

TONES IN OLD MOSHI (CHAGA)

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Several general features of the tonal system of the Old Moshi dialect of the Central Kilimanjaro group of Chaga dialects are treated in this paper. At the phonological level only two tones, high and low, need to be posited. Tone permutations involving down-stepped high tones are presented as well as examples of tone shift, a general phenomenon attested in other Bantu languages of East Africa. Finally, the tonal behavior of nouns, other elements of the NP, verbs, and particles, is discussed.

1. Introduction

Old Moshi (OM), or *kimoci* as its speakers call it, is one of the Central Kilimanjaro group of Chaga dialects.¹ All the Chaga dialects have lexical and grammatical tone, as have most of the surrounding Bantu languages (Daßida, Pare, Kamba, etc.).

Phonological tones in OM correspond fairly closely to what can be reconstructed as Proto-Bantu (PB) tones, with a few exceptions, but the rules for surface realisation are quite complicated, as is the case with many Bantu languages in East Africa. This study is about the most general of these rules only. A complete description and analysis of the tone system of the language would be a formidable task indeed and one well beyond the scope of this paper.² It follows from this that the analysis presented here is explicitly valid *only for the environments described*. Other environments would, in most cases, require supplementary rules.

¹See Nurse and Philippson [forthcoming], where we have divided them into four major groups — West Kilimanjaro (Meru, Siha to Kibosho), Central Kilimanjaro (Uru to Vunjo), Rombo, and Gweno.

²There exists a very complete grammar of OM, which however makes little reference to tone: Raum [1964]; also an article on phonetic tone in Machame: Sharp [1953].

At the phonological level in OM there are only two tones, high (H) and low (L). A phonological syllable may be defined as a segment necessarily bearing one of these two tones, so that there will be as many tones as syllables at this level. Phonological H is marked /^h/, phonological L /^l/. Phonological strings are enclosed by diagonal lines, so /XYZ/. At the phonetic level, a high tone is marked [ˈ], a low is not marked; in addition, there are also downstepped high, marked [ˈ], rising [ˊ], and falling [ˋ] tones.

A vexing question is that of downstepped high tones, which are quite frequent at the phonetic level. They can be discussed under three headings:

a. Clear and predictable downstep linked to vowel coalescence: the vowel coalescence rules in OM would justify a study in themselves and only their consequences for tonal analysis will be given here. When two vowels coalesce, as for instance between subject and tense markers in verbs, the resultant phonologically long vowel³ will carry an *underlying complex* tone (to be distinguished from surface rising or falling tones), which can be of four types: H + H, L + L, L + H, H + L. The first two are identical to single H or L respectively and behave accordingly. The last two, which both contain a combination of H and L in a different order, will be realised as a *single H* tone on either the syllable itself or the next one, according to the tone shift rules. In the case of an underlying complex tone of the L + H type, the L part will be realised as a downstep relative to any high preceding, e.g.

- (1) /ní wà-á-hùR-á/ →
 /ní wǎhùRá/ →
 [ŋwáhùRǎ]
 'they bought (today)'

The downstepped H on [-hùR-] represents both the L and H parts of the phonologically complex tone on /wǎ-/.

Again it is impossible to go deeper into the rules of vowel coalescence in this paper, but it should be emphasised that the coalescence of any two

³In contemporary OM, surface length is not phonemic, but Raum's description seems to imply that it was a century ago.

vowels does not automatically result in a *phonologically* long vowel bearing two tone segments, e.g.,

(2) /-lí-à#/ → /-lyá#/ → [-lyǎ#] '(to) eat'

in contrast to

(3) /á-á-mè-lí-à wù-úkì/ →
 /ámèlyá wúkì/ →
 [ámélya wúkí...]
 'he has eaten honey'

Had we considered the result of the coalescence of /lí-/ and /à/ to be a phonologically long vowel, the result would have been */-lyá/ and the example */ámèlyá wúkì/ > *[ámélyá wúkí...], which is wrong. Note that the downstep H on [-kí] again represents both H and L segments of the complex tone on /wú-/.⁴

In summary, phonologically long vowels *can* arise from the following cases of coalescence:

- (4) a. /a + e/ → /e:/, e.g.,
 /wá-è-ké-kà-à pfó/ →
 /wèkékàà pfó/ →
 [βékékáá pfǒ]
 'they don't usually stay/live'
- b. /a + o/ → /o:/, e.g.,
 /wá-òsé/ → /wòsé/ → [wósě] 'all (class 2)'
- c. /u + a/ → /o:/, e.g.,
 /-wú-àh-w-à/ → /-wòhò/ → [...wóho] 'be killed'
- d. /u + e/ → /o:/, e.g.,
 /sú-è/ → /sò/ → [só...] 'we'

Phonologically long vowels are also to be found before nasal clusters in at least one case

(5) /wá-:ndù/ → /wāndù/ → [wāndu]⁴ 'people'

⁴For the H on the nominal prefix, see 3.1.2. below.

to which the following can probably be equated

(6) /wá:-ná/ → /wānà/ → [wāna] 'four (cl. 2)'⁵

b. Predictable, but not at all clear, is the downstep associated with certain morphemes, e.g., the negative copular /cí/. Any H directly following /cí/ will be downstepped, e.g.,

(7) /cí N-búru pfó/ →
 [ci mbúru¹ pǒ] and not
 *[ci mbúru pǒ]
 'it isn't a goat'
 /cí wá-hènu pfó/ → [ci wáhènu¹ pǒ]⁶

We haven't investigated this behaviour, nor have we an explanation for it. Further investigation may show that this downstep is a lexical feature of the morphemes in question (cf. the third underlying tone in Kikuyu) or that it is morphosyntactic.

c. Unpredictable downstep, which sometimes appears in certain verbal forms, but not regularly, even with the same speaker. We have chosen to ignore such cases at present and have selected all our examples from unambiguous utterances.

The OM phonemic inventory comprises /i,e,a,o,u,p,t,k,h,b,d,s,ʃ,pf,ts,c/ (affricate, not stop), w (with two allophones, [β] before l,e, and [w] before a,o,u), y,l,r (trill), R (retroflex), m,n,ny,ŋ/.

2. Tone Shift

OM, like other Bantu languages in East Africa, has a tone shift, which means that PB tones are realised on the syllable immediately following the one for which they are posited in PB. In other words, the phonetic tone on any syllable will always to some extent depend on the underlying tone of the previous syllable. Cf. the following simple example

(8) /m-Rì l-à wà-súngù cí l-mú nà l-à wà-cákà pfó/

⁵For the lowering of /:ná/, see 3.3. below.

⁶See note 4.

which will be heard as

[mRi ya wasungú ci ímu ná ya wacaká pfǒ]

'villages of Europeans are not same as (those) of Chagas not.'

