An Introduction to the Phonology and Grammar of Njyem:

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1 Introduction

Njyem[1] is a Bantu language of the Mekaa-Njem Group (A-80) spoken in the Republic of Cameroon and in the Republic of Congo.[2] Drawing upon my own checked data and supported in the paper by many wave files, I seek to account for the phonology of Njyem.[3] Phonological and grammatical factors interact in producing pitch allophones such as the mid pitch. The adequacy of the proposed phonology is tested in the context of data taken from the domain of the associative construction. All structural types of the associative construction are exemplified.

Speakers of Njyem are predominantly located south of the Dja River in southeastern Cameroon, and they are found in significant numbers as far south as Souanke, in the Republic of Congo. There are colonies of Njyem found in Ouesso, Congo, as well as in Lomié, Cameroon.

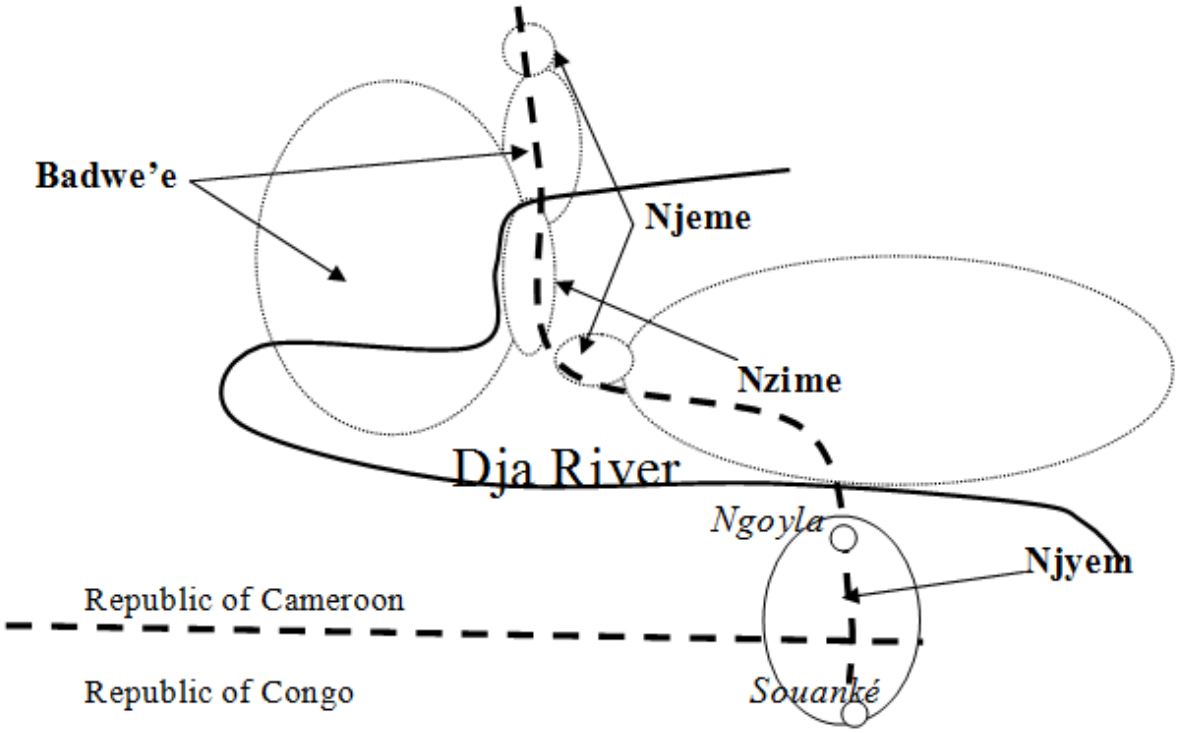


Figure 1: Map of the Njyem area

The phonological description presented here may come short of some expectations, since there is no thorough effort to demonstrate contrast between a given phoneme and every other phoneme. Instead of striving for that goal, I have chosen to present such data in a number of tables in an admittedly cursory manner, doing this in the interest of making more lengthy descriptions of the suprasegmental phonology. The discussion of tones and their pitches has been my particular interest, one that I hope the reader will soon share. The tone data come from both verbal and nominal morphology, either of which could be developed into monograph-sized descriptions. This, too, has been left for another to do. Consequently, the phonology and nominal morphology will be found to be abbreviated in supporting detail and argumentation at one point or another. They nevertheless include insights and data not found elsewhere and not often presented synop-

[1] The language name is pronounced [**ndʒem**[1]], with the pitch numbering convention being as follows: [1] is high and [5] is low.

[2] Njyem is in the Equatorial Bantu Subbranch of Bantu. In *Ethnologue*, it is identified as "NJE". Its phonemic representation is /**ŋjjém**/. Koonzime, its neighbor to the north, is identified as "OZM".

