

# A BRIEF ANALYSIS OF THE NZIME PHONOLOGY

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## ABSTRACT

Nzime is spoken in southern Cameroon in the areas surrounding Lomie and Messok. Guthrie referred to it as “njem” and classified it as A-84. It appears as "432" in DIEU and RENAUD, ed. (1983) and as “ozm” in *Ethnologue*. These designations equally refer to Badwe'e, a spoken in the area of Mindourou, Alouma and Somalomo.

This is a description of the sound system of Nzime as it is spoken in the area of Poempoum.

## 1.0 The inventory of symbols

Symbols used in the description of Nzime phonemes and allophones are presented below and conform to the International Phonetic Alphabet (IPA). Note that the labiovelar stops are shown without the optional tie bar. Nasalization is indicated by the dieresis: ~.

### Consonants

<b>p</b>	voiceless bilabial stop	<b>n</b>	voiced alveolar nasal
<b>b</b>	voiced bilabial stop	<b>ɲ</b>	voiced palatal nasal
<b>t</b>	voiceless alveolar stop	<b>ŋ</b>	voiced velar nasal
<b>d</b>	voiced alveolar stop	<b>ɱ</b>	voiced labiodental nasal
<b>c</b>	voiceless palatal stop	<b>ɲm</b>	voiced labiovelar nasal
<b>ʃ</b>	voiced palatal stop	<b>f</b>	voiceless labio-dental fricative
<b>k</b>	voiceless velar stop	<b>v</b>	voiced labio-dental fricative
<b>g</b>	voiced velar stop	<b>s</b>	voiceless alveolar fricative
<b>kp</b>	voiceless labiovelar stop	<b>z</b>	voiced alveolar fricative
<b>gb</b>	voiced labiovelar stop	<b>h</b>	voiceless uvular fricative
<b>ʔ</b>	voiceless glottal stop	<b>l</b>	voiced lateral
<b>m</b>	voiced bilabial nasal	<b>r</b>	voiced alveolar flap

### Vowels

<b>i</b>	close front unrounded	<b>o</b>	mid-open back rounded
<b>y</b>	close front rounded	<b>ɛ</b>	open front unrounded
<b>u</b>	close back rounded	<b>œ</b>	open front rounded
<b>ɪ</b>	mid-close front unrounded	<b>æ</b>	open front unrounded
<b>ʏ</b>	mid-close front rounded	<b>ə</b>	mid-close central unrounded
<b>ʊ</b>	mid-close back rounded	<b>a</b>	open central unrounded
<b>e</b>	mid-open front unrounded	<b>ɔ</b>	open back rounded

### Semivowels

<b>j</b>	voiced alveolar approximant	<b>ɥ</b>	voiced rounded labial approximant
<b>v</b>	voiced unrounded labial approximant		

### Other symbols

[ ]	phonetic transcription	superscript 4	a low pitch
//	phonemic transcription	superscript 45	a sequence of low and super-low pitches
//L	an intonational low tone	superscript 5	a super-low pitch
superscript 1	a high pitch	´	high toneme or a sequence of two high tonemes
superscript 13	a sequence of high and mid pitches	^	a sequence of high and low tonemes
superscript 14	a sequence of high and low pitches	˘	a sequence of low and high tonemes
superscript 2	a mid-high pitch	˙	low toneme or a sequence of two low tonemes
superscript 24	a sequence of mid-high and low pitches		
superscript 3	a mid pitch		

## 2.0 The inventory of consonantal phonemes

2.1 There are 21 consonantal phonemes, as is seen in table (1). The voiceless consonants precede their voiced counterparts. These consonants contrast in root-initial position, which may mean that they may also be found internal to the word, following a prefix.