The only exception to this rule is to be found in connection with phonologically long vowels. As mentioned above, H + H and L + L behave exactly like single H and L respectively, e.g.,

- (9) /á-á-hùR-à pfó/ →
 /áhùRà pfó/ →
 [ahúRa pfǒ]
 'he did not buy (today)'

L + H gives a H on the following syllable, which will then be downstepped if immediately preceded by another H. Cf. the example given above as (1) (/ní wà-á-hùR-á/ → /ní wáhùRá/ → [ŋwáhùRǎ]). H + L gives a H which *does not* shift and remains on the syllable itself, the following syllable will then bear a low tone:

- (10) /tsí-:ná/ → /tsínà/ → [tsína] 'four (cl. 10)'
 /à-á-mè-wú-àh-w-à/ → /ámèwòhò/ → [améwòho] 'he has been killed'

The central fact of the shift raises the question of what happens sentence-initially and -finally.

2.2. Sentence initial position

2.2.1. ní + verb. Verbs naturally often occur in sentence-initial position and many are preceded by /ní/⁷ which is realised as [nyí] or as a variety of assimilated nasals, or as total assimilation to the following consonant, thereby lengthening it, or as zero. Examples follow:

- (11) a. /ní/ → [nyí]
 /ní ò-è-ké-àmb-ù-y-à m-ká ù-àkó/ →
 /ní òkéàmbùyà m̀ká òkó/ →
 [nyókéámbuya mka ókó]
 'are you looking at my wife (by any chance)?'

⁷See 3.4.2.

- b. /ní/ → [n]
 /ní à-kúnd-ì wà-súngù ì-nú/ →
 [nákundí wasungú mnũ]
 'he likes Europeans a lot'
- c. /ní/ → [CC]
 /ní lù-lé-hùR-à mà-Rùhú/ →
 [lúléhúRa məRuhú]
 'we bought bananas (before today)'
- d. /ní/ → [∅]
 /ní wà-è-ké-hènd-à/ →
 /ní wəkéhèndà/ →
 [βékéhènda]
 'they usually go'

2.2.2. ní + X + verb. The preceding paragraph implies that /ní/ is an integral part of many verb forms. Nevertheless, it need not necessarily precede the verb immediately, but may often appear in sentence-initial position separated by a number of other items from the verb. The phonetics are the same as 2.2.1. Examples:

- (12) a. /ní kíkí ò-á-mè-hùR-á/ →
 /ní kíkí òmèhùRá/ →
 [ŋkíkí ómhuRá]
 'what have you bought?' or
- b. /ní ò-á-mè-hùR-á kíkí/ → [nómhuRa kíkí]
- c. /ní njòfù tsì-á-hènd-á ì::ndà-ìní/ →
 /ní njòfù tsáhèndá ìndèní/ →
 [nyí njófu tsahénda ìndenyí]
 'it is that the elephants went to the garden (today)'

2.2.3. ní + complement. Another variant of this occurs in the various phonetic shapes of the answer to questions such as 'Who are they?'

- (13) a. [nyí wácaKâ]
 b. [ŋwácaKâ] all from /ní wà-cákà/
 c. [wwácaKâ] 'they are Chagas'
 d. [wácaKâ]

where the underlying form contains /ní/, the copular equivalent to 'be'. There is much to be said about whether this /ní/ is the same as the stabiliser /ní/ which precedes verbs, but in OM at least, they are identical in their tonal and segmental forms.

2.2.4. ní + person/class + [prefix + adj. stem]. Sentences such as

- (14) a. [wá watutú] 'they (are) small'
 b. [nji mtutú] 'I (am) small'
 c. [ná mtutú] 'he (is) small'
 d. [mfú mlejí] 'it (is) tall (tree, cl. 3)'

contain an initial phonetic high tone, deriving from underlying /ní/, which is visible in the last two examples. The corresponding negative forms show an initial phonetic low tone, as negatives in OM do not take initial /ní/, but the person marker is now phonologically high, as can be seen in

- (15) a. [wa wátutu pfó] 'they (are) small not'
 b. [nji mítutu pfó] 'I (am) small not'
 c. [a mítutu pfó] 'he (is) small not'
 d. [fu mlejí pfó] 'it (is) tall not'

It seems that these forms are actually shortened (*not* coalesced) forms of the copular /-i-/ (cf. Raum [1964:111-15]: in other dialects this *i* is realised as *li*). The full forms, /wáì/, etc., are to be heard in the relative, e.g.,

- (16) /í-wò wá-ì wá-fó-ì.../ →
 [íwó wáí wafóy...]
 'those that are many...'

The difference between positive and negative can be explained as follows:

- (17) a. /ní à(ì) ñ-tútú/ → [ná mtutú]
 b. /á(í) ñ-tútú pfó/ → [a mítutu pfó]

Compare the behaviour of the present tense A2 which is extremely similar (cf. 3.5. below).

2.2.5. Nouns in isolation. All nouns in isolation (citation forms) are preceded by a phonologically high tone. This is realised on the prefix, e.g.,

- (18) a. Class 6 /' + mà-déndé/ → [mádendé] 'legs'
 b. Class 7 /' + kî-nùngú/ → [kînungú] 'pot'
 c. Class 8 /' + ðì-lèhé/ → [ðìlehé] 'birds'

In classes 9/10, the class prefix is either a non-syllabic nasal as in /N-kúkú/ → [ŋgúkú] 'chicken', or zero, as in /N-tùmó/ → [túmó] 'market'. The prefix for class 5 is /i/, which never appears in some nouns and only optionally in others. So in these three classes and occasionally in others where the initial syllable is not tone bearing, the first syllable of the stem will carry a high tone and any following H will normally be downstepped, as in

- (19) a. /' + ñ-kúkú/ → [ŋgúkú] 'chicken'
 b. /' + (ì)-rìná/ → [ríná] 'hole'

The downstep in (19a) can be explained here by the lowering influence of the L class prefix, which is not realised segmentally.

2.2.6. Elsewhere. All other sentence-initial syllables will be phonetically low.

2.3. Sentence-final position. The final phonetic syllable will have to bear the tone transferred to it from the previous syllable plus its own tone. The following rules operate:

- (22) a. /' + CV#/ → [CV#], e.g.,
 /hùR-á mà-ñ-kúkú/ →
 [huRa máŋgúkú]
 'buy big chickens'
- b. /' + CV#/ → [CV#], e.g.,
 /hùR-á mà-Rùhú/ →
 [huRa máRuhú]
 'buy bananas'
- c. /' + CV#/ → [CV#], e.g.,
 /hùR-á mà-kúmbí/ →
 [huRa mákumbí]
 'buy hoes'

- d. /' + CV#/ → [CV#], e.g.,
 /hùR-á má-ngùwè/ →
 [huRa mángúβe]⁸
 'buy big pigs'

4. Adjustments at positions other than sentence boundary. When a verb form with /ní/, realised as any of the phonetic forms given in 2.2.1. above, is preceded in a sentence by a phonological H, this H very often does not shift entirely but remains on its own syllable in the form of a rise, followed by a short pause, e.g.,

- 23) /ì-hèhò lí-ngí lì-tùtù ní-lì-á-fúnj-ìk-á/ →
 /ìhèhò língì lìtùtù nílyǎfúnjìká/⁹ →
 [ìheho língí litutù lyáfúnjikǎ]
 'another small tooth is broken'

This behaviour which, although very frequent, is apparently optional, can be attributed to a reluctance to have three underlying tones represented on one syllable.