[3] Most of the digital recordings were made for this study by Mr. Baih Merlin, residing in Yaounde, Republic of Cameroon, or by Mr. Nanga-Maniane Jean, of Brazzaville, Republic of Congo. The text of Appendix 3 was given in an oral manner by Mr. Pa'akel Simon de Ville, of a small village near the Congo-Cameroon border.

tically. On balance, I regard this as a phonology that unavoidably makes frequent references to grammatical categories.[4]

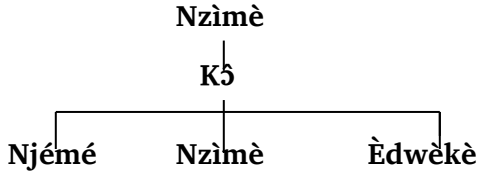
An interesting part of the phonology is the ultimate interpretation of "mid tone". Although it fails to rise to the status of a phonemic mid tone on a par with high and low tones, it has great importance as the union of multiple phonemes. This warrants calling mid a "portmanteau", embodying, as it does, lexical tones and low boundary tones or polar tones.

Separate from this function of a mid-pitch is its predictable and phonetic role, which is noted when high tone noun prefixes dissimilate before high tones in the noun stem.

A bibliography of works on a related language, Koonzime, accompanies this study, followed by appendices, which present sequences of phonemes and varieties of associative constructions.

Three ethnic groups in the Republic of Cameroon and the Republic of Congo understand themselves to be linked by birth to one another and can be referred to as "Koonzime".[5] They share the same kinship system as the Omaha Indians.[6] According to oral tradition, one couple, **Kɔ̂** and **Ampíkí**, gave birth to three brothers in the distant past. The first-born was **Njémé**, the next was named **Nzìmè**, after **Kɔ̂**'s father, and the last-born was named **Èdwèkè**. The genealogical tree of the three brothers is seen in the following diagram.

Diagram 1: The Ancestors of the Koonzime Ethnic Groups



Four ethnic groups in question arose from these three brothers. The descendants of **Èdwèkè** are the Badwe'e ([**ba^{42}.dɥe^{4}.ʔe^{45}**]) and the descendants of **Nzìmè** are the Nzime ([**nzi^{4}.me^{45}**]). The descendants of **Njémé** are the Njeme ([**nɟe^{1}me^{1}**]) and the Njyem ([**ndʒjem^{1}**]).

Two languages are spoken by these ethnic groups: Koonzime and Njyem. Koonzime is spoken by the Nzime, Badwe'e and Njeme people, and it has three dialects: Nzime, Badwe'e and Njeme. The Badwe'e dialect is readily distinguished from the Nzime and the Njeme dialects, due to an innovation: **/s/** in proto-Koonzime gives rise in the Nzime dialect to **/s/**, while in the Badwe'e dialect it corresponds either to **/f/**, **/v/**, **/s/** or **/z/**. The Njeme dialect is very similar to the Nzime dialect, and is best identified by the use of **/ɑdóó/** instead of **/ɑyí/** as the negation marker.

Speakers of the Nzime dialect of Koonzime are ethnically Nzime, and they refer to their language either as "Koonzime" or as "Nzime".[7] Speakers of the Badwe'e dialect are ethnically Badwe'e, who refer to their language either as "Koozime" or as "Badwe'e". Speakers of the Njeme dialect are ethnically Njeme and refer to their language as "Koonzime".

The Njyem language has no significant dialectical variants. The speakers of Njyem are all descendants of **Njémé** and refer to their language as "Njyem". Not all of **Njémé**'s descendants currently speak Njyem, however. It has already been noted that many Njeme now speak Koonzime, and that their dialect is virtually indistinguishable from the Nzime dialect.

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[4] It does not seem possible to do Bantu phonologies without reference to grammatical information. See section 2.1.1.

[5] The expression /**kɔ̂nsìmè**/ is an abbreviation of the expression /**ɟjɛ̌ mé kɔ̂, mwûn mé nsìmè**/, which in the Nzime dialect means "the clan or people of **Kɔ̂**, child of **Nzime**".

[6] As in a typical Omaha kinship system, a male member of ego's mother's clan bears a term loosely translated "uncle", /**kókó**/ in Njyem. A female of ego's mother's clan is /**ɲɔ̌ŋ**/, which is loosely translated "mother". Generational factors assist in identification only with regard to members of the father's clan. A male of ego's father's clan is /**sɔ́ŋ**/ "father", while a sister of such a person is called /**mém**/ "aunt".

[7] Speakers of the Nzime dialect say [**kɔ:^{14}.nzi^{4}.me^{45}**], voicing the /**s**/ when it follows /**n**/. The Badwe'e drop the /**n**/ and voice the resulting /**s**/: [**kɔ:^{14}.zi^{4}.me^{45}**]. The speakers of Njyem maintain the voicelessness of /**s**/, as seen in the following: [**kɔ:^{14}.nsi^{4}.mo^{45}**], which varies freely with [**kɔ:^{14}.nʃi^{4}.mo^{45}**].

Mutual intelligibility testing supports the conclusion that the majority of the descendants of **Njémé** now speak their own unique language, Njyem.