(1) Consonantal phonemes

	(bi)labial		alveolar		palatal		velar		labiovelar	
	-vd	+vd	-vd	+vd	-vd	+vd	-vd	+vd	-vd	+vd
stop	<b>p</b>	<b>b</b>	<b>t</b>	<b>d</b>	<b>c</b>	<b>ɟ</b>	<b>k</b>	<b>g</b>	<b>kp</b>	<b>gb</b>
nasal		<b>m</b>		<b>n</b>		<b>ɲ</b>				<b>ŋm</b>
fricative	<b>f</b>	<b>v</b>	<b>s</b>	<b>z</b>			<b>h</b>			
lateral				<b>l</b>						

(2)	<b>p</b>	/èpà/	[e <sup>4</sup> pa <sup>45</sup> ]	“to ridicule”
	<b>b</b>	/èbà/	[e <sup>4</sup> ba <sup>45</sup> ]	“to butcher”
	<b>t</b>	/ètâk/	[e <sup>4</sup> ta <sup>24</sup> ]	“to organize”
	<b>d</b>	/èdàà/	[e <sup>4</sup> da: <sup>45</sup> ]	“to draw water”
	<b>c</b>	/ècâb/	[e <sup>4</sup> cab <sup>24</sup> ]	“to speak without certainty”
	<b>ɟ</b>	/èjà/	[e <sup>4</sup> ja <sup>24</sup> ]	“to lie down; to sleep”
	<b>k</b>	/èkàb/	[e <sup>4</sup> kab <sup>45</sup> ]	“to distribute”
	<b>g</b>	/ègà/	[e <sup>4</sup> ga <sup>45</sup> ]	“to win”
	<b>kp</b>	/èkpà/	[e <sup>4</sup> kpa <sup>45</sup> ]	“salt”
	<b>gb</b>	/ègbâ/	[e <sup>4</sup> gba <sup>24</sup> ]	“to place; to put”
	<b>m</b>	/èmâk/	[e <sup>4</sup> mã <sup>24</sup> ]	“to pile up”
	<b>n</b>	/ènâ/	[e <sup>4</sup> nã <sup>24</sup> ]	“to be effective”
	<b>ɲ</b>	/ɲâ/	[ɲã <sup>24</sup> ]	“claw; fingernail”
	<b>ŋm</b>	/èŋmêh/	[e <sup>4</sup> ŋmêh <sup>24</sup> ]	“to strike”
	<b>f</b>	/èfè:/	[e <sup>4</sup> fe: <sup>45</sup> ]	“to multiply itself”
	<b>v</b>	/ènvèklè/	[e <sup>4</sup> nve <sup>24</sup> ə <sup>4</sup> le <sup>45</sup> ]	“to illustrate”
	<b>s</b>	/èsâ/	[e <sup>4</sup> sa <sup>24</sup> ]	“to make; to do”
	<b>z</b>	/nzà/	[nza <sup>45</sup> ]	“hunger”
	<b>h</b>	/hwím/	[hym <sup>2</sup> ]	“sound of the beating of hammer and anvil”
	<b>l</b>	/èlà/	[e <sup>4</sup> la <sup>45</sup> ]	“to obstruct”

2.2 There are three consonantal allophones, [ʔ], [ŋ] and [ɾ], all of which are found in the middle or at the end of the root. They are the allophones /k/, /ɲ/ and /t/.

(3) Consonantal allophones

	(bi)labial		alveolar		palatal		velar		labiovelar	
	-vd	+vd	-vd	+vd	-vd	+vd	-vd	+vd	-vd	+vd
stop								<b>ʔ</b>		
nasal						<b>ɲ</b>				
fricative				<b>ɾ</b>						

(4)	/è.bák.lè/	[e <sup>4</sup> ba <sup>24</sup> ʔ <sup>13</sup> ə <sup>4</sup> le <sup>45</sup> ]	“to double, to repeat (c.15)”
	/è.báɲ.lè/	[e <sup>4</sup> ba <sup>ɲ</sup> 1 <sup>1</sup> ə <sup>4</sup> le <sup>45</sup> ]	“to invite (c.15)”
	/è.bvât/	[e <sup>4</sup> bva <sup>24</sup> ]	“to wear (c.15)”

As was mentioned above, a phoneme is assigned its default or primary allophone at the beginning of a radical, which may be in the middle of a word. This is seen in the case of the singular and plural forms of “animal”, in which it will be noted that word-medial /t/ is reflected by the allophone [t] after the addition of the plural prefix, ò- c.2.