Syntactic Categories

The afordiscussed are general phenomena, whereas now we consider what happens in individual sentence constituents-- nouns, other elements of the P, verbs, and particles.

1. Nouns. Given that there are only two phonological tones, and that each syllable has to be tone bearing, there are theoretically two possible patterns for mono-syllables, four for disyllables, etc., e.g.,

24) Monosyllables

- | | | |
|-------------------|-------------|---|
| a. /m-Rì/ → [mRì] | 'homestead' | L |
| b. /m-dí/ → [mǎí] | 'medicine' | H |

⁸See note 4.

⁹For this change of tone in the verb stem, see 3.4.7. below.

(25) Disyllables

a. /m̄-hènù/ → [m̄hénu]	'stranger' ¹⁰	LL
b. /kì-nùngú/ → [kínungú]	'pot'	LH
c. /ò-wókò/ → [ówokò]	'arm'	HL
d. /ò-déndé/ → [ódendé]	'leg'	HH

We will not deal here with nominal stems of three or more syllables.

3.1.1. Nominal prefixes. With the exception of 3.1.2. nominal prefixes are low for all classes and are as follows: classes 1,3,4 /m̄-/ , class 2 /wà-/ , class 5 /lì-/ , class 6 /mà-/ , class 7 /kì-/ , class 8 /ʃì-/ , classes 9,10 /ń-/ , class 11 /ò-/ , (class 12 /kà-/), class 14 /wù-/ , classes 15,17 /kù-/ , class 16 /hà-/.

3.1.2. Mhenu-rule. Many noun stems have only low tones and in all such cases a high phonetic tone appears on the stem initial syllable, indicating that the phonological tone from the prefix must be high. This we have called the *mhenu* rule as it first came to our attention when *mhenu* 'stranger' was said in isolation. Expecting *[m̄hénu], following 3.1.1., we found instead:

(26) a. [m̄hénu]	from /' + m̄-hènù/,	similarly
b. [m̄Rì]	from /' + m̄-Rì/	'homestead'

This rule applies apparently to nouns of any syllable length, provided only all the stem tones are low, and to all noun classes. But, and it is a rather large but, it only applies in certain environments--nouns in isolation, nouns in initial position as subject immediately followed by a verb, and nouns in any function immediately followed by demonstratives, /-òsé/ 'all', and by numerals bigger than six, which latter are best treated as nouns as they show no form of agreement with the antecedent noun. Nouns in citation form have already been illustrated, examples of some of the others are:

(27) a. Noun + demonstrative (as subject)

/wá-hènù wáiyá wà-á-mè-c-à/ →
/wáhènù wáiyà wámècà/ →
[wahénu waiyá waméca] ¹¹
'those strangers have come'

¹⁰See note 4.

¹¹For the change of tone of /wáiyá/, see 3.3. below.

b. Noun + demonstrative (as object)

/ní njì-kúnd-ì wá-hènú wá-lyá/ →

[njíkuḍí wahénu walyá]

'I like those strangers'

c. Noun + nominal numeral

/wá-hènú ì-kúmì wà-á-mè-c-à/ →

[wahénu ikumí waméca]

'ten strangers have come'

here is a set of environments where the rule does not work--when the noun is followed by numerals from one to six ("real numerals"), possessives, adjectives, verbs in relative form¹², genitive particle (-a), locative suffix (-ini), -ngi 'other', and subject nominals deriving from the verbs of embedded sentences (e.g., 'to tell the truth is good'). Examples:

28) a. Numerals

/ní-njì-fc-ì ì-hènú ù-mú tùpù/ →

[njííííí mhenú umu túpu]

'I know only one stranger'

b. Possessive

/ì-Rì ì-àdú ní-ì ì-(ì)cá/ →

[mRi yadu^(c) ní mcá]

'our homesteads are nice'

c. Adjective

/wà-hènú wà-fwù wà-á-mè-c-à/ →

[wahenu waiwú waméca]

'black strangers have come'

d. Verbs in relative form

/ní-à-fc-ì wà-hènú wá-fó-ì ì-nú/ →

[náííííí wahenu wafóy mnú]

'he knows strangers (who are) very many'

¹²Due to the rather large number of inconsistencies in our data, it might be more correct to say that the *mhenú*-rule seems to be optional in the case of relatives.

e. Genitive particles

/ní-njì-kúnd-l Ñ-yàmà l-à Ñ-kúkú/ →
 [njíkuḍf nyama ya ngukú]
 'I like chicken meat'

f. Locative

/m-hènù ní-à-lé-pf-l-à m-èdà-lní fú-ḡán-l/ →
 [mhénu nálepfa mēdenyi fúḡány]
 'the stranger died in the big river'

g. -ngi 'other'

/ì-hèhò lí-ngí l-l-tùtù ní-lì-á-fúnj-lk-á/ →
 [ìheho língí lītutù lyáfúnjiká] (cf. 2.4.)
 'another small tooth is broken'

h. Nouns deriving from embedded verbs

/ì-hùR-à mà-Rùhú ní nà-lcá/ →
 [ìhuRa maRuhú nécá]
 'to buy bananas is good'

cf. in isolation [fúRa] from /f-hùR-à/ 'to buy', class 5

3.1.3. Irregular nouns. A few disyllabic noun stems behave irregularly. Most of these are probably loans, and they could be fitted into the general pattern by postulating a complex tone: e.g., [fóndí] 'sheep' which always keeps a H on [-fónd-], whatever the context, and does not follow the mhenú rule, could be explained as /f-fóndí/. In the same way, the word [kítê] 'dog' is always [...kíté...] in context, e.g.,

(29) [kíté kītutù kyákápò]
 'a little dog was beaten (today)!

The underlying form could be written */kì-tê/ although there is no justification for a complex tone in this position. Note that while in OM the stem is /-tê/ (sg. kítê, pl. jítê), in other Chaga dialects /-kítê/ is the stem (generally in class 5/6).

A more difficult case is posed by [fóRê] or [fóRê] 'egg' for which one would have to posit the form */f-fóRê/. It is probably best to consider this an irregular loanword.

.2. Adjectives. Adjectives behave as nouns in that they can all have the one patterns described above and they take the same set of prefixes (except n cl. 9/10 where the prefix can be either /N-/ or /njì-/).

- 30) a. /ní-njì-wód-è N-gùò njì-tùtù/ →
 [njíwodé nguo njítutù]
 'I have small/few clothes'
- b. /ní-njì-wód-è N-gùò njì-ííí/ →
 [njíwodé nguo njíííí]
 'I have white clothes'
- c. /ní-njì-wód-è N-gùò njì-íwù/ →
 [njíwodé nguo njíiwù]
 'I have black clothes'
- d. /ní-njì-wód-è N-gùò njì-àngù/ →
 [njíwodé nguo njíàngù]
 'I have light clothes'

There are certain words which are translated by adjectives in a European language, or in Swahili, but they behave in all ways as verbs in a relative clause, which is indicated both by the shape of their prefixes and by their tonal behaviour. Such words are /-ǵán\ / 'big', /-fó\ / 'many', etc.

