”
		n1 teβááká[βerekééje hai]	“they have not been calling (today)”
		mbaaya[koóndókóóje]	“(indeed) they have been uncovering (today)”
		n1 teβááyá[koóndókóóje hai]	“they have not been uncovering (today)”
V3 (Spread)	Hodiernal Past Anterior Focused	mba[βerekééje]	“(indeed) they called (earlier today)”
		n1 teβá[βerekééje hai]	“they did not call (earlier today)”
		mba[koondókóóje]	“(indeed) they uncovered (earlier today)”
		n1 teβá[koondókóóje hai]	“they did not uncover (earlier today)”
	Remote Future Focused	mbare[βerekéra]	“(indeed) they will call (then)”
		n1 teβáré[βerekéra hai]	“they will not call (then)”
		mbare[koondókóra]	“(indeed) they will uncover (then)”
		n1 teβáré[koondókóra hai]	“they will not uncover (then)”
	Remote Future	βaree[βerekéra]	“they will call (then)”
		n1 teβáré[βerekéra hai]	“they will not call (then)”
		βaree[kóondókóra]	“they will uncover (then)”
		n1 teβáré[koondókóra hai]	“they will not uncover (then)”
	Current Present Persistent	mbake[βerekééje]	“(indeed) they are still calling”

<i>Negative Tense Tone Melody</i>	<i>Tense</i>	<i>Example</i>	<i>Gloss</i>
	Focused	n1 teβáké[βérekeéjé hai]	“they are no longer calling”
		mbaye[koondókóóje]	“(indeed) they are still uncovering”
		n1 teβáyé[koondókóójé hai]	“They are no longer uncovering”
	Immediate Past Anterior (3 rd Person)	βaa[βérékeéje]	“they have just called”
		n1 teβá[βérekeéjé hai]	“they have not yet called”
		βaa[kóondókóóje]	“they have just uncovered”
		n1 teβá[koondókóójé hai]	“they have not yet uncovered”
	Immediate Past Anterior (1 st & 2 nd Person)	too[βerekeéje]	“we have just called”
		n1 tetó[βérekeéjé hai]	“we have not yet called”
		too[koondokóóje]	“we have just uncovered”
		n1 tetó[koondókóójé hai]	“we have not yet uncovered”

4.3.2.1 Pre-Macrostem Domain

Up until now, I have discussed high tones as being assigned in the macrostem only, those in the pre-macrostem domain being lexical high tones. The analysis of /te...hai/ negation is interesting because, unlike the /ta-/ negative, it contributes a high tone to the verb. This high tone surfaces either on the /te-/ prefix or on the subject prefix, occasionally spreading to the macrostem. Generally, high tones in the pre-macrostem domain tend to have little or no effect on the tones that appear in the macrostem. Nevertheless, the analysis of tones in the macrostem will not be complete until we look at the patterns in the prefix domain. I will therefore start by providing the patterns of high tones in the pre-macrostem domain.

CV-CV́ Pattern

This pattern has two short syllables and the second syllable, which is a subject prefix, has a high tone.

- (39) a. Negative Hodiernal Past Anterior
teβá[koondókóójé hai] “they did not uncover (earlier today)”
- b. Negative Immediate Past Anterior (Third Person)
teβá[koondókóójé hai] “they have not yet uncovered”
- c. Negative Immediate Past Anterior (Second Person)
tetó[koondókóójé hai] “we have not yet uncovered”

CV́-CVV Pattern

The pre-macrostem domain can have two syllables, the first short and the second long. In such cases, a high tone falls on the first syllable.

- (40) a. Negative Untimed Past Anterior
 téβaa[kóóndókórá hai] “they have not (yet) uncovered (up to now)”
- b. Negative Remote Past Focused
 téβaa[kóóndókóójé hai] “they did not uncover (then)”

CV-CV́-CV́ Pattern

This pattern has three short syllables in the pre-macrostem domain with the second and third syllables being high toned.

- (41) a. Negative Remote Future
 teβáré[koondókórá hai] “they will not uncover (then)”
- b. Negative Current Present Persistent
 teβáyé[koondókóójé hai] “they are no longer uncovering”

CV-CV́-CVV Pattern

This pattern has three syllables, two short and one long. The second syllable carries the high tone.

- (42) a. Negative Untimed Past Anterior Condition
 teβáyaa[kóóndókóójé hai] “they would not have uncovered (anytime before now)”
- b. Negative Untimed Ability
 teβáyaa[kóóndókórá hai] “they cannot/are unable to uncover”

The Negative Immediate Future, *teβáraá[kóóndókóré hai]* “they will not uncover (now)”, should also fall in this pattern if we ignore the lexical high tone on the tense prefix.

CV-CV́V-CV́, CV́-CVV-CV́, CV-CV́V-CV Patterns

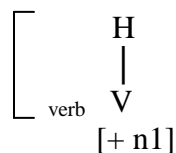
The tenses in this group do not follow a uniform pattern. There are three syllables in the pre-macrostem domain and the second syllable is long. The Negative Habitual Past, the Hodiernal Past Progressive Anterior have a lexical high tone on the tense prefix.

- (43) a. Negative Habitual Past
 téβaayá[kóóndókóójé hai] “they never used to uncover”
- b. Negative Hodiernal Past Progressive Anterior
 teβááyá[koóndókóójé hai] “they have not been uncovering (today)”
- c. Negative Untimed Present
 teβááyó[kóóndókórá hai] “they are no longer uncovering”

4.3.2.2 Pre-Macrostem Domain Rules

After presenting the data in §4.3.2.1, I now turn to its analysis. The first rule that we need is a morphological rule to assign a high tone to the negative /te-/ prefix. This is formulated in (44).

(44) /te-/ Negative H Docking



“Assign a high tone on the first vowel of the verb in a /te-/ negative verb”

After a high tone has been assigned to /te-/, another rule, which I will call /te-/ *H Tone Spread*, is needed to spread the high tone iteratively, stopping one syllable before the melodic H due to OCP restrictions (see (45)).

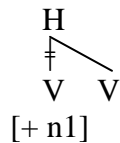
(45) /te-/ H Tone Spread



“Spread the high tone iteratively until one syllable from a melodic H”

This rule will be followed by a third rule which delinks the high tone on the /te-/ negative prefix if the high has spread. Delinking requires that a high tone be linked to at least two vowels. The rule therefore predicts that in a configuration where a linked H cannot spread, it will not be delinked.

(46) /te-/ H Delinking



The three rules in (44), (45) and (46) are ordered in that sequence after the ITAR rule. The example in (47a) has a high tone on /te-/ negative prefix, but (47b) has a high on the subject prefix. In (47a), only rules (44) and (45) apply, but in (47a), all the three rules – (44), (45) and (46) apply.

(47) a. Negative Untimed Past Anterior

té-βa-a-[βérékér-á hai]

“they have not (yet) called”

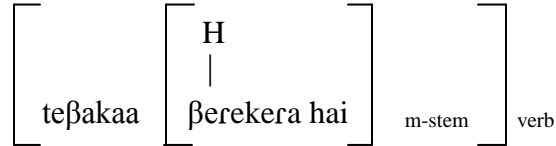
b. Negative Untimed Ability

te-βá-kaa-[βérékér-á hai]

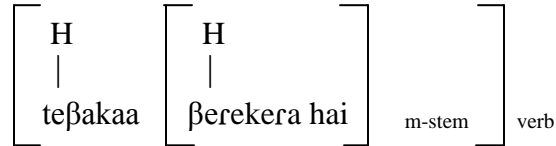
“they cannot/are unable to call”

I now proceed to derive (47b) *teβákaa[βérékéra hai]* “they cannot/are unable to call” to demonstrate how tones are assigned in this group.

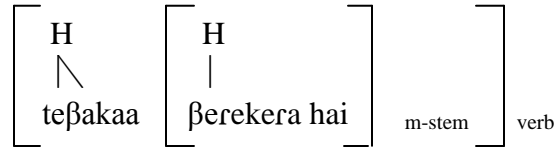
(48) / te - βa - kaa [bereker - a hai] / UR: “they cannot/are unable
n1 - sm - t [call - fv not] m-stem to call”



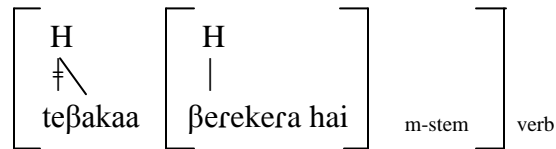
ITAR (I)



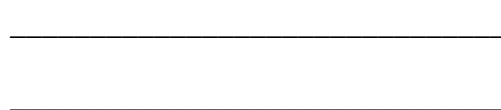
/te-/ Negative H Docking



/te-/ H Tone Spread

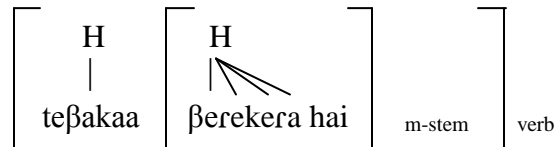


/te-/ H Delinking

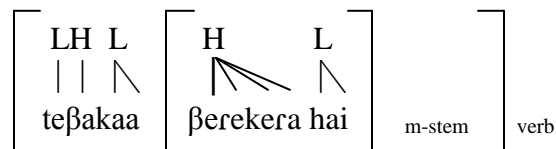


Intra-Syllabic H Spread

Doubling



High Tone Spread



L Tone Default

_____	Floating Tone Docking
_____	Leftward Spread
_____	Contour Simplification
teβákaa[βérékérá hai]	Output

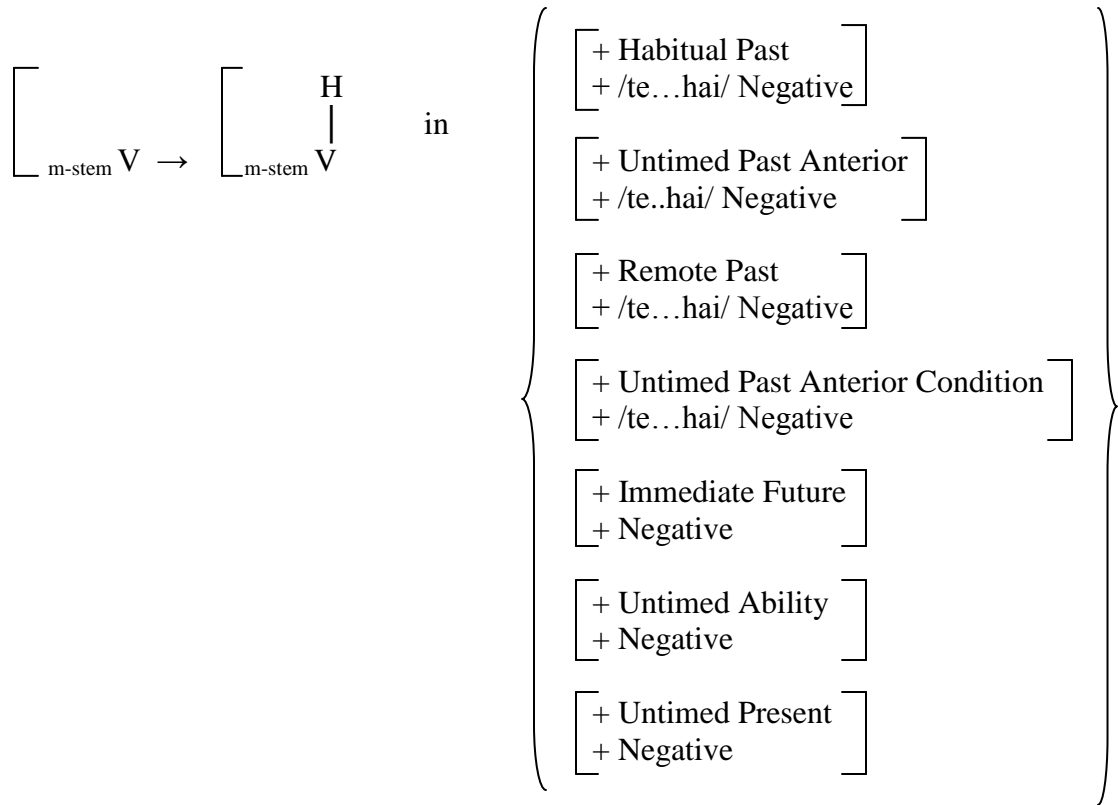
In this section, I have used shifting to account for the tonal patterns in the pre-macrostem domain. Shifting involves two rules, spreading and delinking. The first rule spreads a high tone from the tone bearing unit that contributes it to the targeted vowels. A delinking rule follows and severs the multiply-linked high from the vowel with the primary high tone. So far, this is the only time I have used delinking to indicate tone mobility in the verb.

After laying out the rules necessary to account for high tones in the pre-macrostem domain of the /te-/ negative tenses, I now proceed to show the melodies that apply in these tenses.

4.3.2.3 Tone Assignment Principle 1a: Melodic V1H (Spread)

This principle assigns a primary high tone on the first vowel of the macrostem that subsequently spreads to the penult. Seven out of the eight negative tenses in this tone assignment principle have V1H corresponding affirmative tenses. The ITAR rule in (49) also serves to indicate the tenses involved in this tone assignment principle. Since the Untimed Past Anterior Focused and the Untimed Past Anterior have the same negative tense, both are represented by a single rule.

(49) ITAR (I)



To illustrate this rule, I provide a number of verbs in (50) from the Negative Remote Past.

(50) Negative Remote Past

- | | | | |
|--|---|------------------------|----------------------------------|
| a. /te - βaa - re - er - e hai/
n1 - sm - eat - pf - fv not | → | téβaa[rééjé hai] | “they did not
(then)” |
| b. /te - βaa - rom - er - e hai/
n1 - sm - bite - pf - fv not | → | téβaa[róméré hai] | “they did not
bite (then)” |
| c. /te - βaa - βereker - er - e hai/
n2 - sm - call - pf - fv not | → | téβaa[βérékééjé hai] | “they did not
call (then)” |
| d. /te - βaa - koNrokor - er - e hai/
n1 - sm - uncover - pf - fv not | → | téβaa[kóóndókóójé hai] | “they did not
uncover (then)” |

4.3.2.4 Tone Assignment Principle 2: Melodic V2H (Spread)

In this pattern, the primary high tone appears on the second vowel of the macrostem. The only negative tense with such a pattern is the Negative Hodiernal Past Progressive Anterior. The ITAR rule that applies for this tense is given in (51).

(51) ITAR (II)

$$\left[\begin{array}{c} \text{m-stem} \\ \text{V V} \end{array} \right] \rightarrow \left[\begin{array}{c} \text{H} \\ | \\ \text{m-stem} \\ \text{V V} \end{array} \right] \text{ in } \left\{ \left[\begin{array}{c} + \text{Hodiernal Past Progressive Anterior} \\ + \text{Negative} \end{array} \right] \right\}$$

“Associate the melodic H tone to the second vowel of the macrostem in the Negative Hodiernal Past Progressive Anterior.”

The affirmative counterpart, the Hodiernal Past Progressive Anterior Focused, is also a melodic V2H tense. In (52), I provide its new ITAR rule just for comparative purposes.

(52) ITAR (II)

$$\left[\begin{array}{c} \text{m-stem} \\ \text{V V} \end{array} \right] \rightarrow \left[\begin{array}{c} \text{H} \\ | \\ \text{m-stem} \\ \text{V V} \end{array} \right] \text{ in } \left\{ \left[\begin{array}{c} + \text{Hodiernal Past Progressive Anterior Focused} \\ - \text{Negative} \end{array} \right] \right\}$$

“Associate the melodic H tone to the second vowel of the macrostem in the Hodiernal Past Progressive Anterior Focused.”

The verb forms in (53) confirm that the Negative Hodiernal Past Progressive Anterior places a high tone on V2 and the H spreads to the penult. The high tone contributed by /te-/ negative is realized on the subject prefix after /te-/ H Tone Spread.

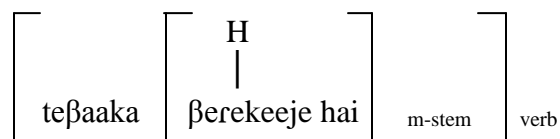
(53) Negative Hodiernal Past Progressive Anterior

- a. /te - βa - aka - re - er - e hai/ → teβááká[reéjé hai] “they have not
n1 - sm - t - eat - pf - fv not been eating (today)”
- b. /te - βa - aka - rom - er - e hai/ → teβááká[roméré hai] “they have not
n1 - sm - t - bite - pf - fv not been biting (today)”
- c. /te - βa - aka - βereker - er - e hai/ → teβááká[βerékééjé hai] “they have
n1 - sm - t - call - pf - fv not not been calling (today)”
- d. /te - βa - aka - koNrokor - er - e hai/ → teβááyá[koóndókóójé hai] “they have
n1 - sm - t - uncover - pf - fv not been uncovering (today)”

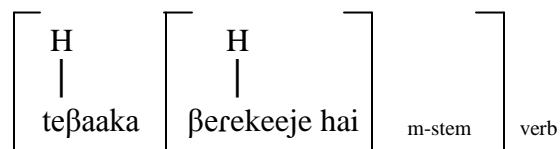
A derivation of *teβááká[βerékééjé hai]* “they have not been calling (today)” follows in

(54).

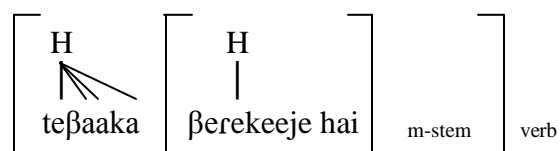
- (54) / te - βa - aka [βereker - er - e hai / UR: “they have not been
n1 - sm - t [call - pf - fv not m-stem calling (today)”



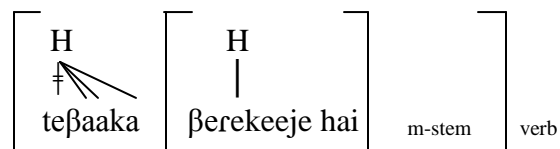
ITAR (II)



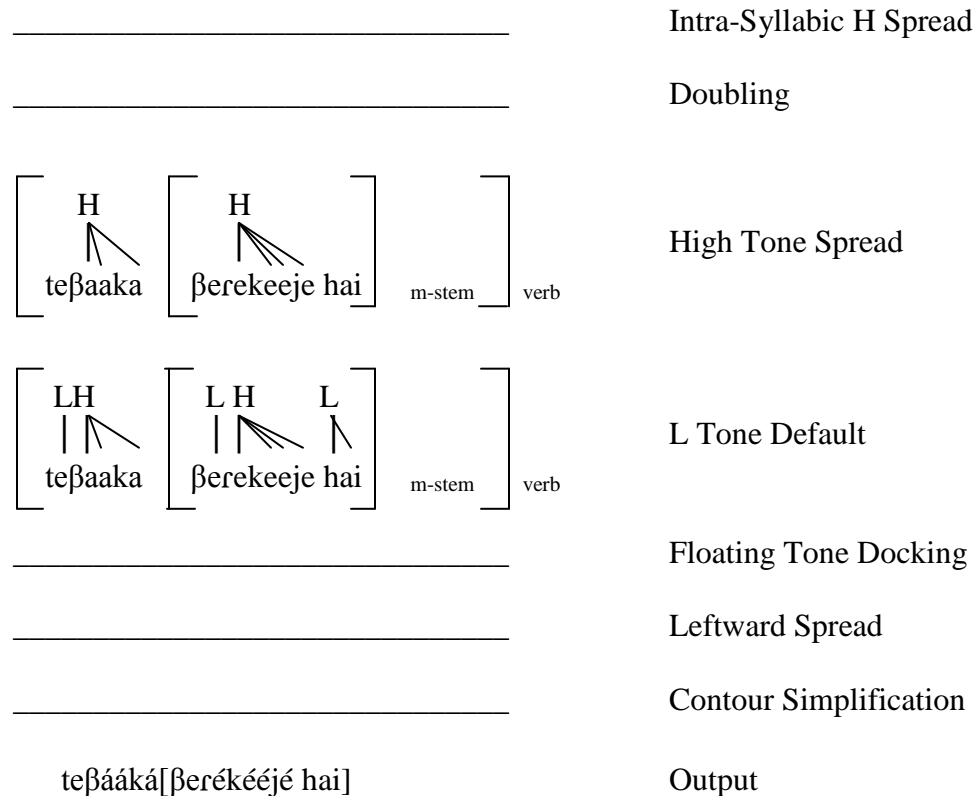
/te-/ Negative H Docking



/te-/ H Tone Spread



/te-/ H Delinking



4.3.2.5 Tone Assignment Principle 3a: Melodic V3H (Spread)

This group involves the assignment of a high tone on V3 of the macrostem. The tenses here could easily pass as melodic V1 and V3 but a comparison of the examples in (55) shows that this is not the case. The high tone seen on V1 in (55a) is not a primary high tone; it must have spread there from a preceding H. Evidence for this is found in verbs with a long vowel occupying V1 and V2, as in (55b). It can be seen that the first long syllable in the macrostem has no high tone. If this tense had a melodic high on V1, the primary H could dock on V1 of the long syllable and spread to V2, but this has not happened. Also, we have not seen any V1 and V3 patterns elsewhere in the language. My

view is that V3 is the melodic H and the high tone contributed by /te-/ negative doubles onto V1 in (55a).

(55) Negative Hodiernal Past Anterior

- a. teβá[βérekééjé hai] “they have not called (today)”
 b. teβá[koondókóójé hai] “they have not uncovered (today)”

The ITAR rule for this tense is formalized in (56).

(56) ITAR (III)

$$\left[\text{m-stem VVV} \right] \rightarrow \left[\text{m-stem VVV} \begin{array}{c} \text{H} \\ | \end{array} \right] \text{ in } \left\{ \begin{array}{l} \left[\begin{array}{l} + \text{Hodiernal Past Anterior} \\ + \text{Negative} \end{array} \right] \\ \left[\begin{array}{l} + \text{Remote Future} \\ + \text{Negative} \end{array} \right] \\ \left[\begin{array}{l} + \text{Current Present Persistent} \\ + \text{Negative} \end{array} \right] \\ \left[\begin{array}{l} + \text{Immediate Past Anterior} \\ + \text{Negative} \end{array} \right] \end{array} \right\}$$

The examples given in (57) are drawn from the Negative Remote Future.

(57) Negative Remote Future

- a. /te - βa - re - re - a hai/ → teβaré[rja háí] “they will not eat (then)”
 n1 - sm - t - eat - fv not
 b. /te - βa - re - rom - a hai/ → teβaré[róma háí] “they will not bite (then)”
 n1 - sm - t - bite - fv not
 c. /te - βa - re - βereker - a hai/ → teβaré[βérekérá hai] “they will not call (then)”
 n1 - sm - t - call - fv not
 d. /te - βa - re - koNrokor - a hai/ → teβaré[koondókórá hai] “they will not uncover (then)”
 n1 - sm - t - uncover - fv not

In (57b), we find evidence to suggest that post-verbal *hai* does not always have a low tone. When a verb macrostem is short, the post-verbal syllable *hai* is included in the vowel count and may carry the melodic high tone. This is evidence that the ITAR rule is phrasal. In all the examples in (57), the high tone assigned to /te-/ shifts to the subject prefix.

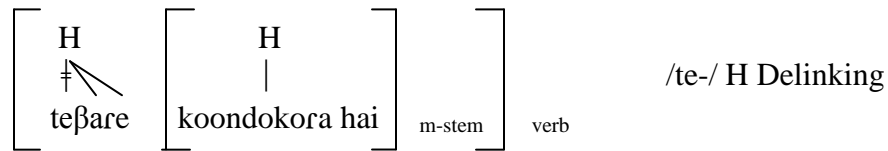
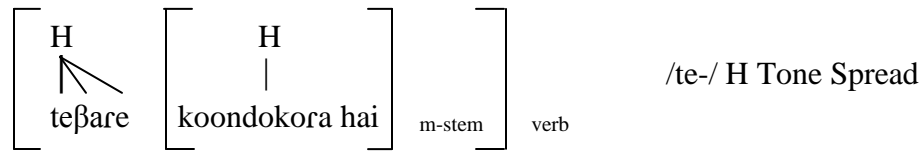
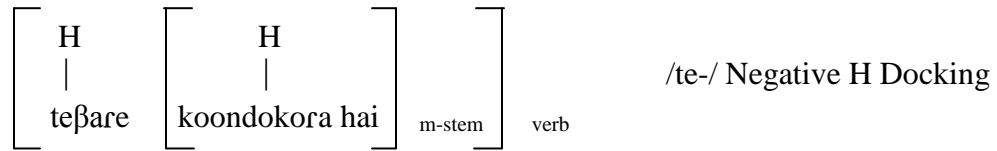
Notice that the following pairs of affirmative tenses (58) share similar negative counterparts in this group.

(58) Affirmative	Negative
a. Remote Future Focused	Negative Remote Future
m-ba-re-[βerekér-a]	te-βá-ré-[βerekér-á hai]
Remote Future	Negative Remote Future
βa-ree-[βéréker-á]	te-βá-ré-[βerekér-á hai]
b. Hodiernal Past Anterior Focused	Negative Hodiernal Past Anterior
m-ba-[βerekééj-e]	te-βá-[βerekééj-é hai]
Immediate Past Anterior	Negative Immediate Past Anterior
βa-a-[βérékeéj-e]	te-βá-[βerekééj-é hai]

I now proceed to give a derivation of *teβaré[koondókórá hai]* “they will not uncover (then)” from the Negative Remote Future.

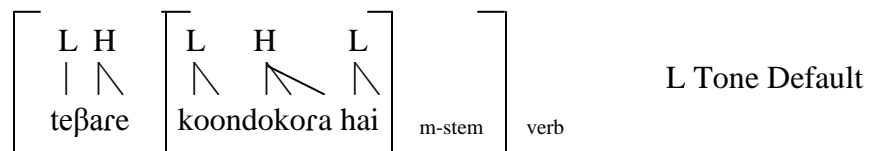
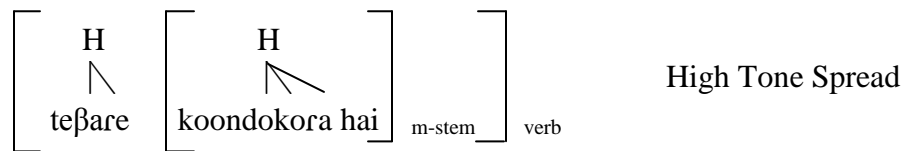
(59) / te - βa - re [koNrokor - a hai] / UR: “they will not uncover
 n1 - sm - t [uncover - fv not] m-stem (then)”

 [teβare [H]] ITAR (III)
 [koondokora hai] m-stem verb



Intra-Syllabic H Spread

Doubling



Floating Tone Docking

Leftward Spread

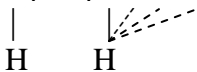
Contour Spread

teβáré[koondókórá hai] Output

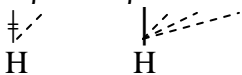
In this section, it has been shown that /te-/ negative contributes a high tone which on the surface remains linked to the same morpheme or may delink and shift to the next

morpheme. It may also spread or not spread. In (60), I give a summary of the different manifestations.

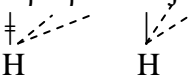
(60) a. H on /te-/ neither spreads nor delinks

Negative Untimed Past Anterior
 te-βaa-βereker-a hai → téβaa[βérékérá hai] “they have not (yet) called (up to now)”


b. H on /te-/ spreads one syllable to the right + single delinking

Negative Untimed Ability
 te-βa-kaa-βereker-a hai → teβákaa[βérékérá hai] “they cannot/are unable to call”


c. H on /te-/ spreads two syllables to the right + single delinking

Negative Immediate Past Anterior
 te-βa-βerekeeje hai → teβá[βérékééjé hai] “they have not yet called”


d. H on /te-/ spreads three syllables to the right + single delinking

Negative Remote Future
 te-βa-re-βereker-a hai → teβáré[βérékérá hai] “they will not call (then)”


4.4 Negation in Infinitives

Infinitives can be negated by using two of the strategies discussed in §4.1: paraphrastic negation or morphological negation. In paraphrastic negation, the verb *anga* “refuse” takes an infinitival form and precedes the verb being negated which drops the augment. This can be seen in (61b).

- (61) a. /o - ko - rom - a/ → oko[róma] “to bite”
 a - im - bite - fv
- b. /o - ko - aNɣ - a o - ko - rom - a/ → okɔ[ʒɛ́gá kóróma] “not to bite”
 a - im - refuse - fv a - im - bite - fv

This is within the realm of complex tenses, and will not be pursued any further.

Morphological negation is achieved by affixing the negative infinitive prefix /tókó-/ to the verb (Chacha & Odden 1998). This morpheme has high tones. The illustration in (62) shows the verbal structure of an infinitival verb.

(62) A IM NEG [MACROSTEM OM [STEM ROOT EXT FV]]

The negative morpheme is found after the infinitival marker and before the object prefix.

- (63) a. Infinitive Verb
 /o - ko - rom - a/ → oko[róma] “to bite”
 a - im - bite - fv
- b. Negative Infinitival Verb
 /o - ko - tókó - rom - a/ → oɣotókó[róma] “not to bite”
 a - im - neg - bite - fv

In (64), I provide short and long verbs in the Negative Infinitive. The tonal pattern remains that of V1H and V4H but, as in the Narrative Past (see §3.2.7.2), the third vowel of the macrostem is low.

- (64) Negative Infinitive
 a. /o - ko - tókó - re - a/ → oɣotókó[rja] “not to eat”
 a - im - neg - eat - fv

- b. /o - ko - tókó - saNβ - a/ → oγotókó[sáámba] “not to burn”
a - im - neg - burn - fv
- c. /o - ko - tókó - βereker - a/ → oγotókó[βérékerá] “not to call”
a - im - neg - call - fv
- d. /o - ko - tókó - karaNγ - a/ → oγotókó[káaraŋgá] “not to fry”
a - im - neg - fry - fv
- e. /o - ko - tókó - heetok - a/ → oγotókó[héétoká] “not to bite”
a - im - neg - remember - fv
- f. /o - ko - tókó - koNrokor - a/ → oγotókó[kóóndokóra] “not to uncover”
a - im - neg - uncover - fv

4.5 Summary of ITAR Rules

The following are the revised ITAR rules. Compared with the ITAR rules used in previous chapters, these are not different, but the features [+ negative] and [- negative] have been added. I place the old rules side by side with the new rules for ease of comparison. When corresponding /ta-/ and /te-/ negative tenses use the same ITAR, I add a [+ negative] feature to the bundle, but when they have different ITAR rules, then the specific morpheme (/ta-/ or /te-/) is used.

Table 4.5: ITAR Rules

<i>Old ITAR Rules</i>	<i>New ITAR Rules</i>
ITAR (I)	
[+ Habitual Past Focused]	[+ Habitual Past Focused - Negative]
	[+ Habitual Past + /te-/ Negative]
[+ Untimed Past Anterior Focused]	[+ Untimed Past Anterior Focused - Negative]
	[+ Untimed Past Anterior + /te-/ Negative]
[+ Remote Past Focused]	[+ Remote Past Focused - Negative]
	[+ Remote Past + /te-/ Negative]
[+ Untimed Past Anterior Cond. Focused]	[+ Untimed Past Anterior Cond. Focused - Negative]
	[+ Untimed Past Anterior Condition + /te-/ Negative]
[+ Untimed Ability Focused]	[+ Untimed Ability Focused - Negative]

	[+ Untimed Ability + Negative]
[+ Immediate Future Focused]	[+ Immediate Future Focused - Negative]
	[+ Immediate Future + Negative]
[+ Untimed Present]	[+ Untimed Present - Negative]
	[+ Untimed Present + Negative]
[+ Hortatory Imperative (2)]	[+ Hortatory Imperative (2) - Negative]
ITAR (II)	
[+ Hodiernal Past Prog. Anterior Focused]	[+ Hodiernal Past Prog. Anterior Focused - Negative]
	[+ Hodiernal Past Prog. Anterior + Negative]
ITAR (III)	
[+ Subjunctive]	[+ Subjunctive - Negative]

[+ Hodiernal Past Anterior Focused]	<div> <div>+ Hodiernal Past Anterior Focused</div> <div>- Negative</div> </div>
	<div> <div>+ Hodiernal Past Anterior</div> <div>+ Negative</div> </div>
[+ Untimed Past Anterior]	<div> <div>+ Untimed Past Anterior</div> <div>- Negative</div> </div>
	<div> <div>+ Untimed Past Anterior</div> <div>+ /ta-/ Negative</div> </div>
[+ Remote Future Focused]	<div> <div>+ Remote Future Focused</div> <div>- Negative</div> </div>
	<div> <div>+ Remote Future</div> <div>+ Negative</div> </div>
[+ Current Present Persistent Focused]	<div> <div>+ Current Present Persistent Focused</div> <div>- Negative</div> </div>
	<div> <div>+ Current Present Persistent</div> <div>+ Negative</div> </div>
[+Untimed Real Uncertain Con. Focused]	<div> <div>+ Untimed Real Uncertain Con. Focused</div> <div>- Negative</div> </div>
[+ Mandatory Imperative]	<div> <div>+ Mandatory Imperative</div> <div>- Negative</div> </div>

	<div>[+ Immediate Past Anterior + Negative]</div>
	<div>[+ Remote Past + /ta-/ Negative]</div>
	<div>[+ Narrative Past + /ta-/ Negative]</div>
ITAR (IV)	
[+ Immediate Past Anterior 1 st & 2 nd P.)]	<div>[+ Immediate Past Anterior + me, + you - Negative]</div>
[+ Hortatory Imperative (3)]	<div>[+ Hortatory Imperative (3) + me, + you]</div>
ITAR (I) & (IV)	
[+ Narrative Past]	<div>[+ Narrative Past - Negative]</div>
[+ Hodiernal Future Uncertain Possibility]	<div>[+ Hodiernal Future Uncertain Possibility - Negative]</div>
[+ Remote Future]	<div>[+ Remote Future - Negative]</div>
[+ Immediate Past Anterior]	<div>[+ Immediate Past Anterior - me, - you - Negative]</div>

[+ Hortatory Imperative (3)]	<div> <div>+ Hortatory Imperative (3)</div> <div>- me, - you</div> </div>
	<div> <div>+ Untimed Past Anterior Condition</div> <div>+ /ta-/ Negative</div> </div>
	<div> <div>+ Hortatory Imperative (1)</div> <div>+ /ta-/ Negative</div> </div>
No Stem H	
[+ Hortatory Imperative (1)]	<div> <div>+ Hortatory Imperative (1)</div> <div>- Negative</div> </div>
	<div> <div>+ Habitual Past</div> <div>+ /ta-/ Negative</div> </div>

4.6 Conclusion

This chapter focused on negative tenses, comparing them with the affirmative tenses. I showed that there are many strategies for negating verbs in Kuria but I only analyzed the morphological affixes: /te-/ and /ta-/. While /te-/ must co-occur with the adverbial /hai/ and triggers a high tone on the prefix, /ta-/ is a single affix negation which does not trigger a high tone. In the /te...hai/ form of negation, the tonal patterns on the macrostem did not differ drastically from those in the corresponding affirmative tenses. In the /ta-/ form, we saw varying tonal patterns in the macrostem. Lastly, a comprehensive list of the ITAR rules was provided.

Chapter Five

Verbal Reduplication

5. Introduction

This chapter provides an account of the main features of Kuria verbal reduplication. It shows that although segmental content is transferred from the Base to the reduplicant, tone does not transfer. I follow Downing (2001) in arguing that tone can be accounted for in Kuria reduplication by considering the reduplicant and Base as one tonal domain. The representational system used to discuss tone in chapters three and four is used to capture the tonal patterns in reduplication. Most of the verb forms I will be citing are infinitives since they share the same properties as finite forms in reduplication.

This chapter is organized in to four main sections. The first section presents the basic facts about Kuria reduplication. The second section addresses segmental reduplication. The third section handles the issue of tone in reduplication. I choose to talk about tones last because, as will be seen, their assignment turns out to be very simple. Finally, there are concluding remarks on the chapter.

5.1 Kuria Reduplication Facts

As in other Bantu languages, reduplication in Kuria is a highly productive process (Schadeberg 2003, Matondo 2003). In this language, reduplication can be described as a morphophonological process in which a whole or part of the root or the stem is repeated. I start by introducing two crucial terms that are frequently used in reduplication: Base and

reduplicant. The Base¹³ is the word, or part of a word, that is to be copied, and the copied element is the reduplicant (RED). This is illustrated in (1).

- (1) a. /o - ko - heetok - a/ → oko[héétóká] “to remember”
 a - im - remember - fv
- b. o-ko-[héétó+héétók-a] “to remember repeatedly”
- ```

graph TD
 A["o-ko-[<u>héétó</u>+héétók-a]"] --- B["Prefix"]
 A --- C["RED"]
 A --- D["Base"]
 B --- B1["o-ko-"]
 C --- C1["<u>héétó</u>"]
 D --- D1["héétók-a"]

```

The verb stem acts as the Base for the reduplicant, and after copying has taken place the reduplicant is prefixed to and becomes part of that stem. As we have seen in chapters three and four, the macrostem is an important domain of tone association. We will return to the issue of tone in reduplication in §5.3. In this work, I adhere to the notational conventions of separating the reduplicant and the Base with the addition symbol (+), reserving the hyphen (-) for internal morpheme breaks where necessary. To make the illustrations clearer, the reduplicant will be underlined. The examples in this chapter will consist of reduplicated forms preceded by the underlying and surface forms of the basic verb.

The examples in (1) further serve to illustrate that in Kuria, as in many Bantu languages such as Kinande (Mutaka & Hyman (1990), Kikuyu (Peng 1992), Kikerewe (Odden 1996), and Kisukuma (Matondo (2003), prefixes such as the infinitival markers do not copy.

<sup>13</sup> I use an upper case letter for “Base” to differentiate it from “base” which refers to a verb root with the extension suffixes but without the final vowel (see Chapter Two, (2)).

Reduplication has been semantically characterized in many languages as “increase in quantity and quality” (Moravcsik 1978, Cammenga 2004). The basic meanings that Kuria reduplication adds to the core meaning of the verb root are given in (2). The meaning will vary depending on individual verbs.

- (2) a. repetition or frequency of an action or event.
- b. intensity of action or event.
- c. continuation of action or event.

In addition, reduplication may also convey the meaning of “an action done poorly or without seriousness”. It is possible for a verb to carry more than one of these meanings at a time. I will use the meaning “to V repeatedly” in the glosses for ease of reference, unless this meaning is totally absent.

Further, reduplication in Kuria can either copy only part of the segments of the Base (partial reduplication) or a complete stem (total reduplication), as shown in (3).

- |                                      |        |                          |                       |
|--------------------------------------|--------|--------------------------|-----------------------|
| (3) a. /o - ko - heetok              | - a/ → | oko[héétóká]             | “to remember”         |
| a - im - remember - fv               |        |                          |                       |
| b. o-ko-[ <u>héétó</u> +héétók-a]    |        | “to remember repeatedly” | partial reduplication |
| c. o-ko-[ <u>héétók-á</u> +héétók-a] |        | “to remember repeatedly” | total reduplication   |

Reduplication in Bantu has been described as a morphological process of affixation (Katamba 1993) whereby the reduplicant can be a prefix, infix, or suffix. The position I take in this discussion is that verbal reduplication in Kuria involves prefixation for consonant-initial verbs and infixation for /i/-initial verb stems. It is, however, difficult to tell whether this is so when we look at the case of total reduplication in (3c). Evidence in



support of prefixation is found in partial reduplication (see 3b), where the base is retained in full but the reduplicant is shorter. The direction of copying for the Kuria reduplicant is therefore leftward, that is, left-to-right ( $L \rightarrow R$ ). This means that the copied segments are prefixed to the base.

When reduplication takes place in Kuria, the reduplicant is repeated only once, as shown in (4).

- (4) a. /o - ko - rom - a/                       $\rightarrow$       oko[róma]                      “to bite”  
          a - im - bite - fv
- b. o-ko-[róm-á+rom-á]                                      “to bite repeatedly”  
       c. \* o-ko-[róm-á+rom-á+róm-á]

With this background in mind, I now turn to segmental reduplication.

## 5.2 Segmental Reduplication

Although the focus of this study is tone, the pronounced interaction between segmental phonology and tone makes it important for us to lay out segmental reduplication before proceeding to the discussion of tone in reduplication.