(5)	/tít/	[tir <sup>2</sup> ]	“animal (c.1)”
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/òtít/ [o<sup>4</sup>tír<sup>2</sup>] “animals (c.2)”

I am claiming that /ɲ/ is a phoneme rather than being a sequence of /n/ plus /j/. This view is readily supported by looking at the vowels that follow unambiguous instances of /j/ following another consonant. They are five in number: /e/, /ɛ/, /o/, /ɔ/ and /a/.

- (6)
- |   |         |                                     |                       |
|---|---------|-------------------------------------|-----------------------|
| e | /ètjè/  | [e <sup>4</sup> tje <sup>45</sup> ] | “to walk”             |
| ɛ | /bjêl/  | [bjel <sup>24</sup> ]               | “canoe (c.1)”         |
| o | /mjô/   | [mjô <sup>24</sup> ]                | “your (sg.) (c.4)”    |
| ɔ | /mbjɔk/ | [mbjɔ <sup>45</sup> ]               | “guilty person (c.1)” |
| a | /èmjâ/  | [e <sup>4</sup> mjã <sup>24</sup> ] | “former (c.5)”        |

A greater inventory of vowels follow [ɲ] than was seen in (6). In addition to the five seen after a consonant followed by /j/ (7), one also finds [ɲ] before the vowels /i/, /u/ and /ɔ/ (8). The differences between the distribution of [ɲ] and /j/ following consonants supports the analysis that /ɲ/ is a palatal nasal rather than a sequence of the alveolar nasal plus /j/.

- (7)
- |   |                         |   |  |
|---|-------------------------|---|--|
| e | /ènjém <sup>1</sup> lè/ | [e <sup>4</sup> ɲém <sup>1</sup> lè <sup>45</sup> ] | “to tighten”                               |
| ɛ | /ènjè:/                 | [e <sup>4</sup> ɲɛ: <sup>45</sup> ]                 | “to rip”                                   |
| o | /ɲòkó/                  | [ɲò <sup>4</sup> ʔo <sup>4</sup> ]                  | “daman des arbres; type of plantain (c.1)” |
| ɔ | /ɲɔ̃/                   | [ɲɔ̃ <sup>4</sup> ]                                 | “mother (c.1)”                             |
| a | /ɲâ/                    | [ɲã <sup>24</sup> ]                                 | “fingernail (c.7)”                         |
- (8)
- |   |           |  |            |
|---|-----------|--|------------|
| i | /mìɲimlâ/ | [mì <sup>4</sup> ɲim <sup>4</sup> lâ <sup>45</sup> ] | “murmurs”  |
| u | /èɲùl/    | [e <sup>4</sup> ɲùl <sup>45</sup> ]                  | “to drink” |
| ɔ | /ɲôl/     | [ɲôl <sup>24</sup> ]                                 | “body”     |

There are consonantal phonemes that are never followed by the semivowel /j/, these being the nasals (/n/ and /ɲ/), and the phonemes /f/, /k/, /g/, /kp/, /gb/, /h/, /v/ and /j/.

**2.3** The nasal archiphoneme (N), occurring before non-nasal consonants, assimilates to the point of articulation of the following consonant, as is seen in (9).

- (9)
- |           |   |                       |
|-----------|---|-----------------------|
| /Npî/     | [mpi <sup>24</sup> ]                                | “white hair”          |
| /Ntilè/   | [nti <sup>4</sup> le <sup>45</sup> ]                | “gorilla”             |
| /mèncémé/ | [mẽ <sup>4</sup> ɲce <sup>2</sup> mẽ <sup>2</sup> ] | “eyebrows”            |
| /Nkèhé/   | [ɲke <sup>4</sup> he <sup>4</sup> ]                 | “alertness; insomnia” |
| /Nkpáá/   | [ɲmkpa: <sup>2</sup> ]                              | “wedge (c.9)”         |

### 3.0 The inventory of vocalic phonemes

**3.1** There are ten vocalic phonemes found in closed syllables (11) and in open syllables (12) as is seen in the following table:

(10) Vocalic phonemes

	front		central	back
	unrounded	rounded	unrounded	rounded
close	i			u
mid-close	ɪ			ʊ
mid-open	e			o
open	ɛ	œ	a	ɔ

These phonemes are found to contrast in closed syllables (11). The coda in the following words is /k/, of which the allomorph in stem-medial or stem-final positions is [ʔ]. In open syllables in word-final position, the vowels œ, ɛ and ɔ are always phonetically lengthened (12).