3.3. Other elements of NP. Besides adjectives with nominal prefixes, there is another set of stems which follow the noun in the NP but do not behave like adjectives as they have a distinctive set of prefixes. These are: numerals from 1 to 6, /-ose/ 'all', /-ngí/ 'other', /-lyá/ 'that', possessives, interrogatives like /-inga/ 'how many'. They are prefixed by class 1 /j-/ , class 2 /wá-/ , class 3 /fú-/ , classes 4,9 /l-/ , class 5 /lí-/ , classes 6,16 /há-/ , class 7 /kí-/ , class 8 /jí-/ , class 10 /tsí-/ , class 11 /lú-/ , class 14 /wú-/ , classes 15,17 /kú-/ . So classes 1,4,9 have L prefixes, all the others are H. These stems can be classified according to their tonal behaviour as follows: /-RándàRù/ 'six' always has an underlying H on the first stem syllable whatever the tone of the prefix, e.g.,

- (11) a. cl.2 /wá:-ndú wá-RándàRù/ → [wandu waRándàRu] 'six people'
 b. cl.4 /m-èdà ì-RándàRù/ → [meda lRándàRu] 'six rivers'

The other numerals (/ -mú/ 'one', / -wí/ 'two', / -RÁRÙ/ 'three', / -:ná/ 'four', / -tánù/ 'five'), the demonstrative / -lyá/ 'that', and /ngí/ 'other exhibit tonal polarity. If the class prefix preceding the stem carries an underlying L (i.e., in classes 1,4,9), then the stem itself will be H. If the underlying tone of the prefix is H (as in the other classes), then the stem will be low. Examples:

- (32) a. cl.1 / ñ-ndù ù-mú/ →
 [mndu umũ]
 'one person'
- b. cl.3 / ñ-Rì fú-mú/ →
 / ñRì fúmù/ →
 [mRì fumũ]
 'one homestead'
- c. cl.4 / ñ-Rì ì-wí/ →
 [mRì iβĩ]
 'two homesteads'
- d. cl.2 / wà-ndù wá-wí/ →
 / wàndù wáwì/ →
 [wandu wáβĩ]
 'two people'
- e. cl.9 / Ñ-bùrù ì-ngí/ →
 [mburú ɪngĩ]
 'another goat'
- f. cl.10 / Ñ-bùrù tsí-ngí/ →
 / mbùrù tsíngì/ →
 [mburú tsíngfĩ]
 'other goats'
- g. cl.4 / ñ-èdà ì -:ná/ →
 [meda inǎ]
 'four rivers'
- h. cl.2 / wà-ánà wá -:ná/ →
 / wǎnà wǎnà/ →
 [waná wána]
 'four children'

- i. cl.4 /m-ákà ì-RÁRÙ/ →
 [maká iRaRÙ]
 'three years'
- j. cl.2 /wà-hènù wá-RÁRÙ/ →
 /wàhènù wÁRÁRù/ →
 [wahenu waRÁRu]
 'three strangers'
- k. cl.4 /m-érì ì-tánù/ →
 [merí itanù]
 'five months'
- l. cl.10 /Ñ-gùwè/tsí-tánù/ →
 /ngùwè tsítànù/ →
 [ngùʒe tsítánu]
 'five pigs'

Tonal polarity is also to be found with verb stems (cf. 3.4.7. below) and also applies to the locative suffix /-ini/, and to the shorter demonstrative series (not dealt with here). From the situation obtaining in verb stems it is best to assume that the underlying tone of the stems is H, which turns to L after a H prefix (rather than a basic L which is raised after a L prefix).

The possessives (/ -ako/ 'my', / -apfo/ 'your (sg.)', / -ake/ 'his, her', / -adu/ 'our', / -anu/ 'your (pl.)', / -awo/ 'their' (cf. Raum [1964:80-81] table), and / -inga/ 'how many', offer a variant of this tonal polarity rule, which in their case might be better known as "tone reversal." Depending on the tone of the class prefix, they vary between -CVCV̄ (cl.1,4,9), and -CVCV̄ (all other classes), e.g.,

- (33) a. cl.1 /m-ánà ù-àké/ →
 /mǎnà òké/ →
 [maná okě]
 'his child'
- b. cl.2 /wà-ánà wá-àké/ →
 /wǎnà wákè/ →
 [waná wakê]
 'his children'

- c. cl.3 /m-Rì fú-ànú/ →
 /mRì fónù/ →
 [mRì fonũ]
 'your homestead'
- d. cl.4 /m-Rì ì-ànú/ →
 /mRì yànú/ →
 [mRì yanũ]
 'your homesteads'
- e. cl.16 /ní hà::ndù há-ìngá ò-ìé-mà-f-ìk-à/ →
 /ní hàndù héngá òìéměfìkà/ →
 [nyì hándu héngá oìeměfìka]
 'how many places have you already been to?'
- f. cl.4 /ní m-Rì ì-ìngá ò-ìé-mà-f-ìk-à/ →
 /ní mRì ìngá òìéměfìkà/ →
 [nyì mRì ìngá oìeměfìka]
 'how many homesteads have you already been to?'

Although the underlying form of /-ose/ 'all' was given in (4) above as /-òsé/, for the sake of simplification, this is probably incorrect. The surface forms of classes 1,4,9 are identical to the other classes, so

- (34) a. cl.2 [wandu wósě] 'all people'
 b. cl.4 [mRì yósě] 'all homesteads'

Since the underlying tone of the class markers /wá-/ and /ì-/ are known to be different, the high tone must be part of the stem, and we are thus led to the probable solution /-ò:só/ → /-òsé/ → [...ósě]. The lengthening of the vowel /-o-/ could be attributed to disappearing nasal (cf. the PB form ^a-o:ŋ). Note that there is no tonal polarity here.

3.4. Verbs. Verbs have the structure

- (35) (ní) + class + tense + (object) + stem + tense
 person

We use a system of referring to tense similar to that devised by Whiteley [1960], that is, of using "tense" to refer to both tense and aspect, of regarding tense in this sense as consisting of a pre- and post-stem morpheme.

and of giving the pre-stem morpheme a number and the post-stem a letter, so that any "tense" will be referred to by both number and letter, e.g., A1, A2, B3, etc. Post-stem morphemes, for the purposes of this study, are /-a/ (A: neutral), /-e/ (B: subjunctive), /-ie/ (C: perfective), and /-i, -e/ (D), which latter needs some explanation. There are a number of defective verbs whose post-stem vowel is never /-a/, but either /-i/ or /-e/, e.g., /wóde / 'have', presumably connected to /-wád-/ 'have', or /-fci/ 'know'. In addition, there are some regular verbs, which have forms ending in these vowels, forms which in general have perfective or stative meaning, but not always, e.g. [njfwon] 'I see' (from [fwonâ] 'to see'). Raum [1964:141] feels that such forms are simply allomorphs of /-ie/ but since we are not sure about the semantics nor particularly the phonology of such a relationship, we have preferred to treat them separately. In any case, both /-ie/ and /-i, -e/ can be used with the same verb with different meanings.