### 5.2.1 Minimality of the Reduplicant

It has been argued that the reduplicant is not simply a copy of segments from the stem but that it must satisfy a requirement of minimum size (Poletto 1998, Kager 1999). The reduplicant must be two syllables long. In fact, in many Bantu languages the reduplicant has been described as minimally and maximally disyllabic, for example in Kinande (Mutaka & Hyman 1990), Kikuyu (Peng 1992), and Ndebele (Hyman, Inkelas,

& Sibanda 1998). In §3.2.2.2 we discussed the minimality condition in Kuria and specifically looked at how monosyllabic stems expand so as to meet the disyllabic minimality. In Kuria, as in Kirundi (Brassil 2003) and Lusaamia (Marlo 2004), the reduplicant is minimally disyllabic but maximally it can be of any length. The example in (5) bears out this fact.

- (5) a. /o - ko - tɛɾɛk - a/                      →              oɣo[tɛɾɛ́ká]                      “to brew”  
           a - im - brew - fv
- b. o-ɣo-[tɛɾɛ́k-a+tɛɾɛ́k-a]                      “to brew repeatedly”  
       c. o-ɣo-[tɛɾɛ́+tɛɾɛ́k-a]                      “to brew repeatedly”  
       d. \*o-ɣo-[tɛ́+tɛɾɛ́k-á]

In example (5b), the whole Base is copied to the reduplicant; but in (5c) the material copied is less than the Base. In the later case, only the first two syllables, /tɛɾɛ-/, are copied; the final syllable /-ka/ is not copied. Both examples, (5b) and (5c), meet the disyllabic requirement. The last example, (5d), has a reduplicant containing only the first syllable of the base /tɛ-/. This is an impossible form because it does not meet the minimality condition. The fact that the reduplicant in (5) can copy two syllables and not one confirms that the minimality condition is active in this language. Even when we look at this as total copying followed by truncation, a minimum of two syllables must remain after truncation. This condition is not influenced by the number of moras or vowels but rather the number of syllables. Example (3), which has a word with a long vowel, is reproduced below as (6) to illustrate this point.

- (6) a. /o - ko - heetok - a/ → oko[héétóká] “to remember”  
       a - im - remember - fv
- b. o-ko-[héétó+héétók-a] “to remember repeatedly” partial reduplication  
   c. o-ko-[héétók-á+héétók-a] “to remember repeatedly” total reduplication  
   d. \*o-ko-[héé+héétók-a]

In (6b), the Base is *heetoka* and the reduplicant is *heeto-*. The latter has three vowels but two syllables. The minimality condition treats a CVVCV verb just as CVCV, both are disyllabic. The example in (6c) illustrates total reduplication, showing that maximally the whole base, regardless of length, can be copied. The first two syllables of a verb must always be copied, whether in partial or total reduplication.

A closer look at the examples in (5) and (6) brings to the fore the question of how copying is done. Mutaka & Hyman (1990:83) show that in Kinande reduplication there is a restriction on partial copying such that only entire morphemes are copied. This is captured in their Morpheme Integrity Constraint stated in (7).

(7) Morpheme Integrity Constraint

Mapping a melody to a reduplicative template takes place by morpheme. If the whole of a morpheme cannot be successfully mapped into the bisyllabic reduplicative template, then none of the morpheme may be mapped.

This constraint guarantees that partial copying of morphemes is blocked. As we have seen in (5) and (6) above, Kuria violates this constraint by copying part of the root morpheme; for example, *terε-* from the root *terεk-*, and *heeto-* from the root *heetok-*. Kuria therefore differs from Kinande in how it copies in reduplication.

I have been discussing the minimality condition as it applies in reduplication. The forms that need special attention with this rule are the monosyllabic verbs. In the next section, I show how monosyllabic forms fulfill this condition.

### 5.2.2 Monosyllabic Verbs

In §2.4.3.1, I showed that there are fifteen monosyllabic verbs in Kuria. These are formed through a combination of a single consonant, vowel, or a consonant followed by a glide, with the final vowel /-a/. When the Base for reduplication is too short, as in these cases, reduplication does not occur, because the disyllabic minimality requirement is not met. This is shown in (8).

- (8) a. /o - ko - ju - a/ → uku[nwá] “to drink”  
       a - im - drink - fv  
       \*u-ku-[nw-á+nw-á]
- b. /o - ko - se - a/ → oyo[sjá] “to grind”  
       a - im - grind - fv  
       \*o-γo-[sj-á+sj-á]

Bantu languages have various strategies that they use to satisfy disyllabic minimality. In Kuria, monosyllabic verbs can reduplicate by incorporating additional segmental material. Some tenses, such as the Immediate Past Anterior, have a perfective morpheme as a suffix. When monosyllabic verbs are used in such tenses, they are lengthened by the perfective morpheme and consequently they are able to reduplicate.

(9) a. h - a                      “give”

/βa - a - h      - er - e/ →      βaa[háájé]      “they have just given”  
sm - t - give - pf - fv

βa-a-[há-áj-é+há-áj-e]      “they have just given repeatedly”

b. sj - a                      “grind”

/βa - a - se      - er - e/ →      βaa[sééjé]      “they have just ground”  
sm - t - grind - pf - fv

βa-a-[sé-éj-é+sé-éj-e]      “they have just ground repeatedly”

Note that the subject markers and the prefixal tense markers in (9) do not take part in reduplication.

Another mechanism that this language uses to satisfy disyllabic minimality, and thus facilitates reduplication, is the addition of an object prefix. The effect of the object prefixes is particularly seen in tenses that do not include the perfective suffix. The examples that follow are drawn from two different tenses.

(10) Hortatory Imperative (2)

a. /ta - h      - a/                      →      [táha]                      “(do) give”  
t - give - fv

b. /ta - mo - h      - a/                      →      ta[móha]                      “(do) give him”  
t - om1 - give - fv

c. ta-[mó-h-a+mo-h-à]                      “(do) give him repeatedly”

(11) Subjunctive

a. /βa - h      - ε/                      →      βa[hε]                      “that they (may) give”  
sm - give - fv

b. /βa - mo - h - ε/ → βa[mo<sup>h</sup>hé] “that they (may) give him”  
 m - om1 - give - fv

c. βa-[mo-h-ε+mó-h-ε] “that they (may) give him repeatedly”

Although object prefixes form part of the Base for reduplication in monosyllabic verbs, this does not happen in verbs that are disyllabic or longer (See §5.2.7 for object prefixes with longer verbs).

In the case of the monosyllabic verb [*ha*] “give”, an empty “filler” morph is added to it so as to form a disyllabic stem. This is seen in (12b).

(12) a. /o - ko - h - a/ → oko[há] “to give”  
 a - im - give - fv

b. oko[hááná] “to give”

c. o-ko-[há-án-á+há-án-a] “to give repeatedly”

In (12b,c), /-an/ has the shape of the reciprocal but lacks that meaning; it has been used as a filler morph to fulfil the minimality requirement. It is non-productive, occurring only with [*ha*] “give” (see §3.2.5.3).

### 5.2.3 Disyllabic Stems

Many verbs in Kuria are disyllabic, having the structure CVC-a, CVVC-a, or CVCG-a in the stem. These verbs undergo total reduplication but not partial reduplication, as shown in (13).

(13) Infinitive

a. /o - ko - rom - a/ → oko[róma] “to bite”  
 a - im - bite - fv

|                                                                  |   |                        |                       |
|------------------------------------------------------------------|---|------------------------|-----------------------|
| /o - ko - rom - a + rom - a/<br>a - im - bite - fv + bite - fv   | → | oko[ <u>rómá</u> romá] | “to bite repeatedly”  |
|                                                                  |   | *oko[ <u>róró</u> ’má] |                       |
| b. /o - ko - saNβ - a/<br>a - im - burn - fv                     | → | oyo[sáámbá]            | “to burn”             |
| /o - ko - saNβ - a + saNβ - a/<br>a - im - burn - fv + burn - fv | → | oyo[sáámbásáám̥ba]     | “to burn repeatedly”  |
|                                                                  |   | *oyo[sáásáám̥ba]       |                       |
| c. /o - ko - βun - a/<br>a - im - break - fv                     | → | uku[βúna]              | “to break”            |
| /o - ko - βun - a + βun - a/<br>a - im - break - fv + break - fv | → | uku[ <u>βúná</u> βuná] | “to break repeatedly” |
|                                                                  |   | *uku[βúβú’ná]          |                       |

Unlike the monosyllabic verbs, disyllabic verbs are not compelled to incorporate affixal material because they are already compliant with the minimality condition. Also, the examples in (13) provide further evidence for the minimality of the reduplicant as discussed in §5.2.1; that is, reduplication in Kuria does not copy one syllable only, the minimum that can be copied is two syllables.

#### 5.2.4 Trisyllabic Stems

Verbs with trisyllabic stems can undergo total reduplication, where all the three syllables are copied; or partial reduplication, where only two syllables are copied.

|                                                   |   |              |                     |
|---------------------------------------------------|---|--------------|---------------------|
| (14) a. /o - ko - sukur - a/<br>a - im - rub - fv | → | uyu[súkú’rá] | “to rub”            |
| u-γu-[ <u>súkúr</u> -a+súkúr-a]                   |   |              | “to rub repeatedly” |
| u-γu-[ <u>súkú</u> -sukúr-a]                      |   |              | “to rub repeatedly” |

- b. /o - ko - seker - a/ → oγo[séké'rá] “to descend”  
 a - im - descend - fv
- o-γo-[sékér-a+sékér-a] “to descend repeatedly”  
 o-γo-[séké+seker-a] “to descend repeatedly”  
 \*o-γo-[séká+seker-a]

### 5.2.5 Quadrisyllabic Stems

Like the trisyllabic verbs, verbs with four syllables on the macrostem will undergo either total reduplication or partial reduplication where the reduplicant copies the first two syllables of the Base.

- (15) a. /o - ko - koNrokor - a/ → oγo[kóóndókóra] “to uncover”  
 a - im - uncover - fv
- o-γo-[kóóndókór-á+kóóndókór-a] “to uncover repeatedly”  
 o-γo-[kóóndó+kóóndókór-a] “to uncover repeatedly”  
 \* o-γo-[kóónd-á+kóóndókór-a]
- b. /o - ko - suNraye - a/ → uγu[súúndáyéra] “to doze”  
 a - im - doze - fv
- u-γu-[súúndáyér-á+súúndáyér-a] “to doze repeatedly”  
 u-γu-[súúnd-á+súúndáyér-a] “to doze repeatedly”

### 5.2.6 Verbs with Derived Stems

In the preceding sections, I have shown that prefixes do not take part in reduplication, except when the infinitival prefix and the object prefixes are used in monosyllabic verbs so that these verbs may meet the minimality condition. I now turn my attention to the suffixes. As discussed in §2.3.4, extension suffixes include the stative



/-ek/, applicative /-er/, reciprocal /-an/, causative /-i/, passive /-(β)o/, and synchronizing /-erani/. In this section, I present verbs with derived stems. What I want to highlight is that these verbs follow the same generalizations that we have seen in non-derived verbs. In contrast to the prefixal morphemes, all the extension morphemes reduplicate. Such extended verb stems may undergo partial or total reduplication with the meaning remaining the same (16).

(16) a. stative /-ek/

/o - ko - sɔm - ek - a/ → oɣo[sómé<sup>1</sup>ká] “to be legible”  
a - im - rea - st - fv

o-ɣo-[sóm-ék-a+sóm-ék-a] “to be legible repeatedly”

o-ɣo-[sóm-é+sóm-ék-a] “to be legible repeatedly”

o-ɣo-[sóm-á+sóm-ék-a] “to be legible repeatedly”

b. applicative /-er/

/o - ko - rom - er - a/ → oko[rómé<sup>1</sup>rá] “to bite for”  
a - im - bite - ap - fv

o-ko-[róm-ér-a+róm-ér-a] “to bite for repeatedly”

o-ko-[róm-é+rom-ér-a] “to bite for repeatedly”

o-ko-[róm-á+rom-ér-a] “to bite for repeatedly”

c. reciprocal /-an/

/o - ko - rom - an - a/ → oko[rómá<sup>1</sup>ná] “to bite each other”  
a - im - bite - rec - fv

o-ko-[róm-á-n-a+róm-án-a] “to bite each other repeatedly”

o-ko-[róm-á+rom-án-a] “to bite each other repeatedly”

d. causative /-i/

/o - ko - ɣor - i - a/ → uku[ɣúrjá] “to sell/cause to buy”  
a - im - buy - cau - fv

|                                         |   |                         |                                                     |
|-----------------------------------------|---|-------------------------|-----------------------------------------------------|
| u-ku-[ <u>γúr-j-á</u> +γur-j-á]         |   | “to sell repeatedly”    |                                                     |
| *u-ku-[ <u>γúr-á</u> +γurj-á]           |   |                         |                                                     |
| e. synchronizing /-erani/               |   |                         |                                                     |
| /o - ko - tɛm - erani - a/              | → | oɣo[tém <b>éranj</b> á] | “to beat while doing something else simultaneously” |
| a - im - beat - sync - fv               |   |                         |                                                     |
| o-γo-[ <u>tém-éranj-á</u> +tém-éránj-a] |   |                         | “to beat while doing something else simultaneously” |
| o-γo-[ <u>tém-é</u> +tɛm-éránj-a]       |   |                         | “to beat while doing something else simultaneously” |
| o-γo-[ <u>tém-á</u> +tɛm-éránj-a]       |   |                         | “to beat while doing something else simultaneously” |
| *o-γo-[ <u>tém-éran-á</u> +tém-éránj-a] |   |                         | “to beat while doing something else simultaneously” |
| f. passive /-(β)o/                      |   |                         |                                                     |
| /o - ko - heetok - o - a/               | → | oko[héétók <b>wá</b> ]  | “to be remembered”                                  |
| a - im - remember - pas - fv            |   |                         |                                                     |
| o-ko-[ <u>héétók-w-á</u> +héétók-w-a]   |   |                         | “to be remembered repeatedly”                       |
| o-ko-[ <u>héétó</u> +héétók-w-a]        |   |                         | “to be remembered repeatedly”                       |
| *o-ko-[ <u>héét-á</u> +héétók-w-a]      |   |                         |                                                     |

The forms in (16a,b,e,f) show that in cases of partial reduplication, the reduplicant may be identical to the first two syllables of the Base or it may be different. In the cited examples, the final vowel of the reduplicant can be /-a/. It has been argued that this is not a copy of the final vowel of the verb but a default vowel inserted to fill the second syllable of the reduplicant (for detailed discussion see Mutaka and Hyman 1990, Downing 1997). In Kuria, a reduplicant that ends in /-a/, must exist as a verb by itself; such as in *o-γo-[sóm-á+<sup>!</sup>sóm-ék-a]* (16a), *o-ko-[róm-á+rom-ér-a]* (16b), *o-ko-[róm-á+rom-án-a]* in (16c), and *o-γo-[tém-á+tɛm-ér-án-j-a]* in (16e). This explains

why (16d) \**u-ku-[yúr-á+ɣurj-á]* is not acceptable. There is no verb such as *yúra* in Kuria but there is *ɣóra* “buy” from which *yúrjá* is derived. Although *heetá* “make haste” in (16f), \**o-ko-[héétá+héétók-w-a]*, is a Kuria verb, it is not related to *heetóka* “remember”. That is why that particular reduplicative form is not acceptable.

Up to now we have seen that it is possible to have total reduplication or partial reduplication which meets the minimality requirement – disyllabic. The verbs in (16) show that when the verb undergoes total reduplication there is symmetry of the morphemes between the reduplicant and the Base but if it undergoes partial reduplication, then the reduplicant is asymmetrical. I will use the examples in (16a-b) for illustration in (17).

#### (17) Symmetrical and Asymmetrical Forms

| <i>Base form</i>               | <i>Symmetrical reduplicant</i>                    | <i>Asymmetrical reduplicant</i>                                                        |
|--------------------------------|---------------------------------------------------|----------------------------------------------------------------------------------------|
| a. oɣo[sóm-é <sup>1</sup> k-á] | oɣo[sóm-é <sup>1</sup> k-asóm-é <sup>1</sup> k-a] | oɣo[sóm-Ø-ásóm-é <sup>1</sup> k-a]<br>oɣo[sóm-é <sup>1</sup> Ø-sóm-é <sup>1</sup> k-a] |
| b. oko[róm-é <sup>1</sup> r-á] | oko[róm-é <sup>1</sup> r-aróm-é <sup>1</sup> r-a] | oko[róm-é <sup>1</sup> Ø-rom-é <sup>1</sup> r-a]<br>oko[róm-Ø-árom-é <sup>1</sup> r-a] |

The symmetrical reduplicants are identical to their Bases, but the asymmetrical reduplicants are a copy of just part of the Base. This clearly shows that derivational extensions such as the stative, applicative, reciprocal, causative, passive, and synchronizing may be partially or fully copied or left out in reduplication. It also confirms that the Morpheme Integrity Constraint (see §5.2.1) does not hold in Kuria since

we can see incomplete morphemes being copied, such as -ε instead of /-εk/ (stative) and -e instead of /-er/ (applicative).

Verbs with a combination of extension suffixes can undergo reduplication, as shown in (18) and (19).

(18) applicative and reciprocal /-er,-an/

- a. /o - ko - tɛm - er - an - a/ → oɣo[téméraná] “to beat each other for”  
a - im - beat - ap - rec - fv
- b. o-ɣo-[tém-ér-an-á+tém-ér-án-a] “to beat each other repeatedly for”  
c. o-ɣo-[tém-é+tém-ér-án-a] “to beat each other repeatedly for”  
d. o-ɣo-[tém-á+tém-ér-án-a] “to beat each other repeatedly for”  
e. \*o-ɣo-[tém-ér-a+tém-ér-án-a] “to beat each other repeatedly for”

(19) synchronizing and passive /-erani-(β)o/

- a. /o - ko - tɛm - erani - βo - a/ → oɣo[téméraníβwa] “to be beaten while  
a - im - beat - syn - pas - fv doing something else  
simultaneously”
- b. o-ɣo-[tém-éraní-βw-á+tém-érání-βw-a] “to be beaten repeatedly while doing  
something else simultaneously”  
c. o-ɣo-[tém-é+tém-érání-βw-a]  
d. o-ɣo-[tém-éraní+tém-érání-βw-a]  
e. o-ɣo-[tém-éranj-á+tém-érání-βw-a]  
f. o-ɣo-[tém-ér-a+tém-érání-βw-a]  
g. o-ɣo-[tém-á+tém-érání-βw-a]

As noted in Odden (1996) for Kikerewe, partial reduplication of a stem which contains two or more derivational suffixes will only copy in a continuous sequence and not in a discontinuous sequence.

- (20) o-γo-[tém-ér-an-á+tém-ér-án-a] “to beat each other repeatedly for”  
 \* oγo[tém-án-a+tém-ér-án-a]

The form \*oγo[*témánatémérána*] is not acceptable because the reduplicant copies in a discontinuous manner. It copies the root, skips the applicative, and copies the reciprocal.

Other suffixal morphemes in the Kuria verb are of the inflectional category. These are the perfective /-er/ and the final vowel. As we saw in §2.3.4.10, the final vowel for the indicative and the infinitive is /-a/, /-ε/ for the subjunctive, and /-e/ for the perfective. These morphemes undergo similar reduplicative processes to those of the derivational suffixes.

(21) Perfective (Immediate Past Anterior)

- a. /βa - a - karaNγ - er - e/ → βaa[káraangére] “they have just fried”  
 sm - t - fry - pf - fv
- b. βa-a-[káraang-ér-é+káraáng-ér-e] “they have just fried poorly”  
 c. βa-a-[káraang-á+káraáng-ér-e] “they have just fried poorly”  
 d. βa-a-[kár-á+káraáng-ér-e] “they have just fried poorly”

(22) Subjunctive

- a. /βa - karaNγ - ε/ → βa[karaángε] “that they (may) fry”  
 sm - fry - fv
- b. βa-[karaáng-é+káraáng-ε] “that they (may) fry poorly”  
 c. βa-[kar-a+káraáng-ε] “that they (may) fry poorly”

A symmetrical pattern is seen in (21b) and (22b), while (21c,d) and (22c) have an asymmetrical pattern.

### 5.2.7 Object Prefixes

Generally, object prefixes are not copied in verbal reduplication, except with monosyllabic verbs (see §5.2.2), but they receive tone. This means that whereas the tonal domain is the macrostem (includes object), the reduplication domain is the stem. The examples in (23) have a third person singular object morpheme, /mo-/, and as expected, it does not take part in reduplication.

(23) a. Infinitive

/o - ko - mo - rom - a/ → oko[móró<sup>1</sup>má] “to bite him”  
 a - im - om1 - bite - fv

o-ko-[mó-róm-a+róma] “to bite repeatedly”  
 \*o-ko-[mó-róm-a+mó-róm-a]

b. Subjunctive

/βa - mo - rom - ε/ → βa[moromé] “that they (may) bite him”  
 sm - om1 - bite - fv

βa-[mo-rom-é+róm-ε] “that they (may) bite him repeatedly”  
 \*βa-[mo-rom-é+mó-róm-ε]

In §3.6.6, we saw that the first person singular prefix behaves in a unique way. In reduplication, when a first person singular prefix is used in a verb, a nasal prefix precedes the reduplicant and a process of assimilation of place occurs between the nasal and the first consonant in the reduplicant. This is an indication that the morphological rule of reduplication takes place before the phonological rule of nasal assimilation. More important is that the first person singular prefix behaves just like the other object prefixes by resisting reduplication.

(24) Immediate Past Anterior

- a. /βa - a - ne - rom - er - e/ → βaa[ndóméré] “they have just bitten me”  
sm - t - om1 - bite - pf - fv
- b. βa-a-[n-dóm-ér-é+róm-ér-e] “they have just bitten me repeatedly”  
c. βa-a-[n-dóm-é+róm-ér-e] “they have just bitten me repeatedly”  
d. \*βa-a-[n-dóm-ér-é+n-dóm-ér-é]  
e. \*βa-a-[n-dóm-é+n-dóm-ér-e]

The discussion in this section shows that the object prefix is excluded from the domain of reduplication. Another object prefix that behaves in an unusual way is the reflexive /-i/. When a reflexive is added to a consonant-initial verb, it makes the verb vowel-initial. I will therefore discuss the reflexive under the vowel-initial verbs in the next section.

### 5.2.8 Vowel Initial Verbs

As discussed in §3.6, some vowel-initial verbs exhibit an unusual pattern of tone marking in comparison to the consonant-initial verbs. This is attributed to fact that the first syllable of the stem in such verbs is onsetless. In many Bantu languages, such syllables are ignored in prosodic processes which refer to reduplication, stress assignment, and tone association (Odden 1995, Downing 1997, 1998). As we saw in §3.6, the stem-initial vowel in some verbs is not assigned a high tone; so it also follows that it will be excluded from the Base for reduplication because it is not a well-formed prosodic constituent. The Base in reduplication should begin with a well-formed onsetful syllable.

In order to find out how vowel-initial verbs behave in reduplication, I looked through the *Kuria-English Dictionary* (Muniko et al 1996) and wrote down all the

vowel-initial verbs that I know. In total, I found 330 verbs; 5 beginning with /ε-/ , 7 with /ɔ-/ , 10 with /e-/ , 9 with /o-/ , 32 with /a-/ , and 267 with /i-/ . Hence the majority of the vowel-initial verbs in the dictionary start with the vowel /i-/ . In all the verbs that I looked at, the initial vowel of the verb macrostem is always copied in reduplication, except for verbs that begin with /i-/ . I now proceed to look at examples of verbs starting with different vowels.

### 5.2.8.1 /i-/ Initial Verbs

The /i-/ initial verbs range from verbs that have a reflexive meaning to those that have been lexicalized and have specialized meaning. For the verbs in (25), it is possible to tease apart the reflexive from the rest of the verb stem.

- (25) a. /i - hak - a/ → [ihaká] “smear oneself with”  
           rf - smear - fv  
           /hak - a/ → [ha'ká] “smear, rub on”  
           smear - fv
- b. /i - sis - a/ → [isisá] “turn/twist oneself”  
       rf - turn - fv  
       /sis - a/ → [si'sá] “turn/twist”  
       turn - fv
- c. /i - C - ay - a/ → [ijayá] “scratch oneself”  
       rf - C - scratch - fv  
       /ay - a/ → [a'ýá] “scratch”  
       scratch - fv

The verb in (25c) is interesting because it is vowel-initial. When the reflexive is added on to it, a high glide /j-/ is inserted to break the vowel hiatus (see §3.6.7). The verbs that



follow in (26) have a lexicalized form. It is not possible to tease apart the reflexive from the rest of the stem.

- (26) a. /iγor - a/ → [iγorá] “open”  
 open - fv  
 \*γo<sup>1</sup>rá
- b. /iβor - a/ → [iβorá] “bear child”  
 bear child - fv  
 \*βo<sup>1</sup>rá
- c. /ihom - a/ → [ihomá] “dry”  
 dry - fv  
 \*ho<sup>1</sup>má

Despite the difference that we have observed between the verbs in (25) and (26), there is not much that separates them. It has been argued that the onsetless reflexive prefix /i-/ followed by a consonant-initial stem is often indistinguishable from an /i-/initial verb stem (Marlo 2008). There is a prefix-stem fusion such that the morphological boundary between the two morphemes is blurred. In all these verbs, the initial vowel is ignored in reduplication, as shown in (27).

(27) Habitual Past Focused

- a. /ne - βa - aká - ituβ - er - e/ → mbaaká[ítúβíre] “(indeed) they used to  
 f - sm - t - swim - pf - fv swim (then)”
- m-ba-aká-[í-túβ-ír-é+túβ-ír-e] “(indeed) they used to swim repeatedly  
 (then)”

b. /ne - βα - aká - iβor - er - e/ → mbaaká[íβóóje] “(indeed) they used to  
f - sm - t - beget - t - fv beget children  
(then)”

m-ba-aká-[í-βóój-é+βóój-e] “they used to beget children repeatedly  
(then)”

c. /ne - βα - aká - i - γυη - er - e/ → mbaaká[íγύνíre] “(indeed) they used to  
f - sm - t - rf - hide - pf - fv hide themselves  
(then)”

m-ba-aká-[í-γύν-ίρ-é+γύν-ίρ-e] “(indeed) they used to hide themselves  
repeatedly (then)”

As we have seen in the previous sections, the reduplicant in consonant-initial stems is always prefixed to the Base. The data in (28) illustrates that the reduplicant is infixes after the initial vowel in /i/-initial stems. The initial vowel is not reduplicated and as we discussed in §3.6.1, the rule of Macrostem Adjustment puts it outside the macrostem.

(28) Immediate Past Anterior

a. /βα - a - iγor - er - e/ → βai[γóójé] “they have just opened”  
sm - t - open - pf - fv

βα-i-[γóój-é+γóój-e] “they have just opened repeatedly”

b. /βα - a - iγoNβ - er - e/ → βai[γóómbére] “they have just desired”  
sm - t - admire - pf - fv

βα-i-[γóómb-ér-é+γóómb-ér-e] “they have just desired repeatedly”

βα-i-[γóómb-é+γóómb-ér-e] “they have just desired repeatedly”

βα-i-[γóómb-á+γóómb-ér-e] “they have just desired repeatedly”

I follow Downing (2000) and Mutaka & Hyman (1990) in observing that the infixing of the reduplicant after the stem-initial vowel has the advantage of improving the prosodic well-formedness of both the Base and the reduplicant.

The prefixation of the reflexive /-i/ to a consonant-initial verb changes that verb to vowel-initial. When such verbs undergo reduplication, the stem-initial vowel is not copied (29).

(29) Remote Future

- a. /βa - ree - rom - a/ → βaree[róma] “they will bite (then)”  
     sm - t - bite - fv
- b. /βa - ree - i - rom - a/ → βarii[rómá] “they will bite themselves (then)”  
     sm - t - rf - bite - fv
- c. βa-ri-i-[róm-á+róm-a] “they will bite themselves repeatedly (then)”

The example in (29a) shows a consonant-initial verb in the Remote Future. The reflexive is added in (29b), and its reduplicative form is shown in (29c). Notice that the reflexive is ignored in reduplication.

As we saw in §3.6.7, when a reflexive is prefixed to a vowel-initial verb, a high glide is inserted to break the vowel hiatus between the two vowels. This repair mechanism changes the onsetless syllable into a consonant-initial syllable.

(30) Remote Future

- a. /βa - ree - iγɔNβ - a/ → βarii[γóómbá] “they will admire/desire  
     sm - t - desire - fv (then)”
- b. /βa - ree - i - iγɔNβ - a/ → βarii[jíγóómba] “they will desire themselves  
     sm - t - rf - desire - fv (then)”

- c. βa-ri-i-[jǐ-γóómb-á+γóómb-a      “they will admire/desire themselves repeatedly  
 \* βa-ri-i-[jǐ-γóómb-á+jǐ-γóómb-a      (then)”

The verb in (30a) has a tense prefix with a long vowel, and a vowel-initial stem. A reflexive /-i/ is inserted between the tense prefix and the stem (30b). After the glide is inserted between the reflexive and the stem-initial vowel, one of the tense vowels is deleted. Note that neither the reflexive nor the ji- syllable are copied onto the reduplicant. Thus, the ji- syllable behaves differently for tone assignment and for reduplication. It counts as part of the macrostem for tone assignment (§3.6.7), but not as part of the Base for reduplication.

### 5.2.8.2 /a-, e-, ε-, o-, ɔ-/ Initial Verbs

When the vowels /a-, ε-, e-, ɔ-, o-/ are in stem-initial position in a verb, they take part in reduplication. One example is provided in (31) for each of the vowels.

#### (31) Hodiernal Future Uncertain Possibility

- a. /βa - ka - aneker - a/ → βakaa[nékérá] “perhaps they will lay out (today)”  
 sm - t - lay out - fv

βa-ka-a[nékér-á+ánékér-a] “perhaps they will lay out repeatedly (today)”

\*βa-ka-a[né+ánékér-a]

\*βa-ka-a[néké+ánékér-a]

- b. /βa - ka - εrem - a/ → βakεε[rémá] “perhaps they will swim (today)”  
 sm - t - swim - fv

βa-kε-ε[rém-á+érém-a] “perhaps they will swim repeatedly (today)”

- c. /βa - ka - eseri - a/ → βayee[sérjá] “perhaps they will sob (today)”  
 sm - t - sob - fv
- βa-ye-e[sérj-á+ésérj-a] “perhaps they will sob repeatedly (today)”
- d. /βa - ka - ɔβɔh - a/ → βakɔɔ[βóhá] “perhaps they will fear (today)”  
 sm - t - fear - fv
- βa-kɔ-ɔ[βóh-á+óβóh-a] “perhaps they will fear repeatedly (today)”
- e. /βa - ka - oroki - a/ → βakoo[rókjá] “perhaps they will show (today)”  
 sm - t - show - fv
- βakoo[rókj-á+órókj-a] “perhaps they will show repeatedly (today)”

As shown in (31a), it is not possible to have partial reduplication in vowel-initial verbs of this kind.

## 5.2.9 Verbal Enclitics

In §3.5, we saw that the locative clitics /hɔ/, /kɔ/, and /mɔ/ do not have any special tonal effects when used in a verb but only serve to increase the length of the verb and are part of the verb for tone assignment. In this section, I show that these clitics do not take part in reduplication.

### (32) Immediate Past Anterior

- a. /βa - a - rom - er - e - hɔ/ → βaa[rómérehó] “they have just bitten there”  
 sm - t - bite - pf - fv - loc16
- βa-a-[róm-ér-e+róm-ér-é-hɔ] “they have just bitten there repeatedly”  
 βa-a-[róm-é+rom-ér-é-hɔ] “they have just bitten there repeatedly”  
 βa-a-[róm-á+rom-ér-é-hɔ] “they have just bitten there repeatedly”  
 \*βa-a-[róm-ér-e-hɔ+róm-ér-é-hɔ]

- b. /βa - a - βiim - er - e - mɔ/ → βaa[βíimírémɔ] “they have just measured in there”  
 sm - t - measure - pf - fv - loc18

βa-a-[βíim-ír-é+βíim-ír-é-mɔ] “they have just measured in there repeatedly”

βa-a-[βíim-á+βíim-ír-é-mɔ] “they have just measured in there repeatedly”

βa-a-[βíim-í+βíim-ír-é-mɔ] “they have just measured in there repeatedly”

\* βa-a-[βíim-ír-é-mɔ+βíim-ír-é-mɔ]

- c. /βa - a - háyaatʃ - er - e - kɔ/ → βaa[háyaaʃérékɔ] “they have just built on (it)”  
 sm - t - build - pf - fv - loc17

βa-a-[háyaatʃ-ér-é+háyaaʃér-é-kɔ] “they have just built on (it) repeatedly”

\* βa-a-[háyaatʃ-ér-é-kɔ+háyaaʃér-é-kɔ]

As illustrated in (32), it is not possible to copy the locatives in reduplication, that is, they are outside the scope of reduplication. In this way, they behave like the prefixes. Further, an enclitic added to a monosyllabic verb cannot form a Base for reduplication, as seen in (33).

- (33) a. /o - ko - i - a - hɔ/ → uku[jáhɔ] “to go there”  
 a - im - go - fv - loc16  
 \*uku[jáhɔja'hɔ]

- b. /o - ko - γo - a - kɔ/ → oko[γwákɔ] “to fall on (it)”  
 a - im - fall - fv - loc17

\*oko[γwákɔγwakɔ]

So far, it can be observed that in Kuria, the prefixes and the enclitics are not copied in reduplication; only the stem is. To further illustrate which morphemes undergo reduplication in Kuria, I adopt the verbal structure and terminology used in (Downing

2000) with an additional node for the verbal enclitics. The verb *βaa[rómérehó]* “they have just bitten there” has been used to fill in the slots in the structure.

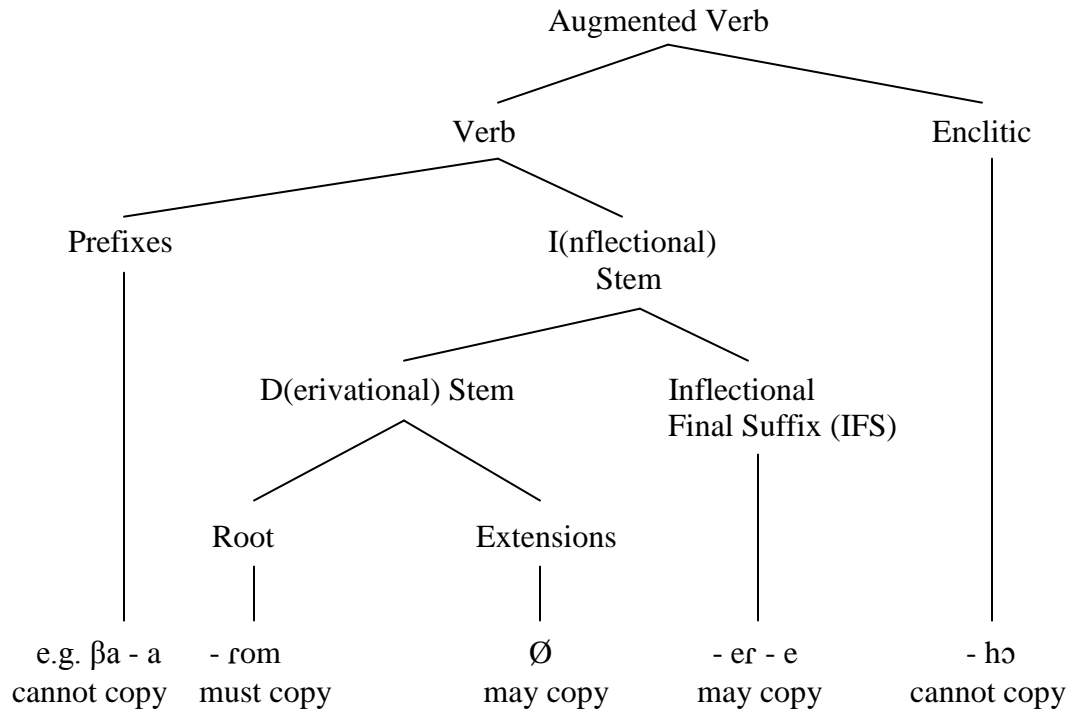


Figure 5.1: Kuria Verbal Structure

In Kuria verbal reduplication, the root must be copied completely or partially and the extensions and the final vowel or suffix may copy but the enclitics must not copy.

### 5.2.10 Lexical Reduplication

Some verb stems are lexically reduplicated; the unreduplicated forms do not occur. Most of these are designed so as to capture the repetitive nature of the actions they describe. These verbs exhibit stem-initial CV(V) partial reduplication. I will use the infinitival form in the examples that follow.

(34) Partial reduplication

- |                              |                            |
|------------------------------|----------------------------|
| a. oko[γóγó <sup>1</sup> ná] | “to gnaw”                  |
| b. uku[núúnúúnta]            | “have pains in joints”     |
| c. oko[máámáána]             | “to make haste, hurry up”  |
| d. oko[nóónóóga]             | “to become loose or slack” |
| e. oko[róóróóma]             | “to groan”                 |
| f. oko[róóróóota]            | “to grumble”               |
| g. oyo[sáásááma]             | “to beseech”               |
| h. oyo[séésééβa]             | “to feel queasy”           |
| i. oyo[sééséétóka]           | “to fade”                  |

It looks like the stem-initial syllable of the verbs in (34) is copied. This is the first time that we are encountering a verb stem that reduplicates by copying the first syllable only. This is definitely a violation of the disyllabic minimality. Since I have no evidence that (a) *γona* (b) *juunta* (c) *maana* (d) *πωωγα* (e) *ρωωma* (f) *roota* (g) *saama* (h) *seeβa*, and (i) *seetoka* are basic verbs in Kuria, I conclude that the verbs in (34) have lexical reduplication. It is possible for the stems in (34) to undergo total reduplication. No partial reduplication of these verbs is possible.

- |                                   |                                       |
|-----------------------------------|---------------------------------------|
| (35) a. o-ko-[γóγόν-a+γóγόν-a]    | “to gnaw repeatedly”                  |
| b. u-ku-[núúnúúnt-á+núúnúúnt-a]   | “to have pains in joints repeatedly”  |
| c. o-ko-[máámáán-á+máámáán-a]     | “to make haste, hurry up”             |
| d. o-ko-[nóónóόγ-á+πóónóόγ-a]     | “to become loose or slack repeatedly” |
| e. o-ko-[róóróόm-á+róóróόm-a]     | “to groan repeatedly”                 |
| f. o-ko-[róóróόt-á+róóróόt-a]     | “to grumble repeatedly”               |
| g. o-γo-[sáásáám-á+sáásáám-a]     | “to beseech repeatedly”               |
| h. o-γo-[séésééβ-á+séésééβ-a]     | “to feel queasy repeatedly”           |
| i. o-γo-[sééséétók-á+sééséétók-a] | “to fade”                             |

The next group involves verb forms that are available only in total reduplication. These are not as many in the language as the “partial reduplication” ones in (34).



(36) Total reduplication

- a. o-ko-[γáárjáyáárj-a] “to wipe clean e.g. food in a bowl”
- b. o-ko-[hááyáhááy-a] “to move about agitatedly”
- c. o-γo-[kééndákéénd-a] “to busy oneself so as to impress others”

My position is that the verbs in (36) are also lexically reduplicated since they do not have related unreduplicated stems. These verbs cannot be further reduplicated through the productive process of reduplication.

- (37) a. \*o-ko-[γáárjáyáárj-á+γáárjáyáárj-a]  
b. \*o-ko-[hááyáhááy-á+hááyáhááy-a]  
c. \*o-γo-[kééndákéénd-á+kééndákéénd-a]

When lexically reduplicated verb stems in (36) are followed by derivational suffixes, the suffixes are not copied unless the extended stem is disyllabic, as in (38a). The derivational affixes attach to the verbs as suffixes, at the end of the whole verb complex.

- (38) a. /o - ko - γaarjayaar - er - i - a/ → oko[γáárjáyáárrja] “to wipe clean  
a - im - wipe clean - ap - cau - fv for e.g. food in a bowl”  
  
oko[γáárrjáyáárrja]
- b. /o - ko - haayahaay - er - a/ → oko[hááyáhááyéra] “to move about  
a - im - move ag. - ap - fv agitatedly for”  
  
\*oko[hááyérá+hááyérá]
- c. /o - ko - keNrakeNr - er - a/ → oγo[kééndákééndéra] “to busy oneself for or  
a - im - busy oneself - ap - a so as to impress others”  
  
\*oγo[kééndérá+kééndéra]

The example in (38a) has a causative suffix in both the “Base” and the “reduplicant” yet the verb is acceptable. This is because both the Base and reduplicant are disyllabic and the causative has been grammaticalized. In (38b-c), reduplication is asymmetrical because the applicative /-er/ cannot be copied. It only appears in the second part of the verb.