- (11) i /èdîk/ [e<sup>4</sup>diʔ<sup>24</sup>] “to burn up”

	<b>ɪ</b>	/ɛ̀ntfík/	[e <sup>4</sup> ntɪ <sup>?</sup> 24]	“to be a nuisance”
	<b>e</b>	/ɛ̀dèk/	[e <sup>4</sup> dɛ <sup>?</sup> 45]	“to be late”
	<b>ɛ</b>	/ɛ̀dɛ̀k/	[e <sup>4</sup> dɛ <sup>?</sup> 24]	“to take forcibly”
	<b>œ</b>	/ɛ̀kœ̀k/	[e <sup>4</sup> kœ <sup>?</sup> 4]	“monkey trap”
	<b>a</b>	/ɛ̀bâk/	[e <sup>4</sup> ba <sup>?</sup> 24]	“to fold”
	<b>u</b>	/ɛ̀lùk/	[e <sup>4</sup> lu <sup>?</sup> 45]	“to animate or enliven an event”
	<b>ɔ</b>	/ɛ̀bòk/	[e <sup>4</sup> bɔ <sup>?</sup> 45]	“hip”
	<b>o</b>	/ɛ̀bök/	[e <sup>4</sup> bo <sup>?</sup> 4]	“melon”
	<b>ɔ</b>	/ɛ̀bɔ̀k/	[e <sup>4</sup> bɔ <sup>?</sup> 4]	“stumbling stone”
(12)	<b>i</b>	/ɛ̀lî/	[e <sup>4</sup> li <sup>?</sup> 24]	“to clear brush”
	<b>ɪ</b>	/ɛ̀lî/	[e <sup>4</sup> lɪ <sup>?</sup> 24]	“to be prompt”
	<b>e</b>	/ɛ̀lê/	[e <sup>4</sup> le <sup>?</sup> 24]	“to play”
	<b>ɛ</b>	/ɛ̀lê/	[e <sup>4</sup> le <sup>?</sup> 24]	“to say”
	<b>œ</b>	/ɛ̀lœ̀/	[e <sup>4</sup> lœ <sup>?</sup> 4]	“nest of a toucan”
	<b>a</b>	/ɛ̀là/	[e <sup>4</sup> la <sup>?</sup> 45]	“to block”
	<b>u</b>	/ɛ̀lû/	[e <sup>4</sup> lu <sup>?</sup> 24]	“day”
	<b>ɔ</b>	/ɛ̀lô/	[e <sup>4</sup> lo <sup>?</sup> 24]	“to bite”
	<b>o</b>	/ɛ̀bò/	[e <sup>4</sup> lo <sup>2</sup> lo <sup>45</sup> ]	“to carry in many trips”
	<b>ɔ</b>	/lî/	[lɔ <sup>?</sup> 24]	“story”

Vowels may be contrastively long in open syllables, either after a simple onset (13) or after an onset followed by **j** (14).