Pre-stem morphemes are more numerous and the main ones are listed in 3.4.4. below. We have omitted a few less common markers, and it should be mentioned that these pre-stem morphemes can be combined in a bewildering variety of ways, up to four in a sequence (cf. Raum [1964:116-45]). Actually, Raum gives about 70 different forms of which only ten are characterised by a single morpheme, the others having two or more.

3.4.1. /-la-/ negative marker. Not all these morphemes have the same status, however. For example, the secondary negative marker /-la-/ can never be used by itself and can only be the initial morpheme in the sequence, immediately following the SM. The consecutive tense marker /-ka/, which cannot be used in the negative, is never preceded by another tense marker. The past tense markers /-a-/ and /-ie-/ are never preceded by any tense marker other than /-la-/, etc.

For each tense, then, we will adopt the following descriptive conventions: a capital letter (A,B,C,D) indicates the suffixes /-a/, /-e/, /-ie/, /-i, -e/ respectively. A numeral indicates a given pre-stem marker (see list below). Complex tense markers are indicated by a combination of numerals (e.g. A 3+10, etc.). For each tense marker there exist three possible theoretical forms, as indicated by the small letters:

(36) a. /ní-SM-TM-stem-suffix/

- b. /SM-TM-stem-suffix/¹³
 c. /SM-la-TM-stem-suffix/

Form (36c) appears mainly in secondary negatives which will not be dealt with here except in the case of tenses which do not have a primary negative.

Primary negatives consist of form (36b) accompanied in sentence final position by /pfó/, or sometimes /ní/, e.g.,

(37) [njiléhúRa maRuhu pfó] or [njiléhúRa maRuhu nyí] 'I didn't buy bananas

In other Chaga dialects, additional negative markers exist beside some forms of /pfó/¹⁴.

3.4.2. /ní/ stabiliser. The form /ní/, which is phonologically high, is often referred to as a "stabiliser". Its appearance varies from dialect to dialect in Chaga. In OM it seldom cooccurs with negatives, and is usually, although not always, present in positive tenses. It carries a strong sense of affirmation. It is almost always realised before a vowel (2sg. no-, 3sg. na-), but less often before consonants (cf. 2.2.1.).

3.4.3. Person/class markers (SM). SM's in OM are not distinguished from each other tonally nor do they have a basic tone. In any one tense, therefore, they all behave identically. They are /nji-/ 'I', /o-/ 'you (sg.)', /a-/ '3sg.', /lu-/ 'we', /m-/ 'you (pl.)', /wa-/ '3pl.', the rest being segmentally identical to the prefixes of 3.3.¹⁵

3.4.4. Pre-stem tense markers. The TM which can be used by themselves are the following (with their numerical references): /-g-/ 1, /-(i)-/ 2, /-g-/ 3, /-lé-/ 4, /-wè-/ 5, /-eci-/ 6, /-è-/ 7, /-ké-/ 8, /-kà-/ 9¹⁶. The only other morpheme we will deal with is /-mà-/ 10, which is not found by itself but frequently occurs in combination.

¹³Note that the difference between (36a) and (36b) is not just the presence or absence of /ní/, but also the tone of the SM as well as of the suffix in certain cases.

¹⁴See Nurse and Philippson [forthcoming].

¹⁵A few tenses have a slightly different set of prefixes. They are discussed under each individual tense.

¹⁶Those morphemes not marked for tone exhibit tone reversal.

The justification for considering /-eci-/ as a single morpheme and not as /e + ci/ is primarily tonal, as will be seen below.

3.4.5. Object markers. These are segmentally the same as the SMS of 3.4.3 except /-kù-/ '2sg.', /-m-/ '3sg', plus /-kú-/ 'reflexive'. /-njì-/ , /kù-/ , /-m-/ are L, all the others high.

3.4.6. Verb stems. Verb stems may of course be mono- or poly-syllabic. Monosyllabic stems are either L or H phonologically, e.g.,

(37)	High		Low
	/-káp-/	'hit'	/-hùR-/ 'buy'
	/-dém-/	'cultivate'	/-hènd/ 'go'
	/-Rúnd-/	'work'	/-sèk-/ 'laugh'

A few stems have an underlying long vowel, e.g.,

(38)	/-wâh-/	'kill',	/-kôy-/	'meet', etc.
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Polysyllables behave in a similar way--however many syllables a stem has, it is only the first which is distinctive in that it may be H or L, the following syllables being all L. This is true whether the stem consists of root + extension or whether it is a real polysyllable, e.g.,

(39)	High		Low
	/-íc-ùR-/	'fill'	/-lèm-ì-/ 'be heavy'
	/-káp-àn-/	'fight'	/-hòR-òk-/ 'stand'
	/-térèw-/	'beg'	/-hàdìm-/ 'forget'

3.4.7. Tonal polarity. It may be seen in 3.3.4 that several of the pre-stem TMs end in a H. Similarly most of the object markers listed in 3.4.5 are H. When H's from either of these two series immediately precede a H in the first syllable of the verb stem, then the latter is realised as L. That is, the H-L contrast in verb stems is neutralised after a preceding H, e.g.,

(40)	a. L	/ní-njì-lé-hùR-à/	→	[njílehúRa]	'I bought'
	b. H	/ní-njì-lé-káp-à/	→		
		/ní njìlékàpà/	→		
		[njílekápa]			
		'I hit'			

When the tense or object marker is L it does not affect what follows, e.g.,

- (41) /ní-njì-lé-wá-káp-à/ →
 /ní njìléwákàpà/ →
 [njíléwákápa]
 'I hit them'
- (42) /ní-njì-lé-kù-káp-à/ →
 [njílékúkápà]
 'I hit you'

This phenomenon is clearly related to that of sec. 3.3. Descriptions of nes by languages, e.g., Whiteley's [1960, 1962] work on Kamba and Gusii, employe the notion of Imposed Pattern to explain such tense patterns which were not the single sum of individual lexical tones, but in OM this proves unnecessary as neutralisation of verb tones can be explained by a general phonological rule.

3.5. Tenses. Following are the most important individual tenses.

3.5.1. Tense A2. The *present continuous, general present* tense consist of a positive form:

- (43) A2a /ní-SM-(ì)- $\left\{ \begin{array}{l} (í)-stém- \\ (ì)-stém- \end{array} \right\}$ à/
 a. /ní-njì-(ì)-(í)-hùR-à mà-Rùhú/ →
 [njíhúRa maRuhú]
 'I am buying bananas'
 b. /ní-à-(ì)-(ì)-káp-à ñ-ánà/ →
 [nákapá manà]
 'he is hitting the child'

and a negative form:

- (44) A2b /SM-(í)- $\left\{ \begin{array}{l} (í)-stém \\ (ì)-stém \end{array} \right\}$ à/
 a. /njí-(í)-(í)-hùR-à mà-Rùhú pfó/ →
 [njíhúRa maRuhu pfó]
 'I am not buying bananas'
 b. /á-(í)-(ì)-káp-à ñ-ánà pfó/ →
 [ákápá maná pfó]
 'he is not hitting the child'

The surface forms of this tense have changed since Raum's time since he gives them as *njiikapa*, *aiihuRa*, etc. (cf. Raum [1964:116]). The neighbouring, very similar, Vunjo dialect retains the old forms. Even in OM, permuted forms of the same tense still have the TM /-i-/, e.g.,

(15) [nyi íkapá njií] 'it is hitting I am'

Compare the analysis presented in 2.2.4. above, which applies here also. The second /-i-/ is of course the infinitive prefix which explains its change of tone, according to the *mhenu-rule* (3.1.2.).