An analysis of segmental reduplication is not attempted because that is not the focus of this study. After describing the facts on segmental reduplication, I now proceed to the description and analysis of tone in reduplication.

### **5.3 Tone in Reduplication**

Many studies have been carried out in Bantu verbal reduplication but only a few, such as Myers (1987), Walsh (1992), Myers & Carleton (1996), and Downing (2001), have addressed the issue of tone in reduplication. My intention is to make a contribution towards this end. Having accounted for segmental reduplication, I am now in a position to consider how tones behave in reduplicated stems. The question is “What happens to tone when a verb is reduplicated?” According to Marantz’s (1982) model of reduplication, only segmental material is copied from the Base. This means that no tones of the Base will appear on the reduplicant. The Full Copy Model (Steriade 1998) shows that segmental and prosodic content is copied from the Base to the reduplicant. The tone of the Base will therefore appear on the reduplicant. But Downing (2001) has demonstrated that in Bantu verbal reduplication, tone does not transfer along with the segmental content of the Base. Chichewa is the only known Bantu language in which

verbal reduplication copies tones as well as segments (Myers & Carleton 1996, Hyman & Mtenje 1999).

In this section, I will show that tone is not copied in Kuria. Tone is determined after segmental reduplication has taken place. Following Downing (2001), I argue that in Kuria, RED + Base form a single domain of tone realization. In this case, a reduplicated verb is not any different from an unreduplicated verb; tone is distributed over the entire RED + Base complex just as in the unreduplicated verb.

A number of theories have been presented in an attempt to explain tone transfer or non-transfer in Bantu verbal reduplication. The question being answered is “Why do some languages transfer tone in reduplication while others do not?” The most successful of these theories is that proposed by Downing (2001). Since I will adopt the same approach, I briefly explain what this theory entails.

### **5.3.1 Downing (2001)**

Work that has been done in Bantu reduplication shows that languages follow one of these three trends (a) tone is identical in the reduplicant and Base (b) tone is distributed over the entire RED + Base (c) tone of the unreduplicated form is realized on only one half of the RED + Base complex. The proposal here is that RED + Base complex is a compound, with the structure in Figure 5.2.

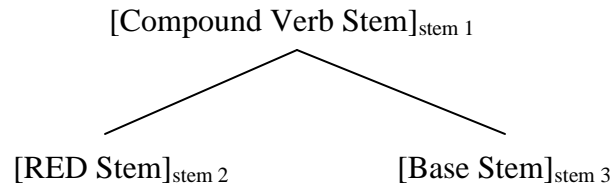


Figure 5.2: Compound structure for reduplicated Bantu verb stems

This compound stem is a constituent of the verb. The RED + Base is a compound because it contains three different stems as shown in Figure 5.2. The three possible stems are RED stem, Base stem, and Compound stem. This compound structure can be used to account for tone in Bantu by defining different stems within the compound as the relevant domain for stem tone association for a particular language. It is now possible to account for the three trends of tone distribution in Bantu languages mentioned above.

- (39) a. Trend 1  
         Stem 2 and Stem 3  
         Tone is identical in RED and Base.  
         Each half of the RED + Base complex is an independent tonal domain.
- b. Trend 2  
         Stem 1 (Compound stem)  
         Tone is distributed over the entire RED + Base.  
         RED + Base form one tonal domain.
- c. Trend 3  
         Stem 3 (Base stem)  
         Tone is realized on one half of the reduplicated complex.

As mentioned before in this section, I pursue the claim that tone is not copied in Kuria but is distributed over the entire RED + Base as a single tonal domain (see Trend 2 in (39)). I now proceed to discuss the tone patterns in Kuria reduplication. I will first

consider consonant-initial verbs because they are the simplest, before turning to the vowel-initial verbs.

### **5.3.2 Tone in Consonant Initial Verbs**

In Table 3.1, I provided a table of tonal patterns in the finite verbs. Similarly, I now provide, in Table 5.1 below, a summary of tonal patterns in reduplication using the verb [*koondókorà*] “uncover”.

Table 5.1: Tonal Patterns in Reduplicated Verbs

| <b>Tone Melody</b> | <b>Tense</b>                            | <b>Example</b>                                              | <b>Gloss</b>                                                              |
|--------------------|-----------------------------------------|-------------------------------------------------------------|---------------------------------------------------------------------------|
| V1 (Spread)        | Habitual Past Focused                   | mbaayá[kóóndókóóje]                                         | “(indeed) they used to uncover”                                           |
|                    |                                         | mbaayá[kóóndókóójékóóndókóóje]<br>mbaayá[kóóndókóóndókóóje] | “(indeed) they used to uncover repeatedly (then)”                         |
|                    | Untimed Past Anterior Focused           | mbaa[kóóndókóra]                                            | “(indeed) they have (already) uncovered”                                  |
|                    |                                         | mbaa[kóóndókórákóóndókóra]<br>mbaa[kóóndókóóndókóra]        | “(indeed) they have (already) uncovered repeatedly”                       |
|                    | Remote Past Focused                     | mbaa[kóóndókóóje]                                           | “(indeed) they uncovered/ did uncover (then)”                             |
|                    |                                         | mbaa[kóóndókóójékóóndókóóje]<br>mbaa[kóóndókóóndókóóje]     | “(indeed) they uncovered/ did uncover repeatedly (then)”                  |
|                    | Untimed Past Anterior Condition Focused | mbayaa[kóóndókóóje]                                         | “(indeed) they would have uncovered (anytime before now/then)”            |
|                    |                                         | mbayaa[kóóndókóójékóóndókóóje]<br>mbayaa[kóóndókóóndókóóje] | “(indeed) they would have uncovered repeatedly (anytime before now/then)” |
|                    | Immediate Future Focused                | mbaraá[kóóndókóré]                                          | “(indeed) they will uncover (now)”                                        |
|                    |                                         | mbaraá[kóóndókórékóóndókóré]<br>mbaraá[kóóndókóóndókóré]    | “(indeed) they will uncover repeatedly (now)”                             |
|                    | Untimed Ability Focused                 | mbayaa[kóóndókóra]                                          | “(indeed) they are able to uncover”                                       |

|                |                                             |                                                             |                                                         |
|----------------|---------------------------------------------|-------------------------------------------------------------|---------------------------------------------------------|
|                | Untimed Present                             | mbayaa[kóóndókórákóóndókóra]<br>mbayaa[kóóndókóóndókóra]    | “(indeed) they are able to uncover repeatedly”          |
|                |                                             | βa[kóóndókóra]                                              | “they uncover (fact)”                                   |
|                |                                             | βa[kóóndókórákóóndókóra]<br>βa[kóóndókórákóóndókóra]        | “they uncover repeatedly (fact)”                        |
| V1 (No Spread) | Hortatory Imperative (2)                    | ta[kóóndokorà]                                              | “(do) uncover”                                          |
|                |                                             | ta[kóóndokorakoondokorà]<br>ta[kóóndokorakoondokorà]        | “(do) uncover repeatedly”                               |
|                |                                             |                                                             |                                                         |
| V2 (Spread)    | Hodiernal Past Progressive Anterior Focused | mbaaya[koóndókóóje]                                         | “(indeed) they have been uncovering (today)”            |
|                |                                             | mbaaya[koóndókóójékoóndókóóje]<br>mbaaya[koóndókoóndókóóje] | “(indeed) they have been uncovering repeatedly (today)” |
|                |                                             |                                                             |                                                         |
| V3 (Spread)    | Subjunctive                                 | βa[koondókóre]                                              | “that they (may) uncover”                               |
|                |                                             | βa[koondókórékóóndókóre]<br>βa[koondókóóndókóre]            | “that they (may) uncover repeatedly”                    |
|                |                                             |                                                             |                                                         |
|                | Hodiernal Past Anterior Focused             | mba[koondókóóje]                                            | “(indeed) they uncovered (earlier today)”               |
|                |                                             | mba[koondókóójékóóndókóóje]<br>mba[koondókóóndókóóje]       | “(indeed) they uncovered repeatedly (earlier today)”    |
|                |                                             |                                                             |                                                         |
|                | Untimed Past Anterior                       | βaa[koondókóra]                                             | “they have (already) uncovered”                         |
|                |                                             | βaa[koondókórákóóndókóra]                                   | “they have (already) uncovered repeatedly”              |

|                                        |                                          |                                                           |                                                 |
|----------------------------------------|------------------------------------------|-----------------------------------------------------------|-------------------------------------------------|
|                                        |                                          | βaa[koondókóóndókóra]                                     |                                                 |
|                                        | Remote Future Focused                    | mbare[koondókóra]                                         | “(indeed) they will uncover (then)”             |
|                                        |                                          | mbare[koondókórákóóndókóra]<br>mbare[koondókóóndókóra]    | “(indeed) they will uncover repeatedly (then)”  |
|                                        | Current Present Persistent Focused       | mbaye[koondókóóje]                                        | “(indeed) they are still uncovering”            |
|                                        |                                          | mbaye[koondókóójékóóndókóóje]<br>mbaye[koondókóóndókóóje] | “(indeed) they are still uncovering repeatedly” |
|                                        | Untimed Real Uncertain Condition Focused | mba[koondókóra]                                           | “(indeed) even if they uncover”                 |
|                                        |                                          | mba[koondókórákóóndókóra]<br>mba[koondókóóndókóra]        | “(indeed) even if they uncover repeatedly”      |
|                                        |                                          |                                                           |                                                 |
| V3 (No Spread)                         | Mandatory Imperative                     | [koondókora]                                              | “uncover!”                                      |
|                                        |                                          | [koondókorakoondokora]<br>[koondókoondokora]              | “uncover repeatedly!”                           |
| V1 and V4 (All Persons)<br>(V4 Spread) | Narrative Past                           | βaγá[kóóndokóra]                                          | “(and) they uncovered”                          |
|                                        |                                          | βaγá[kóóndokórákóóndókóra]<br>βaγá[kóóndokóóndókóra]      | “(and) they uncovered repeatedly”               |
|                                        | Hodiernal Future Uncertain Possibility   | βaγaa[kóóndokórákóóndókóra]                               | “perhaps they will uncover (today)”             |
|                                        |                                          | βaγaa[kóóndokórákóóndókóra]<br>βaγaa[kóóndokóóndókóra]    | “perhaps they will uncover repeatedly (today)”  |



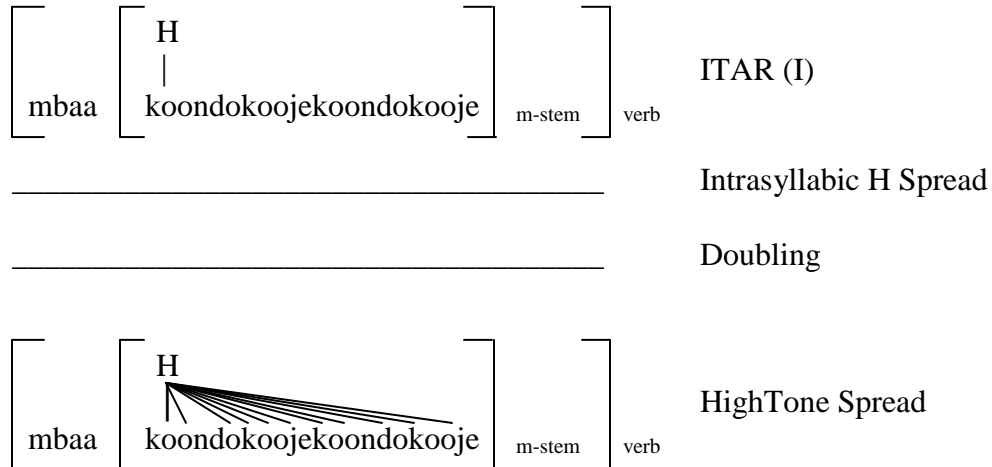
|                                                                |                          |                                                            |                                          |
|----------------------------------------------------------------|--------------------------|------------------------------------------------------------|------------------------------------------|
|                                                                | Remote Future            | βaree[kóóndókóra]                                          | “they will uncover (then)”               |
|                                                                |                          | βaree[kóóndókórákóóndókóra]<br>βaree[kóóndókóóndókóra]     | “they will uncover repeatedly (then)”    |
|                                                                |                          |                                                            |                                          |
|                                                                | Infinitive               | oyo[kóóndókóra]                                            | “to uncover”                             |
|                                                                |                          | oyo[kóóndókórákóóndókóra]                                  | “to uncover repeatedly”                  |
|                                                                |                          | oyo[kóóndókóóndókóra]                                      |                                          |
| V1 and V4<br>(3 <sup>rd</sup> Person)<br>(V4 Spread)           | Immediate Past Anterior  | βaa[kóóndókóóje]                                           | “they have just uncovered”               |
|                                                                |                          | βaa[kóóndókóójékóóndókóóje]<br>βaa[kóóndókóójékóóndókóóje] | “they have just uncovered<br>repeatedly” |
|                                                                |                          |                                                            |                                          |
|                                                                | Hortatory Imperative (3) | βara[kóóndókóra]                                           | “let them uncover”                       |
|                                                                |                          | βara[kóóndókórákóóndókóra]<br>βara[kóóndókóóndókóra]       | “let them uncover repeatedly”            |
|                                                                |                          |                                                            |                                          |
| V4 (1 <sup>st</sup> and<br>2 <sup>nd</sup> Person)<br>(Spread) | Immediate Past Anterior  | too[koondokóóje]                                           | “we have just uncovered”                 |
|                                                                |                          | too[koondokóójékóóndókóóje]<br>too[koondokóóndókóóje]      | “we have just uncovered repeatedly”      |
|                                                                |                          |                                                            |                                          |
|                                                                | Hortatory Imperative (3) | tora[koondokóra]                                           | “let us uncover”                         |
|                                                                |                          | tora[koondokórákóóndókóra]<br>tora[koondokóóndókóra]       | “let us uncover repeatedly”              |
|                                                                |                          |                                                            |                                          |
| No H                                                           | Hortatory Imperative (1) | βatá[koondokorà]                                           | “let them uncover”                       |
|                                                                |                          | βatá[koondokorakoondokorà]                                 | “let them uncover repeatedly”            |
|                                                                |                          | βatá[koondokoondokorà]                                     |                                          |

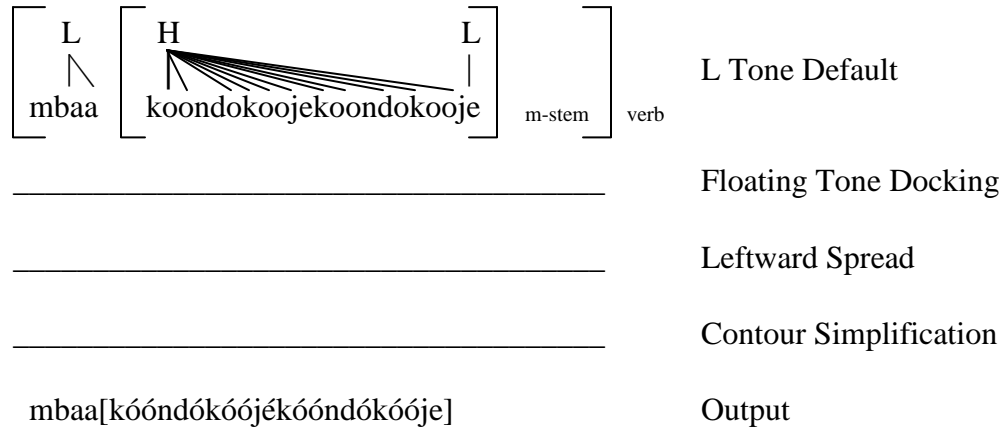
Looking at the unreduplicated verbs and their corresponding reduplicated verbs in Table 5.1 shows that prefixing the reduplicant to the verb stem does not change the way tone is assigned in the tenses. It just serves to lengthen the macrostem. I will use two tenses, the Remote Past Focused and the Subjunctive, to illustrate how tone is assigned in reduplicated verbs.

### 5.3.2.1 Remote Past Focused

As shown in §3.2.1.1, this tense assigns a melodic H to the first vowel of the macrostem. Three rules actively participate in a derivation for this tense: ITAR (I), High Tone Spread, and L Tone Default. In (40), I illustrate how tones are assigned to the reduplicated verb *mbaa[kóóndókóójékóóndókóóje]* “(indeed) they uncovered / did uncover repeatedly”.

$$(40) \left/ \begin{array}{l} \text{ne} - \beta\text{a} - \text{a} \\ \text{f} - \text{sm} - \text{t} \end{array} \right[ \begin{array}{l} \text{koNrokor} - \text{er} - \text{e} + \text{koNrokor} - \text{er} - \text{e} \\ \text{uncover} - \text{t} - \text{fv} \quad \text{uncover} - \text{t} - \text{fv} \end{array} \right]_{\text{m-stem}} \left/ \begin{array}{l} \text{UR: “(indeed) they} \\ \text{uncovered/did} \\ \text{uncover} \\ \text{repeatedly”} \end{array} \right.$$

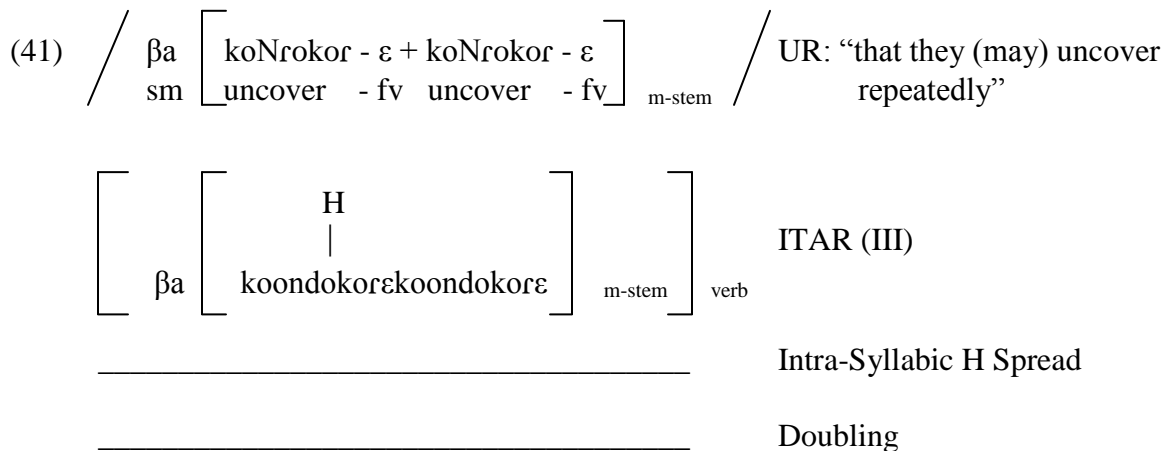


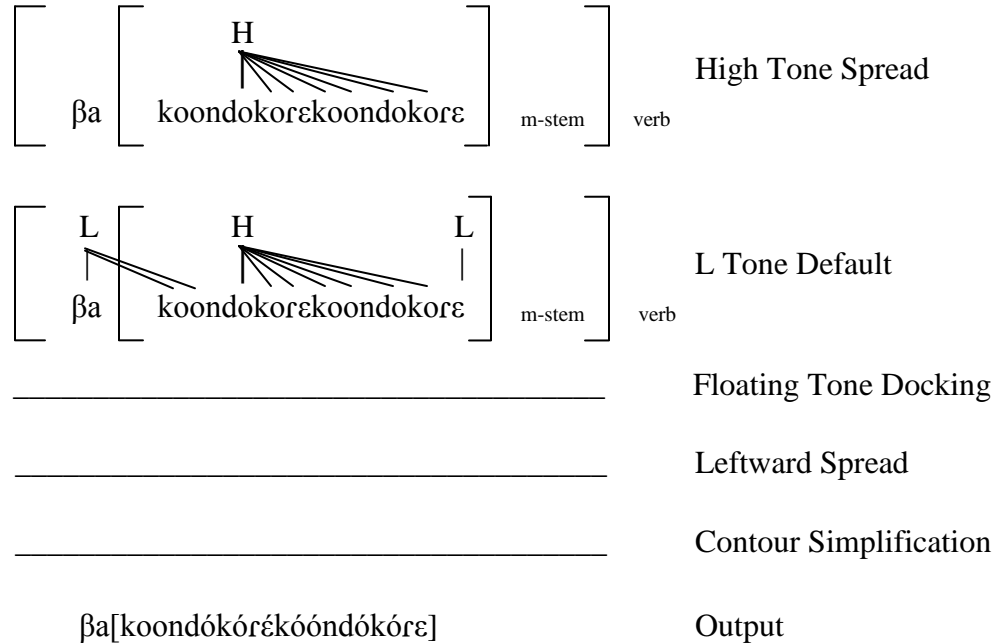


This derivation illustrates that there is no difference between a reduplicated verb and an unreduplicated verb when it comes to the assignment of tone. In both, a high tone is assigned to the first vowel of the macrostem and then it spreads to the penult.

### 5.3.2.2 Subjunctive

This tense assigns a high tone to the third vowel of the macrostem. Reduplication does not change the way tone is assigned. I will use the form  $\beta a[koondókórékóóndókóre]$  “that they (may) uncover repeatedly” in the derivation that follows.





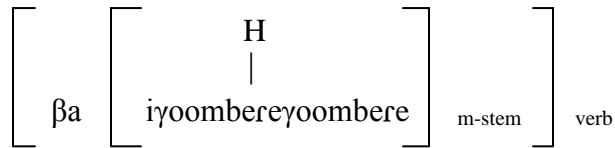
### 5.3.3 Tone in Vowel Initial Verbs

In this section, I address the issue of tone assignment in reduplicated vowel-initial stems. In §5.2.8, I showed that in segmental reduplication, the /i-/stem-initial vowel is not copied, but if the stem-initial vowel is any other than /i-/, it is copied. Also, as mentioned in §3.6, vowel-initial verbs of the tenses in (42) have a unique tone pattern. In tenses with V1 and V4 melody, the stem-initial vowel is involved in the count for tonal association but is barred from carrying a high tone. The same situation applies to the reduplicated verbs since there is no difference between reduplicated and unreduplicated stems; they each represent one tonal domain. Here are the first seven tenses from Table 3.4 whose stem-initial vowel does not carry H tone and as such is marked outside the macrostem.

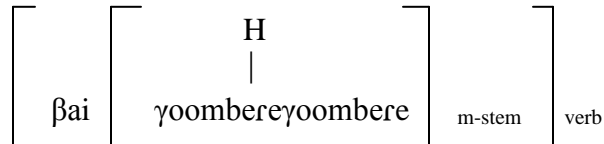
- (42) a. Immediate Past Anterior (3<sup>rd</sup> Person)  
 βa-i-[γóómb-ér-é+γóómb-ér-e] “they have just admired/desired repeatedly”  
 βo-o-[βóh-ér-é+óβóh-ér-e] “they have just feared repeatedly”
- b. Hodiernal Future Uncertain Possibility  
 βa-ka-i-[γóómb-á+γóómb-a] “perhaps they will eat repeatedly (today)”  
 βa-kɔ-ɔ-[βóhá+óβóh-a] “perhaps they will fear repeatedly (today)”
- c. Remote Future  
 βa-ri-i-[γóómb-á+γóómb-a] “they will admire/desire repeatedly”  
 βa-ri-ɔ-[βóh-á+óβóh-a] “they will fear repeatedly”
- d. Untimed Past Anterior Focused  
 m-ba-i-[γóómb-á+γóómb-a] “(indeed) they have (already) desired repeatedly”  
 m-bɔ-ɔ-[βóh-á+óβóh-a] “(indeed) they have (already) feared repeatedly”
- e. Remote Past Focused  
 m-ba-i-[γóómb-ér-é+γóómb-ér-e] “(indeed) they desired repeatedly”  
 m-bo-o-[βóh-ér-é+óβóh-ér-e] “(indeed) they feared repeatedly”
- f. Untimed Past Anterior Condition Focused  
 m-ba-ka-i-[γóómb-ér-é+γóómb-ér-e] “(indeed) they would have desired repeatedly”  
 m-ba-ko-o-[βóhé-ér-é+óβóh-ér-e] “(indeed) they would have feared repeatedly”
- g. Untimed Ability Focused  
 m-ba-ka-i-[γóómb-á+γóómb-a] “(indeed) they have (already) desired repeatedly”  
 m-ba-kɔ-ɔ-[βóh-á+óβóh-a] “(indeed) they have (already) feared repeatedly”

I will now use one example from the Immediate Past Anterior (Third Person) in a derivation to show how the tones are assigned.

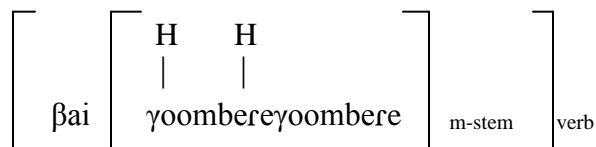
(43) /  $\beta a - a \left[ \begin{array}{c} i\gamma\alpha N\beta - er - e + \gamma\alpha N\beta - er - e \\ sm - t \left[ \begin{array}{c} desire - pf - fv \end{array} \right] \end{array} \right]_{m-stem}$  / UR: “they have just admired/  
desired repeatedly”



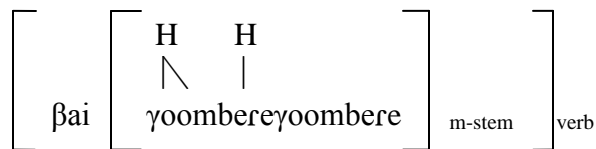
ITAR (IV)



Macrostem Adjustment

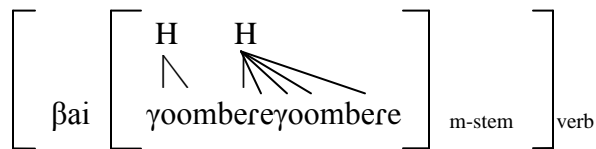


ITAR (I)

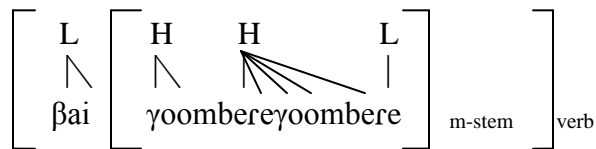


Intra-Syllabic H Shift

Doubling



High Tone Spread



L Tone Default

Floating Tone Docking

Leftward Spread

Contour Simplification

$\beta ai[\gamma\acute{o}o\acute{m}b\acute{e}r\acute{e}\gamma\acute{o}o\acute{m}b\acute{e}]$

Output

The output of (43) clearly shows that the stem-initial vowel of the verb is treated as part of the prefix so that the assignment of H tones starts with a syllable that has an onset.

### 5.3.4 Downstep and Downdrift in Reduplication

Downstep applies in reduplication just the same way it does in unreduplicated forms. The low tone on the third vowel of the macrostem acts as a trigger for the downstep. The kind of downstep found in reduplication is of the optional type. I provide examples using CV-type verbs.

- (44) a. oγo[sómá<sup>1</sup>sómá]      “to read repeatedly”  
       b. oko[rómá<sup>1</sup>rómá]      “to bite repeatedly”  
       c. oγo[témá<sup>1</sup>témá]      “to beat repeatedly”

Downdrift is also witnessed in reduplicated stems. It follows the same patterns described for the unreduplicated stems. The examples in (44) can also be produced with a downdrift.

- (45) a. oγo[sómásómá]      “to read repeatedly”  
       b. oko[rómáromá]      “to bite repeatedly”  
       c. oγo[témátémá]      “to beat repeatedly”

More examples of downdrift are given in (46). These use the verb *oko[mórékaná]* “to shine on each other”.

- (46) a. /o - ko - morek - an - a/      →      oko[mórékaná] “to shine on each other”  
       a - im - shine - rec - fv

- b. o-ko-[mórék-an-á+mórék-án-a]      “to shine on each other repeatedly”
- c. o-ko-[mórék-a+mórék-án-a]
- d. o-ko-[móré+morék-án-a]

## 5.4 Conclusion

In this chapter, I have argued that reduplication in Kuria is prefixing for consonant-initial verbs and infixing for /i/-initial verbs. Two types of reduplication, partial and total reduplication have been discussed. It has become evident that total reduplication has symmetrical patterns while asymmetrical patterns may be found in partial reduplication. It was also realized that the reduplicant is minimally disyllabic in Kuria and that the macrostem is a fluid constituent whose boundaries can be adjusted to either meet minimality requirements or exclude an onsetless syllable. Segmentally, /i/-initial verbs ignore the vowel during reduplication but other stem-initial vowels take part in reduplication. I also identified prefixes and enclitics as verb constituents that do not copy in reduplication. The issue of tone in reduplication was also discussed. Tone does not copy in Kuria and to successfully account for its distribution, RED + Base were treated as one tonal domain.



## **Chapter Six**

### **Discussion of Odden (1987) and Cammenga (2004)**

#### **6. Introduction**

This chapter contains a description of tone in the Kuria language based on previous accounts. Specifically, the chapter reviews work on tone found in Odden (1987) and Cammenga (2004). An effort is made to present the description in a way that it is as close as possible to the original works. As noted in chapter one, both Odden (1987) and Cammenga (2004) are based on the Nyabaasi variety of Kuria. The two, however, use different approaches in their analyses. Odden uses a vowel count approach to account for tone patterns in Kuria, while Cammenag uses a tonal melody. A brief discussion showing why I did not adapt these approaches fully in my analysis of tone in Kuria will be given.

#### **6.1 Odden (1987)**

Odden (1987) is an analytical study of the Kuria tonal system. Although the study focuses on the infinitival verb, it gives suggestions on how the basic tonal principles are applied in the finite verbs . The general observation is that Kuria has a predictable tone system and tense is the prime determiner of H tone placement. Tone rules operate on the basis of vowel count, assigning H to the first, second, third or fourth vowel, or the first and fourth vowels of the stem depending on the tense. The basic tonal pattern is, however, hardly manifested without modification.

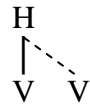
### 6.1.1 Basic Tone Principles

Tone is assigned with reference to the left edge of the stem. Object prefixes and locative clitics count as part of the stem.

- (1) a. oko[ménénékírja]                    “to shine for”  
      b. oko[mó-γésérá-hɔ]                “to harvest for him at”  
      c. oko[γé-mó-menénékírja-hɔ]      “to shine them for him at”

The basic infinitive pattern is best revealed by long verb stems. The basic infinitive pattern assigns H tones to the first and fourth stem vowels, and a rule of doubling (2) spreads these to the second and fifth vowels respectively.

#### (2) Doubling Rule



He assumes that the vowels are basically toneless, until given a H tone by an ITAR or by a doubling rule. Odden (1987:324) assumes that the presence of the augment motivates a high tone in the macrostem. Also, every verb stem has a single underlying H tone in Kuria whose source is the tense morpheme. In this case, the augment provides one H tone and the second H originates from the infinitival stem. These are the primary H tones. If a primary H falls on the fourth vowel and happens to be the penultimate, then the word final vowel will not take a doubled H tone. This is shown in (3).

- (3) a. oyo[téyéteraána]                    “to be late on each other”  
      b. oko[γé-mó-γéséra]                “to harvest them for him”

If the fourth vowel is the word final vowel, we get a mid tone on the final and preceding vowels.

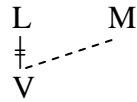
- (4) a.  $\text{o}\gamma\text{o}[\text{t}\acute{\epsilon}\gamma\acute{\epsilon}\text{t}\bar{\epsilon}\text{r}\bar{\alpha}]$  “to be late for”  
 b.  $\text{o}\text{k}\text{o}[\beta\acute{\text{o}}\text{-r}\acute{\text{o}}\gamma\bar{\epsilon}\text{r}\bar{\alpha}]$  “to cook it for”

The mid vowel is derived by a Flattening rule which is followed by a Spreading rule.

(5) Flattening (optional)

$$\text{H} \rightarrow \text{M} / \text{HL} \_\_ \#$$

Spreading



If Flattening is suspended, the HHMM pattern in  $\text{o}\gamma\text{o}[\text{t}\acute{\epsilon}\gamma\acute{\epsilon}\text{t}\bar{\epsilon}\text{r}\bar{\alpha}]$  “to be late for” (4a) shows up phonetically as HHLH,  $\text{o}\gamma\text{o}[\text{t}\acute{\epsilon}\gamma\acute{\epsilon}\text{t}\bar{\epsilon}\text{r}\acute{\alpha}]$ . Similarly, stems with three vowels get the pattern HHM, which alternates with HHR, as in (6).

- (6) a.  $\text{o}\text{k}\text{o}[\beta\acute{\text{a}}\text{r}\acute{\text{a}}\text{n}\bar{\alpha}]$  “to count each other”  
 b.  $\text{o}\text{k}\text{o}[\beta\acute{\text{a}}\text{r}\acute{\text{a}}\text{n}\check{\alpha}]$

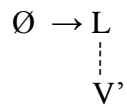
The fourth vowel H is not totally lost in the short stems. As seen in (6b), it is mapped onto the final syllable as a rising tone. What actually happens is that the fourth vowel is left floating at the end of the stem, if the stem is too short. The rising tone is a result of a rule that hooks up the final floating H tones (see (7)).

(7) Floating Tone Docking



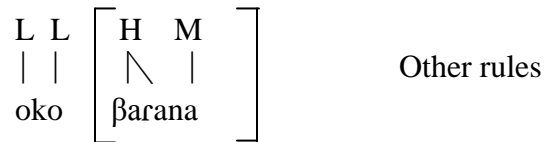
The tone system of Kuria specifies where H tones are placed, and then assigns L tones to toneless vowels by a default rule.

(8) L Tone Default Rule



The default rule applies after the initial tone mapping rule but before Floating Tone Docking. A derivation of *oko*[*βáránā*] “to count each other”, from Odden (1987: 316), follows in (9).

|     |                                                                 |                                                                                                                         |                       |
|-----|-----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|-----------------------|
| (9) |                                                                 | $\begin{bmatrix} \text{H} & \text{H} \\ \text{oko} & \beta\text{arana} \end{bmatrix}$                                   | underlying            |
|     |                                                                 | $\begin{bmatrix} \text{H} & \text{H} \\ \text{oko} & \begin{array}{c}   \\ \beta\text{arana} \end{array} \end{bmatrix}$ | ITAR                  |
|     | $\begin{array}{cc} \text{L L} \\     \\ \text{oko} \end{array}$ | $\begin{bmatrix} \text{H L L H} \\ \beta\text{arana} \end{bmatrix}$                                                     | L Tone Default Rule   |
|     | $\begin{array}{cc} \text{L L} \\     \\ \text{oko} \end{array}$ | $\begin{bmatrix} \text{HLLH} \\ \beta\text{arana} \end{bmatrix}$                                                        | Floating Tone Docking |



In two-vowel stems the fourth vowel tone is not found.

- (10) a. oko[βára]                      “to count”  
       b. oko[há-hə]                    “to give at”

When there is only one vowel on the stem, a H tone does show up.

- (11) a. oko[há]                        “to give”  
       b. ʉʉ[twá]                       “to pick”

### 6.1.2 Syllable Sensitive Complications

There are a number of complications which result from the presence of a long syllable in the stem. Examples are provided in (12).

- (12) a. oko[γé-mó-karáángéra]        “to fry them-4 for him”  
       b. oko[γé-mó-karáángéra-hə]      “to fry them-7 for him at”

In (12), the H tone assigned to the fourth stem vowel spreads to the fifth stem vowel by a Predoubling rule (13) before doubling applies.

(13) Predoubling:



Predoubling explains why a tone appears on the sixth vowel just in case the fourth is the first half of a long syllable. It also explains why the third vowel has a H tone in case the first is assigned to the first half of a long syllable, as in (14).

(14) oko[héetókérána] “to remember for each other”

The initial mapping rule puts H on the first and fourth vowels, Predoubling spreads the first H to the second vowel, and Doubling puts high tones on the third and fifth vowels. If both the first and fourth vowels are the first vowels of long syllables, Predoubling will apply to both tones, yielding high tones all the way from the first vowel to the sixth vowel, as seen in (15).

(15) uyɔ[túúŋgúnúúŋʃíranja-hɔ] “to make balanced for each other at”

To get to its surface form, the verb in (15) undergoes the derivation in (16).

|                             |            |
|-----------------------------|------------|
| (16) uyɔ[túúŋgúnúúŋʃíranja] | ITAR       |
| uyɔ[túúŋgúnúúŋʃíranja]      | Pedoubling |
| uyɔ[túúŋgúnúúŋʃíranja]      | Doubling   |

It is only by applying Predoubling and Doubling that one can have a level H tone on the word final third stem vowel, as in the verb *oyo[sáámhá]* “to burn”.

Another rule that is syllable sensitive is the Postdoubling Rule. This is formulated in (17). The rule spreads a H tone one vowel to the right just in case a H tone, which arrived there from the Doubling rule, stands before a long syllable.

(17) Post-Doubling Rule:

$$\begin{array}{c}
 H \\
 | \quad \diagdown \\
 V \quad V \quad V' \\
 \quad \quad \diagdown \quad / \\
 \quad \quad \quad \sigma
 \end{array}$$

This rule puts the high tone on the sixth stem vowel (see (18)).

(18) uku[γí-mú-tuúngúnúufɪrja] “to balance it for him”

The last rule that affects H tones in long syllables is the Antidoubling Rule. The antidoubling rule is ordered after the doubling rule. The rule is stated formally in (19).

(19) Antidoubling Rule:

$$\begin{array}{ccc}
 & H & H \\
 & \downarrow & \\
 & V & V' \\
 & \swarrow \searrow & \\
 & \sigma &
 \end{array}$$

It delinks a doubled H from the first half of a long syllable provided that another H appears somewhere after the delinked H. This rule explains why we do not have a falling tone, which would be the result of doubling onto a long syllable (see 20).

(20) a. oyo[káraaŋgéra] “to fry for”  
 b. oko[háyaaférána] “to build for each other”

### 6.1.3 Tone Patterns in Finite Tenses

After establishing the basic tonal principles of the language, Odden extends the analysis to cover three finite tenses; the Perfective, the Subjunctive, and the Recent Past. Let us start with the Perfective<sup>14</sup>.

The Perfective assigns a H tone to the fourth vowel, and the selection of a third person subject prefix triggers the insertion of a H tone to the first vowel. This means that third person perfectives are tonally just like infinitives.

<sup>14</sup> In my analysis, I refer to this tense as the Immediate Past Anterior (see Table 3.1).

- (21) a. a[káraaŋgére] “he has fried”  
 b. a[ɣá-káraáŋgére] “he has fried them”

When the subject is first or second person, as in (22), only the perfective’s fourth tone shows up. If the stem is short and the final vowel is the third, the H tone appears as a rising tone (22b).

- (22) a. n[terekré] “I have brewed”  
 b. n[tuurě] “I have picked”

The other tense that Odden looks at is the Subjunctive. It assigns a H tone to the third stem vowel.

- (23) a. o[ɣe-ɣesé] “you should harvest them”  
 b. o[ɣa-teréke] “you should brew it”

If the final vowel is the second vowel, it will bear a rising tone.

- (24) o[βosě] “you should grind it”

Finally, Odden briefly discusses the Recent Past tense<sup>15</sup>. This tense has a H tone assigned to the second vowel.

- (25) a. nnaaya[tuúre] “I was just picking”  
 b. nnaaka[mo-súraáŋgére] “I was just praising him”

In this tense, the perfective suffix makes the shortest stem tri-moraic, as in *nnaaka[haáje]* “I was giving”.

---

<sup>15</sup> In my analysis, I refer to this tense as the Hodiernal Past Progressive Anterior Focused.



## 6.2 Comments on Odden (1987)

So far, Odden's analysis of vowel count, that is, assigning a high tone to the first and fourth vowels in the infinitive, and secondary rules applying according to the length of the word and the shape of the syllables, has been successfully used to account for tone in the infinitival verb. This has been extended to the Perfective tense. It is an approach that is simple to use. The Recent Past and the Subjunctive are however different because they each have only one high tone on the stem.