(13)	<b>ii</b>	/ɛ̀bîî/	[e <sup>4</sup> bî <sup>?</sup> 45]	“to restrain a struggling person”
	<b>i</b>	/ɛ̀bî/	[e <sup>4</sup> bî <sup>?</sup> 45]	“to receive”
	<b>ɪɪ</b>	/ɛ̀cîî/	[e <sup>4</sup> cɪ <sup>?</sup> 45]	“to pass by way of”
	<b>ɪ</b>	/mèlí/	[mẽ <sup>4</sup> lɪ <sup>?</sup> 2]	“counsel; advice”
	<b>ee</b>	/ɛ̀bèè/	[e <sup>4</sup> be <sup>?</sup> 45]	“to see”
	<b>e</b>	/ɛ̀bè/	[e <sup>4</sup> be <sup>?</sup> 45]	“to plant; to be”
	<b>aa</b>	/ɛ̀láà/	[e <sup>4</sup> la <sup>?</sup> 24]	“to count; to read”
	<b>a</b>	/ɛ̀là/	[e <sup>4</sup> la <sup>?</sup> 45]	“to barricade”
	<b>uu</b>	/ɛ̀gùú/	[e <sup>4</sup> gu <sup>?</sup> 4]	“dizziness”
	<b>u</b>	/ɛ̀gú/	[e <sup>4</sup> gu <sup>?</sup> 2]	“jealousy; cowife”
	<b>uu</b>	/bìjùú/	[bɪ <sup>4</sup> ju <sup>?</sup> 2]	“games”
	<b>ɔ</b>	/ɛ̀jô/	[e <sup>4</sup> jo <sup>?</sup> 24]	“to kill; to vomit”
	<b>oo</b>	/dóò/	[dɔ <sup>?</sup> 24]	“umbilical cord”
	<b>o</b>	/ɛ̀dò/	[e <sup>4</sup> dɔ <sup>?</sup> 45]	“to dispute; to gamble”
(14)	<b>ee</b>	/tjéé/	[tje <sup>?</sup> 4]	“infant”
	<b>e</b>	/ɛ̀tjè/	[e <sup>4</sup> tje <sup>?</sup> 45]	“to walk”
	<b>aa</b>	/ɛ̀mjáà/	[e <sup>4</sup> mjà <sup>?</sup> 24]	“to be covered by rising water”
	<b>a</b>	/ɛ̀mjâ/	[e <sup>4</sup> mjà <sup>?</sup> 24]	“former (c.5)”
	<b>oo</b>	/mjóò/	[mjõ <sup>?</sup> 24]	“sadness; loneliness”
	<b>o</b>	/mjô/	[mjõ <sup>?</sup> 24]	“your (sg.) (c.4)”

3.2 Any vocalic phoneme can be nasalized, which is not noted. This predictably occurs following a nasal consonant.

(15)	/mè.nòk/	[mẽ <sup>4</sup> nõ <sup>?</sup> 45]	“alcohol”
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3.3 The phone [ə] is predictably present at the boundary of two syllables at the interior of a word where the first syllable has a coda and the second syllable has an onset. Its pitch is predictable, high between two highs or otherwise low.

- (16) /bíh.wó/ [bih<sup>2</sup>ə<sup>2</sup>wo<sup>2</sup>] “patience (c.7)”  
 (17) /è.báp.lè/ [e<sup>4</sup>baŋ<sup>1</sup>ẽ<sup>4</sup>le<sup>45</sup>] “to invite (c.15)”

The phone [æ:] is found in two contexts. The first is at the margin of two words, of which the first word ends in the vowel /a/ and the second word begins in /e/.

- (18) /`lá élámà/ [læ:<sup>1</sup>la<sup>2</sup>mã<sup>45</sup>] “the glass of the lamp”

The second context is found where the first word ends in the vowel /ak/ and the second word is the associative marker for class 5, e, as in (19).

- (19) /èkâk é kvàn/ [e<sup>4</sup>kæ<sup>1</sup>? e<sup>1</sup> kvan<sup>45</sup>] “a bunch of plantains”

#### 4.0 The inventory of semivocalic phonemes

There are two semivocalic phonemes, found in the following table, both all of which can be found in word-initial position (20) and word-medially in the onset position (21).

	(bi)labial		alveolar		palatal		velar		labiovelar	
	-vd	+vd	-vd	+vd	-vd	+vd	-vd	+vd	-vd	+vd
semivowel		<b>v</b>				<b>j</b>				
(20) v	/vó/		[vo <sup>2</sup> ]							
j	/jô/		[jo <sup>24</sup> ]							
(21) v	/èvât/		[e <sup>4</sup> var <sup>45</sup> ]							
j	/èjâp/		[e <sup>4</sup> jaŋ <sup>24</sup> ]							

The palatal and alveolar semivowels are found in word-initial position before the following vowels: /i/, /ɪ/, /e/, /a/, /o/ or /ɔ/ (22).