3.5.2. Tense A3. This tense, the *recent past*, consists of the positive form:

(16) A3a /ní-SM-á-stem-á/
 /ní-lù-á-hùR-á mà-Rùhú/ →
 /ní lǒhùRá màRùhú/ →
 [lǒhùRá màRuhú]
 'we bought bananas (today)'

and the negative:

(17) A3b /SM-á-stem-à/
 /lú-á-hùR-à mà-Rùhú pfó/ →
 [lòhùRá màRuhu pfó]
 'we didn't buy bananas (today)'

3.5.3. Tense A4. The *non-recent past* has both a positive form:

(18) A4a /ní-SM-lé-stem-à/
 /í-cò ní-lù-lé-hènd-à má-càmì/ →
 [icó lúlehénda macámì]
 'the day before yesterday we went to Machame'

and a negative:

(19) A4b /SM-lé-stem-à/
 /njií-lé-ìm-kôy-à kàní kú-ákè pfó/ →
 [njiilémkóya kaní koké pfó]
 'I didn't find him at home'

3.5.4. Tense A5. This tense, the *past continuous*, also consists of a positive form:

- (50) A5a /ní-SM-wè-stem-à/
 /l-pfúwè ní-lì-wè-kùmb-à má-hò/ →
 [lɪpɸúbé lɪlɪβəkumba mahò]
 'the baboon was throwing stones'

and a negative:

- (51) A5b /SM-wè-stem-à/
 /njí-wè-hùR-à mà-Rùhú pfó/ →
 [ɲjɪbéhuRa maRuhu pfó]
 'I wasn't buying bananas'

3.5.5. Tense A6. This is the *future*; it has both a positive form:

- (52) A6a /ní-SM-ècí-stem-à/
 /Ñ-gámá ní-ò-ècí-hùR-à mà-Rùhú/ →
 [ɲgama nócihúRa maRuhú]
 'will you buy bananas tomorrow?'

and a negative:

- (53) A6b /SM-éci-stem -à/
 /njí-éci-ñ-wí-à pfó/ →
 [ɲjecɪmbiá pfó]
 'I won't tell him'

We write /-eci-/ as a single morpheme to avoid giving the impression that the first syllable is identical to the /-è-/ morpheme (see A7 below). As can be seen from above, /-eci-/ displays tonal assimilation to the tone of the SM, which is never the case with /-è-/ (cf. for instance tense A7+8 below).

3.5.6. Tense A7. This tense, the *imperfective*, is found only in dependent clauses. This is one of the few tenses characterised by a slightly different SM series: the 2sg. is /ku-/ instead of /o-/, and 3sg. /ka-/ instead of /a-/. Tense A7a does not exist. But (54) is attested:

- (54) A7b /SM-è-stem-à/
 /ní-njì-lé-kù-wón-à kù-è-déd-à nà wà:ndù wá-wí/ →
 /ní njìlékùwónà kòdédà nà wàndù wáwì/ →
 [ɲjɪlékùwóná kódedá na wàndù wáwɪ]
 'I saw you talking to two people'

3.5.7. Tense A9. The *past consecutive/conditional* tense is found only in *dependent clauses*. This tense has an irregular combination of SM and TM in the three singular forms: 1sg. /hà-/ instead of */njika-/, 2sg. /kò-/ and not */oka-/ or */kuka-/, and 3sg. /kà-/, not */aka-/ or */kaka-/. Furthermore, these three SMs do not carry a H, whereas all the other SMs do in this tense. Tense A9a does not exist, but A9b does:

- (55) A9b /SM̂ (except 1/2/3sg. SM̂)-kà-stem-à/
 a. /m̂:-ndù à-kà-hènd-à n̂-ùkà/ →
 /m̂ndù kàhèndà n̂ùkà/ →
 [m̂ndu kahenda n̂uka]
 '...(and) a man went to the plains' or 'if a man goes to the plains'
 b. /m̂-pfúwè há-kà-kú-sàny-à hà:-ndò há-mú/ →
 [m̂apfuwé hakákusánya hando hamú]
 'and the baboons got together in one place'

3.5.8. Tense A7+8. This is the *habitual* and it consists of two forms: the first, the positive:

- (56) A7+8a /ní-SM̂-è-ké-stem-à/
 /m̂-kúngà ní-hà-è-ké-kà-à m̂-Ríngà-lní/ →
 /m̂akúngà ní ĥékékaà m̂Ríngèní/ →
 [makungá hékekáa m̂Ríngény]
 'eels live in water'

and the second, negative:

- (57) A7+8b /SM̂-è-ké-stem-à/
 /ʃì-lèhé ʃí-è-ké-ʃd-à kù-fùl nà Ñ-ùmbá pfó/ →
 /ʃìlèhé ʃékéìdà kùfùl nà ñmbá pfó/ →
 [ʃìlehe ʃékeìda kufuf na mba pfó]
 'birds don't usually pass near the house'

3.5.9. Tense A3+10. This tense, a *perfective*, presents several difficulties. It is the only tense in which form (a) is *not* normally used to express statements, but only questions. Furthermore there are *two* (b) forms (here called (b') and (b'')), distinguished by the tone of the suffix. Thirdly, the (a) and the (b'') forms, ending in /-a/, seem to regularly(?) lower the H of H stems, so that there is no distinction in form between H and L stems. Since

these are the only forms of their kind it is hazardous to generalise but *nyt* a supplementary rule should be introduced stating that a H verbal suffix causes a lowering of a preceding H stem—all the other tenses having a H suffix also have a H pre-stem morpheme which causes a lowering of the stem to *ie* anyway, so it is impossible to check:

- (58) A3+10a /ní-SÑ-á-mà- $\left\{ \begin{array}{l} \text{í-stém-} \\ \text{ì-stém-} \end{array} \right\} \acute{a}/$
 /pàpá ní-à-á-mà-ì-íñj-á Ñ-gùwè/ →
 /pàpá ní àmèññjá ñgùwè/ →
 [papá náméññja ŋgúwè]
 'has Father slaughtered a goat?'
- (59) A3+10b' /SM-á-mà- $\left\{ \begin{array}{l} \text{í-stém-} \\ \text{ì-stém-} \end{array} \right\} \grave{a}/$
 /á-á-mà-í-hènd-à ì-èdà-ìnf/ →
 /ámèhèndà mèdènf/ →
 [améhènda medenyñ]
 'he has gone to the river'
- (60) A3+10b'' /SM-á-mà- $\left\{ \begin{array}{l} \text{í-stém-} \\ \text{ì-stém-} \end{array} \right\} \acute{a}/$
 /Ñ-pfúò¹⁷ í-á-mà-ì-káp-á pfó/ →
 /ñpfúò yámèkápá pfó/ →
 [mpfúò yámékapa pfó]
 'it hasn't rained yet'

3.5.10. Tense A4+10. The *past perfective* has only:

- (61) A4+10a /ní-SÑ-lé-mà- $\left\{ \begin{array}{l} \text{í-stém-} \\ \text{ì-stém-} \end{array} \right\} \grave{a}/$
 /ní-ò-lé-mà-í-íñk-à má-càmì/ →
 /ní òléméññkà mácàmì/ →
 [nyóleméññka macámì]
 'have you ever been to Machame?'