One major difference between the data that I worked with and Odden's is that in my examples the last primary H tone spreads all the way to the penult while in Odden's examples the H tones can only spread up to the sixth vowel of the stem. In Odden's analysis, the Postdoubling rule spreads a H tone to a long vowel that does not have a H on the second vowel, producing a form such as *uku[γímútuúngúnúúfírja]* "to balance it for him". Due to this difference, I replaced the Postdoubling rule with High Tone Spread, which spreads the last H of a verb up to the penultimate vowel. The application of this new rule, together with others, produces the pattern *uku[γímútuúngúnúúfírja]* "to balance it for him".

Another difference between the tone rules that I used and Odden's is that I collapsed the doubling and antidoubling rules to form a new doubling rule which incorporated instances of when it should not apply, thus eliminating antidoubling as a separate rule.

### 6.3 Cammenga (2004)

Cammenga (2004) accounts for the tonal surface patterns of Kuria infinitives by assuming a HLH tone melody. A fundamental observation is that Kuria verbal tone is not lexically distinctive. He states that Kuria has two tones underlyingly, H and L, with a downstep being derived. It is noted that the infinitival tone is sensitive to the structure of the syllable, and that although surface tone is predictable, the underlying tone pattern may be obscured by subsequent rules. He assumes toneless underlying forms and uses fourteen tonal rules to account for the surface tonal patterns. I will go through the rules, illustrating them with examples. The first rule is the *Prefix Tone Insertion*.

#### (26) Prefix Tone Insertion

$$\emptyset \rightarrow H / \text{__}$$

Domain: class prefix

This rule inserts a H tone to the class prefix.

I will derive the form *oko[héétóká]* “to remember” step by step. To realize the output of this verb, it will be necessary to take the underlying representation through a number of rules, starting with the Prefix Tone Insertion.

$$(27) \begin{array}{l} \text{o - ko} \\ \text{a - im} \end{array} \left[ \begin{array}{ll} \text{heetok} & \text{- a} \\ \text{remember} & \text{- fv} \end{array} \right]_{\text{m-stem}} \quad \text{UR: “to remember”}$$

$$\left[ \begin{array}{l} \text{H} \\ \text{oko} \end{array} \left[ \begin{array}{l} \text{heetoka} \end{array} \right]_{\text{m-stem}} \right]_{\text{verb}} \quad \text{Prefix Tone Insertion}$$

After the Prefix Tone Insertion rule has inserted a H tone to the class prefix, the next rule that applies is the *Infinitival Melody Insertion*. This rule inserts a HLH tonal melody on the macrostem. The rule is ordered after the Prefix Tone Insertion rule.

(28) Infinitival Melody Insertion

$$\emptyset \rightarrow \text{HLH} / [ \text{m-stem } \_\_ ]$$

Domain: Infinitival Stem

The Prefix Tone Insertion and the Infinitival Melody Insertion are the rules that insert tone melodies.

$$(29) \left[ \begin{array}{c} \text{H} \\ \text{oko} \end{array} \left[ \begin{array}{c} \text{HLH} \\ \text{heetoka} \end{array} \right] \begin{array}{c} \text{m-stem} \\ \text{verb} \end{array} \right] \quad \text{Infinitival Melody Insertion}$$

The third rule, *Initial Tone Association Rule* (ITAR), assigns the tones in the prefix and the stem to specific tone bearing units. The rule is formalized in (30).

(30) Initial Tone Association Rule (ITAR)

$$\begin{array}{c} \text{T} \\ \vdots \\ \text{[stem V}^{\text{'}} \end{array}$$

Condition: the first tone of the infinitival tone melody may only be associated to tone bearers in the base, not to the final vowel.

The tones assigned by the Prefix Tone Insertion and Infinitival Melody Insertion rules form a HHLH pattern as seen in (31). Each of the tones in this melody is associated with

a specific vowel such that the first tone is associated with the first tone-bearer of the stem, thus causing a tonal shift.

$$(31) \quad \left[ \begin{array}{c} \text{oko} \left[ \begin{array}{c} \text{HHLH} \\ | \quad | \quad | \quad | \\ \text{heetoka} \end{array} \right]_{\text{m-stem}} \end{array} \right]_{\text{verb}} \quad \text{ITAR}$$

This rule is similar to Odden's ITAR which assigns H tones to the first and fourth vowels of the stem. The H tone from the class prefix moves one step to the first vowel of the stem and this pushes the HLH tone melody to subsequent vowels. After the tonal melody has been mapped onto the verb, other rules may be required. One such rule, required in the derivation of *oko[héétóká]* "to remember", is *Tonal Simplification*.

(32) Tonal Simplification

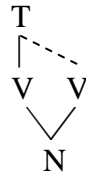
$$\begin{array}{c} \text{N} \\ \wedge \\ \begin{array}{cc} \text{x} & \text{x} \\ | & \neq \\ \text{T}\alpha & \text{T}\alpha \end{array} \end{array}$$

This rule has the effect of simplifying identical tones dominated by the same syllable node. It delinks the second of two H tones if they are in the same syllable. In (33), the first syllable in the macrostem has a H tone on both vowels; the rule delinks the H on the second vowel.

$$(33) \quad \left[ \begin{array}{c} \text{oko} \left[ \begin{array}{c} \text{HHL H} \\ | \neq | \quad | \quad | \\ \text{heetoka} \end{array} \right]_{\text{m-stem}} \end{array} \right]_{\text{verb}} \quad \text{Tonal Simplification}$$

Another rule, *Heavy Tone Spread*, applies immediately after Tonal Simplification to spread the H of the first vowel to the second vowel. These two rules are in a feeding relationship.

(34) Heavy Tone Spread

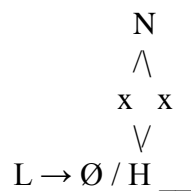


This rule spreads a high tone in a long syllable from the first vowel to the second, if the second vowel is unassociated. It is similar to Odden's Predoubling rule. An illustration of the rule follows in (35).

(35) 
$$\left[ \begin{array}{c} \left[ \begin{array}{ccc} \text{H} & \text{L} & \text{H} \\ \text{oko} & \text{heetoka} & \end{array} \right]_{\text{m-stem}} \end{array} \right]_{\text{verb}}$$
 Heavy Tone Spread

Still another rule that will be required in the derivation of the form *oko[héétóká]* “to remember”, is the *Post-Heavy L-Erasure*.

(36) Post-Heavy L-Erasure



It deletes a low tone after a high-toned heavy syllable, as seen in (37).

$$(37) \left[ \begin{array}{c} \left[ \begin{array}{ccc} \text{H} & \text{L} & \text{H} \\ \diagdown & \vdash & | \\ \text{heetoka} \end{array} \right]_{\text{m-stem}} \\ \text{oko} \end{array} \right]_{\text{verb}} \quad \text{Post-Heavy L-Erasure}$$

After the L tone has been deleted by the Post-Heavy L-Erasure, the unassociated vowel has to be assigned a tone. This is done by the *Base Tone Spread* rule formulated in (38).

(38) Base Tone Spread

$$\begin{array}{c} \text{T} \\ \vdots \\ \text{V}' \end{array}$$

Domain: Infinitival base (excluding the final vowel)

This rule spreads tones, from left to right, to vowels in the base which were left unassociated after application of other rules. The rule covers Odden's Doubling and Postdoubling rules. The application seen in (39) is similar to Odden's doubling.

$$(39) \left[ \begin{array}{c} \left[ \begin{array}{cc} \text{H} & \text{H} \\ \diagdown & | \\ \text{heetoka} \end{array} \right]_{\text{m-stem}} \\ \text{oko} \end{array} \right]_{\text{verb}} \quad \text{Base Tone Spread}$$

In longer verbs, Base Tone Spread applies to the H tone on the fourth vowel spreading it unboundedly to the penult (see 40).

(40) / o - ko [ ke - mo - tuNγunuuf - er - i - a ] / UR: “to balance it for  
a - im [ om - om1 - balance - ap - cau - fv ] m-stem him”

$$\left[ \begin{array}{c} \text{H} \\ \text{uku} \end{array} \left[ \begin{array}{c} \gamma\text{imutuungunuufirja} \end{array} \right]_{\text{m-stem}} \right]_{\text{verb}}$$
 Prefix Tone Insertion

$$\left[ \begin{array}{c} \text{H} \\ \text{uku} \end{array} \left[ \begin{array}{c} \text{HLH} \\ \gamma\text{imutuungunuufirja} \end{array} \right]_{\text{m-stem}} \right]_{\text{verb}}$$
 Infinitival Melody Insertion

$$\left[ \begin{array}{c} \text{H HLH} \\ | | | | \\ \text{uku} \end{array} \left[ \begin{array}{c} \gamma\text{imutuungunuufirja} \end{array} \right]_{\text{m-stem}} \right]_{\text{verb}}$$
 ITAR

\_\_\_\_\_ Tonal Simplification

\_\_\_\_\_ Heavy Tone Spread

\_\_\_\_\_ Post-Heavy L-Erasure

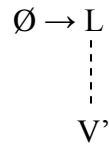
$$\left[ \begin{array}{c} \text{H HLH} \\ | | | | \nearrow \nearrow \nearrow \nearrow \\ \text{uku} \end{array} \left[ \begin{array}{c} \gamma\text{imutuungunuufirja} \end{array} \right]_{\text{m-stem}} \right]_{\text{verb}}$$
 Base Tone Spread

$$\left[ \begin{array}{c} \text{L} \\ \nearrow \\ \text{uku} \end{array} \left[ \begin{array}{c} \text{H HLH} \\ | | | | \nearrow \nearrow \nearrow \nearrow \\ \gamma\text{imutuungunuufirja} \end{array} \right]_{\text{m-stem}} \right]_{\text{verb}} \text{L}$$
 L Default

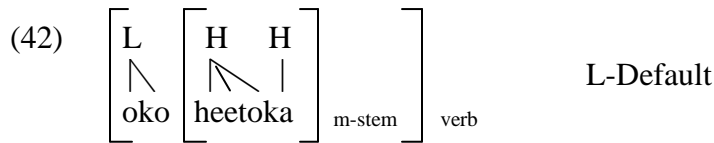
uku[γimútuúngúnúúfirja] Output

Another rule that Cammenga posits, and which has been used in (40) before being formally introduced, is the *L-Default*. Odden uses a similar rule which he calls L Tone Default Rule.

(41) L-Default



It associates a low tone to any vowel that has not yet received a tone after application of other tonal rules. This rule applies after most rules referring to H tones. To illustrate the application of L Default, I will continue with the derivation of *oko[héétóká]* “to remember”.

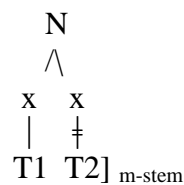


oko[héétóká]

Output

Another rule that Cammenga uses is called *Final Contour Simplification*. This rule is similar to Tonal Simplification but occurs at the end of a word. It is a rule that is syllable sensitive. It is ordered before Heavy Tone Spread.

(43) Final Contour Simplification



This rule optionally simplifies a contour tone in a stem-final heavy syllable. It deals with verbs that end in long syllables, although one hardly finds a long vowel at the end of a



verb in Kuria. Cammenga (2004: 59 – 60) has used the verb *oyo[témíá]* “to cause to beat” to illustrate how this rule works, and he considers the two last vowels as belonging to one syllable.

$$(44) \quad \begin{array}{l} \text{o - ko} \\ \text{a - im} \end{array} \left[ \begin{array}{l} \text{tɛm - i} \\ \text{beat - cau - fv} \end{array} \right]_{\text{m-stem}} \quad \text{UR: “to cause to beat”}$$

$$\left[ \begin{array}{l} \text{H} \\ \text{oyo} \end{array} \left[ \begin{array}{l} \text{tɛmia} \end{array} \right]_{\text{m-stem}} \right]_{\text{verb}}$$

Prefix Tone Insertion

$$\left[ \begin{array}{l} \text{H} \\ \text{oyo} \end{array} \left[ \begin{array}{l} \text{HLH} \\ \text{tɛmia} \end{array} \right]_{\text{m-stem}} \right]_{\text{verb}}$$

Infinitival Melody Insertion

$$\left[ \begin{array}{l} \text{HHLH'} \\ | \quad | \\ \text{oyo} \quad \text{tɛmia} \end{array} \right]_{\text{m-stem}}_{\text{verb}}$$

ITAR

---

Tonal Simplification

$$\left[ \begin{array}{l} \text{H HLH'} \\ | \quad | \quad \# \\ \text{oyo} \quad \text{tɛmia} \end{array} \right]_{\text{m-stem}}_{\text{verb}}$$

Final Contour Simplification

$$\left[ \begin{array}{l} \text{H HL'H'} \\ | \quad \backslash \\ \text{oyo} \quad \text{tɛmia} \end{array} \right]_{\text{m-stem}}_{\text{verb}}$$

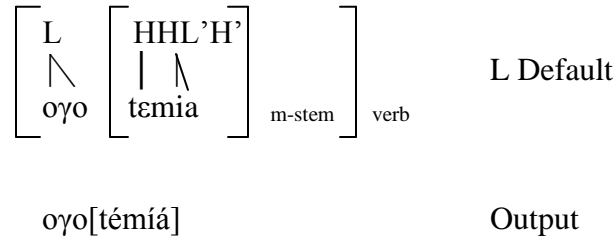
Heavy Tone Spread

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Post-Heavy L-Erasure

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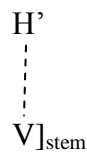
Base Tone Spread



Although Cammenga uses Heavy Tone Spread to link the causative [i] and the final vowel [a], I would expect that the high front vowel preceding a final vowel in this verb will turn into a glide. The output of (44) would therefore be *oγo[témjá]*, in which case there would be no need for the Heavy Tone Spread since there would be only one vowel word finally.

Another optional rule, the *Final H' Linking*, is proposed. The floating H can be linked only if it is one step away from the final vowel. Odden calls this rule Floating Tone Docking.

(45) Final H' Linking (optional)



It optionally links a floating H' to the final vowel of the stem. The application of this rule results in a downstep. The Final H' Linking must be ordered before the *Final Downstep* so that they are in a feeding relationship. The Final Downstep rule is formalized in (46).

(46) Final Downstep (optional)

$$LH \rightarrow 'H / \text{ \_\_\_ } ]_{\text{word}}$$

The rule optionally turns any word final LH sequence, belonging to consecutive syllables or both belonging to a non-heavy syllable, into a downstepped high tone. The Final Downstep rule is similar to Odden’s Flattening Rule. There is however a difference in the ordering of rules. Odden orders L Tone Default early so that it facilitates the Floating Tone Docking and subsequently triggers Flattening. Cammenga orders the L Default after both the Final H’ Linking and the Final Downstep because there is already another L tone which is a product of the HLH Infinitival Melody. A complete derivation of the verb *oyo[téré’ká]* “to brew” is used below to illustrate how the two rules in (45) and (46) apply.

$$(47) \quad \begin{array}{l} \text{o - ko} \\ \text{a - im} \end{array} \left[ \begin{array}{l} \text{tem - er - a} \\ \text{brew - ap - fv} \end{array} \right]_{\text{m-stem}} \quad \Bigg/ \quad \text{UR: “to hit for”}$$

$$\left[ \begin{array}{l} \text{H} \\ \text{oyo} \end{array} \right] \left[ \begin{array}{l} \text{temera} \end{array} \right]_{\text{m-stem}} \text{verb} \quad \text{Prefix Tone Insertion}$$

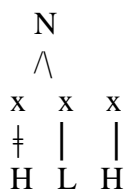
$$\left[ \begin{array}{l} \text{H} \\ \text{oyo} \end{array} \right] \left[ \begin{array}{l} \text{HLH} \\ \text{temera} \end{array} \right]_{\text{m-stem}} \text{verb} \quad \text{Infinitival Melody Insertion}$$

$$\left[ \begin{array}{l} \text{H H LH'} \\ | \quad | \quad | \\ \text{oyo} \quad \text{temera} \end{array} \right]_{\text{m-stem}} \text{verb} \quad \text{ITAR}$$

|                                                                                                                                                                                                                                                                         |                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| _____                                                                                                                                                                                                                                                                   | Tonal Simplification         |
| _____                                                                                                                                                                                                                                                                   | Final Contour Simplification |
| _____                                                                                                                                                                                                                                                                   | Heavy Tone Spread            |
| _____                                                                                                                                                                                                                                                                   | Post-Heavy L-Erasure         |
| _____                                                                                                                                                                                                                                                                   | Base Tone Spread             |
| $\left[ \begin{array}{c} \text{o}\gamma\text{o} \\ \left[ \begin{array}{ccc} \text{H} & \text{H} & \text{LH} \\   &   & \diagdown \\ \text{t}\epsilon\text{m}\epsilon\text{r}\alpha \end{array} \right] \text{m-stem} \end{array} \right] \text{verb}$                  | Final H' Linking             |
| $\left[ \begin{array}{c} \text{o}\gamma\text{o} \\ \left[ \begin{array}{ccc} \text{H} & \text{H}' & \text{H} \\   &   &   \\ \text{t}\epsilon\text{m}\epsilon\text{r}\alpha \end{array} \right] \text{m-stem} \end{array} \right] \text{verb}$                          | Final Downstep               |
| $\left[ \begin{array}{c} \text{L} \\ \diagdown \\ \text{o}\gamma\text{o} \\ \left[ \begin{array}{ccc} \text{H} & \text{H}' & \text{H} \\   &   &   \\ \text{t}\epsilon\text{m}\epsilon\text{r}\alpha \end{array} \right] \text{m-stem} \end{array} \right] \text{verb}$ | L Default                    |
| oγo[témé'rá]                                                                                                                                                                                                                                                            | Output                       |

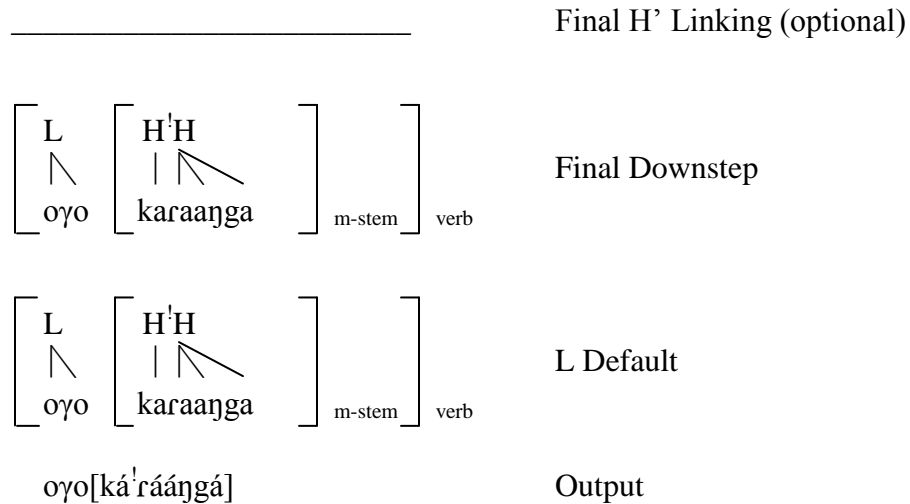
The next rule deals with long or heavy syllables. Its application cancels a situation where a falling contour would be realized on a long syllable.

#### (48) HL-Simplification



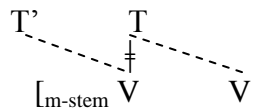
This rule simplifies a HL contour tone of a heavy syllable to L tone. HL-Simplification must be ordered after the ITAR rule. Odden uses the antidoubling rule to delink a H that has doubled onto the first vowel of a long syllable. I will derive the verb *oyo* [ká'ráángá] “to fry” step by step so as to illustrate how HL-Simplification applies.

|      |                                                                                                                                                                                         |                              |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| (49) | $\begin{array}{c} \text{o - ko} \\ \text{a - im} \end{array} \left[ \begin{array}{c} \text{karaN}\gamma - \text{a} \\ \text{fry} \quad - \text{fv} \end{array} \right]_{\text{m-stem}}$ | UR: “to fry”                 |
|      | $\left[ \begin{array}{c} \text{H} \\ \text{oyo} \end{array} \left[ \begin{array}{c} \text{karaa}\eta\text{ga} \end{array} \right]_{\text{m-stem}} \right]_{\text{verb}}$                | Prefix Tone Insertion        |
|      | $\left[ \begin{array}{c} \text{H} \\ \text{oyo} \end{array} \left[ \begin{array}{c} \text{HLH} \\ \text{karaa}\eta\text{ga} \end{array} \right]_{\text{m-stem}} \right]_{\text{verb}}$  | Infinitival Melody Insertion |
|      | $\left[ \begin{array}{c} \text{HHL} \quad \text{H} \\   \quad   \quad   \quad   \\ \text{oyo} \quad \text{karaa}\eta\text{ga} \end{array} \right]_{\text{m-stem}}_{\text{verb}}$        | ITAR                         |
|      | _____                                                                                                                                                                                   | Tonal Simplification         |
|      | $\left[ \begin{array}{c} \text{HHL} \quad \text{H} \\   \quad \ddagger \quad   \quad   \\ \text{oyo} \quad \text{karaa}\eta\text{ga} \end{array} \right]_{\text{m-stem}}_{\text{verb}}$ | HL-Simplification            |
|      | _____                                                                                                                                                                                   | Final Contour Simplification |
|      | _____                                                                                                                                                                                   | Heavy Tone Spread            |
|      | _____                                                                                                                                                                                   | Post-Heavy L-Erasure         |
|      | _____                                                                                                                                                                                   | Base tone Spread             |



Another optional rule, *Toneshift*, is formalized in (50). It applies in reduplicated stems.

(50) Toneshift



This rule spreads a floating tone across a stem-boundary to an initial vowel of the stem, causing a shift in all subsequent tones in the stem. The rule is similar to ITAR but applies optionally. In ITAR, the H tone in the prefix shifts to the first vowel of the stem thereby pushing the HLH infinitival melody to the subsequent vowels on the stem. In (51), the stem is reduplicated. The tones are first assigned to the first stem, but because it is short they move over a stem boundary to the next stem. This is how the shift occurs. Tone Shift is ordered before Heavy Tone Spread. We use the following derivation, taken from Cammenga (2004: 65 - 66), to show how tone shift and other rules apply.

(51) / o - ko [ [ tɛm - o - a ] [ tɛm - o - a ] ] m-stem / UR: to be beaten  
 a - im [ beat - pas - fv ] [ beat - pas - fv ] continually”

[ H [ [ tɛmoatɛmoa ] m-stem ] verb ]

Prefix Tone Insertion

[ H [ HLH [ tɛmoatɛmoa ] m-stem ] verb ]

Infinitival Melody Insertion

[ [ H HLH [ tɛmoatɛmoa ] m-stem ] verb ]

ITAR

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Tonal Simplification

---

HL-Simplification

[ [ H HL'H [ tɛmoatɛmoa ] m-stem ] verb ]

Final Contour Simplification

[ [ H HL'H [ tɛmoatɛmoa ] m-stem ] verb ]

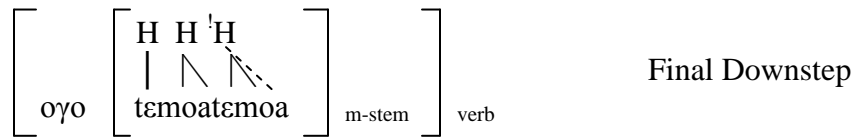
Heavy Tone Spread

[ [ H H L H [ tɛmoatɛmoa ] m-stem ] verb ]

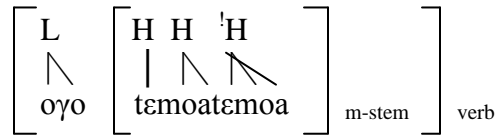
Tone Shift

[ [ H H L H [ tɛmoatɛmoa ] m-stem ] verb ]

Heavy Tone Spread



Final Downstep



L Default

oγo[témóá'témóá]

“Output

The derivation in (51) is complex and needs to be explained. The underlying representation of this verb shows that its stem is made up of two “stems” because this is a verb that has undergone total reduplication (see chapter five for a complete discussion of reduplication). In this derivation, Prefix Tone Insertion and Infinitival Melody Insertion rules apply as usual. Next, the ITAR rule applies without regard to the two “stems” – the tonal melody is mapped onto the first four vowels of the stem. The next rule applies at the stem boundary of the first stem. The fact that Final Contour Simplification applies after ITAR, rather than HL Simplification shows that there are two stems and the rule applies at the end of one stem. The Final Contour Simplification delinks the L tone from the final vowel of the first stem. This low tone remains floating. Next, Heavy Tone Spread applies, spreading a H to the final vowel of the first stem. This creates a configuration that meets the structural description for Toneshift. The L tone shifts to the first vowel of the next stem causing the H previously linked to that vowel to also shift forward. Heavy Tone Spread then applies to spread the H to the final vowel of the second stem. Lastly, Final Downstep and L Default rules apply.



Cammenga's last tonal rule is downdrift. This is only mentioned and not discussed. To conclude this section, I list the tonal rules used in Cammenga (2004).

- (52) a. Prefix Tone Insertion  
b. Infinitival Melody Insertion  
c. Initial Tone Association Rule (ITAR)  
d. L-Default  
e. Final Contour Simplification (optional)  
f. Tonal Simplification  
g. Post-Heavy L-Erasure  
h. Final H' Linking  
i. Base Tone Spread  
j. HL-Simplification  
k. Heavy Tone Spread  
l. Final Downstep (optional)  
m. Toneshift (optional)  
n. Downdrift (not formulated)

#### **6.4 Comments on Cammenga (2004)**

Cammenga (2004) uses a HLH melody to account for the tonal patterns in infinitives. This is a very apt analysis especially for the CV-type of stems. It accounts for the basic tonal patterns. Complications arising from syllable and verb length call for additional rules which slightly alter the basic pattern. It forms an alternative to the vowel count approach.

According to Cammenga (2004), there are two L tones. The first L tone is part of the HLH melody that is inserted to the stem by the Infinitival Melody Insertion Rule. The other L tone is assigned to a verb through the L Default Rule. This is a problem for the tonal melody approach since it seems more appropriate to specify where the H tones are placed in a Kuria verb and let the phonetic L tones be derived by a default rule.

Cammenga uses the tonal melody approach to account for tone assignment in Kuria. The way this is done leaves behind an unresolved problem. First, a H tone is inserted on the prefix using the Prefix Tone Insertion rule. This is followed by the Infinitival Melody Insertion rule which inserts a HLH melody on the infinitival verb stem. The third rule, ITAR, maps the tones on to the verb stem as the H tone from the prefix shifts to the stem. The result is a HHLH pattern. The problem here is that the two adjacent H tones in the tonal pattern violate the Obligatory Contour Principle. So far, Cammenga has tried to resolve the problem of the two initial H tones appearing in adjacent tone bearing units (if the syllables are heavy) by using the Tonal Simplification Rule (see 32). There is no rule to take care of this problem in the CV-type stems, as in (47) *oyo[témé'rá]* “to hit for”. Odden, on the other hand, avoids this problem by showing that the first H is a primary tone while the second H is a secondary tone, that is, the first vowel has a H tone which doubles to the next vowel. In terms of the number of rules, Cammenga uses fourteen rules as opposed to Odden’s nine.

## 6.5 Conclusion

Two approaches to the analysis of tone have been presented in this chapter. Of the two, my analysis followed a modified version of Odden to describe tones in Kuria verbs. I had the following modifications: (a) I restated Predoubling and renamed it Intra-Syllabic H Spreading to cater for verbs that only apply Predoubling and not Doubling, and to dispel the notion that these two rules are related; (b) I collapsed Doubling and Antidoubling by restating the Doubling rule; (c) I replaced the Postdoubling rule with High Tone Spread because the latter has the advantage of spreading a high tone all the

way to the penult (d) I renamed the Spreading rule as Leftward Spreading so as to distinguish it from the High Tone Spread; (e) I did away with the Flattening rule, and (e) I added a Contour Simplification rule.

## **Chapter Seven**

### **Summary and Conclusion**

#### **7. Introduction**

The aim of this dissertation was to outline the basic principles of tone assignment in Kuria verbs. The areas that the study covered include infinitival tone, tone in affirmative finite tenses, tone in reduplicated verbs, and tone in negative verbs. It emerged that rather than a succession of single tones, macrostem tones are best analysed as melodies. The melodies encountered in this study are V1, V2, V3, V4, V1 and V4, and No Stem H. The vowel count approach (Odden 1987) was used to account for all the tonal patterns. Using this approach, the H tone was assigned to the *n*th vowel of the macrostem, depending on the tense.

This study showed that although the Kuria verb has a fairly complex morphology and an equally complex system of verbal tone patterns, the tone patterns can be accounted for by a small set of tone assignment principles. It was not possible to distinctly show the features that delineated each tone assignment principle.

In trying to define the domain of Kuria tone, the area of reduplication was also covered. The relationship between the Base and reduplicant was demonstrated. It was surprising that although reduplication is segmentally complex, it had a fairly straightforward tonal pattern. We saw that tone assignment in reduplicated verbs is similar to that found in unreduplicated forms. One revelation was that while the domain of tonal processes, even in reduplicated forms, is the macrostem, the domain of segmental

reduplication is the stem.

The issue of floating tones is of interest in Bantu tonology. Evidence has been adduced to show that there are floating tones in Kuria especially in verb forms that are too short to get to the nth count where a high tone is to be assigned. Such floating tones have ended up appearing on the surface when more material is added making it possible for them to dock. On the other hand, when a tone becomes floating as a result of the deletion of its tone bearing unit, it will result in a downstepped high if it is followed by a high tone. Two types of downstep were identified in Kuria; obligatory and optional downstep.

Tone in negative tenses was discussed in chapter four. It was shown that the two morphological negatives, /ta-/ and /te-/, influence tone in different ways. While /te-/ triggered a H tone in the pre-macrostem domain, /ta-/ did not contribute any high tone.

## **7.1 Theoretical Issues**

Apart from providing facts about tone in Kuria, some theoretical issues have arisen in this dissertation. In the realm of tone and morphology, we saw that Kuria uses morphologically triggered rules. These rules make reference to morphological features found in the verb. Both the Initial Tone Association Rules (ITAR) and the High Tone Spreading rules were dictated by the morphological features in the verb.

We also saw that the macrostem, which includes the object prefixes, root, extensions, and the final vowel, is the domain of tone interaction. This domain, which has gained currency in Bantu linguistics, was clearly manifested in Kuria. Evidence was adduced to show that this domain is adjustable. In some vowel-initial verbs, the onsetless

syllable was left out of the macrostem so that only optimal syllables were assigned H tone.

From the point of view of a general theory of tonal processes, it must be emphasized that Kuria exhibits clear cases of local and non-local spreading. Non-local spreading is of particular interest because it targets the penultimate position in the verb. The penult, ante-penult, and final are positions that attract stress or H tone in various Bantu languages. The positions have a special status as they mark the edges of words. In Kuria, local spreading was seen when a high tone doubled from V1 to V2, and non-local spreading was seen when a high tone spread from V1 (in verbs with one H tone) or V4 (in verbs with two H tones) to the penult.

Opacity was also dealt with in this study. Phonological processes are opaque if their effects are not visible on the surface form. The natural interaction of a pair of rules is for them to sequence in such a way as to minimize opacity, but this does not always happen in language. Two cases of opacity were discussed in this dissertation, that of vowel-initial verbs and verbs with first person singular object prefix.

Although I showed that some tenses share ITAR rules, there was no further evidence either semantically, morphologically, or phonologically to suggest that they constitute a natural class. This forced me to use whole tense names as features. My view is that the Kuria tense system is very complex and that is why it was difficult to see the common morphological features in tenses that form a group.

Like in many languages, Kuria demonstrates minimal word effects. In Kuria, a minimal verb stem should be disyllabic. We saw that the language has many ways of

repairing stems that do not meet that requirement but sometimes monomoraic stems are tolerated.

## **7.2 Areas for Future Research**

In this section, I outline a few interesting areas which were mentioned in this dissertation but were not pursued further because of time. The first one is downdrift. I established that downdrift is a common phenomenon in Kuria, occurring in tenses that have two primary high tones on the macrostem. In downdrift, the second high tone in a verb is lower than the first high tone. The verbs that I looked at consistently exhibited a drop in pitch only once; there was no successive lowering. A look at downdrift in phrasal contexts is necessary to find out whether multiple successive lowering is possible.

Tone mapping in Kuria appears to be phrasal. I reached this conclusion after observing that when a verb is short, such that no H tone mapping takes place, the H does not get lost, it remains floating. When a word is added in front of the short verb, the floating tone manifests itself. Also, this dissertation only looked at simple tenses, complex tenses were not studied. My inference, based on inconclusive evidence, suggests that the complex tenses are phrasal by nature. A study of Kuria phrasal tonology will provide more insights on Kuria tone

## APPENDICES

### Appendix 1: Kuria Finite Verbs Paradigm

#### PATTERN 1A: H on V1 (SPREAD)

**Habitual Past Focused** - e.g. "I used to eat (then)"

|                           |                     |                    |                    |                     |                     |                     |          |
|---------------------------|---------------------|--------------------|--------------------|---------------------|---------------------|---------------------|----------|
| ha                        | nnaaká[hááye]       | waaká[hááye]       | naaká[hááye]       | ntooká[hááye]       | mmooká[hááye]       | mbaaká[hááye]       | give     |
| rea                       | nnaaká[rééye]       | waaká[rééye]       | naaká[rééye]       | ntooká[rééye]       | mmooká[rééye]       | mbaaká[rééye]       | eat      |
| sea                       | nnaagá[sééye]       | waagá[sééye]       | naagá[sééye]       | ntoogá[sééye]       | mmoogá[sééye]       | mbaagá[sééye]       | grind    |
| roma                      | nnaaká[rómére]      | waaká[rómére]      | naaká[rómére]      | ntooká[rómére]      | mmooká[rómére]      | mbaaká[rómére]      | bite     |
| buna                      | nnaaká[búníre]      | waaká[búníre]      | naaká[búníre]      | ntooká[búníre]      | mmooká[búníre]      | mbaaká[búníre]      | break    |
| biima                     | nnaaká[bíímíre]     | waaká[bíímíre]     | naaká[bíímíre]     | ntooká[bíímíre]     | mmooká[bíímíre]     | mbaaká[bíímíre]     | measure  |
| saamba                    | nnaagá[sáámbére]    | waagá[sáámbére]    | naagá[sáámbére]    | ntoogá[sáámbére]    | mmoogá[sáámbére]    | mbaagá[sáámbére]    | burn     |
| tereka                    | nnaagá[térékére]    | waagá[térékére]    | naagá[térékére]    | ntoogá[térékére]    | mmoogá[térékére]    | mbaagá[térékére]    | brew     |
| sukura                    | nnaagá[súkúúyé]     | waagá[súkúúyé]     | naagá[súkúúyé]     | ntoogá[súkúúyé]     | mmoogá[súkúúyé]     | mbaagá[súkúúyé]     | rub      |
| heetoka                   | nnaaká[héétókére]   | waaká[héétókére]   | naaká[héétókére]   | ntooká[héétókére]   | mmooká[héétókére]   | mbaaká[héétókére]   | remember |
| taandora                  | nnaagá[táándóóye]   | waagá[táándóóye]   | naagá[táándóóye]   | ntoogá[táándóóye]   | mmoogá[táándóóye]   | mbaagá[táándóóye]   | tear     |
| karaanga                  | nnaagá[karáángére]  | waagá[karáángére]  | naagá[karáángére]  | ntoogá[karáángére]  | mmoogá[karáángére]  | mbaagá[karáángére]  | fry      |
| hagaacha                  | nnaaká[hágááchére]  | waaká[hágááchére]  | naaká[hágááchére]  | ntooká[hágááchére]  | mmooká[hágááchére]  | mbaaká[hágááchére]  | build    |
| taangaasa                 | nnaagá[táángáásére] | waagá[táángáásére] | naagá[táángáásére] | ntoogá[táángáásére] | mmoogá[táángáásére] | mbaagá[táángáásére] | announce |
| siitaaka                  | nnaagá[síitáákére]  | waagá[síitáákére]  | naagá[síitáákére]  | ntoogá[síitáákére]  | mmoogá[síitáákére]  | mbaagá[síitáákére]  | accuse   |
| teremeka                  | nnaagá[téremékére]  | waagá[téremékére]  | naagá[téremékére]  | ntoogá[téremékére]  | mmoogá[téremékére]  | mbaagá[téremékére]  | be calm  |
| berekera                  | nnaaká[bérékééye]   | waaká[bérékééye]   | naaká[bérékééye]   | ntooká[bérékééye]   | mmooká[bérékééye]   | mbaaká[bérékééye]   | call     |
| turuujana                 | nnaagá[túruúnáini]  | waagá[túruúnáini]  | naagá[túruúnáini]  | ntoogá[túruúnáini]  | mmoogá[túruúnáini]  | mbaagá[túruúnáini]  | welcome  |
| koondokora                | nnaagá[kóóndókóóye] | waagá[kóóndókóóye] | naagá[kóóndókóóye] | ntoogá[kóóndókóóye] | mmoogá[kóóndókóóye] | mbaagá[kóóndókóóye] | uncover  |
| kirigiita                 | nnaagá[kirígíítíre] | waagá[kirígíítíre] | naagá[kirígíítíre] | ntoogá[kirígíítíre] | mmoogá[kirígíítíre] | mbaagá[kirígíítíre] | scrub    |
| hootootera                | nnaaká[hóótóótééye] | waaká[hóótóótééye] | naaká[hóótóótééye] | ntooká[hóótóótééye] | mmooká[hóótóótééye] | mbaaká[hóótóótééye] | reassure |
| <b>with object prefix</b> |                     |                    |                    |                     |                     |                     |          |
| ha                        | nnaaká[gáhááye]     | waaká[gáhááye]     | naaká[gáhááye]     | ntooká[gáhááye]     | mmooká[gáhááye]     | mbaaká[gáhááye]     | give     |
| rea                       | nnaaká[garééye]     | waaká[garééye]     | naaká[garééye]     | ntooká[garééye]     | mmooká[garééye]     | mbaaká[garééye]     | eat      |
| roma                      | nnaaká[gáromére]    | waaká[gáromére]    | naaká[gáromére]    | ntooká[gáromére]    | mmooká[gáromére]    | mbaaká[gáromére]    | bite     |
| biima                     | nnaaká[gábíímíre]   | waaká[gábíímíre]   | naaká[gábíímíre]   | ntooká[gábíímíre]   | mmooká[gábíímíre]   | mbaaká[gábíímíre]   | measure  |
| saamba                    | nnaaká[gásáámbére]  | waaká[gásáámbére]  | naaká[gásáámbére]  | ntooká[gásáámbére]  | mmooká[gásáámbére]  | mbaaká[gásáámbére]  | burn     |
| tereka                    | nnaaká[gátérékére]  | waaká[gátérékére]  | naagá[gátérékére]  | ntooká[gátérékére]  | mmooká[gátérékére]  | mbaaká[gátérékére]  | brew     |



|                            |                       |                      |                      |                       |                       |                       |             |
|----------------------------|-----------------------|----------------------|----------------------|-----------------------|-----------------------|-----------------------|-------------|
| heetoka                    | nnaaká[gáhéétókére]   | waaká[gáhéétókére]   | naaká[gáhéétókére]   | ntooká[gáhéétókére]   | mmooká[gáhéétókére]   | mbaaká[gáhéétókére]   | remember    |
| karaanga                   | nnaagá[gákaráángére]  | waaká[gákaráángére]  | naagá[gákaráángére]  | ntooká[gákaráángére]  | mmooká[gákaráángére]  | mbaaká[gákaráángére]  | fry         |
| berekera                   | nnaaká[gábérékééye]   | waaká[gábérékééye]   | naaká[gábérékééye]   | ntooká[gábérékééye]   | mmooká[gábérékééye]   | mbaaká[gábérékééye]   | call        |
| turuunjana                 | nnaaká[gátúruúnjáini] | waaká[gátúruúnjáini] | naaká[gátúruúnjáini] | ntooká[gátúruúnjáini] | mmooká[gátúruúnjáini] | mbaaká[gátúruúnjáini] | welcome     |
| <b>vowel-initial verbs</b> |                       |                      |                      |                       |                       |                       |             |
| ia                         | nnaaká[gééye]         | waaká[gééye]         | naaká[gééye]         | ntooká[gééye]         | mmooká[gééye]         | mbaaká[gééye]         | go          |
| aga                        | nnaaká[ágére]         | waaká[ágére]         | naaká[ágére]         | ntooká[ágére]         | mmooká[ágére]         | mbaaká[ágére]         | weed        |
| igora                      | nnaaká[ígóóye]        | waaká[ígóóye]        | naaká[ígóóye]        | ntooká[ígóóye]        | mmooká[ígóóye]        | mbaaká[ígóóye]        | open        |
| oboha                      | nnaakó[óbóhére]       | waakó[óbóhére]       | naakó[óbóhére]       | ntookó[óbóhére]       | mmookó[óbóhére]       | mbaakó[óbóhére]       | fear        |
| igoomba                    | nnaaká[ígóómbére]     | waaká[ígóómbére]     | naaká[ígóómbére]     | ntooká[ígóómbére]     | mmooká[ígóómbére]     | mbaaká[ígóómbére]     | desire      |
| anekera                    | nnaaká[ánékééye]      | waaká[ánékééye]      | naaká[ánékééye]      | ntooká[ánékééye]      | mmooká[ánékééye]      | mbaaká[ánékééye]      | lay out     |
| araachana                  | nnaaká[aráácháíni]    | waaká[aráácháíni]    | naaká[aráácháíni]    | ntooká[aráácháíni]    | mmooká[aráácháíni]    | mbaaká[aráácháíni]    | cross, fold |