- (22) i /éjà/ [e<sup>4</sup>ji<sup>4</sup>a<sup>4</sup>] “to aim”  
 i /vínì/ [vi<sup>2</sup>ni<sup>4</sup>] “window (c.7) (borrowed)”  
 ɪ /jî/ [ji<sup>24</sup>] “this (c.7)”  
 ɪ /vî/ [vi<sup>24</sup>] “this (c.3, c.11)”  
 e /jé/ [je<sup>2</sup>] “his/her (c.7)”  
 e /vé/ [ve<sup>2</sup>] “his/her (c.3, c.11)”  
 a /jâ:/ [ja:<sup>24</sup>] “which? (c.7)”  
 a /vâ:/ [va:<sup>24</sup>] “which? (c.1, c.1a, c.3, c.11)”  
 o /jô/ [jo<sup>24</sup>] “your” (sg., c.7)  
 o /vó/ [vo<sup>2</sup>] “where?”  
 ɔ /jó/ [jo:<sup>2</sup>] “their (c.7)”  
 ɔ /vó/ [vo:<sup>2</sup>] “their (c.1, c.1a, c.3, c.11)”

The palatal and alveolar semivowels are found after the onset consonant before /e/, /ɛ/, /a/, /o/ or /ɔ/. Note that the allomorph of /v/ in that position is [ɸ] before the [+front] vowels /e/ and /ɛ/.

- (23) e /èbjê/ [e<sup>4</sup>bje<sup>24</sup>] “Profelis aurata (or Felis aurata)”  
 e /èdvè/ [e<sup>4</sup>dɸe<sup>45</sup>] “to give; to die”  
 ɛ /èpjê/ [e<sup>4</sup>pje:<sup>24</sup>] “to pronounce clearly”  
 ɛ /ètvêl/ [e<sup>4</sup>tɸêl] “to pay the bride-price”  
 a /èpjâ/ [e<sup>4</sup>pja<sup>45</sup>] “to ridicule”  
 a /èbvâk/ [e<sup>4</sup>bva?<sup>45</sup>] “to become bigger”

o	/bjô/	[bjo <sup>24</sup> ]	“your (sg., c.8)”
o	/èbú:ló/	[e <sup>4</sup> búo: <sup>2</sup> lo <sup>2</sup> ]	“pillow (c.5)”
ɔ	/bjô/	[bjɔ: <sup>24</sup> ]	“unripe fruit (c.7)”
ɔ	/Nkúðk/	[ŋkúɔ <sup>45</sup> ]	“swallowed in one gulp”

In addition, /v/ but not /j/ can appear after consonants before /i/ and /ɪ/. Note, however, that the phonemes /v/ and /i/ coalesce, forming [y] (24), while that the phonemes /v/ and /ɪ/ coalescing and form [ɻ] (25). Both are phonetically long in open syllables, but are short in closed syllables (26).

(24)	i	/ètvi/	[e <sup>4</sup> ty: <sup>45</sup> ]	“to be stunted”
(25)	ɪ	/ètvi/	[e <sup>4</sup> ty: <sup>2</sup> ]	“to squeeze between fingernails”
(26)	i	/tɔ̀ik/	[ty <sup>45</sup> ]	“life”
	ɪ	/èntvɪk/	[e <sup>4</sup> nty <sup>2</sup> ]	“joy at being free”

## 5.0 The inventory of phonemes of pitch

5.1 There are two lexical tones: high (´) and low (`), but these tones co-occur on a single vowel, forming four sequences. The sequence of high and low tones is represented by (ˆ) while the sequence of low and high tones is represented by (ˇ).

There is also a low intonational contour, L//, found at the end of utterance. This tone affects the penultimate tone, giving to both high tones a pitch of [2]. This is observed identically in both monosyllabic and bisyllabic nouns (27).