The negative counterpart, A4+10b, does not exist.

¹⁷Also heard as [mvuo].

3.5.11. Tense B1. The *subjunctive*, consists of a form which only occurs in dependent clauses:

- (62) B1a /ní-SM-stem-è/
 /ní-njì-kúnd-ì ní-ò-hùR-è mà-Rùhú/ →
 [njíkundí nóhuRe maRuhú]
 'I want you to buy bananas'

and a form used, for example, to make requests:

- (63) B1b
 /njí-hènd-è sé/ → [njihénde sě] 'am I to go again?'

and a negative with the suffix /-e/ displaying tone reversal:

- (64) B1c /SM-là- $\left\{ \begin{array}{l} \text{stém-è} \\ \text{stém-é} \end{array} \right\}$ /
 a. /ó-là-hùR-é mà-Rùhú ìnú/ →
 [oláhuRe máRuhu ínu]
 'don't buy bananas today'
 b. /ó-là-Rúnd-è kù-dí sé pfó/ →
 [oláRundé kudi sé pfó]
 'don't work like this again'

3.5.12. Tense B4+10. This tense is the *negative* of A4+10; it also attests tone reversal:

- (65) B4+10b /SM-lé-má- $\left\{ \begin{array}{l} \text{-stém-é} \\ \text{-stém-è} \end{array} \right\}$ /
 a. /njí-lé-mà-í-íìk-é ìpfó pfó/ →
 /njílé-měíìké ìpfó pfó/ →
 [njílé-měíìke ípfo pfó]
 'I haven't been there yet'
 b. /njí-lé-mà-ì-wón-è ìm:-ndù ìm-wícò à-dí pfó/ →
 /njílé-mèwónè mndù mbicò àdí pfó/ →
 [njílé-mèwoné mndu mbicó adi pfó]
 'I have never seen such a bad man'

3.5.13. Tense C1. This tense, a *perfective* (cf. 3.5.9.), has a suffix /-fè/ in OM/Chaga, which, as in most other Bantu languages in E. Africa, has many allomorphs; these are not presented here:

- (66) Cl_a /ní-SM-stem-fè/
 /Ñ-mbè ní-ì-ǰá-fè mà-hácè há-wí/ →
 /m̀mbè ní ǰá́yè màhácè háwì/ →
 [m̀be ǰaé mahacé haβì]
 'the cow has given birth to two calves'

This tense also attests a negative:

- (67) Cl_b /SM-stem-fè/
 /á-hùR-fè mà-Rùhú pfó/ →
 [ahúRíé maRuhu pfó]
 'he hasn't bought bananas'

3.5.14. Tense D1. For the meaning of this tense cf. 3.4. above. Both positive and negative forms exist:

- (68) D1_a /ní-SM-stem-ì/
 /ní-nǰì-kúnd-ì Ñ-yàmà ì-à Ñ-búRù m-nú/ →
 [nǰikundí nyama ya mburú mnú]
 'I like goat meat very much'
- (69) D1_b /SM-stem-í/
 /njí-wón-í kì-wánjà kí-ákè mà-térù ní/ →
 /njfwóní k̀wánjà kyákè màtérù ní/ →
 [nǰiwóní k̀wanjá kyaké materú ní]
 'I don't see Materu's house plot'

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APPENDIX 1--Tone patterns of monosyllabic noun stems¹⁸

HIGH		LOW	
ˌmá/	'wife'	class 1	/m:ndù/ 'person'
ˌmí/	'medicine'	class 3	/mri/ 'root'
ˌmó/	'head'		/mRl/ 'homestead'
ˌmí/	'arrow'		/mjà/ 'thorn'
ˌsó/	'flour'		
ˌfú/	'ashes'	class 5	/lhò/ 'stone'
ˌRá/	'leaf'		/i:ndò/ 'animal'
ˌRú/	'voice'		
ˌmá/	'spittle'	class 6	
ˌkí/	'stool, chair'	class 7	/kì:ndò/ 'thing'
ˌkí/	'thousand'		/kìpfì/ 'wasp'
ˌló/	'night'		
ˌfí/	'war'	class 8	
ˌná/	'louse'	class 9	/nzì/ 'fly'
ˌní/	'knee'		
ˌókú/	'firewood'	class 11	
ˌórá/	'side'		
ˌwú/	'bow'	class 14	
ˌwúkú/	'old age'		
ˌkú/	'ear'	class 15	
		class 16	/hà:ndò/ 'place'
		class 17	/kù:ndù/ 'place'

¹⁸As these tables represent an intermediate stage of derivation, they will be seen to contain certain elements (e.g. /z, j, / not mentioned in sec. 1.

APPENDIX 2--Tone patterns of disyllabic noun stems (first syllable high)

<u>HIGH-HIGH</u>		<u>HIGH-LOW</u>	
		class 1	/mǎnà/ 'child'
			/ndém/ 'farmer'
			/mǐmb/ 'singer'
			/mǐw/ 'thief'
			/mǐfsl/ 'cowherd'
			/mRúnd/ 'worker'
			/msácà/ 'brother'
			/msúngù/ 'European'
		class 2	/wàRúmù/ 'spirits of dead'
		class 3	/mǎkà/ 'year'
			/mbáR/ 'sunlight'
			/mór/ 'moon'
			/mhás/ 'tail'
			/mkónù/ 'day'
			/mńíngà/ 'corpse'
			/mǒdò/ 'fire'
			/mńímà/ 'soul'
			/mRásà/ 'boundary'
			/mRíngà/ 'water'
			/msáR/ 'slope'
			/mńsír/ 'soot'
			/mńsù/ (from /m-útsù/) 'smoke'
			/mńsúdù/ 'forest'
/lǐfúmpfú/	'mountain'	class 5	/lǐdédò/ 'word'
/lǐkándá/	'bark'		/démà/ 'field'
/lǐkúmbí/	'hoe'		/dǐfà/ 'liver'
			/lǐfúò/ 'bone'
			/kǎ/ 'roof'
			/kómbè/ 'shoulder'
			/lǐkúml/ 'ten'
			/lǐkúngù/ 'fish'
			/lǐpfúmù/ 'spear'
			/lǐpfúwè/ 'baboon'