**Untimed Past Anterior Focused** - e.g. "(indeed) they have (already) eaten (anytime before now)"

|            |                  |                 |                 |                  |                  |                  |          |
|------------|------------------|-----------------|-----------------|------------------|------------------|------------------|----------|
| ha         | nnaa[há]         | waa[há]         | naa[há]         | ntoo[há]         | mmoo[há]         | mbaa[há]         | give     |
| rea        | nnaa[ryá]        | waa[ryá]        | naa[ryá]        | ntoo[ryá]        | mmoo[ryá]        | mbaa[ryá]        | eat      |
| sea        | nnaa[syá]        | waa[syá]        | naa[syá]        | ntoo[syá]        | mmoo[syá]        | mbaa[syá]        | grind    |
| roma       | nnaa[róma]       | waa[róma]       | naa[róma]       | ntoo[róma]       | mmoo[róma]       | mbaa[róma]       | bite     |
| buna       | nnaa[búna]       | waa[búna]       | naa[búna]       | ntoo[búna]       | mmoo[búna]       | mbaa[búna]       | break    |
| biima      | nnaa[bííma]      | waa[bííma]      | naa[bííma]      | ntoo[bííma]      | mmoo[bííma]      | mbaa[bííma]      | measure  |
| saamba     | nnaa[sáámba]     | waa[sáámba]     | naa[sáámba]     | ntoo[sáámba]     | mmoo[sáámba]     | mbaa[sáámba]     | burn     |
| tereka     | nnaa[téréka]     | waa[téréka]     | naa[téréka]     | ntoo[téréka]     | mmoo[téréka]     | mbaa[téréka]     | brew     |
| sukura     | nnaa[súkúra]     | waa[súkúra]     | naa[súkúra]     | ntoo[súkúra]     | mmoo[súkúra]     | mbaa[súkúra]     | rub      |
| heetoka    | nnaa[héétóka]    | waa[héétóka]    | naa[héétóka]    | ntoo[héétóka]    | mmoo[héétóka]    | mbaa[héétóka]    | remember |
| taandora   | nnaa[táándóra]   | waa[táándóra]   | naa[táándóra]   | ntoo[táándóra]   | mmoo[táándóra]   | mbaa[táándóra]   | tear     |
| karaanga   | nnaa[karáánga]   | waa[karáánga]   | naa[karáánga]   | ntoo[karáánga]   | mmoo[karáánga]   | mbaa[karáánga]   | fry      |
| hagaacha   | nnaa[hágáácha]   | waa[hágáácha]   | naa[hágáácha]   | ntoo[hágáácha]   | mmoo[hágáácha]   | mbaa[hágáácha]   | build    |
| taangaasa  | nnaa[táángáása]  | waa[táángáása]  | naa[táángáása]  | ntoo[táángáása]  | mmoo[táángáása]  | mbaa[táángáása]  | announce |
| siitaaka   | nnaa[sítááka]    | waa[sítááka]    | naa[sítááka]    | ntoo[sítááka]    | mmoo[sítááka]    | mbaa[sítááka]    | accuse   |
| teremeka   | nnaa[téreméka]   | waa[téreméka]   | naa[téreméka]   | ntoo[téreméka]   | mmoo[téreméka]   | mbaa[téreméka]   | be calm  |
| berekera   | nnaa[bérékéra]   | waa[bérékéra]   | naa[bérékéra]   | ntoo[bérékéra]   | mmoo[bérékéra]   | mbaa[bérékéra]   | call     |
| turuunjana | nnaa[túruúnjána] | waa[túruúnjána] | naa[túruúnjána] | ntoo[túruúnjána] | mmoo[túruúnjána] | mbaa[túruúnjána] | welcome  |
| koondokora | nnaa[kóóndókóra] | waa[kóóndókóra] | naa[kóóndókóra] | ntoo[kóóndókóra] | mmoo[kóóndókóra] | mbaa[kóóndókóra] | uncover  |

|                                                                   |                    |                   |                   |                    |                    |                    |             |
|-------------------------------------------------------------------|--------------------|-------------------|-------------------|--------------------|--------------------|--------------------|-------------|
| kirigiita                                                         | nnaa[kírígííta]    | waa[kírígííta]    | naa[kírígííta]    | ntoo[kírígííta]    | mmoo[kírígííta]    | mbaa[kírígííta]    | scrub       |
| hootootera                                                        | nnaa[hóótóótéra]   | waa[hóótóótéra]   | naa[hóótóótéra]   | ntoo[hóótóótéra]   | mmoo[hóótóótéra]   | mbaa[hóótóótéra]   | reassure    |
| <b>with object prefix</b>                                         |                    |                   |                   |                    |                    |                    |             |
| ha                                                                | nnaa[gáha]         | waa[gáha]         | naa[gáha]         | ntoo[gáha]         | mmoo[gáha]         | mbaa[gáha]         | give        |
| rea                                                               | nnaa[gárya]        | waa[gárya]        | naa[gárya]        | ntoo[gárya]        | mmoo[gárya]        | mbaa[gárya]        | eat         |
| roma                                                              | nnaa[gáróma]       | waa[gáróma]       | naa[gáróma]       | ntoo[gáróma]       | mmoo[gáróma]       | mbaa[gáróma]       | bite        |
| biima                                                             | nnaa[gábííma]      | waa[gábííma]      | naa[gábííma]      | ntoo[gábííma]      | mmoo[gábííma]      | mbaa[gábííma]      | measure     |
| saamba                                                            | nnaa[gásáámba]     | waa[gásáámba]     | naa[gásáámba]     | ntoo[gásáámba]     | mmoo[gásáámba]     | mbaa[gásáámba]     | burn        |
| tereka                                                            | nnaa[gátéréka]     | waa[gátéréka]     | naa[gátéréka]     | ntoo[gátéréka]     | mmoo[gátéréka]     | mbaa[gátéréka]     | brew        |
| heetoka                                                           | nnaa[gáhéétóka]    | waa[gáhéétóka]    | naa[gáhéétóka]    | ntoo[gáhéétóka]    | mmoo[gáhéétóka]    | mbaa[gáhéétóka]    | remember    |
| karaanga                                                          | nnaa[gákáraánga]   | waa[gákáraánga]   | naa[gákáraánga]   | ntoo[gákáraánga]   | mmoo[gákáraánga]   | mbaa[gákáraánga]   | fry         |
| berekera                                                          | nnaa[gábérékéra]   | waa[gábérékéra]   | naa[gábérékéra]   | ntoo[gábérékéra]   | mmoo[gábérékéra]   | mbaa[gábérékéra]   | call        |
| turuunjana                                                        | nnaa[gátúruúnjana] | waa[gátúruúnjana] | naa[gátúruúnjana] | ntoo[gátúruúnjana] | mmoo[gátúruúnjana] | mbaa[gátúruúnjana] | welcome     |
| koondokora                                                        | nnaa[gákóóndókóra] | waa[gákóóndókóra] | naa[gákóóndókóra] | ntoo[gákóóndókóra] | mmoo[gákóóndókóra] | mbaa[gákóóndókóra] | uncover     |
| <b>vowel-initial verbs</b>                                        |                    |                   |                   |                    |                    |                    |             |
| ia                                                                | nna[ayá]           | wa[ayá]           | na[ayá]           | nto[oyá]           | mmo[oyá]           | mba[ayá]           | go          |
| aga                                                               | nna[agá]           | wa[agá]           | na[agá]           | nto[ogá]           | mmo[ogá]           | mba[agá]           | weed        |
| igora                                                             | nna[igóra]         | wa[igóra]         | na[igóra]         | nto[igóra]         | mmo[igóra]         | mba[igóra]         | open        |
| oboha                                                             | nno[obóha]         | wo[obóha]         | no[obóha]         | nto[obóha]         | mmo[obóha]         | mbo[obóha]         | fear        |
| igoomba                                                           | nna[igóómba]       | wa[igóómba]       | na[igóómba]       | nto[igóómba]       | mmo[igóómba]       | mba[igóómba]       | desire      |
| anekera                                                           | nna[anékéra]       | wa[anékéra]       | na[anékéra]       | nto[onékéra]       | mmo[onékéra]       | mba[anékéra]       | lay out     |
| araachana                                                         | nna[arááchána]     | wa[arááchána]     | na[arááchána]     | nto[oráchána]      | mmo[oráchána]      | mba[arááchána]     | cross, fold |
| <b>Remote Past Focused - e.g. "(indeed) I ate/did eat (then)"</b> |                    |                   |                   |                    |                    |                    |             |
| ha                                                                | nnaa[hááye]        | waa[hááye]        | naa[hááye]        | ntoo[hááye]        | mmoo[hááye]        | mbaa[hááye]        | give        |
| rea                                                               | nnaa[rééye]        | waa[rééye]        | naa[rééye]        | ntoo[rééye]        | mmoo[rééye]        | mbaa[rééye]        | eat         |
| sea                                                               | nnaa[sééye]        | waa[sééye]        | naa[sééye]        | ntoo[sééye]        | mmoo[sééye]        | mbaa[sééye]        | grind       |
| roma                                                              | nnaa[rómére]       | waa[rómére]       | naa[rómére]       | ntoo[rómére]       | mmoo[rómére]       | mbaa[rómére]       | bite        |
| buna                                                              | nnaa[búníre]       | waa[búníre]       | naa[búníre]       | ntoo[búníre]       | mmoo[búníre]       | mbaa[búníre]       | break       |
| biima                                                             | nnaa[bíímíre]      | waa[bíímíre]      | naa[bíímíre]      | ntoo[bíímíre]      | mmoo[bíímíre]      | mbaa[bíímíre]      | measure     |
| saamba                                                            | nnaa[sáámbére]     | waa[sáámbére]     | naa[sáámbére]     | ntoo[sáámbére]     | mmoo[sáámbére]     | mbaa[sáámbére]     | burn        |
| tereka                                                            | nnaa[térékére]     | waa[térékére]     | naa[térékére]     | ntoo[térékére]     | mmoo[térékére]     | mbaa[térékére]     | brew        |
| sukura                                                            | nnaa[súkúúyé]      | waa[súkúúyé]      | naa[súkúúyé]      | ntoo[súkúúyé]      | mmoo[súkúúyé]      | mbaa[súkúúyé]      | rub         |

|                            |                     |                    |                    |                     |                     |                     |             |
|----------------------------|---------------------|--------------------|--------------------|---------------------|---------------------|---------------------|-------------|
| heetoka                    | nnaa[héétókéré]     | waa[héétókéré]     | naa[héétókéré]     | ntoo[héétókéré]     | mmoo[héétókéré]     | mbaa[héétókéré]     | remember    |
| taandora                   | nnaa[táándóóye]     | waa[táándóóye]     | naa[táándóóye]     | ntoo[táándóóye]     | mmoo[táándóóye]     | mbaa[táándóóye]     | tear        |
| karaanga                   | nnaa[karáángé]      | waa[karáángé]      | naa[karáángé]      | ntoo[karáángé]      | mmoo[karáángé]      | mbaa[karáángé]      | fry         |
| hagaacha                   | nnaa[hágááchére]    | waa[hágááchére]    | naa[hágááchére]    | ntoo[hágááchére]    | mmoo[hágááchére]    | mbaa[hágááchére]    | build       |
| taangaasa                  | nnaa[táángáásére]   | waa[táángáásére]   | naa[táángáásére]   | ntoo[táángáásére]   | mmoo[táángáásére]   | mbaa[táángáásére]   | announce    |
| siitaaka                   | nnaa[sítáákéré]     | waa[sítáákéré]     | naa[sítáákéré]     | ntoo[sítáákéré]     | mmoo[sítáákéré]     | mbaa[sítáákéré]     | accuse      |
| teremeka                   | nnaa[térémékéré]    | waa[térémékéré]    | naa[térémékéré]    | ntoo[térémékéré]    | mmoo[térémékéré]    | mbaa[térémékéré]    | be calm     |
| berekera                   | nnaa[bérékééye]     | waa[bérékééye]     | naa[bérékééye]     | ntoo[bérékééye]     | mmoo[bérékééye]     | mbaa[bérékééye]     | call        |
| turuujana                  | nnaa[túruúnáini]    | waa[túruúnáini]    | naa[túruúnáini]    | ntoo[túruúnáini]    | mmoo[túruúnáini]    | mbaa[túruúnáini]    | welcome     |
| koondokora                 | nnaa[kóondókóóye]   | waa[kóondókóóye]   | naa[kóondókóóye]   | ntoo[kóondókóóye]   | mmoo[kóondókóóye]   | mbaa[kóondókóóye]   | uncover     |
| kirigiita                  | nnaa[kírígítíre]    | waa[kírígítíre]    | naa[kírígítíre]    | ntoo[kírígítíre]    | mmoo[kírígítíre]    | mbaa[kírígítíre]    | scrub       |
| hootootera                 | nnaa[hóótóótééye]   | waa[hóótóótééye]   | naa[hóótóótééye]   | ntoo[hóótóótééye]   | mmoo[hóótóótééye]   | mbaa[hóótóótééye]   | reassure    |
| <b>with object prefix</b>  |                     |                    |                    |                     |                     |                     |             |
| ha                         | nnaa[gáhááye]       | waa[gáhááye]       | naa[gáhááye]       | ntoo[gáhááye]       | mmoo[gáhááye]       | mbaa[gáhááye]       | give        |
| rea                        | nnaa[garééye]       | waa[garééye]       | naa[garééye]       | ntoo[garééye]       | mmoo[garééye]       | mbaa[garééye]       | eat         |
| roma                       | nnaa[gáromére]      | waa[gáromére]      | naa[gáromére]      | ntoo[gáromére]      | mmoo[gáromére]      | mbaa[gáromére]      | bite        |
| biima                      | nnaa[gábíímíre]     | waa[gábíímíre]     | naa[gábíímíre]     | ntoo[gábíímíre]     | mmoo[gábíímíre]     | mbaa[gábíímíre]     | measure     |
| saamba                     | nnaa[gásáámbére]    | waa[gásáámbére]    | naa[gásáámbére]    | ntoo[gásáámbére]    | mmoo[gásáámbére]    | mbaa[gásáámbére]    | burn        |
| tereka                     | nnaa[gátérékére]    | waa[gátérékére]    | naa[gátérékére]    | ntoo[gátérékére]    | mmoo[gátérékére]    | mbaa[gátérékére]    | brew        |
| heetoka                    | nnaa[gáhéétókéré]   | waa[gáhéétókéré]   | naa[gáhéétókéré]   | ntoo[gáhéétókéré]   | mmoo[gáhéétókéré]   | mbaa[gáhéétókéré]   | remember    |
| karaanga                   | nnaa[gákaráángé]    | waa[gákaráángé]    | naa[gákaráángé]    | ntoo[gákaráángé]    | mmoo[gákaráángé]    | mbaa[gákaráángé]    | fry         |
| berekera                   | nnaa[gábérékééye]   | waa[gábérékééye]   | naa[gábérékééye]   | ntoo[gábérékééye]   | mmoo[gábérékééye]   | mbaa[gábérékééye]   | call        |
| turuujana                  | nnaa[gátúruúnáini]  | waa[gátúruúnáini]  | naa[gátúruúnáini]  | ntoo[gátúruúnáini]  | mmoo[gátúruúnáini]  | mbaa[gátúruúnáini]  | welcome     |
| koondokora                 | nnaa[gákóondókóóye] | waa[gákóondókóóye] | naa[gákóondókóóye] | ntoo[gákóondókóóye] | mmoo[gákóondókóóye] | mbaa[gákóondókóóye] | uncover     |
| <b>vowel-initial verbs</b> |                     |                    |                    |                     |                     |                     |             |
| ia                         | nnaa[geéye]         | waa[geéye]         | naa[geéye]         | ntoo[geéye]         | mmoo[geéye]         | mbaa[geéye]         | go          |
| aga                        | nna[agére]          | wa[agére]          | na[agére]          | nto[ogére]          | mmo[ogére]          | mba[agére]          | weed        |
| igora                      | nna[igóóye]         | wa[igóóye]         | na[igóóye]         | nto[igóóye]         | mmo[igóóye]         | mba[igóóye]         | open        |
| oboha                      | nno[obóhére]        | wo[obóhére]        | no[obóhére]        | nto[obóhére]        | mmo[obóhére]        | mbo[obóhére]        | fear        |
| igoomba                    | nna[igóómbére]      | wa[igóómbére]      | na[igóómbére]      | nto[igóómbére]      | mmo[igóómbére]      | mba[igóómbére]      | desire      |
| anekera                    | nna[anékééye]       | wa[anékééye]       | na[anékééye]       | nto[onékééye]       | mmo[onékééye]       | mba[anékééye]       | lay out     |
| araachana                  | nna[aráácháini]     | wa[aráácháini]     | na[aráácháini]     | nto[orácháini]      | mmo[orácháini]      | mba[aráácháini]     | cross, fold |

**Untimed Past Anterior Condition Focused** - e.g. "I would have eaten (anytime before now / then)"

|            |                      |                     |                     |                     |                     |                     |          |
|------------|----------------------|---------------------|---------------------|---------------------|---------------------|---------------------|----------|
| ha         | neenkaa[hááye]       | nookaa[hááye]       | naakaa[hááye]       | ntokaa[hááye]       | mmokaa[hááye]       | mbakaa[hááye]       | give     |
| rea        | neenkaa[rééye]       | nookaa[rééye]       | naakaa[rééye]       | ntokaa[rééye]       | mmokaa[rééye]       | mbakaa[rééye]       | eat      |
| sea        | neengaa[sééye]       | noogaa[sééye]       | naagaa[sééye]       | ntogaa[sééye]       | mmogaa[sééye]       | mbagaa[sééye]       | grind    |
| roma       | neenkaa[rómére]      | nookaa[rómére]      | naakaa[rómére]      | ntokaa[rómére]      | mmokaa[rómére]      | mbakaa[rómére]      | bite     |
| buna       | neenkaa[búníre]      | nookaa[búníre]      | naakaa[búníre]      | ntokaa[búníre]      | mmokaa[búníre]      | mbakaaa[búníre]     | break    |
| biima      | neenkaa[bíímíre]     | nookaa[bíímíre]     | naakaa[bíímíre]     | ntokaa[bíímíre]     | mmokaa[bíímíre]     | mbakaa[bíímíre]     | measure  |
| saamba     | neengaa[sáámberé]    | noogaa[sáámberé]    | naagaa[sáámberé]    | ntogaa[sáámberé]    | mmogaa[sáámberé]    | mbagaa[sáámberé]    | burn     |
| tereka     | neengaa[térékére]    | noogaa[térékére]    | naagaa[térékére]    | ntogaa[térékére]    | mmogaa[térékére]    | mbagaa[térékére]    | brew     |
| sukura     | neengaa[súkúúyé]     | noogaa[súkúúyé]     | naagaa[súkúúyé]     | ntogaa[súkúúyé]     | mmogaa[súkúúyé]     | mbagaa[súkúúyé]     | rub      |
| heetoka    | neenkaa[héétókére]   | nookaa[héétókére]   | naakaa[héétókére]   | ntokaa[héétókére]   | mmokaa[héétókére]   | mbakaa[héétókére]   | remember |
| taandora   | neengaa[táándóóye]   | noogaa[táándóóye]   | naagaa[táándóóye]   | ntogaa[táándóóye]   | mmogaa[táándóóye]   | mbagaa[táándóóye]   | tear     |
| karaanga   | neengaa[karáángére]  | noogaa[karáángére]  | naakaa[karáángére]  | ntogaa[karáángére]  | mmogaa[karáángére]  | mbagaa[karáángére]  | fry      |
| hagaacha   | neenkaa[hágááchére]  | nookaa[hágááchére]  | naakaa[hágááchére]  | ntokaa[hágááchére]  | mmokaa[hágááchére]  | mbakaa[hágááchére]  | build    |
| taangaasa  | neengaa[táángáásére] | noogaa[táángáásére] | naagaa[táángáásére] | ntogaa[táángáásére] | mmogaa[táángáásére] | mbagaa[táángáásére] | announce |
| siitaaka   | neengaa[síítáákére]  | noogaa[síítáákére]  | naagaa[síítáákére]  | ntogaa[síítáákére]  | mmogaa[síítáákére]  | mbagaa[síítáákére]  | accuse   |
| teremeka   | neengaa[téremékére]  | noogaa[téremékére]  | naagaa[téremékére]  | ntogaa[téremékére]  | mmogaa[téremékére]  | mbagaa[téremékére]  | be calm  |
| berekera   | neenkaa[bérékééye]   | nookaa[bérékééye]   | naakaa[bérékééye]   | ntokaa[bérékééye]   | mmokaa[bérékééye]   | mbakaa[bérékééye]   | call     |
| turuujana  | neengaa[túruúnáini]  | noogaa[túruúnáini]  | naagaa[túruúnáini]  | ntogaa[túruúnáini]  | mmogaa[túruúnáini]  | mbagaa[túruúnáini]  | welcome  |
| koondokora | neengaa[kóóndókóóye] | noogaa[kóóndókóóye] | naagaa[kóóndókóóye] | ntogaa[kóóndókóóye] | mmogaa[kóóndókóóye] | mbagaa[kóóndókóóye] | uncover  |
| kirigiita  | neengaa[kirígíítíre] | noogaa[kirígíítíre] | naagaa[kirígíítíre] | ntogaa[kirígíítíre] | mmogaa[kirígíítíre] | mbagaa[kirígíítíre] | scrub    |
| hootootera | neenkaa[hóótóótééye] | nookaa[hóótóótééye] | naakaa[hóótóótééye] | ntokaa[hóótóótééye] | mmokaa[hóótóótééye] | mbakaa[hóótóótééye] | reassure |

**with object prefix**

|           |                      |                      |                      |                      |                      |                      |          |
|-----------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------|
| ha        | nenkaa[gáhááye]      | nookaa[gáhááye]      | naakaa[gáhááye]      | ntokaa[gáhááye]      | mmokaa[gáhááye]      | mbakaa[gáhááye]      | give     |
| rea       | nenkaa[garééye]      | nookaa[garééye]      | naakaa[garééye]      | ntokaa[garééye]      | mmokaa[garééye]      | mbakaa[garééye]      | eat      |
| roma      | nenkaa[gáromére]     | nookaa[gáromére]     | naakaa[gáromére]     | ntokaa[gáromére]     | mmokaa[gáromére]     | mbakaa[gáromére]     | bite     |
| biima     | nenkaa[gábíímíre]    | nookaa[gábíímíre]    | naakaa[gábíímíre]    | ntokaa[gábíímíre]    | mmokaa[gábíímíre]    | mbakaa[gábíímíre]    | measure  |
| saamba    | nenkaa[gásáámberé]   | nookaa[gásáámberé]   | naakaa[gásáámberé]   | ntokaa[gásáámberé]   | mmokaa[gásáámberé]   | mbakaa[gásáámberé]   | burn     |
| tereka    | nenkaa[gátérékére]   | nookaa[gátérékére]   | naakaa[gátérékére]   | ntokaa[gátérékére]   | mmokaa[gátérékére]   | mbakaa[gátérékére]   | brew     |
| heetoka   | nenkaa[gáhéétókére]  | nookaa[gáhéétókére]  | naakaa[gáhéétókére]  | ntokaa[gáhéétókére]  | mmokaa[gáhéétókére]  | mbakaa[gáhéétókére]  | remember |
| karaanga  | nenkaa[gákaráángére] | nookaa[gákaráángére] | naakaa[gákaráángére] | ntokaa[gákaráángére] | mmokaa[gákaráángére] | mbakaa[gákaráángére] | fry      |
| berekera  | nenkaa[gábérékééye]  | nookaa[gábérékééye]  | naakaa[gábérékééye]  | ntokaa[gábérékééye]  | mmokaa[gábérékééye]  | mbakaa[gábérékééye]  | call     |
| turuujana | nenkaa[gátúruúnáini] | nookaa[gátúruúnáini] | naakaa[gátúruúnáini] | ntokaa[gátúruúnáini] | mmokaa[gátúruúnáini] | mbakaa[gátúruúnáini] | welcome  |

|                            |                       |                       |                       |                       |                       |                       |             |
|----------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-------------|
| koondokora                 | neŋkaa[gákóóndókóóye] | nookaa[gákóóndókóóye] | naakaa[gákóóndókóóye] | ntokaa[gákóóndókóóye] | mmokaa[gákóóndókóóye] | mbakaa[gákóóndókóóye] | uncover     |
| <b>vowel-initial verbs</b> |                       |                       |                       |                       |                       |                       |             |
| ia                         | neŋkaa[gééye]         | nookaa[gééye]         | naakaa[gééye]         | ntokaa[gééye]         | mmokaa[gééye]         | mbakaa[gééye]         | go          |
| aga                        | neŋka[agére]          | nooka[agére]          | naaka[agére]          | ntoka[agére]          | mmoka[agére]          | mbaka[agére]          | weed        |
| igora                      | neŋka[igóóye]         | nooka[igóóye]         | naaka[igóóye]         | ntoka[igóóye]         | mmoka[igóóye]         | mbaka[igóóye]         | open        |
| oboha                      | neŋko[obóhére]        | nooko[obóhére]        | naako[obóhére]        | ntoko[obóhére]        | mmoko[obóhére]        | mbako[obóhére]        | fear        |
| igoomba                    | neŋka[igóómbére]      | nooka[igóómbére]      | naaka[igóómbére]      | ntoka[igóómbére]      | mmoka[igóómbére]      | mbaka[igóómbére]      | desire      |
| anekera                    | neŋka[anékééye]       | nooka[anékééye]       | naaka[anékééye]       | ntoka[anékééye]       | mmoka[anékééye]       | mbaka[anékééye]       | lay out     |
| araachana                  | neŋka[aráácháíni]     | nooka[aráácháíni]     | naaka[aráácháíni]     | ntoka[aráácháíni]     | mmoka[aráácháíni]     | mbaka[aráácháíni]     | cross, fold |

**Immediate Future Focused** - e.g. "(indeed) I will eat (now)", "(indeed) I am to eat (now)"

|            |                     |                    |                    |                    |                    |                    |          |
|------------|---------------------|--------------------|--------------------|--------------------|--------------------|--------------------|----------|
| ha         | neendaá[hɛ]         | nooraá[hɛ]         | naaraá[hɛ]         | ntoraá[hɛ]         | mmoraá[hɛ]         | mbaraá[hɛ]         | give     |
| rea        | neendaá[rɛ]         | nooraá[rɛ]         | naaraá[rɛ]         | ntoraá[rɛ]         | mmoraá[rɛ]         | mbaraá[rɛ]         | eat      |
| sea        | neendaá[sɛ]         | nooraá[sɛ]         | naaraá[sɛ]         | ntoraá[sɛ]         | mmoraá[sɛ]         | mbaraá[sɛ]         | grind    |
| roma       | neendaá[rómɛ]       | nooraá[rómɛ]       | naaraá[rómɛ]       | ntoraá[rómɛ]       | mmoraá[rómɛ]       | mbaraá[rómɛ]       | bite     |
| buna       | neendaá[búnɛ]       | nooraá[búnɛ]       | naaraá[búnɛ]       | ntoraá[búnɛ]       | mmoraá[búnɛ]       | mbaraá[búnɛ]       | break    |
| biima      | neendaá[bíime]      | nooraá[bíime]      | naaraá[bíime]      | ntoraá[bíime]      | mmoraá[bíime]      | mbaraá[bíime]      | measure  |
| saamba     | neendaá[sáámbe]     | nooraá[sáámbe]     | naaraá[sáámbe]     | ntoraá[sáámbe]     | mmoraá[sáámbe]     | mbaraá[sáámbe]     | burn     |
| tereka     | neendaá[téréke]     | nooraá[téréke]     | naaraá[téréke]     | ntoraá[téréke]     | mmoraá[téréke]     | mbaraá[téréke]     | brew     |
| sukura     | neendaá[súkúre]     | nooraá[súkúre]     | naaraá[súkúre]     | ntoraá[súkúre]     | mmoraá[súkúre]     | mbaraá[súkúre]     | rub      |
| heetoka    | neendaá[héétóke]    | nooraá[héétóke]    | naaraá[héétóke]    | ntoraá[héétóke]    | mmoraá[héétóke]    | mbaraá[héétóke]    | remember |
| taandora   | neendaá[táándóre]   | nooraá[táándóre]   | naaraá[táándóre]   | ntoraá[táándóre]   | mmoraá[táándóre]   | mbaraá[táándóre]   | tear     |
| karaanga   | neendaá[karáángɛ]   | nooraá[karáángɛ]   | naaraá[karáángɛ]   | ntoraá[karáángɛ]   | mmoraá[karáángɛ]   | mbaraá[karáángɛ]   | fry      |
| hagaacha   | neendaá[hágááche]   | nooraá[hágááche]   | naaraá[hágááche]   | ntoraá[hágááche]   | mmoraá[hágááche]   | mbaraá[hágááche]   | build    |
| taangaasa  | neendaá[táángááse]  | nooraá[táángááse]  | naaraá[táángááse]  | ntoraá[táángááse]  | mmoraá[táángááse]  | mbaraá[táángááse]  | announce |
| siitaaka   | neendaá[síitááke]   | nooraá[síitááke]   | naaraá[síitááke]   | ntoraá[síitááke]   | mmoraá[síitááke]   | mbaraá[síitááke]   | accuse   |
| teremeka   | neendaá[téreméke]   | nooraá[téreméke]   | naaraá[téreméke]   | ntoraá[téreméke]   | mmoraá[téreméke]   | mbaraá[téreméke]   | be calm  |
| berekera   | neendaá[bérékére]   | nooraá[bérékére]   | naaraá[bérékére]   | ntoraá[bérékére]   | mmoraá[bérékére]   | mbaraá[bérékére]   | call     |
| turuujana  | neendaá[túruúnjane] | nooraá[túruúnjane] | naaraá[túruúnjane] | ntoraá[túruúnjane] | mmoraá[túruúnjane] | mbaraá[túruúnjane] | welcome  |
| koondokora | neendaá[kóóndókóre] | nooraá[kóóndókóre] | naaraá[kóóndókóre] | ntoraá[kóóndókóre] | mmoraá[kóóndókóre] | mbaraá[kóóndókóre] | uncover  |
| kirigiita  | neendaá[kirígíite]  | nooraá[kirígíite]  | naaraá[kirígíite]  | ntoraá[kirígíite]  | mmoraá[kirígíite]  | mbaraá[kirígíite]  | scrub    |
| hootootera | neendaá[hóótóótére] | nooraá[hóótóótére] | naaraá[hóótóótére] | ntoraá[hóótóótére] | mmoraá[hóótóótére] | mbaraá[hóótóótére] | reassure |

| <b>with object prefix</b>  |                       |                      |                      |                      |                      |                      |             |
|----------------------------|-----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-------------|
| ha                         | neendaá[gáhe]         | nooraá[gáhe]         | naaraá[gáhe]         | ntoraá[gáhe]         | mmoraá[gáhe]         | mbaraá[gáhe]         | give        |
| rea                        | neendaá[gáre]         | nooraá[gáre]         | naaraá[gáre]         | ntoraá[gáre]         | mmoraá[gáre]         | mbaraá[gáre]         | eat         |
| roma                       | neendaá[gáróme]       | nooraá[gáróme]       | naaraá[gáróme]       | ntoraá[gáróme]       | mmoraá[gáróme]       | mbaraá[gáróme]       | bite        |
| biima                      | neendaá[gábíime]      | nooraá[gábíime]      | naaraá[gábíime]      | ntoraá[gábíime]      | mmoraá[gábíime]      | mbaraá[gábíime]      | measure     |
| saamba                     | neendaá[gásáámbe]     | nooraá[gásáámbe]     | naaraá[gásáámbe]     | ntoraá[gásáámbe]     | mmoraá[gásáámbe]     | mbaraá[gásáámbe]     | burn        |
| tereka                     | neendaá[gátérékére]   | nooraá[gátérékére]   | naaraá[gátérékére]   | ntoraá[gátérékére]   | mmoraá[gátérékére]   | mbaraá[gátérékére]   | brew        |
| heetoka                    | neendaá[gáhéétóke]    | nooraá[gáhéétóke]    | naaraá[gáhéétóke]    | ntoraá[gáhéétóke]    | mmoraá[gáhéétóke]    | mbaraá[gáhéétóke]    | remember    |
| karaanga                   | neendaá[gákaráángére] | nooraá[gákaráángére] | naaraá[gákaráángére] | ntoraá[gákaráángére] | mmoraá[gákaráángére] | mbaraá[gákaráángére] | fry         |
| berekera                   | neendaá[gábérékére]   | nooraá[gábérékére]   | naaraá[gábérékére]   | ntoraá[gábérékére]   | mmoraá[gábérékére]   | mbaraá[gábérékére]   | call        |
| turuujana                  | neendaá[gátúruújane]  | nooraá[gátúruújane]  | naaraá[gátúruújane]  | ntoraá[gátúruújane]  | mmoraá[gátúruújane]  | mbaraá[gátúruújane]  | welcome     |
| <b>vowel-initial verbs</b> |                       |                      |                      |                      |                      |                      |             |
| ia                         | neenda[áyi]           | noora[áyi]           | naara[áyi]           | ntora[áyi]           | mmora[áyi]           | mbara[áyi]           | go          |
| aga                        | neenda[áge]           | noora[áge]           | naara[áge]           | ntora[áge]           | mmora[áge]           | mbara[áge]           | weed        |
| igora                      | neenda[ígóre]         | noora[ígóre]         | naara[ígóre]         | ntora[ígóre]         | mmora[ígóre]         | mbara[ígóre]         | open        |
| oboha                      | neendo[óbóhe]         | nooro[óbóhe]         | naaro[óbóhe]         | ntoro[óbóhe]         | mmoro[óbóhe]         | mbaro[óbóhe]         | fear        |
| igoomba                    | neenda[ígóómbé]       | noora[ígóómbé]       | naara[ígóómbé]       | ntora[ígóómbé]       | mmora[ígóómbé]       | mbara[ígóómbé]       | desire      |
| anekera                    | neenda[ánékére]       | noora[ánékére]       | naara[ánékére]       | ntora[ánékére]       | mmora[ánékére]       | mbara[ánékére]       | lay out     |
| araachana                  | neenda[arááchane]     | noora[arááchane]     | naara[arááchane]     | ntora[arááchane]     | mmora[arááchane]     | mbara[arááchane]     | cross, fold |

**Untimed Ability Focused** - e.g. "(indeed) I am able to eat"

|          |                   |                  |                  |                  |                  |                  |          |
|----------|-------------------|------------------|------------------|------------------|------------------|------------------|----------|
| ha       | neenkaa[há]       | nookaa[há]       | naakaa[há]       | ntokaa[há]       | mmokaa[há]       | mbakaa[há]       | give     |
| rea      | neenkaa[ryá]      | nookaa[ryá]      | naakaa[ryá]      | ntokaa[ryá]      | mmokaa[ryá]      | mbakaa[ryá]      | eat      |
| sea      | neengaa[syá]      | noogaa[syá]      | naagaa[syá]      | ntogaa[syá]      | mmogaa[syá]      | mbagaa[syá]      | grind    |
| roma     | neenkaa[róma]     | nookaa[róma]     | naakaa[róma]     | ntokaa[róma]     | mmokaa[róma]     | mbakaa[róma]     | bite     |
| buna     | neenkaa[búna]     | nookaa[búna]     | naakaa[búna]     | ntokaa[búna]     | mmokaa[búna]     | mbakaaa[búna]    | break    |
| biima    | neenkaa[bíima]    | nookaa[bíima]    | naakaa[bíima]    | ntokaa[bíima]    | mmokaa[bíima]    | mbakaa[bíima]    | measure  |
| saamba   | neengaa[sáamba]   | noogaa[sáamba]   | naagaa[sáamba]   | ntogaa[sáamba]   | mmogaa[sáamba]   | mbagaa[sáamba]   | burn     |
| tereka   | neengaa[téréka]   | noogaa[téréka]   | naagaa[téréka]   | ntogaa[téréka]   | mmogaa[téréka]   | mbagaa[téréka]   | brew     |
| sukura   | neengaa[súkúra]   | noogaa[súkúra]   | naagaa[súkúra]   | ntogaa[súkúra]   | mmogaa[súkúra]   | mbaagaa[súkúra]  | rub      |
| heetoka  | neenkaa[héetóka]  | nookaa[héetóka]  | naakaa[héetóka]  | ntokaa[héetóka]  | mmokaa[héetóka]  | mbakaa[héetóka]  | remember |
| taandora | neengaa[táándóra] | noogaa[táándóra] | naagaa[táándóra] | ntogaa[táándóra] | mmogaa[táándóra] | mbagaa[táándóra] | tear     |

|                            |                       |                      |                      |                      |                      |                      |             |
|----------------------------|-----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-------------|
| karaanga                   | neengaa[káraánga]     | noogaa[káraánga]     | naakaa[káraánga]     | ntokaa[káraánga]     | mmogaa[káraánga]     | mbagaa[káraánga]     | fry         |
| hagaacha                   | neenjkaa[hágaácha]    | nookaa[hágaácha]     | naakaa[hágaácha]     | ntokaa[hágaácha]     | mmokaa[hágaácha]     | mbakaa[hágaácha]     | build       |
| taangaasa                  | neengaa[táángáasa]    | noogaa[táángáasa]    | naagaa[táángáasa]    | ntogaa[táángáasa]    | mmogaa[táángáasa]    | mbagaa[táángáasa]    | announce    |
| siitaaka                   | neengaa[síitááka]     | noogaa[síitááka]     | naagaa[síitááka]     | ntogaa[síitááka]     | mmogaa[síitááka]     | mbaagaa[síitááka]    | accuse      |
| teremeka                   | neengaa[téreméka]     | noogaa[téreméka]     | naagaa[téreméka]     | ntogaa[térekéka]     | mmogaa[téreméka]     | mbagaa[téreméka]     | be calm     |
| berekera                   | neenjkaa[bérékéra]    | nookaa[bérékéra]     | naakaa[bérékéra]     | ntokaa[bérékéra]     | mmokaa[bérékéra]     | mbakaa[bérékéra]     | call        |
| turuujana                  | neengaa[túruújana]    | noogaa[túruújana]    | naagaa[túruújana]    | ntogaa[túruújana]    | mmogaa[túruújana]    | mbagaa[túruújana]    | welcome     |
| koondokora                 | neengaa[kóóndókóra]   | noogaa[kóóndókóra]   | naagaa[kóóndókóra]   | ntogaa[kóóndókóra]   | mmogaa[kóóndókóra]   | mbagaa[kóóndókóra]   | uncover     |
| kirigiita                  | neengaa[kirígíita]    | noogaa[kirígíita]    | naagaa[kirígíita]    | ntogaa[kirígíita]    | mmogaa[kirígíita]    | mbagaa[kirígíita]    | scrub       |
| hootootera                 | neenjkaa[hóótóótéra]  | nookaa[hóótóótéra]   | naakaa[hóótóótéra]   | ntokaa[hóótóótéra]   | mmokaa[hóótóótéra]   | mbakaa[hóótóótéra]   | reassure    |
| <b>with object prefix</b>  |                       |                      |                      |                      |                      |                      |             |
| ha                         | nenjkaa[gáha]         | nookaa[gáha]         | naakaa[gáha]         | ntokaa[gáha]         | mmokaa[gáha]         | mbakaa[gáha]         | give        |
| rea                        | nenjkaa[gárya]        | nookaa[gárya]        | naakaa[gárya]        | ntokaa[gárya]        | mmokaa[gárya]        | mbakaa[gárya]        | eat         |
| roma                       | nenjkaa[gároma]       | nookaa[gároma]       | naakaa[gároma]       | ntokaa[gároma]       | mmokaa[gároma]       | mbakaa[gároma]       | bite        |
| biima                      | nenjkaa[gábííma]      | nookaa[gábííma]      | naakaa[gábííma]      | ntokaa[gábííma]      | mmokaa[gábííma]      | mbakaa[gábííma]      | measure     |
| saamba                     | nenjkaa[gásáámba]     | nookaa[gásáámba]     | naakaa[gásáámba]     | ntokaa[gásáámba]     | mmokaa[gásáámba]     | mbakaa[gásáámba]     | burn        |
| tereke                     | nenjkaa[gátéréka]     | nookaa[gátéréka]     | naakaa[gátéréka]     | ntokaa[gátéréka]     | mmokaa[gátéréka]     | mbakaa[gátéréka]     | brew        |
| heetoka                    | nenjkaa[gáhéétóka]    | nookaa[gáhéétóka]    | naakaa[gáhéétóka]    | ntokaa[gáhéétóka]    | mmokaa[gáhéétóka]    | mbakaa[gáhéétóka]    | remember    |
| karaanga                   | nenjkaa[gákáraánga]   | nookaa[gákáraánga]   | naakaa[gákáraánga]   | ntokaa[gákáraánga]   | mmokaa[gákáraánga]   | mbakaa[gákáraánga]   | fry         |
| berekera                   | nenjkaa[gábérékéra]   | nookaa[gábérékéra]   | naakaa[gábérékéra]   | ntokaa[gábérékéra]   | mmokaa[gábérékéra]   | mbakaa[gábérékéra]   | call        |
| turuujana                  | nenjkaa[gátúruújana]  | nookaa[gátúruújana]  | naakaa[gátúruújana]  | ntokaa[gátúruújana]  | mmokaa[gátúruújana]  | mbakaa[gátúruújana]  | welcome     |
| koondokora                 | nenjkaa[gákóóndókóra] | nookaa[gákóóndókóra] | naakaa[gákóóndókóra] | ntokaa[gákóóndókóra] | mmokaa[gákóóndókóra] | mbakaa[gákóóndókóra] | uncover     |
| <b>vowel-initial verbs</b> |                       |                      |                      |                      |                      |                      |             |
| ia                         | nenjkaa[ayá]          | nookaa[ayá]          | naaka[ayá]           | ntoka[ayá]           | mmoka[ayá]           | mbaka[ayá]           | go          |
| aga                        | nenjkaa[agá]          | nookaa[agá]          | naaka[agá]           | ntoka[agá]           | mmoka[agá]           | mbaka[agá]           | weed        |
| igora                      | nenjkaa[igóra]        | nookaa[igóra]        | naaka[igóra]         | ntoka[igóra]         | mmoka[igóra]         | mbaka[igóra]         | open        |
| oboha                      | nenjko[obóha]         | nooko[obóha]         | naako[obóha]         | ntoko[obóha]         | mmoko[obóha]         | mbako[obóha]         | fear        |
| igoomba                    | nenjkaa[igóómba]      | nookaa[igóómba]      | naaka[igóómba]       | ntoka[igóómba]       | mmoka[igóómba]       | mbaka[igóómba]       | desire      |
| anekera                    | nenjkaa[anékéra]      | nookaa[anékéra]      | naaka[anékéra]       | ntoka[anékéra]       | mmoka[anékéra]       | mbaka[anékéra]       | lay out     |
| araachana                  | nenjkaa[arááchána]    | nookaa[arááchána]    | naaka[arááchána]     | ntoka[arááchána]     | mmoka[arááchána]     | mbaka[arááchána]     | cross, fold |