(27)	/ˆ lúmó/	[lu <sup>2</sup> mõ <sup>2</sup> ]	“maggot (c.7)”
	/` bá/	[ba <sup>2</sup> ]	“anguish (c.7)”

A sequence of high and low tones would have pitches [2] and [4].

(28)	/` sâ/	[sa <sup>24</sup> ]	“thing (c.7)”
	/sánà/	[sa <sup>2</sup> nã <sup>4</sup> ]	“a bolt of cloth (c.1)”

A sequence of low and high tones would have the pitch or pitches [4].

(29)	/` bă/	[ba <sup>4</sup> ]	“bark (c.7)”
	/ˆ m̀l̀á/	[mɔ <sup>4</sup> la <sup>4</sup> ]	“lover (c.7)”

A sequence of low tones would have the pitches [45] or [4]...[45].

(30)	/` bà/	[ba <sup>45</sup> ]	“osanga ( <i>Pteleopsis hylodendron</i> ) tree (c.7)”
	/` mà̀m̀à/	[mã <sup>4</sup> mã <sup>45</sup> ]	“insect (c.7)”

The same four sequences of tones are also present with long vowels (31) and with two syllables (32).

(31)	/dá:/	[da: <sup>2</sup> ]	“grassy area (c.5)”
	/dâ:/	[da: <sup>24</sup> ]	“birth village of a married woman (c.5)”
	/dǎ:/	[da: <sup>4</sup> ]	“crab (c.5)”
	/dà:/	[da: <sup>45</sup> ]	“band (c.5)”
(32)	/ˆ lúmó/	[lu <sup>2</sup> mõ <sup>2</sup> ]	“maggot (c.7)”
	/sánà/	[sa <sup>2</sup> nã <sup>4</sup> ]	“a bulk piece of cloth (c.1)”
	/` mà̀l̀á/	[ma <sup>4</sup> la <sup>4</sup> ]	“lover (c.7)”
	/` mà̀m̀à/	[mã <sup>4</sup> mã <sup>45</sup> ]	“insect (c.7)”

5.2 These tones have their expected pitches in nonfinal position. The tones low-high of “bark” are pronounced at pitch levels [4] and [1] before the article **jă**: “the said (c.7)” and the low tone of “osanga” is pronounced at pitch level [4].

- |      |                   |                                      |   |
|------|-------------------|--------------------------------------|---|
| (33) | /` <b>bǎ</b> jǎ:/ | [ba <sup>41</sup> ja: <sup>4</sup> ] | “the said piece of bark (c.7)”                                  |
|      | /` <b>bà</b> jǎ:/ | [ba <sup>4</sup> ja: <sup>4</sup> ]  | “the said osanga ( <i>Pteleopsis hylo dendron</i> ) tree (c.7)” |
|      | /` <b>bá</b> jǎ:/ | [ba <sup>1</sup> ja: <sup>4</sup> ]  | “the said anguish (c.7)”  |
|      | /` <b>sâ</b> jǎ:/ | [sa <sup>14</sup> ja: <sup>4</sup> ] | “the said piece of bark (c.7)”                                  |

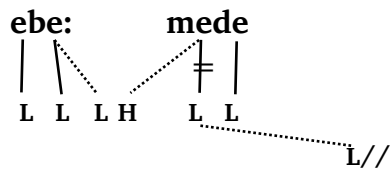
5.3 The interaction between the low intonational tone and the lexical tones can be depicted using autosegmental notation, whereby the intonational lowering tone, L//, associates with high tones, as is indicated by a dotted line of association in (34).