HIGH-HIGH

<u>HIGH-HIGH</u>		<u>HIGH-LOW</u>	
			/ḷpúḡà/ 'bull'
			/ḷRámbà/ 'tree leaf'
			/ríkò/ 'hearth'
			/rínà/ 'name'
			/rísò/ 'eye'
			/rúwà/ 'God'
			/ìtángì/ 'drum'
			/ìwéè/ 'breast'
		class 6	/màfúdà/ 'oil'
			/màkàà/ 'charcoal'
			/màrúwà/ 'milk'
/kyélyá/	'food'	class 7	/kìfmbò/ 'song'
			/kìlínjè/ 'shadow'
			/kìwàrì/ 'clan'
			/kyádù/ 'shoe'
/mbéú/	'seed'	class 9	/mbúrù/ 'goat'
/ngúkú/	'chicken'		/mpfúò/ 'rain'
			/ngímà/ 'monkey'
			/ngóò/ 'heart'
			/ngúRù/ 'tortoise'
			/njókà/ 'snake'
			/njúkì/ 'bee'
			/nzíngò/ 'neck'
			/sámù/ 'blood'
			/sónù/ 'shame'
			/térì/ 'earth'
/òdéndé/	'leg'	class 11	/òcàà/ 'fingernail'
			/òcúl/ 'hair'
			/òlúmi/ 'tongue'
			/òmbè/ (from /òémbè/) 'horn'
			/òrúsù/ 'string'
			/owérì/ 'feather'
			/òwíni/ 'speed'
			/òwókò/ 'arm'
		class 14	/wúkì/ (from /wù-úkì/) 'honey'

APPENDIX 3--Tone patterns of disyllabic noun stems (first syllable low)

<u>LOW-LOW</u>			<u>LOW-HIGH</u>	
/m̀cìlì/	'subchief'	class 1	/m̀màngf/	'chief'
/m̀èrì/	'nurse'		/m̀pòrá/	'young woman'
/m̀hènù/	'stranger'		/m̀sòRó/	'(young) man'
/m̀sùRì/	'noble'		/p̀ápá/	'father'
/m̀èdà/	'river'	class 3	/m̀òdú/	'beehive'
/m̀fìrì/	'day (24 hours)'		/m̀òndú/	'(law) case'
/m̀hàndà/	'burden'		/m̀rèwá/	'banana rope'
/m̀hómà/	'cow'			
/m̀hòngò/	'back'			
/m̀:ndà/	'garden'			
/m̀òhò/	'stem of banana tree'			
/m̀òngò/	'door'			
/m̀rìkè/	'heat'			
/l̀èm̀bè/	'mango'	class 5	/l̀kìdí/	'tree'
/ìhà̀nà/	'hundred'		/ìp̀úcf/	'cloud'
/ìhè̀hò/	'tooth'		/r̀ìná/	'hole'
/t̀èm̀ò/	'game'		/ìr̀ùmú/	'leopard'
			/ì̀)R̀ùhú/	'banana'
			/ì̀R̀ùngú/	'hole'
			/ì̀sòká/	'ax'
/k̀ìk̀ùmbì/	'granary'	class 7	/k̀ìhà̀mbá/	'field'
/k̀ìm̀ìnyò/	'finger'		/k̀ìhòwò//k̀ìwòhó/	'rope'
/k̀ìt̀àRà/	'bed'		/k̀ìlè̀hé/	'bird'
			/k̀ìǹùngú/	'pot'
			/k̀ìR̀ùmí/	'fame'
			/kỳò̀fú/	'knife'
/mb̀ùò/	'nose'	class 9	/mb̀òhó/	'buffalo'
/m̀mbè/ (from /N-ùmbè/)	'cattle'		/m̀mbá/ (from /N-ùmbá/)	'house'
/nd̀ùwà/	'pool'		/nd̀èú/	'stomach'
/ng̀àwò/	'shield'		/ng̀àmá/	'tomorrow'
/ng̀òl/	'rope'		/nj̀ònf/	'skin'
/ng̀ùò/	'clothes'		/ǹùmá/	'behind'
/ng̀ùwè/	'pig'		/t̀ùmó/	'market'

LOW-LOW

/njàà/	'hunger'
/njàmà/	'chief's advisor'
/njìà/	'path'
/njòfù/	'elephant'
/hndà/	(from /N-lndà/)'banana tree'
/nùkà/	'steppe'
/nyàmà/	'meat'
/nzìhè/	'locust'
/òRòò/	'throat'
/wàrì/	'beer'

LOW-HIGH

class 11	/òrùkà/	'country'
class 14	/wùkòwù/	'yesterday'

APPENDIX 4--Verb stems

LOW

/-àmbuya/	'look at'
/-àtsa/	'light fire'
/-cà/	'come'
/-hàdima/	'forget'
/-hàmba/	'say'
/-hènda/	'go'
/-hèja/	'try'
/-hòRoka/	'stand'
/-hùRa/	'buy'
/-ìhuda/	'be satiated'
/-kùmba/	'throw, sell'
/-lìà/	'cry'
/-mànya/	'know'
/-màa/	'finish'
/-màrisa/	'finish'
/-pfùla/	'look for'
/-rùnduka/	'fly'
/-Rìka/	'hide'
/-sànja/	'wash' (trans.)
/-sèka/	'laugh'

HIGH

/-ádanya/	'listen'
/-ápfamia/	'smell' (trans.)
/-dáhia/	'draw water'
/-dámia/	'sit'
/-déda/	'talk'
/-déka/	'get lost'
/-déma/	'cultivate'
/-díca/	'run'
/-dúma/	'send'
/-dúo/	'take away'
/-dúmbuo/	'cut'
/-énde/	'bring'
/-fána/	'resemble'
/-fíhira/	'cry'
/-fóya/	'be numerous'
/-fúna/	'drive away, chase'
/-fúnja/	'break'
/-fco/	'hear'
/-fcuRa/	'fill'
/-fda/	'pass'

Appendix 4 (cont.)

LOW

/-ʃɪka/	'arrive'
/-tèma/	'play'

HIGH

/-kúšana/	'gather (of crowd)'
/-kúsaRa/	'think'
/-láa/	'sleep'
/-lása/	'shoot'
/-lísa/	'herd'
/-lódia/	'dream'
/-lóRa/	'show'
/-lúo/	'be sick'
/-lyá/	'eat'
/-mánya/	'cut'
/-nyó/	'drink'
/-nàna/	'be big'
/-óloka/	'fall'
/-óngoya/	'talk'
/-páRa/	'break in pieces'
/-pfá/	'die'
/-púsuo/	'pour'
/-rúma/	'insult'
/-Ráa/	'wear'
/-sámbuo/	'harvest'
/-sfa/	'finish' (intrans.)
/-súma/	'dig'

HIGH

/-ídima/	'be able to'
/-íla/	'be white'
/-fmba/	'sing'
/-fwa/	'steal'
/-káanga/	'fly, roast'
/-kápa/	'hit'
/-kóRa/	'cook'
/-kúdiKa/	'carry'
/-kúo/	'get big'
/-kúre/	'come out'

HIGH

/-ʃfna/	'dance'
/-ʃfinga/	'close'
/-táa/	'pay'
/-térewa/	'ask for'
/-úma/	'dry'
/-úmba/	'make pots'
/-wáda/	'get'
/-wáwa/	'hurt'
/-wésa/	'ask'
/-wífa/	'tell'
/-wíka/	'put'
/-wóna/	'see'
/-wúka/	'come out'
/-wúfa/	'take out'
/-wúya/	'return' (intrans.)