**Untimed Present** e.g. "I eat (fact)"

|            |               |               |               |                |                |                |          |
|------------|---------------|---------------|---------------|----------------|----------------|----------------|----------|
| ha         | né[ha]        | ó[ha]         | á[ha]         | tó[ha]         | mó[ha]         | bá[ha]         | give     |
| rea        | né[rya]       | ó[rya]        | á[rya]        | tó[rya]        | mó[rya]        | bá[rya]        | eat      |
| sea        | né[sya]       | ó[sya]        | á[sya]        | tó[sya]        | mó[sya]        | bá[sya]        | grind    |
| roma       | n[dóma]       | o[róma]       | a[róma]       | to[róma]       | mo[róma]       | ba[róma]       | bite     |
| buna       | m[búna]       | u[búna]       | a[búna]       | tu[búna]       | mu[búna]       | ba[búna]       | break    |
| biima      | m[bííma]      | u[bííma]      | a[bííma]      | tu[bííma]      | mu[bííma]      | ba[bííma]      | measure  |
| saamba     | n[sáámmba]    | o[sáámmba]    | a[sáámmba]    | to[sáámmba]    | mo[sáámmba]    | ba[sáámmba]    | burn     |
| tereka     | n[téréka]     | o[téréka]     | a[téréka]     | to[téréka]     | mo[téréka]     | ba[téréka]     | brew     |
| sukura     | n[súkúúra]    | u[súkúúra]    | a[súkúúra]    | tu[súkúúra]    | mu[súkúúra]    | ba[súkúúra]    | rub      |
| heetoka    | [héétóka]     | o[héétóka]    | a[héétóka]    | to[héétóka]    | mo[héétóka]    | ba[héétóka]    | remember |
| taandora   | n[táándóra]   | o[táándóra]   | a[táándóra]   | to[táándóra]   | mo[táándóra]   | ba[táándóra]   | tear     |
| karaanga   | η[karáánga]   | o[karáánga]   | a[karáánga]   | to[karáánga]   | mo[karáánga]   | ba[karáánga]   | fry      |
| hagaacha   | [háágáacha]   | o[háágáacha]  | a[háágáacha]  | to[háágáacha]  | mo[háágáacha]  | ba[háágáacha]  | build    |
| taangaasa  | n[táángáása]  | o[táángáása]  | a[táángáása]  | to[táángáása]  | mo[táángáása]  | ba[táángáása]  | announce |
| siitaaka   | n[sítááka]    | u[sítááka]    | a[sítááka]    | tu[sítááka]    | mu[sítááka]    | ba[sítááka]    | accuse   |
| teremeka   | n[téreméka]   | o[téreméka]   | a[téreméka]   | to[téreméka]   | mo[téreméka]   | ba[téreméka]   | be calm  |
| berekera   | m[bérékéra]   | o[bérékéra]   | a[bérékéra]   | to[bérékéra]   | mo[bérékéra]   | ba[bérékéra]   | call     |
| turuuṇana  | n[túruúṇana]  | u[túruúṇana]  | a[túruúṇana]  | tu[túruúṇana]  | mu[túruúṇana]  | ba[túruúṇana]  | welcome  |
| koondokora | η[kóóndókóra] | o[kóóndókóra] | a[kóóndókóra] | to[kóóndókóra] | mo[kóóndókóra] | ba[kóóndókóra] | uncover  |
| kirigiita  | η[kírígííta]  | u[kírígííta]  | a[kírígííta]  | tu[kírígííta]  | mu[kírígííta]  | ba[kírígííta]  | scrub    |
| hootootera | [hóótóótéra]  | o[hóótóótéra] | a[hóótóótéra] | to[hóótóótéra] | mo[hóótóótéra] | ba[hóótóótéra] | reassure |

**with object prefix**

|           |                |                |                |                 |                 |                 |          |
|-----------|----------------|----------------|----------------|-----------------|-----------------|-----------------|----------|
| ha        | η[gáha]        | o[gáha]        | a[gáha]        | to[gáha]        | mo[gáha]        | ba[gáha]        | give     |
| rea       | η[gárya]       | o[gárya]       | a[gárya]       | to[gárya]       | mo[gárya]       | ba[gárya]       | eat      |
| roma      | η[gáróma]      | o[gáróma]      | a[gáróma]      | to[gáróma]      | mo[gáróma]      | ba[gáróma]      | bite     |
| biima     | η[gábííma]     | o[gábííma]     | a[gábííma]     | to[gábííma]     | mo[gábííma]     | ba[gábííma]     | measure  |
| saamba    | η[gásáámmba]   | o[gásáámmba]   | a[gásáámmba]   | to[gásáámmba]   | mo[gásáámmba]   | ba[gásáámmba]   | burn     |
| tereka    | η[gátéréka]    | o[gátéréka]    | a[gátéréka]    | to[gátéréka]    | mo[gátéréka]    | ba[gátéréka]    | brew     |
| heetoka   | η[gáhéétóka]   | o[gáhéétóka]   | a[gáhéétóka]   | to[gáhéétóka]   | mo[gáhéétóka]   | ba[gáhéétóka]   | remember |
| karaanga  | η[gákaráánga]  | o[gákaráánga]  | a[gákaráánga]  | to[gákaráánga]  | mo[gákaráánga]  | ba[gákaráánga]  | fry      |
| berekera  | η[gábérékéra]  | o[gábérékéra]  | a[gábérékéra]  | to[gábérékéra]  | mo[gábérékéra]  | ba[gábérékéra]  | call     |
| turuuṇana | η[gátúruúṇana] | o[gátúruúṇana] | a[gátúruúṇana] | to[gátúruúṇana] | mo[gátúruúṇana] | ba[gátúruúṇana] | welcome  |



|                            |                 |                 |                 |                  |                  |                  |             |
|----------------------------|-----------------|-----------------|-----------------|------------------|------------------|------------------|-------------|
| koondokora                 | ŋ[gákóóndókóra] | o[gákóóndókóra] | a[gákóóndókóra] | to[gákóóndókóra] | mo[gákóóndókóra] | ba[gákóóndókóra] | uncover     |
| <b>vowel-initial verbs</b> |                 |                 |                 |                  |                  |                  |             |
| ia                         | ní[ya]          | ú[ya]           | á[ya]           | tú[ya]           | mú[ya]           | bá[ya]           | go          |
| aga                        | na[ága]         | wa[ága]         | a[ága]          | to[óga]          | mo[óga]          | ba[ága]          | weed        |
| igora                      | ni[ígóra]       | wi[ígóra]       | a[ígóra]        | tu[ígóra]        | mu[ígóra]        | ba[ígóra]        | open        |
| oboha                      | no[óbóha]       | wo[óbóha]       | o[óbóha]        | to[óbóha]        | mo[óbóha]        | bo[óbóha]        | fear        |
| igoomba                    | ni[ígóómba]     | wi[ígóómba]     | a[ígóómba]      | tu[ígóómba]      | mu[ígóómba]      | ba[ígóómba]      | desire      |
| anekera                    | na[ánékéra]     | wa[ánékéra]     | a[ánékéra]      | to[ónékéra]      | mo[ónékéra]      | ba[ánékéra]      | lay out     |
| araachana                  | na[árááchána]   | wa[árááchána]   | a[árááchána]    | to[óráchána]     | mo[óráchána]     | ba[árááchána]    | cross, fold |

#### **PATTERN 1B: H on V1 (NO SPREAD)**

##### **Hortatory Imperative (2) - e.g. "(do) read!"**

|                |               |               |                  |
|----------------|---------------|---------------|------------------|
| tá[ha]         | (do) give     | tá[ya]        | (do) go          |
| tá[rya]        | (do) eat      | ta[ága]       | (do) weed        |
| tá[sya]        | (do) grind    | to[óbohà]     | (do) fear        |
| ta[róma]       | (do) bite     | ta[ígòrà]     | (do) open        |
| ta[búna]       | (do) break    | ta[ígoombà]   | (do) desire      |
| ta[bííma]      | (do) measure  | ta[ánekerà]   | (do) lay out     |
| ta[sáám̐ba]    | (do) burn     | ta[áraachanà] | (do) cross, fold |
| ta[térekà]     | (do) brew     |               |                  |
| ta[súkurà]     | (do) rub      |               |                  |
| ta[héétokà]    | (do) remember |               |                  |
| ta[táándorà]   | (do) tear     |               |                  |
| ta[káaraangà]  | (do) fry      |               |                  |
| ta[hágaachà]   | (do) build    |               |                  |
| ta[táangaasà]  | (do) announce |               |                  |
| ta[síítaakà]   | (do) accuse   |               |                  |
| ta[téremekà]   | (do) be calm  |               |                  |
| ta[bérekerà]   | (do) call     |               |                  |
| ta[túruun̐anà] | (do) welcome  |               |                  |

|                    |                  |               |
|--------------------|------------------|---------------|
| with object prefix | ta[kóóndokorà]   | (do) uncover  |
|                    | ta[kírigiità]    | (do) scrub    |
|                    | ta[hóótooterà]   | (do) reassure |
|                    | ta[gáha]         |               |
|                    | ta[gárya]        |               |
|                    | ta[gáromà]       |               |
|                    | ta[gábiimà]      |               |
|                    | ta[gásaambà]     |               |
|                    | ta[gáterekà]     |               |
|                    | ta[gásukurà]     |               |
|                    | ta[gáheetokà]    |               |
|                    | ta[gákaraangà]   |               |
|                    | ta[gáhagaachà]   |               |
|                    | ta[gátaangaasà]  |               |
|                    | ta[gásiitaakà]   |               |
|                    | ta[gáberekerà]   |               |
|                    | ta[gáturuunjanà] |               |
|                    | ta[gákoondokorà] |               |
|                    | ta[gákirigiità]  |               |
|                    | ta[gáhootooterà] |               |

## PATTERN 2: H on V2 (SPREAD)

**Hodiernal Past Progressive Anterior Focussed (Recent Past)** - e.g. "(indeed) I have been reading (today)"

|        |                  |                 |                 |                  |                  |                  |         |
|--------|------------------|-----------------|-----------------|------------------|------------------|------------------|---------|
| ha     | nnaaka[haáye]    | waaka[haáye]    | naaka[haáye]    | ntooka[haáye]    | mmooka[haáye]    | mbaaka[haáye]    | give    |
| rea    | nnaaka[reéye]    | waaka[reéye]    | naaka[reéye]    | ntooka[reéye]    | mmooka[reéye]    | mbaaka[reéye]    | eat     |
| sea    | nnaaga[seéye]    | waaga[seéye]    | naaga[seéye]    | ntooga[seéye]    | mmooga[seéye]    | mbaaga[seéye]    | grind   |
| roma   | nnaaka[romére]   | waaka[romére]   | naaka[romére]   | ntooka[romére]   | mmooka[romére]   | mbaaka[romére]   | bite    |
| buna   | nnaaka[buníre]   | waaka[buníre]   | naaka[buníre]   | ntooka[buníre]   | mmooka[buníre]   | mbaaka[buníre]   | break   |
| biima  | nnaaka[biímíre]  | waaka[biímíre]  | naaka[biímíre]  | ntooka[biímíre]  | mmooka[biímíre]  | mbaaka[biímíre]  | measure |
| saamba | nnaaga[saámbére] | waaga[saámbére] | naaga[saámbére] | ntooga[saámbére] | mmooga[saámbére] | mbaaga[saámbére] | burn    |
| tereka | nnaaga[terékére] | waaga[terékére] | naaga[terékére] | ntooga[terékére] | mmooga[terékére] | mbaaga[terékére] | brew    |

|                            |                       |                      |                      |                       |                       |                       |             |
|----------------------------|-----------------------|----------------------|----------------------|-----------------------|-----------------------|-----------------------|-------------|
| sukura                     | nnaaga[sukúúye]       | waaga[sukúúye]       | naaga[sukúúye]       | ntooga[sukúúye]       | mmooga[sukúúye]       | mbaaga[sukúúye]       | rub         |
| heetoka                    | nnaaga[heétókéré]     | waaka[heétókéré]     | naaka[heétókéré]     | ntooka[heétókéré]     | mmooka[heétókéré]     | mbaaka[heétókéré]     | remember    |
| taandora                   | nnaaga[taándóóye]     | waaga[taándóóye]     | naaga[taándóóye]     | ntooga[taándóóye]     | mmooga[taándóóye]     | mbaaga[taándóóye]     | tear        |
| karaanga                   | nnaaga[karáángére]    | waaga[karáángére]    | naaga[karáángére]    | ntooga[karáángére]    | mmooga[karáángére]    | mbaaga[karáángére]    | fry         |
| hagaacha                   | nnaaka[hagááchére]    | waaka[hagááchére]    | naaka[hagááchére]    | ntooka[hagááchére]    | mmooka[hagááchére]    | mbaaka[hagááchére]    | build       |
| taangaasa                  | nnaaga[taángáásére]   | waaga[taángáásére]   | naaga[taángáásére]   | ntooga[taángáásére]   | mmooga[taángáásére]   | mbaaga[taángáásére]   | announce    |
| siitaaka                   | nnaaga[siítáákéré]    | waaga[siítáákéré]    | naaga[siítáákéré]    | ntooga[siítáákéré]    | mmooga[siítáákéré]    | mbaaga[siítáákéré]    | accuse      |
| teremeka                   | nnaaga[terémékéré]    | waaga[terémékéré]    | naaga[terémékéré]    | ntooga[terémékéré]    | mmooga[terémékéré]    | mbaaga[terémékéré]    | be calm     |
| berekera                   | nnaaka[berékééye]     | waaka[berékééye]     | naaka[berékééye]     | ntooka[berékééye]     | mmooka[berékééye]     | mbaaka[berékééye]     | call        |
| turuujana                  | nnaaga[turúúnjáini]   | waaga[turúúnjáini]   | naaga[turúúnjáini]   | ntooga[turúúnjáini]   | mmooga[turúúnjáini]   | mbaaga[turúúnjáini]   | welcome     |
| koondokora                 | nnaaga[koóndókóóye]   | waaga[koóndókóóye]   | naaga[koóndókóóye]   | ntooga[koóndókóóye]   | mmooga[koóndókóóye]   | mbaaga[koóndókóóye]   | uncover     |
| kirigiita                  | nnaaga[kirígíítíre]   | waaga[kirígíítíre]   | naaga[kirígíítíre]   | ntooga[kirígíítíre]   | mmooga[kirígíítíre]   | mbaaga[kirígíítíre]   | scrub       |
| hootootera                 | nnaaka[hoótóótééye]   | waaka[hoótóótééye]   | naaka[hoótóótééye]   | ntooka[hoótóótééye]   | mmooka[hoótóótééye]   | mbaaka[hoótóótééye]   | reassure    |
| <b>with object prefix</b>  |                       |                      |                      |                       |                       |                       |             |
| ha                         | nnaaka[gahááye]       | waaka[gahááye]       | naaka[gahááye]       | ntooka[gahááye]       | mmooka[gahááye]       | mbaaka[gahááye]       | give        |
| rea                        | nnaaka[garééye]       | waaka[garééye]       | naaka[garééye]       | ntooka[garééye]       | mmooka[garééye]       | mbaaka[garééye]       | eat         |
| roma                       | nnaaka[garómére]      | waaka[garómére]      | naaka[garómére]      | ntooka[garómére]      | mmooka[garómére]      | mbaaka[garómére]      | bite        |
| biima                      | nnaaka[gabííímíre]    | waaka[gabííímíre]    | naaka[gabííímíre]    | ntooka[gabííímíre]    | mmooka[gabííímíre]    | mbaaka[gabííímíre]    | measure     |
| saamba                     | nnaaka[gasáámbére]    | waaka[gasáámbére]    | naaka[gasáámbére]    | ntooka[gasáámbére]    | mmooka[gasáámbére]    | mbaaka[gasáámbére]    | burn        |
| tereka                     | nnaaka[gatérékére]    | waaka[gatérékére]    | naaka[gatérékére]    | ntooka[gatérékére]    | mmooka[gatérékére]    | mbaaka[gatérékére]    | brew        |
| heetoka                    | nnaaka[gahéétókéré]   | waaka[gahéétókéré]   | naaka[gahéétókéré]   | ntooka[gahéétókéré]   | mmooka[gahéétókéré]   | mbaaka[gahéétókéré]   | remember    |
| karaanga                   | nnaaka[gakaráángére]  | waaka[gakaráángére]  | naaka[gakaráángére]  | ntooka[gakaráángére]  | mmooka[gakaráángére]  | mbaaka[gakaráángére]  | fry         |
| berekera                   | nnaaka[gabérékééye]   | waaka[gabérékééye]   | naaka[gabérékééye]   | ntooka[gabérékééye]   | mmooka[gabérékééye]   | mbaaka[gabérékééye]   | call        |
| turuujana                  | nnaaka[gatúrúúnjáini] | waaka[gatúrúúnjáini] | naaka[gatúrúúnjáini] | ntooka[gatúrúúnjáini] | mmooka[gatúrúúnjáini] | mbaaka[gatúrúúnjáini] | welcome     |
| koondokora                 | nnaaka[gakóóndókóóye] | waaka[gakóóndókóóye] | naaka[gakóóndókóóye] | ntooka[gakóóndókóóye] | mmooka[gakóóndókóóye] | mbaaka[gakóóndókóóye] | uncover     |
| <b>vowel-initial verbs</b> |                       |                      |                      |                       |                       |                       |             |
| ia                         | nnaka[geéye]          | waaka[geéye]         | naaka[geéye]         | ntooka[geéye]         | mmooka[geéye]         | mbaaka[geéye]         | go          |
| aga                        | nnaaka[agére]         | waaka[agére]         | naaka[agére]         | ntooka[agére]         | mmooka[agére]         | mbaaka[agére]         | weed        |
| igora                      | nnaaka[igóóye]        | waaka[igóóye]        | naaka[igóóye]        | ntooka[igóóye]        | mmooka[igóóye]        | mbaaka[igóóye]        | open        |
| oboha                      | nnaako[obóhére]       | waako[obóhére]       | naako[obóhére]       | ntooko[obóhére]       | mmooko[obóhére]       | mbaako[obóhére]       | fear        |
| igoomba                    | nnaaka[igóómbére]     | waaka[igóómbére]     | naaka[igóómbére]     | ntooka[igóómbére]     | mmooka[igóómbére]     | mbaaka[igóómbére]     | desire      |
| anekera                    | nnaaka[anékééye]      | waaka[anékééye]      | naaka[anékééye]      | ntooka[anékééye]      | mmooka[anékééye]      | mbaaka[anékééye]      | lay out     |
| araachana                  | nnaaka[aráácháíni]    | waaka[aráácháíni]    | naaka[aráácháíni]    | ntooka[aráácháíni]    | mmooka[aráácháíni]    | mbaaka[aráácháíni]    | cross, fold |

**PATTERN 3A: H on V3 (SPREAD)**

**Subjunctive** - e.g. "that I (may) eat"

|                           |               |               |               |                |                |                |          |
|---------------------------|---------------|---------------|---------------|----------------|----------------|----------------|----------|
| ha                        | ne[hɛ]        | o[hɛ]         | a[hɛ]         | to[hɛ]         | mo[hɛ]         | ba[hɛ]         | give     |
| rea                       | n[dɛ]         | o[rɛ]         | a[rɛ]         | to[rɛ]         | mo[rɛ]         | ba[rɛ]         | eat      |
| sea                       | n[sɛ]         | o[sɛ]         | a[sɛ]         | to[sɛ]         | mo[sɛ]         | ba[sɛ]         | grind    |
| roma                      | n[domɛ]       | n[domɛ]       | n[domɛ]       | n[domɛ]        | mo[romɛ]       | ba[romɛ]       | bite     |
| buna                      | m[bunɛ]       | u[bunɛ]       | a[bunɛ]       | tu[bunɛ]       | mu[bunɛ]       | ba[bunɛ]       | break    |
| biima                     | m[biimɛ]      | u[biimɛ]      | a[biimɛ]      | tu[biimɛ]      | mu[biimɛ]      | ba[biimɛ]      | measure  |
| saamba                    | n[saambɛ]     | o[saambɛ]     | a[saambɛ]     | to[saambɛ]     | mo[saambɛ]     | ba[saambɛ]     | burn     |
| tereka                    | n[terekɛ]     | o[terekɛ]     | a[terekɛ]     | to[terekɛ]     | mo[terekɛ]     | ba[terekɛ]     | brew     |
| sukura                    | n[sukurɛ]     | u[sukurɛ]     | a[sukurɛ]     | tu[sukurɛ]     | mu[sukurɛ]     | ba[sukurɛ]     | rub      |
| heetoka                   | [heetókɛ]     | o[heetókɛ]    | a[heetókɛ]    | to[heetókɛ]    | mo[heetókɛ]    | ba[heetókɛ]    | remember |
| taandora                  | n[taandóre]   | o[taandóre]   | a[taandóre]   | to[taandóre]   | mo[taandóre]   | ba[taandóre]   | tear     |
| karaanga                  | ɲ[karaáŋgɛ]   | o[karaáŋgɛ]   | a[karaáŋgɛ]   | to[karaáŋgɛ]   | mo[karaáŋgɛ]   | ba[karaáŋgɛ]   | fry      |
| hagaacha                  | [hagaáche]    | o[hagaáche]   | a[hagaáche]   | to[hagaáche]   | mo[hagaáche]   | ba[hagaáche]   | build    |
| taangaasa                 | n[taangááse]  | o[taangááse]  | a[taangááse]  | to[taangááse]  | mo[taangááse]  | ba[taangááse]  | announce |
| siitaaka                  | n[siitááke]   | u[siitááke]   | a[siitááke]   | tu[siitááke]   | mu[siitááke]   | ba[siitááke]   | accuse   |
| teremeka                  | n[tereméke]   | o[tereméke]   | a[tereméke]   | to[tereméke]   | mo[tereméke]   | ba[tereméke]   | be calm  |
| berekera                  | m[berekére]   | o[berekére]   | a[berekére]   | to[berekére]   | mo[berekére]   | ba[berekére]   | call     |
| turuujana                 | n[turuúɲáne]  | u[turuúɲáne]  | a[turuúɲáne]  | tu[turuúɲáne]  | mu[turuúɲáne]  | ba[turuúɲáne]  | welcome  |
| koondokora                | ɲ[koondókóre] | o[koondókóre] | a[koondókóre] | to[koondókóre] | mo[koondókóre] | ba[koondókóre] | uncover  |
| kirigiita                 | ɲ[kirigííte]  | u[kirigííte]  | a[kirigííte]  | tu[kirigííte]  | mu[kirigííte]  | ba[kirigííte]  | scrub    |
| hootootera                | [hootóótéré]  | o[hootóótéré] | a[hootóótéré] | to[hootóótéré] | mo[hootóótéré] | ba[hootóótéré] | reassure |
| <b>with object prefix</b> |               |               |               |                |                |                |          |
| ha                        | ɲ[gahé]       | o[gahé]       | a[gahé]       | to[gahé]       | mo[gahé]       | ba[gahé]       | give     |
| rea                       | ɲ[garé]       | o[garé]       | a[garé]       | to[garé]       | mo[garé]       | ba[garé]       | eat      |
| roma                      | ɲ[garomɛ]     | o[garomɛ]     | a[garomɛ]     | to[garomɛ]     | mo[garomɛ]     | ba[garomɛ]     | bite     |
| biima                     | ɲ[gabiíme]    | o[gabiíme]    | a[gabiíme]    | to[gabiíme]    | mo[gabiíme]    | ba[gabiíme]    | measure  |
| saamba                    | ɲ[gasaámbe]   | o[gasaámbe]   | a[gasaámbe]   | to[gasaámbe]   | mo[gasaámbe]   | ba[gasaámbe]   | burn     |
| tereka                    | ɲ[gateréke]   | o[gateréke]   | a[gateréke]   | to[gateréke]   | mo[gateréke]   | ba[gateréke]   | brew     |
| heetoka                   | ɲ[gaheétókɛ]  | o[gaheétókɛ]  | a[gaheétókɛ]  | to[gaheétókɛ]  | mo[gaheétókɛ]  | ba[gaheétókɛ]  | remember |
| karaanga                  | ɲ[gakarááŋgɛ] | o[gakarááŋgɛ] | a[gakarááŋgɛ] | to[gakarááŋgɛ] | mo[gakarááŋgɛ] | ba[gakarááŋgɛ] | fry      |
| berekera                  | ɲ[gaberekére] | o[gaberekére] | a[gaberekére] | to[gaberekére] | mo[gaberekére] | ba[gaberekére] | call     |

|                            |                 |                 |                 |                  |                  |                  |             |
|----------------------------|-----------------|-----------------|-----------------|------------------|------------------|------------------|-------------|
| turuuṇana                  | ṇ[gaturúúṇáne]  | o[gaturúúṇáne]  | a[gaturúúṇáne]  | to[gaturúúṇáne]  | mo[gaturúúṇáne]  | ba[gaturúúṇáne]  | welcome     |
| koondokora                 | ṇ[gakoóndókóre] | o[gakoóndókóre] | a[gakoóndókóre] | to[gakoóndókóre] | mo[gakoóndókóre] | ba[gakoóndókóre] | uncover     |
| <b>vowel-initial verbs</b> |                 |                 |                 |                  |                  |                  |             |
| ia                         | ni[yi]          | u[yi]           | a[yi]           | tu[yi]           | mu[yi]           | ba[yi]           | go          |
| aga                        | na[agé]         | wa[agé]         | a[agé]          | to[ogé]          | mo[ogé]          | ba[agé]          | weed        |
| igora                      | ni[igoré]       | wi[igoré]       | a[igoré]        | tu[igoré]        | mu[igoré]        | ba[igoré]        | open        |
| oboha                      | no[obohé]       | wo[obohé]       | o[obohé]        | to[obohé]        | mo[obohé]        | bo[obohé]        | fear        |
| igoomba                    | ni[igoómbɛ]     | wi[igoómbɛ]     | a[igoómbɛ]      | tu[igoómbɛ]      | mu[igoómbɛ]      | ba[igoómbɛ]      | desire      |
| anekera                    | na[anekére]     | wa[anekére]     | a[anekére]      | to[onekére]      | mo[onekére]      | ba[anekére]      | lay out     |
| araachana                  | na[araácháne]   | wa[araácháne]   | a[araácháne]    | to[oraácháne]    | mo[oraácháne]    | ba[araácháne]    | cross, fold |

**Hodiernal Past Anterior Focused** - e.g. "(indeed) I (have) read (earlier today)"

|            |                  |                  |                  |                  |                  |                  |          |
|------------|------------------|------------------|------------------|------------------|------------------|------------------|----------|
| ha         | nee[haayé]       | noo[haayé]       | naa[haayé]       | nto[haayé]       | mmo[haayé]       | mba[haayé]       | give     |
| rea        | nen[deeyé]       | noo[reeyé]       | naa[reeyé]       | nto[reeyé]       | mmo[reeyé]       | mba[reeyé]       | eat      |
| sea        | nen[seeyé]       | noo[seeyé]       | naa[seeyé]       | nto[seeyé]       | mmo[seeyé]       | mba[seeyé]       | grind    |
| roma       | nen[domeré]      | noo[romeré]      | naa[romeré]      | nto[romeré]      | mmo[romeré]      | mba[romeré]      | bite     |
| buna       | nim[buniré]      | nuu[buniré]      | naa[buniré]      | ntu[buniré]      | mmu[buniré]      | mba[buniré]      | break    |
| biima      | nem[biimíre]     | nuu[biimíre]     | naa[biimíre]     | ntu[biimíre]     | mmu[biimíre]     | mba[biimíre]     | measure  |
| saamba     | nen[saambére]    | noo[saambére]    | naa[saambére]    | nto[saambére]    | mmo[saambére]    | mba[saambére]    | burn     |
| tereka     | nen[terekére]    | noo[terekére]    | naa[terekére]    | nto[terekére]    | mmo[terekére]    | mba[terekére]    | brew     |
| sukura     | nin[sukuúye]     | nuu[sukuúye]     | naa[sukuúye]     | ntu[sukuúye]     | mmu[sukuúye]     | mba[sukuúye]     | rub      |
| heetoka    | nee[heetókére]   | noo[heetókére]   | naa[heetókére]   | nto[heetókére]   | mmo[heetókére]   | mba[heetókére]   | remember |
| taandora   | nen[taandóoye]   | noo[taandóoye]   | naa[taandóoye]   | nto[taandóoye]   | mmo[taandóoye]   | mba[taandóoye]   | tear     |
| karaanga   | nen[karaángére]  | noo[karaángére]  | naa[karaángére]  | nto[karaángére]  | mmo[karaángére]  | mba[karaángére]  | fry      |
| hagaacha   | nee[hagaáchére]  | noo[hagaáchére]  | naa[hagaáchére]  | nto[hagaáchére]  | mmo[hagaáchére]  | mba[hagaáchére]  | build    |
| taangaasa  | nen[taangáásére] | noo[taangáásére] | naa[taangáásére] | nto[taangáásére] | mmo[taangáásére] | mba[taangáásére] | announce |
| siitaaka   | nin[siitáákére]  | nuu[siitáákére]  | naa[siitáákére]  | ntu[siitáákére]  | mmu[siitáákére]  | mba[siitáákére]  | accuse   |
| teremeka   | nen[teremékére]  | noo[teremékére]  | naa[teremékére]  | nto[teremékére]  | mmo[teremékére]  | mba[teremékére]  | be calm  |
| berekera   | nem[berekééye]   | noo[berekééye]   | naa[berekééye]   | nto[berekééye]   | mmo[berekééye]   | mba[berekééye]   | call     |
| turuuṇana  | nin[turuúṇáini]  | nuu[turuúṇáini]  | naa[turuúṇáini]  | ntu[turuúṇáini]  | mmu[turuúṇáini]  | mba[turuúṇáini]  | welcome  |
| koondokora | nen[koondókóoye] | noo[koondókóoye] | naa[koondókóoye] | nto[koondókóoye] | mmo[koondókóoye] | mba[koondókóoye] | uncover  |
| kirigiita  | nin[kirigítíre]  | nuu[kirigítíre]  | naa[kirigítíre]  | ntu[kirigítíre]  | mmu[kirigítíre]  | mba[kirigítíre]  | scrub    |

|            |                            |                    |                    |                    |                    |                    |           |
|------------|----------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-----------|
| hootootera | nee[hootóótééye]           | noo[hootóótééye]   | naa[hootóótééye]   | nto[hootóótééye]   | mmo[hootóótééye]   | mba[hootóótééye]   | reassure  |
|            | <b>with object prefix</b>  |                    |                    |                    |                    |                    |           |
| ha         | neŋ[ɡahaáye]               | noo[ɡahaáye]       | naa[ɡahaáye]       | nto[ɡahaáye]       | mmo[ɡahaáye]       | mba[ɡahaáye]       | give      |
| rea        | neŋ[ɡareéye]               | noo[ɡareéye]       | naa[ɡareéye]       | nto[ɡareéye]       | mmo[ɡareéye]       | mba[ɡareéye]       | eat       |
| roma       | neŋ[ɡaromére]              | noo[ɡaromére]      | naa[ɡaromére]      | nto[ɡaromére]      | mmo[ɡaromére]      | mba[ɡaromére]      | bite      |
| biima      | neŋ[ɡabiímíre]             | nuu[ɡabiímíre]     | naa[ɡabiímíre]     | ntu[ɡabiímíre]     | mmu[ɡabiímíre]     | mba[ɡabiímíre]     | measure   |
| saamba     | neŋ[ɡaigóóye]              | nuu[ɡaigóóye]      | naa[ɡaigóóye]      | ntu[ɡaigóóye]      | mmu[ɡaigóóye]      | mba[ɡaigóóye]      | burn      |
| tereka     | neŋ[ɡaterékére]            | noo[ɡaterékére]    | naa[ɡaterékére]    | nto[ɡaterékére]    | mmo[ɡaterékére]    | mba[ɡaterékére]    | brew      |
| heetoka    | neŋ[ɡaheétókére]           | noo[ɡaheétókére]   | naa[ɡaheétókére]   | nto[ɡaheétókére]   | mmo[ɡaheétókére]   | mba[ɡaheétókére]   | remember  |
| karaanga   | neŋ[ɡakaráángére]          | noo[ɡakaráángére]  | naa[ɡakaráángére]  | nto[ɡakaráángére]  | mmo[ɡakaráángére]  | mba[ɡakaráángére]  | fry       |
| berekera   | neŋ[ɡaberékééye]           | nuu[ɡaberékééye]   | naa[ɡaberékééye]   | ntu[ɡaberékééye]   | mmu[ɡaberékééye]   | mba[ɡaberékééye]   | call      |
| turuuŋana  | neŋ[ɡaturúúŋáini]          | nuu[ɡaturúúŋáini]  | naa[ɡaturúúŋáini]  | ntu[ɡaturúúŋáini]  | mmu[ɡaturúúŋáini]  | mba[ɡaturúúŋáini]  | welcome   |
| koondokora | neŋ[ɡakoóndókóóye]         | neŋ[ɡakoóndókóóye] | neŋ[ɡakoóndókóóye] | neŋ[ɡakoóndókóóye] | neŋ[ɡakoóndókóóye] | neŋ[ɡakoóndókóóye] | uncover   |
|            | <b>vowel-initial verbs</b> |                    |                    |                    |                    |                    |           |
| ia         | neŋ[geeyé]                 | noo[geeyé]         | naa[geeyé]         | nto[geeyé]         | mmo[geeyé]         | mba[geeyé]         | go        |
| aga        | nna[ageré]                 | wa[ageré]          | na[ageré]          | nto[ogeré]         | mmo[ogeré]         | mba[ageré]         | weed      |
| igora      | ni[igoóye]                 | wi[igoóye]         | na[igoóye]         | ntu[igoóye]        | mmu[igoóye]        | mba[igoóye]        | open      |
| oboha      | nno[obohére]               | wo[obohére]        | no[obohére]        | nto[obohére]       | mmo[obohére]       | mbo[obohére]       | fear      |
| igoomba    | ni[igoómbére]              | wi[igoómbére]      | na[igoómbére]      | ntu[igoómbére]     | mmu[igoómbére]     | mba[igoómbére]     | desire    |
| anekera    | nna[anekééye]              | wa[anekééye]       | na[anekééye]       | nto[onekééye]      | mmo[onekééye]      | mba[anekééye]      | lay out   |
| araachana  | nna[araácháini]            |                    | na[araácháini]     | nto[oraácháini]    | mmo[oraácháini]    | mba[araácháini]    | reaassure |

**Untimed Past Anterior** - e.g. "I have (already) eaten (anytime before now)"

|        |             |             |            |             |             |             |         |
|--------|-------------|-------------|------------|-------------|-------------|-------------|---------|
| ha     | naa[ha]     | waa[ha]     | aa[ha]     | too[ha]     | moo[ha]     | baa[ha]     | give    |
| rea    | naa[rya]    | waa[rya]    | aa[rya]    | too[rya]    | moo[rya]    | baa[rya]    | eat     |
| sea    | naa[sya]    | waa[sya]    | aa[sya]    | too[sya]    | moo[sya]    | baa[sya]    | grind   |
| roma   | naa[romă]   | waa[romă]   | aa[romă]   | too[romă]   | moo[romă]   | baa[romă]   | bite    |
| buna   | naa[bună]   | waa[bună]   | aa[bună]   | too[bună]   | moo[bună]   | baa[bună]   | break   |
| biima  | naa[biimá]  | waa[biimá]  | aa[biimá]  | too[biimá]  | moo[biimá]  | baa[biimá]  | measure |
| saamba | naa[saambá] | waa[saambá] | aa[saambá] | too[saambá] | moo[saambá] | baa[saambá] | burn    |
| tereka | naa[tereká] | waa[tereká] | aa[tereká] | too[tereká] | moo[tereká] | baa[tereká] | brew    |
| sukura | naa[sukurá] | waa[sukurá] | aa[sukurá] | too[sukurá] | moo[sukurá] | baa[sukurá] | rub     |

|            |                 |                 |                |                 |                 |                 |          |
|------------|-----------------|-----------------|----------------|-----------------|-----------------|-----------------|----------|
| heetoka    | naa[heetóka]    | waa[heetóka]    | aa[heetóka]    | too[heetóka]    | moo[heetóka]    | baa[heetóka]    | remember |
| taandora   | naa[taandóra]   | waa[taandóra]   | aa[taandóra]   | too[taandóra]   | moo[taandóra]   | baa[taandóra]   | tear     |
| karaanga   | naa[karaánga]   | waa[karaánga]   | aa[karaánga]   | too[karaánga]   | moo[karaánga]   | baa[karaánga]   | fry      |
| hagaacha   | naa[hagaácha]   | waa[hagaácha]   | aa[hagaácha]   | too[hagaácha]   | moo[hagaácha]   | baa[hagaácha]   | build    |
| taangaasa  | naa[taangáasa]  | waa[taangáasa]  | aa[taangáasa]  | too[taangáasa]  | moo[taangáasa]  | baa[taangáasa]  | announce |
| siitaaka   | naa[siitáaka]   | waa[siitáaka]   | aa[siitáaka]   | too[siitáaka]   | moo[siitáaka]   | baa[siitáaka]   | accuse   |
| teremeka   | naa[tereméka]   | waa[tereméka]   | aa[tereméka]   | too[tereméka]   | moo[tereméka]   | baa[tereméka]   | be calm  |
| berekera   | naa[berekéra]   | waa[berekéra]   | aa[berekéra]   | too[berekéra]   | moo[berekéra]   | baa[berekéra]   | call     |
| turuunjana | naa[turuúnjána] | waa[turuúnjána] | aa[turuúnjána] | too[turuúnjána] | moo[turuúnjána] | baa[turuúnjána] | welcome  |
| koondokora | naa[koondókóra] | waa[koondókóra] | aa[koondókóra] | too[koondókóra] | moo[koondókóra] | baa[koondókóra] | uncover  |
| kirigiita  | naa[kirigíita]  | waa[kirigíita]  | aa[kirigíita]  | too[kirigíita]  | moo[kirigíita]  | baa[kirigíita]  | scrub    |
| hootootera | naa[hootóótera] | waa[hootóótera] | aa[hootóótera] | too[hootóótera] | moo[hootóótera] | baa[hootóótera] | reassure |