- |      |  |   |                  |
|------|--|---|------------------|
| (34) | /mèncémé/<br><b>menceme</b><br>     <br>L H H<br>L// | [mẽ <sup>4</sup> nɕe <sup>2</sup> mẽ <sup>2</sup> ] | “eyebrows (c.6)” |
|      | eyebrows (c.6)                                       |   |                  |
|      | /` <b>bá</b> /<br><b>ba</b><br>/  \<br>L H H<br>L//  | [ba <sup>2</sup> ]                                  | “anguish (c.7)”  |
|      | c.7 anguish  |   |                  |
|      | /cémè/<br><b>ceme</b><br>    <br>H  L<br>L//         | [ce <sup>2</sup> mẽ <sup>4</sup> ]                  | “monkey (c.1)”   |
|      | monkey (c.1)   |   |                  |
|      | /` <b>sâ</b> /<br><b>sa</b><br>   \<br>L H L<br>L//  | [sa <sup>24</sup> ]                                 | “thing (c.7)”    |
|      | thing (c.7)  |   |                  |

5.4 In addition to lexical tones and the intonational low tone, L//, there is also a floating high replacive tone that is frequently encountered as one of several components of a grammatical morpheme. This high tone associates with an immediately adjacent low tone and disassociates it from its syllable. This disassociated tone can then become the penultimate tone to which the intonational low tone associates. Because it is not associated with a vowel, the lowered or depressed tone lacks the means of expressing its pitch. In (35) one can observe that the high replacive tone meaning “infinitive” disassociates the low tone that is part of the noun class prefix **mè-** of **mèdè** “food (c.6)”. The vacuously-lowered low tone is without any proof of existence. Instead, one hears the prefix **mè-** produced at a high pitch, [1].<sup>1</sup>

<sup>1</sup> This analysis was proposed by Larry Hyman and John Goldsmith in a lively open discussion period following my presentation of these facts in New Haven, at the Conference of African Languages and Linguistics in 1984. What I had initially proposed was a *global* rule: “Intonational lowering causes a penultimate high tone to be produced at level 2 *unless it used to be a low tone.*”

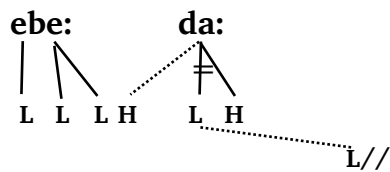
(35) /èbè: méde/ [e<sup>4</sup>be:<sup>4</sup> me<sup>1</sup>de<sup>45</sup>] “to see food”



to:see INF. food (c.6)

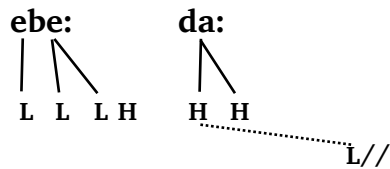
In (36) one can see that the replacement of a low tone creates a context wherein a utterance final word with low and high tones is higher in pitch [<sup>1</sup>] than a word in that same position with two high tones: [<sup>2</sup>].

(36) /èbè: dǎ:/ [e<sup>4</sup>be:<sup>4</sup> da:<sup>1</sup>] “to see a crab”



to:see INF. crab (c.5)

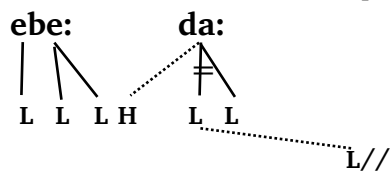
/èbè: dá:/ [e<sup>4</sup>be:<sup>4</sup> da:<sup>2</sup>] “to see a grassy area”



to:see INF. grassy area (c.5)

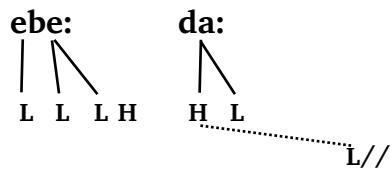
Likewise, in (37) one can see that the replacement of a low tone can also create a context wherein a utterance final word with two low tones is higher in pitch [<sup>14</sup>] than a word in that same position with high and low tones: [<sup>2</sup>].

(37) /èbè: dà:/ [e<sup>4</sup>be:<sup>4</sup> da:<sup>14</sup>] “to see a band (of animals)”



to:see INF. band (c.5)

/èbè: dâ:/ [e<sup>4</sup>be:<sup>4</sup> da:<sup>24</sup>] “to see the natal village (of a woman)”



to:see INF. natal village (c.5)