**with object prefix**

|            |                   |                   |                  |                   |                   |                   |          |
|------------|-------------------|-------------------|------------------|-------------------|-------------------|-------------------|----------|
| ha         | naa[gahă]         | waa[gahă]         | aa[gahă]         | too[gahă]         | moo[gahă]         | baa[gahă]         | give     |
| rea        | naa[garyă]        | waa[garyă]        | aa[garyă]        | too[garyă]        | moo[garyă]        | baa[garyă]        | eat      |
| roma       | naa[garomá]       | waa[garomá]       | aa[garomá]       | too[garomá]       | moo[garomá]       | baa[garomá]       | bite     |
| biima      | naa[gabíima]      | waa[gabíima]      | aa[gabíima]      | too[gabíima]      | moo[gabíima]      | baa[gabíima]      | measure  |
| saamba     | naa[gasaámba]     | waa[gasaámba]     | aa[gasaámba]     | too[gasaámba]     | moo[gasaámba]     | baa[gasaámba]     | burn     |
| tereke     | naa[gateréka]     | waa[gateréka]     | aa[gateréka]     | too[gateréka]     | moo[gateréka]     | baa[gateréka]     | brew     |
| heetoka    | naa[gaheétóka]    | waa[gaheétóka]    | aa[gaheétóka]    | too[gaheétóka]    | moo[gaheétóka]    | baa[gaheétóka]    | remember |
| karaanga   | naa[gakaráanga]   | waa[gakaráanga]   | aa[gakaráanga]   | too[gakaráanga]   | moo[gakaráanga]   | baa[gakaráanga]   | fry      |
| berekera   | naa[gaberekéra]   | waa[gaberekéra]   | aa[gaberekéra]   | too[gaberekéra]   | moo[gaberekéra]   | baa[gaberekéra]   | call     |
| turuunjana | naa[gaturúúnjána] | waa[gaturúúnjána] | aa[gaturúúnjána] | too[gaturúúnjána] | moo[gaturúúnjána] | baa[gaturúúnjána] | welcome  |
| koondokora | naa[gakoóndókóra] | waa[gakoóndókóra] | aa[gakoóndókóra] | too[gakoóndókóra] | moo[gakoóndókóra] | baa[gakoóndókóra] | uncover  |

**vowel-initial verbs**

|           |               |               |              |               |               |               |             |
|-----------|---------------|---------------|--------------|---------------|---------------|---------------|-------------|
| ia        | naa[ya]       | waa[ya]       | aa[ya]       | too[ya]       | moo[ya]       | baa[ya]       | go          |
| aga       | na[agă]       | wa[agă]       | a[agă]       | to[ogă]       | mo[ogă]       | ba[agă]       | weed        |
| igora     | na[igorá]     | wa[igorá]     | a[igorá]     | to[igorá]     | mo[igorá]     | ba[igorá]     | open        |
| oboha     | no[obohá]     | wo[obohá]     | o[obohá]     | to[obohá]     | mo[obohá]     | bo[obohá]     | fear        |
| igoomba   | na[igoómba]   | wa[igoómba]   | a[igoómba]   | to[igoómba]   | mo[igoómba]   | ba[igoómba]   | desire      |
| anekera   | na[anekéra]   | wa[anekéra]   | a[anekéra]   | to[onekéra]   | mo[onekéra]   | ba[anekéra]   | lay out     |
| araachana | na[araáchána] | wa[araáchána] | a[araáchána] | to[oraáchána] | mo[oraáchána] | ba[araáchána] | cross, fold |

**Remote Future Focused** e.g. "I will eat (then)"

|                           |                    |                    |                    |                    |                    |                    |          |
|---------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|----------|
| ha                        | nende[ha]          | noore[ha]          | naare[ha]          | ntore[ha]          | mmore[ha]          | mbare[ha]          | give     |
| rea                       | nende[rya]         | noore[rya]         | naare[rya]         | ntore[rya]         | mmore[rya]         | mbare[rya]         | eat      |
| sea                       | nende[sya]         | noore[sya]         | naare[sya]         | ntore[sya]         | mmore[sya]         | mbare[rya]         | grind    |
| roma                      | nende[romă]        | noore[romă]        | naare[romă]        | ntore[romă]        | mmore[romă]        | mbare[romă]        | bite     |
| buna                      | nende[bună]        | noore[bună]        | naare[bună]        | ntore[bună]        | mmore[bună]        | mbare[bună]        | break    |
| biima                     | nende[biimá]       | noore[biimá]       | naare[biimá]       | ntore[biimá]       | mmore[biimá]       | mbare[biimá]       | measure  |
| saamba                    | nende[saambá]      | noore[saambá]      | naare[saambá]      | ntore[saambá]      | mmore[saambá]      | mbare[saambá]      | burn     |
| tereka                    | nende[tereká]      | noore[tereká]      | naare[tereká]      | ntore[tereká]      | mmore[tereká]      | mbare[tereká]      | brew     |
| sukura                    | nende[sukurá]      | noore[sukurá]      | naare[sukurá]      | ntore[sukurá]      | mmore[sukurá]      | mbare[sukurá]      | rub      |
| heetoka                   | nende[heetóka]     | noore[heetóka]     | naare[heetóka]     | ntore[heetóka]     | mmore[heetóka]     | mbare[heetóka]     | remember |
| taandora                  | nende[taandóra]    | noore[taandóra]    | naare[taandóra]    | ntore[taandóra]    | mmore[taandóra]    | mbare[taandóra]    | tear     |
| karaanga                  | nende[karaánga]    | noore[karaánga]    | naare[karaánga]    | ntore[karaánga]    | mmore[karaánga]    | mbare[karaánga]    | fry      |
| hagaacha                  | nende[hagaácha]    | noore[hagaácha]    | naare[hagaácha]    | ntore[hagaácha]    | mmore[hagaácha]    | mbare[hagaácha]    | build    |
| taangaasa                 | nende[taangáasa]   | noore[taangáasa]   | naare[taangáasa]   | ntore[taangáasa]   | mmore[taangáasa]   | mbare[taangáasa]   | announce |
| siitaaka                  | nende[siitáaka]    | noore[siitáaka]    | naare[siitáaka]    | ntore[siitáaka]    | mmore[siitáaka]    | mbare[siitáaka]    | accuse   |
| teremeka                  | nende[tereméka]    | noore[tereméka]    | naare[tereméka]    | ntore[tereméka]    | mmore[tereméka]    | mbare[tereméka]    | be calm  |
| berekera                  | nende[berekéra]    | noore[berekéra]    | naare[berekéra]    | ntore[berekéra]    | mmore[berekéra]    | mbare[berekéra]    | call     |
| turuujana                 | nende[turuújana]   | noore[turuújana]   | naare[turuújana]   | ntore[turuújana]   | mmore[turuújana]   | mbare[turuújana]   | welcome  |
| koondokora                | nende[koondókóra]  | noore[koondókóra]  | naare[koondókóra]  | ntore[koondókóra]  | mmore[koondókóra]  | mbare[koondókóra]  | uncover  |
| kirigiita                 | nende[kirigíita]   | noore[kirigíita]   | naare[kirigíita]   | ntore[kirigíita]   | mmore[kirigíita]   | mbare[kirigíita]   | scrub    |
| hootootera                | nende[hootóótera]  | noore[hootóótera]  | naare[hootóótera]  | ntore[hootóótera]  | mmore[hootóótera]  | mbare[hootóótera]  | reassure |
| <b>with object prefix</b> |                    |                    |                    |                    |                    |                    |          |
| ha                        | nende[gahă]        | noore[gahă]        | naare[gahă]        | ntore[gahă]        | mmore[gahă]        | mbare[gahă]        | give     |
| rea                       | nende[garyă]       | noore[garyă]       | naare[garyă]       | ntore[garyă]       | mmore[garyă]       | mbare[garyă]       | eat      |
| roma                      | nende[garomá]      | noore[garomá]      | naare[garomá]      | ntore[garomá]      | mmore[garomá]      | mbare[garomá]      | bite     |
| biima                     | nende[gabiíma]     | noore[gabiíma]     | naare[gabiíma]     | ntore[gabiíma]     | mmore[gabiíma]     | mbare[gabiíma]     | measure  |
| saamba                    | nende[gasaámba]    | noore[gasaámba]    | naare[gasaámba]    | ntore[gasaámba]    | mmore[gasaámba]    | mbare[gasaámba]    | burn     |
| tereka                    | nende[gateréka]    | noore[gateréka]    | naare[gateréka]    | ntore[gateréka]    | mmore[gateréka]    | mbare[gateréka]    | brew     |
| heetoka                   | nende[gaheétóka]   | noore[gaheétóka]   | naare[gaheétóka]   | ntore[gaheétóka]   | mmore[gaheétóka]   | mbare[gaheétóka]   | remember |
| karaanga                  | nende[gakaráanga]  | noore[gakaráanga]  | naare[gakaráanga]  | ntore[gakaráanga]  | mmore[gakaráanga]  | mbare[gakaráanga]  | fry      |
| berekera                  | nende[gaberékéra]  | noore[gaberékéra]  | naare[gaberékéra]  | ntore[gaberékéra]  | mmore[gaberékéra]  | mbare[gaberékéra]  | call     |
| turuujana                 | nende[gaturúújana] | noore[gaturúújana] | naare[gaturúújana] | ntore[gaturúújana] | mmore[gaturúújana] | mbare[gaturúújana] | welcome  |



|                            |                     |                     |                     |                     |                     |                     |             |
|----------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|-------------|
| koondokora                 | nende[gakoóndókóra] | noore[gakoóndókóra] | naare[gakoóndókóra] | ntore[gakoóndókóra] | mmore[gakoóndókóra] | mbare[gakoóndókóra] | uncover     |
| <b>vowel-initial verbs</b> |                     |                     |                     |                     |                     |                     |             |
| ia                         | nindi[ya]           | nuuri[ya]           | naari[ya]           | nturi[ya]           | mmuri[ya]           | mbari[ya]           | go          |
| aga                        | nende[egǎ]          | noore[egǎ]          | naare[egǎ]          | ntore[egǎ]          | mmore[egǎ]          | mbare[egǎ]          | weed        |
| igora                      | nindi[igorá]        | nuuri[igorá]        | naari[igorá]        | nturi[igorá]        | mmuri[igorá]        | mbari[igorá]        | open        |
| oboha                      | nende[obohá]        | noore[obohá]        | naare[obohá]        | ntore[obohá]        | mmore[obohá]        | mbare[obohá]        | fear        |
| igoomba                    | nindi[igoómba]      | nuuri[igoómba]      | naari[igoómba]      | nturi[igoómba]      | mmuri[igoómba]      | mbari[igoómba]      | desire      |
| anekera                    | nende[enekéra]      | noore[enekéra]      | naare[enekéra]      | ntore[enekéra]      | mmore[enekéra]      | mbare[enekéra]      | lay out     |
| araachana                  | nende[araáchána]    | noore[araáchána]    | naare[araáchána]    | ntore[araáchána]    | mmore[araáchána]    | mbare[araáchána]    | cross, fold |

**Current Present Persistent Focused (archaic) - e.g. "(indeed) I am still eating"**

|            |                    |                    |                    |                    |                    |                    |          |
|------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|----------|
| ha         | nenke[haanére]     | nooke[haanére]     | naake[haanére]     | ntoke[haanére]     | mmoke[haanére]     | mbake[haanére]     | give     |
| rea        | nenke[reeyé]       | nooke[reeyé]       | naake[reeyé]       | ntoke[reeyé]       | mmoke[reeyé]       | mbake[reeyé]       | eat      |
| sea        | nenge[seeyé]       | nooge[seeyé]       | naage[seeyé]       | ntoge[seeyé]       | mmoge[seeyé]       | mbage[seeyé]       | grind    |
| roma       | nenke[romeré]      | nooke[romeré]      | naake[romeré]      | ntoke[romeré]      | mmoke[romeré]      | mbake[romeré]      | bite     |
| buna       | nenke[buniré]      | nooke[buniré]      | naake[buniré]      | ntoke[buniré]      | mmoke[buniré]      | mbake[buniré]      | break    |
| biima      | nenke[biimíre]     | nooke[biimíre]     | naake[biimíre]     | ntoke[biimíre]     | mmoke[biimíre]     | mbake[biimíre]     | measure  |
| saamba     | nenge[saambére]    | nooge[saambére]    | naage[saambére]    | ntoge[saambére]    | mmoge[saambére]    | mbage[saambére]    | burn     |
| tereka     | nenge[terekére]    | nooge[terekére]    | naage[terekére]    | ntoge[terekére]    | mmoge[terekére]    | mbage[terekére]    | brew     |
| sukura     | nenge[sukuúye]     | nooge[sukuúye]     | naage[sukuúye]     | ntoge[sukuúye]     | mmoge[sukuúye]     | mbage[sukuúye]     | rub      |
| heetoka    | nenke[heetókére]   | nooke[heetókére]   | naake[heetókére]   | ntoke[heetókére]   | mmoke[heetókére]   | mbake[heetókére]   | remember |
| taandora   | nenge[taandóoye]   | nooge[taandóoye]   | naage[taandóoye]   | ntoge[taandóoye]   | mmoge[taandóoye]   | mbage[taandóoye]   | tear     |
| karaanga   | nenge[karaángere]  | nooge[karaángere]  | naage[karaángere]  | ntoge[karaángere]  | mmoge[karaángere]  | mbage[karaángere]  | fry      |
| hagaacha   | nenke[hagaáchere]  | nooke[hagaáchere]  | naake[hagaáchere]  | ntoke[hagaáchere]  | mmoke[hagaáchere]  | mbake[hagaáchere]  | build    |
| taandaasa  | nenge[taandáásere] | nooge[taandáásere] | naage[taandáásere] | ntoge[taandáásere] | mmoge[taandáásere] | mbage[taandáásere] | announce |
| siitaaka   | nenge[siitáákere]  | nooge[siitáákere]  | naage[siitáákere]  | ntoge[siitáákere]  | mmoge[siitáákere]  | mbage[siitáákere]  | accuse   |
| teremeka   | nenge[teremékere]  | nooge[teremékere]  | naage[teremékere]  | ntoge[teremékere]  | mmoge[teremékere]  | mbage[teremékere]  | be calm  |
| berekera   | nenke[berekéye]    | nooke[berekéye]    | naake[berekéye]    | ntoke[berekéye]    | mmoke[berekéye]    | mbake[berekéye]    | call     |
| turuujana  | nenge[turuúnáini]  | nooge[turuúnáini]  | naage[turuúnáini]  | ntoge[turuúnáini]  | mmoge[turuúnáini]  | mbage[turuúnáini]  | welcome  |
| koondokora | nenge[koondókóoye] | nooge[koondókóoye] | naage[koondókóoye] | ntoge[koondókóoye] | mmoge[koondókóoye] | mbage[koondókóoye] | uncover  |
| kirigiita  | nenge[kirigítíre]  | nooge[kirigítíre]  | naage[kirigítíre]  | ntoge[kirigítíre]  | mmoge[kirigítíre]  | mbage[kirigítíre]  | scrub    |
| hootootera | nenke[hootóótéeye] | nooke[hootóótéeye] | naake[hootóótéeye] | ntoke[hootóótéeye] | mmoke[hootóótéeye] | mbake[hootóótéeye] | reassure |

|                            |                      |                      |                      |                      |                      |                      |             |
|----------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-------------|
| <b>with object prefix</b>  |                      |                      |                      |                      |                      |                      |             |
| ha                         | neŋke[gahaánéré]     | nooke[gahaánéré]     | naake[gahaánéré]     | ntoke[gahaánéré]     | mmoke[gahaánéré]     | mbake[gahaánéré]     | give        |
| rea                        | neŋke[gareéye]       | nooke[gareéye]       | naake[gareéye]       | ntoke[gareéye]       | mmoke[gareéye]       | mbake[gareéye]       | eat         |
| roma                       | neŋke[garomére]      | nooke[garomére]      | naake[garomére]      | ntoke[garomére]      | mmoke[garomére]      | mbake[garomére]      | bite        |
| biima                      | neŋke[gabiímíre]     | nooke[gabiímíre]     | naake[gabiímíre]     | ntoke[gabiímíre]     | mmoke[gabiímíre]     | mbake[gabiímíre]     | measure     |
| saamba                     | neŋke[gasaámbére]    | nooke[gasaámbére]    | naake[gasaámbére]    | ntoke[gasaámbére]    | mmoke[gasaámbére]    | mbake[gasaámbére]    | burn        |
| tereka                     | neŋke[gaterékére]    | nooke[gaterékére]    | naake[gaterékére]    | ntoke[gaterékére]    | mmoke[gaterékére]    | mbake[gaterékére]    | brew        |
| heetoka                    | neŋke[gaheétókére]   | nooke[gaheétókére]   | naake[gaheétókére]   | ntoke[gaheétókére]   | mmoke[gaheétókére]   | mbake[gaheétókére]   | remember    |
| karaanga                   | neŋke[gakaráángére]  | nooke[gakaráángére]  | naake[gakaráángére]  | ntoke[gakaráángére]  | mmoke[gakaráángére]  | mbake[gakaráángére]  | fry         |
| berekera                   | neŋke[gaberékééye]   | nooke[gaberékééye]   | naake[gaberékééye]   | ntoke[gaberékééye]   | mmoke[gaberékééye]   | mbake[gaberékééye]   | call        |
| turuuŋana                  | neŋke[gaturúúŋáini]  | nooke[gaturúúŋáini]  | naake[gaturúúŋáini]  | ntoke[gaturúúŋáini]  | mmoke[gaturúúŋáini]  | mbake[gaturúúŋáini]  | welcome     |
| koondokora                 | neŋke[gakoóndókóóye] | nooke[gakoóndókóóye] | naake[gakoóndókóóye] | ntoke[gakoóndókóóye] | mmoke[gakoóndókóóye] | mbake[gakoóndókóóye] | uncover     |
| <b>vowel-initial verbs</b> |                      |                      |                      |                      |                      |                      |             |
| ia                         | neŋke[geeyé]         | nooke[geeyé]         | naake[geeyé]         | ntoke[geeyé]         | mmoke[geeyé]         | mbake[geeyé]         | go          |
| aga                        | neŋke[egeré]         | nooke[egeré]         | naake[egeré]         | ntoke[egeré]         | mmoke[egeré]         | mbake[egeré]         | weed        |
| igora                      | niŋki[igoóye]        | nuuki[igoóye]        | naaki[igoóye]        | ntuki[igoóye]        | mmuki[igoóye]        | mbaki[igoóye]        | open        |
| oboha                      | niŋki[obohére]       | nuuki[obohére]       | naaki[obohére]       | ntuki[obohére]       | mmuki[obohére]       | mbaki[obohére]       | fear        |
| igoomba                    | niŋki[igoómbére]     | nuuki[igoómbére]     | naaki[igoómbére]     | ntuki[igoómbére]     | mmuki[igoómbére]     | mbaki[igoómbére]     | desire      |
| anekera                    | neŋke[enekééye]      | nooke[enekééye]      | naake[enekééye]      | ntoke[enekééye]      | mmoke[enekééye]      | mbake[enekééye]      | lay out     |
| araachana                  | neŋke[araácháini]    | nooke[araácháini]    | naake[araácháini]    | ntoke[araácháini]    | mmoke[araácháini]    | mbake[araácháini]    | cross, fold |

**Untimed Real Uncertain Condition Focused (present, past, future) - e.g. "(indeed) I could eat"**

|         |              |              |              |              |              |              |          |
|---------|--------------|--------------|--------------|--------------|--------------|--------------|----------|
| ha      | nee[ha]      | noo[ha]      | naa[ha]      | nto[ha]      | mmo[ha]      | mba[ha]      | give     |
| rea     | neen[dya]    | noo[rya]     | naa[rya]     | nto[rya]     | mmo[rya]     | mba[rya]     | eat      |
| sea     | neen[sya]    | noo[sya]     | naa[sya]     | nto[sya]     | mmo[sya]     | mba[sya]     | grind    |
| roma    | neen[domă]   | noo[romă]    | naa[romă]    | nto[romă]    | mmo[romă]    | mba[romă]    | bite     |
| buna    | niim[bună]   | nuu[bună]    | naa[bună]    | ntu[bună]    | mmu[bună]    | mba[bună]    | break    |
| biima   | niim[biimă]  | nuu[biimă]   | naa[biimă]   | ntu[biimă]   | mmu[biimă]   | mba[biimă]   | measure  |
| saamba  | neen[saambá] | noo[saambá]  | naa[saambá]  | nto[saambá]  | mmo[saambá]  | mba[saambá]  | burn     |
| tereka  | neen[tereká] | noo[tereká]  | naa[tereká]  | nto[tereká]  | mmo[tereká]  | mba[tereká]  | brew     |
| sukura  | niin[sukurá] | nuu[sukurá]  | naa[sukurá]  | ntu[sukurá]  | mmu[sukurá]  | mba[sukurá]  | rub      |
| heetoka | nee[heetóka] | noo[heetóka] | naa[heetóka] | nto[heetóka] | mmo[heetóka] | mba[heetóka] | remember |

|                            |                    |                   |                   |                   |                   |                   |             |
|----------------------------|--------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------|
| taandora                   | neen[taandóra]     | noo[taandóra]     | naa[taandóra]     | nto[taandóra]     | mmo[taandóra]     | mba[taandóra]     | tear        |
| karaanga                   | neen[karaánga]     | noo[karaánga]     | naa[karaánga]     | nto[karaánga]     | mmo[karaánga]     | mba[karaánga]     | fry         |
| hagaacha                   | nee[hagaácha]      | noo[hagaácha]     | naa[hagaácha]     | nto[hagaácha]     | mmo[hagaácha]     | mba[hagaácha]     | build       |
| taangaasa                  | neen[taangáasa]    | noo[taangáasa]    | naa[taangáasa]    | nto[taangáasa]    | mmo[taangáasa]    | mba[taangáasa]    | announce    |
| siitaaka                   | niin[siitáaka]     | nuu[siitáaka]     | naa[siitáaka]     | ntu[siitáaka]     | mmu[siitáaka]     | mba[siitáaka]     | accuse      |
| teremeka                   | neen[tereméka]     | noo[tereméka]     | naa[tereméka]     | nto[tereméka]     | mmo[tereméka]     | mba[tereméka]     | be calm     |
| berekera                   | neem[berekéra]     | noo[berekéra]     | naa[berekéra]     | nto[berekéra]     | mmo[berekéra]     | mba[berekéra]     | call        |
| turuujana                  | niin[turuújana]    | nuu[turuújana]    | naa[turuújana]    | ntu[turuújana]    | mmu[turuújana]    | mba[turuújana]    | welcome     |
| koondokora                 | neen[koondókóra]   | noo[koondókóra]   | naa[koondókóra]   | nto[koondókóra]   | mmo[koondókóra]   | mba[koondókóra]   | uncover     |
| kirigiita                  | niin[kirigíita]    | nuu[kirigíita]    | naa[kirigíita]    | ntu[kirigíita]    | mmu[kirigíita]    | mba[kirigíita]    | scrub       |
| hootootera                 | nee[hootóótera]    | noo[hootóótera]   | naa[hootóótera]   | nto[hootóótera]   | mmo[hootóótera]   | mba[hootóótera]   | reassure    |
| <b>with object prefix</b>  |                    |                   |                   |                   |                   |                   |             |
| ha                         | neen[gahă]         | noo[gahă]         | naa[gahă]         | nto[gahă]         | mmo[gahă]         | mba[gahă]         | give        |
| rea                        | neen[garyă]        | noo[garyă]        | naa[garyă]        | nto[garyă]        | mmo[garyă]        | mba[garyă]        | eat         |
| roma                       | neen[garomá]       | noo[garomá]       | naa[garomá]       | nto[garomá]       | mmo[garomá]       | mba[garomá]       | bite        |
| biima                      | neen[gabiíma]      | noo[gabiíma]      | naa[gabiíma]      | nto[gabiíma]      | mmo[gabiíma]      | mba[gabiíma]      | measure     |
| saamba                     | neen[gasaámba]     | noo[gasaámba]     | naa[gasaámba]     | nto[gasaámba]     | mmo[gasaámba]     | mba[gasaámba]     | burn        |
| tereka                     | neen[gateréka]     | noo[gateréka]     | naa[gateréka]     | nto[gateréka]     | mmo[gateréka]     | mba[gateréka]     | brew        |
| heetoka                    | neen[gaheétóka]    | noo[gaheétóka]    | naa[gaheétóka]    | nto[gaheétóka]    | mmo[gaheétóka]    | mba[gaheétóka]    | remember    |
| karaanga                   | neen[gakaráanga]   | noo[gakaráanga]   | naa[gakaráanga]   | nto[gakaráanga]   | mmo[gakaráanga]   | mba[gakaráanga]   | fry         |
| berekera                   | neen[gaberekéra]   | noo[gaberekéra]   | naa[gaberekéra]   | nto[gaberekéra]   | mmo[gaberekéra]   | mba[gaberekéra]   | call        |
| turuujana                  | neen[gaturúújana]  | noo[gaturúújana]  | naa[gaturúújana]  | nto[gaturúújana]  | mmo[gaturúújana]  | mba[gaturúújana]  | welcome     |
| koondokora                 | neen[gakoóndókóra] | noo[gakoóndókóra] | naa[gakoóndókóra] | nto[gakoóndókóra] | mmo[gakoóndókóra] | mba[gakoóndókóra] | uncover     |
| <b>vowel-initial verbs</b> |                    |                   |                   |                   |                   |                   |             |
| ia                         | nii[ya]            | nuu[ya]           | naa[ya]           | ntu[ya]           | mmu[ya]           | mba[ya]           | go          |
| aga                        | nna[agă]           | wa[agă]           | na[agă]           | nto[ogă]          | mmo[ogă]          | mba[agă]          | weed        |
| igora                      | nii[igorá]         | wi[igorá]         | na[igorá]         | ntu[igorá]        | mmwi[igorá]       | mba[igorá]        | open        |
| oboha                      | nno[obohá]         | wo[obohá]         | no[obohá]         | nto[obohá]        | mmo[obohá]        | mbo[obohá]        | fear        |
| igoomba                    | nii[igoómba]       | wi[igoómba]       | na[igoómba]       | ntu[igoómba]      | mmu[igoómba]      | mba[igoómba]      | desire      |
| anekera                    | nna[anekéra]       | wa[anekéra]       | na[anekéra]       | ntoko[onekéra]    | mmo[onekéra]      | mba[anekéra]      | lay out     |
| araachana                  | nna[araáchána]     | wa[araáchána]     | na[araáchána]     | nto[oraáchána]    | mmo[oraáchána]    | mba[araáchána]    | cross, fold |

**PATTERN 3B: H on V3 (NO SPREAD)**

**Mandatory Imperative - e.g. "eat!"**

|                            |                     |                 |              |
|----------------------------|---------------------|-----------------|--------------|
| [haaná]                    | alternative version | [haanà]         | give!        |
| [karyǎ]                    |                     | [karyà]         | eat!         |
| [gasyǎ]                    |                     | [gasyà]         | grind!       |
| [romǎ]                     |                     | [romà]          | bite!        |
| [bunǎ]                     |                     | [bunà]          | break!       |
| [biimá]                    |                     | [biimà]         | measure!     |
| [terekǎ]                   |                     | [terekà]        | brew!        |
| [sukurá]                   |                     | [sukurà]        | rub!         |
| [heetóka]                  |                     |                 | remember!    |
| [taandóra]                 |                     |                 | tear!        |
| [karaánga]                 |                     |                 | fry!         |
| [hagaácha]                 |                     |                 | build!       |
| [taangáása]                |                     |                 | announce!    |
| [siitááka]                 |                     |                 | accuse!      |
| [tereméka]                 |                     |                 | be calm!     |
| [berekéra]                 |                     |                 | call!        |
| [turuúnà]                  |                     |                 | welcome!     |
| [koondókorà]               |                     |                 | uncover!     |
| [kirigííta]                |                     |                 | scrub!       |
| [hootóóterà]               |                     |                 | reassure!    |
| <b>vowel initial verbs</b> |                     |                 |              |
| [kayí]                     |                     | [káya] / [káyi] | go!          |
| [a!gá]                     |                     | [agà]           | weed!        |
| [igorá]                    |                     | [igorà]         | open!        |
| [obohá]                    |                     | [obohà]         | fear!        |
| [igoómba]                  |                     |                 | desire!      |
| [anekéra]                  |                     |                 | lay out!     |
| [araáchanà]                |                     |                 | cross, fold! |

**PATTERN 4: H on V4 (SPREAD)**

**Immediate Past Anterior** - e.g. "I have just eaten"

|                           | 1st P. (S)     | 2nd P. (S)      | 1st P. (PL)      | 2nd P. (PL)      |          |
|---------------------------|----------------|-----------------|------------------|------------------|----------|
| ha                        | [haayě]        | oo[haayě]       | too[haayě]       | moo[haayě]       | give     |
| rea                       | n[deeyě]       | oo[reeyě]       | too[reeyě]       | moo[reeyě]       | eat      |
| sea                       | n[seeyě]       | oo[seeyě]       | too[seeyě]       | moo[seeyě]       | grind    |
| roma                      | n[domerě]      | oo[romerě]      | too[romerě]      | moo[romerě]      | bite     |
| buna                      | m[bunirě]      | uu[bunirě]      | tuu[bunirě]      | muu[bunirě]      | break    |
| biima                     | m[biimirě]     | uu[biimirě]     | tuu[biimirě]     | muu[biimirě]     | measure  |
| saamba                    | n[saamberě]    | oo[saamberě]    | too[saamberě]    | moo[saamberě]    | burn     |
| tereka                    | n[terekerě]    | oo[terekerě]    | too[terekerě]    | moo[terekerě]    | brew     |
| sukura                    | n[sukuuyé]     | uu[sukuuyé]     | tuu[sukuuyé]     | muu[sukuuyé]     | rub      |
| heetoka                   | [heetokére]    | oo[heetokére]   | too[heetokére]   | moo[heetokére]   | remember |
| taandora                  | n[taandoóye]   | oo[taandoóye]   | too[taandoóye]   | moo[taandoóye]   | tear     |
| karaanga                  | ŋ[karaangére]  | oo[karaangére]  | too[karaangére]  | moo[karaangére]  | fry      |
| hagaacha                  | [hagaachére]   | oo[hagaachére]  | too[hagaachére]  | moo[hagaachére]  | build    |
| taangaasa                 | n[taangaásére] | oo[taangaásére] | too[taangaásére] | moo[taangaásére] | announce |
| siitaaka                  | n[siitaákére]  | uu[siitaákére]  | tuu[siitaákére]  | muu[siitaákére]  | accuse   |
| teremeka                  | n[teremekére]  | oo[teremekére]  | too[teremekére]  | moo[teremekére]  | be calm  |
| berekera                  | m[berekeéye]   | oo[berekeéye]   | too[berekeéye]   | moo[berekeéye]   | call     |
| turuujana                 | n[turuujáini]  | uu[turuujáini]  | tuu[turuujáini]  | muu[turuujáini]  | welcome  |
| koondokora                | ŋ[koondokóóye] | oo[koondokóóye] | too[koondokóóye] | moo[koondokóóye] | uncover  |
| kirigiita                 | ŋ[kirigiítíre] | uu[kirigiítíre] | tuu[kirigiítíre] | muu[kirigiítíre] | scrub    |
| hootootera                | [hootootééye]  | oo[hootootééye] | too[hootootééye] | moo[hootootééye] | reassure |
| <b>with object prefix</b> |                |                 |                  |                  |          |
|                           | 1st P. (S)     | 2nd P. (S)      | 1st P. (PL)      | 2nd P. (PL)      |          |
| ha                        | ŋ[gahaayé]     | oo[gahaayé]     | too[gahaayé]     | moo[gahaayé]     | give     |
| rea                       | ŋ[gareeyé]     | oo[gareeyé]     | too[gareeyé]     | moo[gareeyé]     | eat      |
| sea                       | ŋ[gaseeyé]     | oo[gaseeyé]     | too[gaseeyé]     | moo[gaseeyé]     | grind    |
| roma                      | ŋ[garomeré]    | oo[garomeré]    | too[garomeré]    | moo[garomeré]    | bite     |
| buna                      | ŋ[gabuniré]    | oo[gabuniré]    | too[gabuniré]    | moo[gabuniré]    | break    |
| biima                     | ŋ[gabiimíre]   | oo[gabiimíre]   | too[gabiimíre]   | moo[gabiimíre]   | measure  |

|                            |                  |                   |                    |                    |             |
|----------------------------|------------------|-------------------|--------------------|--------------------|-------------|
| saamba                     | ŋ[gasaambére]    | oo[gasaambére]    | too[gasaambére]    | moo[gasaambére]    | burn        |
| tɛrɛka                     | ŋ[gaterekére]    | oo[gaterekére]    | too[gaterekére]    | moo[gaterekére]    | brew        |
| sukura                     | ŋ[gasukuúye]     | oo[gasukuúye]     | too[gasukuúye]     | moo[gasukuúye]     | rub         |
| heetoka                    | ŋ[gaheetókére]   | oo[gaheetókére]   | too[gaheetókére]   | moo[gaheetókére]   | remember    |
| taandora                   | n[gataandóóye]   | oo[gataandóóye]   | too[gataandóóye]   | moo[gataandóóye]   | tear        |
| karaanga                   | ŋ[gakaraángére]  | oo[gakaraángére]  | too[gakaraángére]  | moo[gakaraángére]  | fry         |
| hagaacha                   | ŋ[gahagaáchére]  | oo[gahagaáchére]  | too[gahagaáchére]  | moo[gahagaáchére]  | build       |
| taangaasa                  | ŋ[gataangáásére] | oo[gataangáásére] | too[gataangáásére] | moo[gataangáásére] | announce    |
| siitaaka                   | n[gasiitáákére]  | oo[gasiitáákére]  | too[gasiitáákére]  | mo[gasiitáákére]   | accuse      |
| berekera                   | ŋ[gaberekééye]   | oo[gaberekééye]   | too[gaberekééye]   | moo[gaberekééye]   | call        |
| turuuŋana                  | ŋ[gaturuúŋáini]  | oo[gaturuúŋáini]  | too[gaturuúŋáini]  | moo[gaturuúŋáini]  | welcome     |
| koondokora                 | ŋ[gakoondókóóye] | oo[gakoondókóóye] | too[gakoondókóóye] | moo[gakoondókóóye] | uncover     |
| kirigiita                  | ŋ[gakirigítíre]  | oo[gakirigítíre]  | too[gakirigítíre]  | moo[gakirigítíre]  | scrub       |
| hootootera                 | ŋ[gahootótótéye] | oo[gahootótótéye] | too[gahootótótéye] | moo[gahootótótéye] | reassure    |
| <b>vowel-initial verbs</b> |                  |                   |                    |                    |             |
| ia                         | ŋ[geeyě]         | oo[geeyě]         | too[geeyě]         | moo[geeyě]         | go          |
| aga                        | na[agerě]        | wa[agerě]         | to[ogerě]          | mo[ogerě]          | weed        |
| igora                      | ni[igooyé]       | wi[igooyé]        | tu[igooyé]         | mu[igooyé]         | open        |
| oboha                      | no[oboheré]      | wo[oboheré]       | to[oboheré]        | mo[oboheré]        | fear        |
| igoomba                    | ni[igoombére]    | wi[igoombére]     | tu[igoombére]      | mu[igoombére]      | desire      |
| anekera                    | na[anekeéye]     | wa[anekeéye]      | to[onekeéye]       | mo[onekeéye]       | lay out     |
| araachana                  | na[araacháini]   | wa[araacháini]    | to[oraacháini]     | mo[oraacháini]     | cross, fold |
| <b>with object prefix</b>  |                  |                   |                    |                    |             |
| aga                        | ŋ[gaageré]       | oo[gaageré]       | too[gaageré]       | moo[gaageré]       | weed        |
| oboha                      | ŋ[goobohére]     | oo[goobohére]     | too[goobohére]     | moo[goobohére]     | fear        |
| igora                      | ŋ[gaigoóye]      | oo[gaigoóye]      | too[gaigoóye]      | moo[gaigoóye]      | open        |
| igoomba                    | ŋ[gaigoómbére]   | oo[gaigoómbére]   | too[gaigoómbére]   | moo[gaigoómbére]   | desire      |
| anekera                    | ŋ[gaanekééye]    | oo[gaanekééye]    | too[gaanekééye]    | moo[gaanekééye]    | lay out     |
| araachana                  | ŋ[gaaraácháini]  | oo[gaaraácháini]  | too[gaaraácháini]  | moo[gaaraácháini]  | cross, fold |

**Hortatory Imperative (3) - e.g. "I am going/about to eat"**

|                            |                 |                 |                  |                  |             |
|----------------------------|-----------------|-----------------|------------------|------------------|-------------|
| ha                         | nda[ha]         | ora[ha]         | tora[ha]         | mora[ha]         | give        |
| rea                        | nda[rya]        | ora[rya]        | tora[rya]        | mora[rya]        | eat         |
| sea                        | nda[sya]        | ora[sya]        | tora[sya]        | mora[sya]        | grind       |
| roma                       | nda[roma]       | ora[roma]       | tora[roma]       | mora[roma]       | bite        |
| buna                       | nda[buna]       | ora[buna]       | tora[buna]       | mora[buna]       | break       |
| biima                      | nda[biimă]      | ora[biimă]      | tora[biimă]      | mora[biimă]      | measure     |
| saamba                     | nda[saambă]     | ora[saambă]     | tora[saambă]     | mora[saambă]     | burn        |
| tereka                     | nda[terekă]     | ora[terekă]     | tora[terekă]     | mora[terekă]     | brew        |
| sukura                     | nda[sukură]     | ora[sukură]     | tora[sukură]     | mora[sukură]     | rub         |
| heetoka                    | nda[heetoká]    | ora[heetoká]    | tora[heetoká]    | mora[heetoká]    | remember    |
| taandora                   | nda[taandorá]   | ora[taandorá]   | tora[taandorá]   | mora[taandorá]   | tear        |
| karaanga                   | nda[karaangá]   | ora[karaangá]   | tora[karaangá]   | mora[karaangá]   | fry         |
| hagaacha                   | nda[hagaachá]   | ora[hagaachá]   | tora[hagaachá]   | mora[hagaachá]   | build       |
| taangaasa                  | nda[taangaása]  | ora[taangaása]  | tora[taangaása]  | mora[taangaása]  | announce    |
| siitaaka                   | nda[siitaáka]   | ora[siitaáka]   | tora[siitaáka]   | mora[siitaáka]   | accuse      |
| teremeka                   | nda[teremeká]   | ora[teremeká]   | tora[teremeká]   | mora[teremeká]   | be calm     |
| berekera                   | nda[berekerá]   | ora[berekerá]   | tora[berekerá]   | mora[berekerá]   | call        |
| turuujana                  | nda[turuungána] | ora[turuungána] | tora[turuungána] | mora[turuungána] | welcome     |
| koondokora                 | nda[koondokóra] | ora[koondokóra] | tora[koondokóra] | mora[koondokóra] | uncover     |
| kirigiita                  | nda[kirigiíta]  | ora[kirigiíta]  | tora[kirigiíta]  | mora[kirigiíta]  | scrub       |
| hootootera                 | nda[hootoótera] | ora[hootoótera] | tora[hootoótera] | mora[hootoótera] | reassure    |
| <b>vowel-initial verbs</b> |                 |                 |                  |                  |             |
| ia                         | nda[ya]         | ora[ya]         | tora[ya]         | mora[ya]         | go          |
| aga                        | nda[aga]        | ora[aga]        | tora[aga]        | mora[aga]        | weed        |
| igora                      | nda[igoră]      | ora[igoră]      | tora[igoră]      | mora[igoră]      | open        |
| oboha                      | ndo[obohá]      | oro[obohá]      | toro[obohá]      | moro[obohá]      | fear        |
| igoomba                    | nda[igoombá]    | ora[igoombá]    | tora[igoombá]    | mora[igoombá]    | desire      |
| anekera                    | nda[anekerá]    | ora[anekerá]    | tora[ánekerá]    | mora[anekerá]    | lay out     |
| araachana                  | nda[araachána]  | ora[araachána]  | tora[araachána]  | mora[araachána]  | cross, fold |

**PATTERN 5A: H on V1 and V4 (ALL PERSONS) (SPREAD)**

**Narrative Past** - e.g. "(and) I ate"

|                           |                 |                 |                 |                  |                  |                  |          |
|---------------------------|-----------------|-----------------|-----------------|------------------|------------------|------------------|----------|
| ha                        | ηká[ha]         | oká[ha]         | aká[ha]         | toká[ha]         | moká[ha]         | baká[ha]         | give     |
| rea                       | ηká[rya]        | oká[rya]        | aká[rya]        | toká[rya]        | moká[rya]        | baká[rya]        | eat      |
| sea                       | ηgá[sya]        | ogá[sya]        | agá[sya]        | togá[sya]        | mogá[sya]        | bagá[sya]        | grind    |
| roma                      | ηká[róma]       | oká[róma]       | aká[róma]       | toká[róma]       | moká[róma]       | baká[róma]       | bite     |
| buna                      | ηká[búna]       | oká[búna]       | aká[búna]       | toká[búna]       | moká[búna]       | baká[búna]       | break    |
| biima                     | ηká[bííma]      | oká[bííma]      | aká[bííma]      | toká[bííma]      | moká[bííma]      | baká[bííma]      | measure  |
| saamba                    | ηká[sáámba]     | oká[sáámba]     | aká[sáámba]     | toká[sáámba]     | moká[sáámba]     | baká[sáámba]     | burn     |
| tereka                    | ηgá[téréka]     | ogá[téréka]     | agá[téréka]     | togá[téréka]     | mogá[téréka]     | bagá[téréka]     | brew     |
| sukura                    | ηgá[súkúra]     | ogá[súkúra]     | agá[súkúra]     | togá[súkúra]     | mogá[súkúra]     | ba[gásúkúra]     | rub      |
| heetoka                   | ηká[héetoká]    | oká[héetoká]    | aká[héetoká]    | toká[héetoká]    | moká[héetoká]    | baká[héetoká]    | remember |
| taandora                  | ηgá[táándorá]   | ogá[táándorá]   | agá[táándorá]   | togá[táándorá]   | mogá[táándorá]   | bagá[táándorá]   | tear     |
| karaanga                  | ηgá[káraangá]   | ogá[káraangá]   | agá[káraangá]   | togá[káraangá]   | mogá[káraangá]   | bagá[káraangá]   | fry      |
| hagaacha                  | ηká[hágaachá]   | oká[hágaachá]   | aká[hágaachá]   | toká[hágaachá]   | moká[hágaachá]   | baká[hágaachá]   | build    |
| taangaasa                 | ηgá[táangaása]  | ogá[táangaása]  | agá[táangaása]  | togá[táangaása]  | mogá[táangaása]  | bagá[táangaása]  | announce |
| siitaaka                  | ngá[síítaaka]   | ogá[síítaaka]   | agá[síítaaka]   | togá[síítaaka]   | mogá[síítaaka]   | bagá[síítaaka]   | accuse   |
| teremeka                  | ηgá[téremeká]   | ogá[téremeká]   | agá[téremeká]   | togá[téremeká]   | mogá[téremeká]   | bagá[téremeká]   | be calm  |
| berekerá                  | ηká[bérékerá]   | oká[bérékerá]   | aká[bérékerá]   | toká[bérékerá]   | moká[bérékerá]   | baká[bérékerá]   | call     |
| turuunjana                | ηgá[túruunjana] | ogá[túruunjana] | agá[túruunjana] | togá[túruunjana] | mogá[túruunjana] | bagá[túruunjana] | welcome  |
| koondokora                | ηgá[kóóndokóra] | ogá[kóóndokóra] | agá[kóóndokóra] | togá[kóóndokóra] | mogá[kóóndokóra] | bagá[kóóndokóra] | uncover  |
| kirigiita                 | ηgá[kiríigiíta] | ogá[kiríigiíta] | agá[kiríigiíta] | togá[kiríigiíta] | mogá[kiríigiíta] | bagá[kiríigiíta] | scrub    |
| hootootera                | ηká[hóotoótéra] | oká[hóotoótéra] | aká[hóotoótéra] | toká[hóotoótéra] | moká[hóotoótéra] | baká[hóotoótéra] | reassure |
| <b>with object prefix</b> |                 |                 |                 |                  |                  |                  |          |
| ha                        | ηká[gáha]       | oká[gáha]       | aká[gáha]       | toká[gáha]       | moká[gáha]       | baká[gáha]       | give     |
| rea                       | ηká[gárya]      | oká[gárya]      | aká[gárya]      | toká[gárya]      | moká[gárya]      | baká[gárya]      | eat      |
| roma                      | ηká[gáróma]     | oká[gáróma]     | aká[gáróma]     | toká[gáróma]     | moká[gáróma]     | baká[gáróma]     | bite     |
| biima                     | ηká[gábiimá]    | oká[gábiimá]    | aká[gábiimá]    | toká[gábiimá]    | moká[gábiimá]    | baká[gábiimá]    | measure  |
| saamba                    | ηká[gásaambá]   | oká[gásaambá]   | aká[gásaambá]   | toká[gásaambá]   | moká[gásaambá]   | baká[gásaambá]   | burn     |
| tereka                    | ηká[gátéreká]   | oká[gátéreká]   | aká[gátéreká]   | toká[gátéreká]   | moká[gátéreká]   | baká[gátéreká]   | brew     |
| heetoka                   | ηká[gáheetóka]  | oká[gáheetóka]  | aká[gáheetóka]  | toká[gáheetóka]  | moká[gáheetóka]  | baká[gáheetóka]  | remember |
| karaanga                  | ηká[gákáraánga] | oká[gákáraánga] | aká[gákáraánga] | toká[gákáraánga] | moká[gákáraánga] | baká[gákáraánga] | fry      |



|                            |                  |                  |                  |                   |                   |                   |             |
|----------------------------|------------------|------------------|------------------|-------------------|-------------------|-------------------|-------------|
| berekera                   | ηká[gábérekérá]  | oká[gábérekérá]  | aká[gábérekérá]  | toká[gábérekérá]  | moká[gábérekérá]  | baká[gábérekérá]  | call        |
| turuunjana                 | ηká[gátúruúnána] | oká[gátúruúnána] | aká[gátúruúnána] | toká[gátúruúnána] | moká[gátúruúnána] | baká[gátúruúnána] | welcome     |
| <b>vowel-initial verbs</b> |                  |                  |                  |                   |                   |                   |             |
| ia                         | ηká[ya]          | oká[ya]          | aká[ya]          | toká[ya]          | moká[ya]          | baká[ya]          | go          |
| aga                        | ηká[ága]         | oká[ága]         | aká[ága]         | toká[ága]         | moká[ága]         | baká[ága]         | weed        |
| igora                      | ηká[ígóra]       | oká[ígóra]       | aká[ígóra]       | toká[ígóra]       | moká[ígóra]       | baká[ígóra]       | open        |
| oboha                      | ηkó[óbóha]       | okó[óbóha]       | akó[óbóha]       | tokó[óbóha]       | mokó[óbóha]       | bakó[óbóha]       | fear        |
| igoomba                    | ηká[ígoombá]     | oká[ígoombá]     | aká[ígoombá]     | toká[ígoombá]     | moká[ígoombá]     | baká[ígoombá]     | desire      |
| anekera                    | ηká[ánékerá]     | oká[ánékerá]     | aká[ánékerá]     | toká[ánékerá]     | moká[ánékerá]     | baká[ánékerá]     | lay out     |
| araachana                  | ηká[áraachána]   | oká[áraachána]   | aká[áraachána]   | toká[áraachána]   | moká[áraachána]   | baká[áraachána]   | cross, fold |

**Hodiernal Future Uncertain Possibility** - e.g. "Perhaps I will eat (today)"

|            |                  |                  |                  |                   |                   |                   |          |
|------------|------------------|------------------|------------------|-------------------|-------------------|-------------------|----------|
| ha         | ηkaa[há]         | okaa[há]         | akaa[há]         | tokaa[há]         | mokaa[há]         | bakaa[há]         | give     |
| rea        | ηkaa[ryá]        | okaa[ryá]        | akaa[ryá]        | tokaa[ryá]        | mokaa[ryá]        | bakaa[ryá]        | eat      |
| sea        | ηgaa[syá]        | ogaa[syá]        | agaa[syá]        | togaa[syá]        | mogaa[syá]        | bagaa[syá]        | grind    |
| roma       | ηkaa[róma]       | okaa[róma]       | akaa[róma]       | tokaa[róma]       | mokaa[róma]       | bakaa[róma]       | bite     |
| buna       | ηkaa[búna]       | okaa[búna]       | akaa[búna]       | tokaa[búna]       | mokaa[búna]       | bakaa[búna]       | break    |
| biima      | ηkaa[bíimá]      | okaa[bíimá]      | akaa[bíimá]      | tokaa[bíimá]      | mokaa[bíimá]      | bakaa[bíimá]      | measure  |
| saamba     | ηkaa[sáámbá]     | okaa[sáámbá]     | akaa[sáámbá]     | togaa[sáámbá]     | mogaa[sáámbá]     | bagaa[sáámbá]     | burn     |
| tereka     | ηgaa[térékă]     | ogaa[térékă]     | agaa[térékă]     | togaa[térékă]     | mogaa[térékă]     | bagaa[térékă]     | brew     |
| sukura     | ηgaa[súkúřă]     | ogaa[súkúřă]     | agaa[súkúřă]     | togaa[súkúřă]     | mogaa[súkúřă]     | bagaa[súkúřă]     | rub      |
| heetoka    | ηkaa[héétóká]    | okaa[héétóká]    | akaa[héétóká]    | tokaa[héétóká]    | mokaa[héétóká]    | bakaa[héétóká]    | remember |
| taandora   | ηgaa[táándórá]   | ogaa[táándórá]   | agaa[táándórá]   | togaa[táándórá]   | mogaa[táándórá]   | bagaa[táándórá]   | tear     |
| karaanga   | ηgaa[káraangá]   | ogaa[káraangá]   | agaa[káraangá]   | togaa[káraangá]   | mokaa[káraangá]   | bagaa[káraangá]   | fry      |
| hagaacha   | ηkaa[hágaachá]   | okaa[hágaachá]   | akaa[hágaachá]   | tokaa[hágaachá]   | mokaa[hágaachá]   | bakaa[hágaachá]   | build    |
| taangaasa  | ηgaa[táángáása]  | ogaa[táángáása]  | agaa[táángáása]  | togaa[táángáása]  | mogaa[táángáása]  | bagaa[táángáása]  | announce |
| siitaaka   | ηgaa[síitááka]   | ogaa[síitááka]   | agaa[síitááka]   | togaa[síitááka]   | mogaa[síitááka]   | bagaa[síitááka]   | accuse   |
| teremeka   | ηgaa[téremeká]   | ogaa[téremeká]   | agaa[téremeká]   | togaa[téremeká]   | mogaa[téremeká]   | bagaa[téremeká]   | be calm  |
| berekera   | ηkaa[bérékerá]   | okaa[bérékerá]   | akaa[bérékerá]   | tokaa[bérékerá]   | mokaa[bérékerá]   | bakaa[bérékerá]   | call     |
| turuunjana | ηgaa[túruunjána] | ogaa[túruunjána] | agaa[túruunjána] | togaa[túruunjána] | mogaa[túruunjána] | bagaa[túruunjána] | welcome  |
| koondokora | ηgaa[kóóndókóra] | ogaa[kóóndókóra] | agaa[kóóndókóra] | togaa[kóóndókóra] | mogaa[kóóndókóra] | bagaa[kóóndókóra] | uncover  |
| kirigiita  | ηgaa[kirígiita]  | ogaa[kirígiita]  | agaa[kirígiita]  | togaa[kirígiita]  | mogaa[kirígiita]  | bagaa[kirígiita]  | scrub    |

|            |                            |                    |                    |                     |                     |                     |             |
|------------|----------------------------|--------------------|--------------------|---------------------|---------------------|---------------------|-------------|
| hootootera | ηkaa[hóótóótéra]           | okaa[hóótóótéra]   | akaa[hóótóótéra]   | tokaa[hóótóótéra]   | mokaa[hóótóótéra]   | bakaa[hóótóótéra]   | reassure    |
|            | <b>with object prefix</b>  |                    |                    |                     |                     |                     |             |
| ha         | ηkaa[gáhá]                 | okaa[gáhá]         | akaa[gáhá]         | tokaa[gáhá]         | mokaa[gáhá]         | bakaa[gáhá]         | give        |
| rea        | ηkaa[gáryá]                | okaa[gáryá]        | akaa[gáryá]        | tokaa[gáryá]        | mokaa[gáryá]        | bakaa[gáryá]        | eat         |
| roma       | ηkaa[gáromă]               | okaa[gáromă]       | akaa[gáromă]       | tokaa[gáromă]       | mokaa[gáromă]       | bakaa[gáromă]       | bite        |
| biima      | ηkaa[gábiiimá]             | okaa[gábiiimá]     | akaa[gábiiimá]     | tokaa[gábiiimá]     | mokaa[gábiiimá]     | bakaa[gábiiimá]     | measure     |
| saamba     | ηkaa[gásaambá]             | okaa[gásaambá]     | akaa[gásaambá]     | tokaa[gásaambá]     | mokaa[gásaambá]     | bakaa[gásaambá]     | burn        |
| tereka     | ηkaa[gátéréká]             | okaa[gátéréká]     | akaa[gátéréká]     | tokaa[gátéréká]     | mokaa[gátéréká]     | bakaa[gátéréká]     | brew        |
| heetoka    | ηkaa[gáheetóka]            | okaa[gáheetóka]    | akaa[gáheetóka]    | tokaa[gáheetóka]    | mokaa[gáheetóka]    | bakaa[gáheetóka]    | remember    |
| karaanga   | ηkaa[gákáraánga]           | okaa[gákáraánga]   | akaa[gákáraánga]   | tokaa[gákáraánga]   | mokaa[gákáraánga]   | bakaa[gákáraánga]   | fry         |
| berekera   | ηkaa[gáberekéra]           | okaa[gáberekéra]   | akaa[gáberekéra]   | tokaa[gáberekéra]   | mokaa[gáberekéra]   | bakaa[gáberekéra]   | call        |
| turuunjana | ηkaa[gátúruúnjána]         | okaa[gátúruúnjána] | akaa[gátúruúnjána] | tokaa[gátúruúnjána] | mokaa[gátúruúnjána] | bakaa[gátúruúnjána] | welcome     |
| koondokora | ηkaa[gákoondókóra]         | okaa[gákoondókóra] | akaa[gákoondókóra] | tokaa[gákoondókóra] | mokaa[gákoondókóra] | bakaa[gákoondókóra] | uncover     |
|            | <b>vowel-initial verbs</b> |                    |                    |                     |                     |                     |             |
| ia         | ηkaa[yá]                   | okaa[yá]           | akaa[yá]           | tokaa[yá]           | mokaa[yá]           | bakaa[yá]           | go          |
| aga        | ηka[agá]                   | oka[agá]           | aka[agá]           | toka[agá]           | moka[agá]           | baka[agá]           | weed        |
| igora      | ηka[igórá]                 | oka[igórá]         | aka[igórá]         | toka[igórá]         | moka[igórá]         | baka[igórá]         | open        |
| oboha      | ηko[obóhá]                 | oko[obóhá]         | ako[obóhá]         | toko[obóhá]         | moko[obóhá]         | bako[obóhá]         | fear        |
| igoomba    | ηka[igóómbá]               | oka[igóómbá]       | aka[igóómbá]       | toka[igóómbá]       | moka[igóómbá]       | baka[igóómbá]       | desire      |
| anekera    | ηka[anékérá]               | oka[anékérá]       | aka[anékérá]       | toka[anékérá]       | moka[anékérá]       | baka[anékérá]       | lay out     |
| araachana  | ηka[arááchána]             | oka[arááchána]     | aka[arááchána]     | toka[arááchána]     | moka[arááchána]     | baka[arááchána]     | cross, fold |

**Remote Future** e.g. "I will eat"

|        |              |              |              |               |               |               |         |
|--------|--------------|--------------|--------------|---------------|---------------|---------------|---------|
| ha     | ndee[há]     | oree[há]     | aree[há]     | toree[há]     | moree[há]     | baree[há]     | give    |
| rea    | ndee[ryá]    | oree[ryá]    | aree[ryá]    | toree[ryá]    | moree[ryá]    | baree[ryá]    | eat     |
| sea    | ndee[syá]    | oree[syá]    | aree[syá]    | toree[syá]    | moree[syá]    | baree[syá]    | grind   |
| roma   | ndee[róma]   | oree[róma]   | aree[róma]   | toree[róma]   | moree[róma]   | baree[róma]   | bite    |
| buna   | ndii[búna]   | urii[búna]   | arii[búna]   | turii[búna]   | murii[búna]   | barii[búna]   | break   |
| biima  | ndii[bíímá]  | urii[bíímá]  | arii[bíímá]  | turii[bíímá]  | murii[bíímá]  | barii[bíímá]  | measure |
| saamba | ndee[sáámbá] | oree[sáámbá] | aree[sáámbá] | toree[sáámbá] | moree[sáámbá] | baree[sáámbá] | burn    |
| tereka | ndee[téréká] | oree[téréká] | aree[téréká] | toree[téréká] | moree[téréká] | baree[téréká] | brew    |
| sukura | ndii[súkúrá] | urii[súkúrá] | arii[súkúrá] | turii[súkúrá] | murii[súkúrá] | barii[súkúrá] | rub     |

|                            |                    |                    |                    |                     |                     |                     |          |
|----------------------------|--------------------|--------------------|--------------------|---------------------|---------------------|---------------------|----------|
| heetoka                    | ndee[héétóká]      | oree[héétóká]      | aree[héétóká]      | toree[héétóká]      | moree[héétóká]      | baree[héétóká]      | remember |
| taandora                   | ndee[táándórá]     | oree[táándórá]     | aree[táándórá]     | toree[táándórá]     | moree[táándórá]     | baree[táándórá]     | tear     |
| karaanga                   | ndee[káraangá]     | oree[káraangá]     | aree[káraangá]     | toree[káraangá]     | moree[káraangá]     | baree[káraangá]     | fry      |
| hagaacha                   | ndee[hágaachá]     | oree[hágaachá]     | aree[hágaachá]     | toree[hágaachá]     | moree[hágaachá]     | baree[hágaachá]     | build    |
| taangaasa                  | ndee[táángáása]    | oree[táángáása]    | aree[táángáása]    | toree[táángáása]    | moree[táángáása]    | baree[táángáása]    | announce |
| siitaaka                   | ndii[sítááka]      | orii[sítááka]      | arii[sítááka]      | turii[sítááka]      | murii[sítááka]      | barii[sítááka]      | accuse   |
| teremeka                   | ndee[térémeká]     | oree[térémeká]     | aree[térémeká]     | toree[térémeká]     | moree[térémeká]     | baree[térémeká]     | be calm  |
| berekera                   | ndee[bérékerá]     | oree[bérékerá]     | aree[bérékerá]     | toree[bérékerá]     | moree[bérékerá]     | baree[bérékerá]     | call     |
| turuujana                  | ndii[túruujána]    | urii[túruujána]    | arii[túruujána]    | turii[túruujána]    | murii[túruujána]    | barii[túruujána]    | welcome  |
| koondokora                 | ndee[kóondókóra]   | oree[kóondókóra]   | aree[kóondókóra]   | toree[kóondókóra]   | moree[kóondókóra]   | baree[kóondókóra]   | uncover  |
| kirigiita                  | ndii[kirígiíta]    | urii[kirígiíta]    | arii[kirígiíta]    | turii[kirígiíta]    | murii[kirígiíta]    | barii[kirígiíta]    | scrub    |
| hootootera                 | ndee[hóótóótéra]   | oree[hóótóótéra]   | aree[hóótóótéra]   | toree[hóótóótéra]   | moree[hóótóótéra]   | baree[hóótóótéra]   | reassure |
| <b>with object prefix</b>  |                    |                    |                    |                     |                     |                     |          |
| ha                         | ndee[gáha]         | oree[gáha]         | aree[gáha]         | toree[gáha]         | moree[gáha]         | baree[gáha]         | give     |
| ha                         | ndee[gáhá]         | oree[gáhá]         | aree[gáhá]         | toree[gáhá]         | moree[gáhá]         | baree[gáhá]         | give     |
| rea                        | ndee[gáryá]        | oree[gáryá]        | aree[gáryá]        | toree[gáryá]        | moree[gáryá]        | baree[gáryá]        | eat      |
| rea                        | ndee[gárya]        | oree[gárya]        | aree[gárya]        | toree[gárya]        | moree[gárya]        | baree[gárya]        | eat      |
| roma                       | ndee[gáromă]       | oree[gáromă]       | aree[gáromă]       | toree[gáromă]       | moree[gáromă]       | baree[gáromă]       | bite     |
| biima                      | ndee[gábiimá]      | oree[gábiimá]      | aree[gábiimá]      | toree[gábiimá]      | moree[gábiimá]      | baree[gábiimá]      | measure  |
| saamba                     | ndee[gásaambá]     | oree[gásaambá]     | aree[gásaambá]     | toree[gásaambá]     | moree[gásaambá]     | baree[gásaambá]     | burn     |
| tereka                     | ndee[gátéreká]     | oree[gátéreká]     | aree[gátéreká]     | toree[gátéreká]     | moree[gátéreká]     | baree[gátéreká]     | brew     |
| heetoka                    | ndee[gáheetóka]    | oree[gáheetóka]    | aree[gáheetóka]    | toree[gáheetóka]    | moree[gáheetóka]    | baree[gáheetóka]    | remember |
| karaanga                   | ndee[gákáraánga]   | oree[gákáraánga]   | aree[gákáraánga]   | toree[gákáraánga]   | moree[gákáraánga]   | baree[gákáraánga]   | fry      |
| berekera                   | ndee[gábérekéra]   | oree[gábérekéra]   | aree[gábérekéra]   | toree[gábérekéra]   | moree[gábérekéra]   | baree[gábérekéra]   | call     |
| turuujana                  | ndee[gátúruujána]  | oree[gátúruujána]  | aree[gátúruujána]  | toree[gátúruujána]  | moree[gátúruujána]  | baree[gátúruujána]  | welcome  |
| koondokora                 | ndee[gákoondókóra] | oree[gákoondókóra] | aree[gákoondókóra] | toree[gákoondókóra] | moree[gákoondókóra] | baree[gákoondókóra] | uncover  |
| <b>vowel-initial verbs</b> |                    |                    |                    |                     |                     |                     |          |
| ia                         | ndii[yá]           | urii[yá]           | arii[yá]           | turii[yá]           | murii[yá]           | barii[yá]           | go       |
| aga                        | nde[egá]           | ore[egá]           | are[egá]           | tore[egá]           | more[egá]           | bare[egá]           | weed     |
| igora                      | ndi[igórá]         | uri[igórá]         | ari[igórá]         | turi[igórá]         | muri[igórá]         | bari[igórá]         | open     |
| oboha                      | ndi[obóhá]         | uri[obóhá]         | ari[obóhá]         | turi[obóhá]         | muri[obóhá]         | bari[obóhá]         | fear     |
| igoomba                    | ndi[igóómbá]       | uri[igóómbá]       | ari[igóómbá]       | turi[igóómbá]       | muri[igóómbá]       | bari[igóómbá]       | desire   |
| anekera                    | nde[enékérá]       | ore[enékérá]       | are[enékérá]       | tore[enékérá]       | more[enékérá]       | bare[enékérá]       | lay out  |

|           |                |                |                |                 |                 |                 |             |
|-----------|----------------|----------------|----------------|-----------------|-----------------|-----------------|-------------|
| araachana | nde[erááchána] | ore[erááchána] | are[erááchána] | tore[erááchána] | more[erááchána] | bare[erááchána] | cross, fold |
|-----------|----------------|----------------|----------------|-----------------|-----------------|-----------------|-------------|

**PATTERN 5B: H on V1 and V4 (THIRD PERSON) (SPREAD)**

**Immediate Past Anterior - e.g. "I have just eaten"**

|             | 1st P. (SG) | 2nd P. (SG) | 3rd P. (SG)     | 1st P. (PL) | 2nd P. (PL) | 3rd P. (PL)      |          |
|-------------|-------------|-------------|-----------------|-------------|-------------|------------------|----------|
| ha          |             |             | aa[hááyé]       |             |             | baa[hááyé]       | give     |
| rea         |             |             | aa[rééyé]       |             |             | baa[rééyé]       | eat      |
| sea         |             |             | aa[sééyé]       |             |             | baa[sééyé]       | grind    |
| roma        |             |             | aa[róméré]      |             |             | baa[róméré]      | bite     |
| buna        |             |             | aa[búnirě]      |             |             | baa[búnirě]      | break    |
| biima       |             |             | aa[bíímíré]     |             |             | baa[bíímíré]     | measure  |
| saamba      |             |             | aa[sáámbéré]    |             |             | baa[sáámbéré]    | burn     |
| tereka      |             |             | aa[térékeré]    |             |             | baa[térékeré]    | brew     |
| sukura      |             |             | aa[súkuuyé]     |             |             | baa[súkuuyé]     | rub      |
| heetoka     |             |             | aa[héétókéré]   |             |             | baa[héétókéré]   | remember |
| taandora    |             |             | aa[táándóóye]   |             |             | baa[táándóóye]   | tear     |
| karaanga    |             |             | aa[káraangére]  |             |             | baa[káraangére]  | fry      |
| hagaacha    |             |             | aa[hágaachére]  |             |             | baa[hágaachére]  | build    |
| taangaasa   |             |             | aa[táángáásére] |             |             | baa[táángáásére] | announce |
| siitaaka    |             |             | aa[sítáákéré]   |             |             | baa[sítáákéré]   | accuse   |
| teremeka    |             |             | aa[térémekére]  |             |             | baa[térémekére]  | be calm  |
| berekera    |             |             | aa[bérékeéye]   |             |             | baa[bérékeéye]   | call     |
| turuunajana |             |             | aa[túruunáini]  |             |             | baa[túruunáini]  | welcome  |
| koondokora  |             |             | aa[kóóndókóóye] |             |             | baa[kóóndókóóye] | uncover  |
| kirigiita   |             |             | aa[kírígíítíre] |             |             | baa[kírígíítíre] | scrub    |
| hootootera  |             |             | aa[hóótóótééye] |             |             | baa[hóótóótééye] | reassure |

**with object prefix**

|     | 1st P. (SG) | 2nd P. (SG) | 3rd P. (SG) | 1st P. (PL) | 2nd P. (PL) | 3rd P. (PL)  |       |
|-----|-------------|-------------|-------------|-------------|-------------|--------------|-------|
| ha  |             |             | aa[gáhaayé] |             |             | baa[gáhaayé] | give  |
| rea |             |             | aa[gáreeyé] |             |             | baa[gáreeyé] | eat   |
| sea |             |             | aa[gáseeyé] |             |             | baa[gáseeyé] | grind |

|                            |                    |                     |             |
|----------------------------|--------------------|---------------------|-------------|
| roma                       | aa[gárómeré]       | baa[gárómeré]       | bite        |
| buna                       | aa[gábúniré]       | baa[gábúniré]       | break       |
| biima                      | aa[gábiimíre]      | baa[gábiimíre]      | measure     |
| saamba                     | aa[gásaambére]     | baa[gásaambére]     | burn        |
| tereka                     | aa[gátérékére]     | baa[gátérékére]     | brew        |
| sukura                     | aa[gásúkuúye]      | baa[gásúkuúye]      | rub         |
| heetoka                    | aa[gáheetókére]    | baa[gáheetókére]    | remember    |
| taandora                   | aa[gátaandóóye]    | baa[gátaandóóye]    | tear        |
| karaanga                   | aa[gákáraángére]   | baa[gákáraángére]   | fry         |
| hagaacha                   | aa[gáhágaáchére]   | baa[gáhágaáchére]   | build       |
| taangaasa                  | aa[gátaangáásére]  | baa[gátaangáásére]  | announce    |
| siitaaka                   | aa[gásiitáákére]   | baa[gásiitáákére]   | accuse      |
| berekera                   | aa[gábérékééye]    | baa[gábérékééye]    | call        |
| turuunjana                 | aa[gátúruúnjáini]  | baa[gátúruúnjáini]  | welcome     |
| koondokora                 | aa[gákoondókóóye]  | baa[gákoondókóóye]  | uncover     |
| kirigiita                  | aa[gákírigítíre]   | baa[gákírigítíre]   | scrub       |
| hootootera                 | aa[gáhootótótééye] | baa[gáhootótótééye] | reassure    |
| <b>vowel-initial verbs</b> |                    |                     |             |
| ia                         | a[agééyé]          | ba[agééyé]          | go          |
| aga                        | a[agéré]           | ba[agéré]           | weed        |
| igora                      | a[igóóyé]          | ba[igóóyé]          | open        |
| oboha                      | o[obóhére]         | bo[obóhére]         | fear        |
| igoomba                    | a[igóómbére]       | ba[igóómbére]       | desire      |
| anekera                    | a[anékééye]        | ba[anékééye]        | lay out     |
| araachana                  | a[aráácháini]      | ba[aráácháini]      | cross, fold |
| <b>with object prefix</b>  |                    |                     |             |
| aga                        | aa[gáágéré]        | baa[gáágéré]        | weed        |
| oboha                      | aa[góóbóhére]      | baa[góóbóhére]      | fear        |
| igora                      | aa[gáígóóye]       | baa[gáígóóye]       | open        |
| igoomba                    | aa[gáígóómbére]    | baa[gáígóómbére]    | desire      |
| anekera                    | aa[gáánékééye]     | baa[gáánékééye]     | lay out     |
| araachana                  | aa[gááráácháini]   | baa[gááráácháini]   | cross, fold |

**Hortatory Imperative (3) - e.g. "I am going/about to eat"**

|                            |                 |                  |             |
|----------------------------|-----------------|------------------|-------------|
| ha                         | ara[há]         | bara[há]         | give        |
| rea                        | ara[ryá]        | bara[ryá]        | eat         |
| sea                        | ara[syá]        | bara[syá]        | grind       |
| roma                       | ara[róma]       | bara[róma]       | bite        |
| buna                       | ara[búna]       | bara[búna]       | break       |
| biima                      | ara[bíímá]      | bara[bíímá]      | measure     |
| saamba                     | ara[sáámbá]     | bara[sáámbá]     | burn        |
| tereka                     | ara[térékã]     | bara[térékã]     | brew        |
| sukura                     | ara[súkúrá]     | bara[súkúrá]     | rub         |
| heetoka                    | ara[héétóká]    | bara[héétóká]    | remember    |
| taandora                   | ara[táándórá]   | bara[táándórá]   | tear        |
| karaanga                   | ara[káraangá]   | bara[káraangá]   | fry         |
| hagaacha                   | ara[hágaachá]   | bara[hágaachá]   | build       |
| taangaasa                  | ara[táángáása]  | bara[táángáása]  | announce    |
| siitaaka                   | ara[síítááka]   | bara[síítááka]   | accuse      |
| teremeka                   | ara[téremeká]   | bara[téremeká]   | be calm     |
| bekera                     | ara[béékerá]    | bara[béékerá]    | call        |
| turuujana                  | ara[túruungána] | bara[túruungána] | welcome     |
| koondokora                 | ara[kóóndókóra] | bara[kóóndókóra] | uncover     |
| kirigiita                  | ara[kírígííta]  | bara[kírígííta]  | scrub       |
| hootootera                 | ara[hóótóótéra] | bara[hóótóótéra] | reassure    |
| <b>vowel-initial verbs</b> |                 |                  |             |
| ia                         | ara[yá]         | bara[yá]         | go          |
| aga                        | ara[ága]        | bara[ága]        | weed        |
| igora                      | ara[ígórã]      | bara[ígórã]      | open        |
| oboha                      | ara[óbóhã]      | bara[óbóhã]      | fear        |
| igoomba                    | ara[ígoombá]    | bara[ígoombá]    | desire      |
| anekera                    | ara[ánékerá]    | bara[ánékerá]    | lay out     |
| araachana                  | ara[áraachána]  | bara[áraachána]  | cross, fold |

**PATTERN 6: No H Tone****Hortatory Imperative (1)** - e.g. "Let them eat."

|                           |                 |                 |                 |                  |                  |                  |          |
|---------------------------|-----------------|-----------------|-----------------|------------------|------------------|------------------|----------|
| ha                        | ntá[ha]         | otá[ha]         | atá[ha]         | totá[ha]         | motá[ha]         | batá[ha]         | give     |
| rea                       | ntá[rya]        | otá[rya]        | atá[rya]        | totá[rya]        | motá[rya]        | batá[rya]        | eat      |
| sea                       | ntá[sya]        | otá[sya]        | atá[sya]        | totá[sya]        | motá[sya]        | batá[sya]        | grind    |
| roma                      | ntá[romà]       | otá[romà]       | atá[romà]       | totá[romà]       | motá[romà]       | batá[romà]       | bite     |
| buna                      | ntá[bunà]       | otá[bunà]       | atá[bunà]       | totá[bunà]       | motá[bunà]       | batá[bunà]       | break    |
| biima                     | ntá[biimà]      | otá[biimà]      | atá[biimà]      | totá[biimà]      | motá[biimà]      | batá[biimà]      | measure  |
| saamba                    | ntá[saambà]     | otá[saambà]     | atá[saambà]     | totá[saambà]     | motá[saambà]     | batá[saambà]     | burn     |
| tereka                    | ntá[terekà]     | otá[terekà]     | atá[terekà]     | totá[terekà]     | motá[terekà]     | batá[terekà]     | brew     |
| sukura                    | ntá[sukurà]     | otá[sukurà]     | atá[sukurà]     | totá[sukurà]     | motá[sukurà]     | batá[sukurà]     | rub      |
| heetoka                   | ntá[heetokà]    | otá[heetokà]    | atá[heetokà]    | totá[heetokà]    | motá[heetokà]    | batá[heetokà]    | remember |
| taandora                  | ntá[taandorà]   | otá[taandorà]   | atá[taandorà]   | totá[taandorà]   | motá[taandorà]   | batá[taandorà]   | tear     |
| karaanga                  | ntá[karaangà]   | otá[karaangà]   | atá[karaangà]   | totá[karaangà]   | motá[karaangà]   | batá[karaangà]   | fry      |
| hagaacha                  | ntá[hagaachà]   | otá[hagaachà]   | atá[hagaachà]   | totá[hagaachà]   | motá[hagaachà]   | batá[hagaachà]   | build    |
| taangaasa                 | ntá[taangaasà]  | otá[taangaasà]  | atá[taangaasà]  | totá[taangaasà]  | motá[taangaasà]  | batá[taangaasà]  | announce |
| siitaaka                  | ntá[siitaakà]   | otá[siitaakà]   | atá[siitaakà]   | totá[siitaakà]   | motá[siitaakà]   | batá[siitaakà]   | accuse   |
| teremeka                  | ntá[teremekà]   | otá[teremekà]   | atá[teremekà]   | totá[teremekà]   | motá[teremekà]   | batá[teremekà]   | be calm  |
| berekera                  | ntá[berekerà]   | otá[berekerà]   | atá[berekerà]   | totá[berekerà]   | motá[berekerà]   | batá[berekerà]   | call     |
| turuunana                 | ntá[turuunànà]  | otá[turuunànà]  | atá[turuunànà]  | totá[turuunànà]  | motá[turuunànà]  | batá[turuunànà]  | welcome  |
| koondokora                | ntá[koondokorà] | otá[koondokorà] | atá[koondokorà] | totá[koondokorà] | motá[koondokorà] | batá[koondokorà] | uncover  |
| kirigiita                 | ntá[kirigiità]  | otá[kirigiità]  | atá[kirigiità]  | totá[kirigiità]  | motá[kirigiità]  | batá[kirigiità]  | scrub    |
| hootootera                | ntá[hootooterà] | otá[hootooterà] | atá[hootooterà] | totá[hootooterà] | motá[hootooterà] | batá[hootooterà] | reassure |
| <b>with object prefix</b> |                 |                 |                 |                  |                  |                  |          |
| ha                        | ntá[gahà]       | otá[gahà]       | atá[gahà]       | totá[gahà]       | motá[gahà]       | batá[gahà]       | give     |
| rea                       | ntá[garyà]      | otá[garyà]      | atá[garyà]      | totá[garyà]      | motá[garyà]      | batá[garyà]      | eat      |
| roma                      | ntá[garomà]     | otá[garomà]     | atá[garomà]     | totá[garomà]     | motá[garomà]     | batá[garomà]     | bite     |
| biima                     | ntá[gabiimà]    | otá[bibiimà]    | atá[bibiimà]    | totá[bibiimà]    | motá[bibiimà]    | batá[bibiimà]    | measure  |
| saamba                    | ntá[gasaambà]   | otá[gasaambà]   | atá[gasaambà]   | totá[gasaambà]   | motá[gasaambà]   | batá[gasaambà]   | open     |
| tereka                    | ntá[gaterekà]   | otá[gaterekà]   | atá[gaterekà]   | totá[gaterekà]   | motá[gaterekà]   | batá[gaterekà]   | brew     |
| heetoka                   | ntá[gaheetokà]  | otá[gaheetokà]  | atá[gaheetokà]  | totá[gaheetokà]  | motá[gaheetokà]  | batá[gaheetokà]  | remember |
| karaanga                  | ntá[gakaraangà] | otá[gakaraangà] | atá[gakaraangà] | totá[gakaraangà] | motá[gakaraangà] | batá[gakaraangà] | fry      |
| berekera                  | ntá[gaberekerà] | otá[gaberekerà] | atá[gaberekerà] | totá[gaberekerà] | motá[gaberekerà] | batá[gaberekerà] | be calm  |

|                            |                   |                   |                   |                    |                    |                    |             |
|----------------------------|-------------------|-------------------|-------------------|--------------------|--------------------|--------------------|-------------|
| turuunana                  | ntá[gaturuunà]    | otá[gaturuunana]  | atá[gaturuunana]  | totá[gaturuunana]  | motá[gaturuunana]  | batá[gaturuunana]  | welcome     |
| koondokora                 | ntá[gakoondokorà] | otá[gakoondokora] | atá[gakoondokora] | totá[gakoondokora] | motá[gakoondokora] | batá[gakoondokora] | uncover     |
| <b>vowel-initial verbs</b> |                   |                   |                   |                    |                    |                    |             |
| ia                         | ntá[ya]           | otá[ya]           | atá[ya]           | totá[ya]           | motá[ya]           | batá[ya]           | go          |
| aga                        | ntá[ága]          | otá[ága]          | atá[ága]          | totá[ága]          | motá[ága]          | batá[ága]          | weed        |
| igora                      | ntá[ígorà]        | otá[ígorà]        | atá[ígorà]        | totá[ígorà]        | motá[ígorà]        | batá[ígorà]        | open        |
| oboha                      | ntó[óbohà]        | otó[óbohà]        | ató[óbohà]        | totó[óbohà]        | motó[óbohà]        | bató[óbohà]        | fear        |
| igoomba                    | ntá[ígoombà]      | otá[ígoombà]      | atá[ígoombà]      | totá[ígoombà]      | motá[ígoombà]      | batá[ígoombà]      | desire      |
| anekera                    | ntá[ánekerà]      | otá[ánekerà]      | atá[ánekerà]      | totá[ánekerà]      | motá[ánekerà]      | batá[ánekerà]      | lay out     |
| araachana                  | ntá[áraachanà]    | otá[áraachanà]    | atá[áraachanà]    | totá[áraachanà]    | motá[áraachanà]    | batá[áraachanà]    | cross, fold |



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