Having documented many features of the grammar and phonology of the Badwe'e and the Nzime, as is reflected in the bibliography, I now address the language of the Njyem, those sons and daughters of the elder brother, **Njémé**, who have not adopted the Koonzime language. Those descendants of **Njémé** who adopted Koonzime as their language did so because of their geographic proximity to the Nzime. They are all north of the Dja River, either in the city of Lomié, in the neighboring villages, or farther to the north. These descendants of **Njémé** no doubt consider that they are in their own home areas, but contact with the Nzime has deprived them of the opportunity to develop a distinct language.

Those descendants of **Njémé** living south of the Dja River were in an area that favored the development of their linguistic and ethnic distinctiveness. They now speak Njyem and refer to themselves as the Njyem people. The Dja River is very wide and crossed only by dugout canoes or by a ferry. Njyem villages extend from the Dja River to the small city of Souanké, located in the Republic of Congo. Another small city, Ngoyla, is found in the Republic of Cameroon.

2 Phonology

The phonological description of a tonal language will necessarily deal with the tonal components of speech as well as the segmental components. The tonal components interact with intonational contours to produce meaningful variations in the frequency of the voice. This "suprasegmental" aspect of Njyem will be presented together with the segmental elements—consonants, vowels and semivowels—but will not be given explicit attention until the part of the phonology that sets out to account for the suprasegmental aspects of this language, that being §2.2.

I present now a brief overview of the segmental phonology of Njyem.

2.1 Segmental Phonology

The segmental phonology of Njyem consists of twenty vowels, two semivowels and eighteen consonants.

2.1.1 Grammatical Influences on Njyem Phonology

It is always preferable to have natural rules in a phonology, and therefore it is desirable to have allophonic alternations depend on phonological environments. Any language description which has succeeded in referring solely to phonological factors can be cited as evidence that the pursuit of "Autonomous Phonology" is at times a rewarding possibility.

Such a description of the Njyem phonology seems contrary to the facts of the language, however, so references will be made in this phonology to nonphonological environments for allophonic variations. "Grammatical boundaries" have significant relevance to even the most abbreviated phonology of Njyem, as proved to be the case for both dialects of Koonzime.

Were morphological boundaries to have some aspect that had phonological weight, there would be no need to refer to them, but such is not the case. This will be further examined with respect to prefixes and suffixes.

2.1.1.1 The Boundary between Prefix and Stem

Speech is always in the context of silence, and as such one must acknowledge that purely phonological boundaries to speech exist, these being the pauses before and after utterances. One can truly say of the /**k**/ in (1) and the /**m**/ in (2) that they are in the same phonological environment—that existing following a pause or at the beginning of an utterance.

(1) [**kʊ**^{4}] /**ʟ-kŭ**/
"foot/leg" (c.3)

(2) [**me**^{4}**.kʊ**^{4}] /**mè-kŭ**/
"feet/legs" (c.6)

A nonphonological boundary also exists which is of comparable saliency—that constituted by the onset of the *stem*. In the phonology of Njyem, it proves important to make frequent reference to this grammatical boundary, such as by observing that both the **/k/**'s of (1) and (2) are in the same *grammatical* environment: stem-initial position. The allophone of **/k/** is identical in both these cases because it has the same position relative to the onset of the stem. Note in (3) that a rule can specify the allophone of /k/ by making reference to the beginning of a morpheme ("-__") rather than the beginning of a word ("#__").

(3) **/k/ → [k] /-__** "the allophone of **/k/** is [**k**] in stem-initial position"

2.1.1.2 The Boundary between Stem and Suffix

Another place in the word where a morphological boundary enters into allophonic rules is the intersection of root and suffix. The words in (4) and (5) are both nouns, but they differ greatly with regard to their morphology. The former is derived from a verb, and the end of the verb stem is **/k/**. This phoneme is therefore in stem-final but word-medial position. The word in (5) is not derived from a verb, and the **/k/** is in stem-medial position. The phoneme **/k/** has different allophones depending on its position in the stem, a purely grammatical category. A linguistic rule that "knows" nothing about morphology and that limits itself to phonological factors would maintain, on the basis of (4) and (5), that [**g**] and [**ʔ**] were contrasting phones in identical environments. That would be true if one concerned oneself only with *phonological* environments, but phonological factors are not the sole objects of one's concern.

(4) **[kʋɑ⁴.gɑ⁴]**
"graven, engraved, carved" (c.3)

(5) **[kʋɔ⁴.ʔɔ⁴]**
"fallen trunk" (c.3)

As soon as morphology is taken into account, a more complex picture emerges. As is seen in (6), a morphological boundary exists before the nominalizing suffix, a suffix which makes gerunds of verbs. The verb it has nominalized is **/lè-kʋɔ̀k/** [**le⁴.kʋɑʔ**[45]] "to carve or engrave".[8] Even though the **/k/** phonemes in the second position in (4) and (5) are both in intervocalic position, they differ significantly with regard to the grammatically-defined environment, the second **/k/** of (7) being in stem-*final* position. This factor accounts for why it undergoes voicing.

(6) **[kʋɑ⁴.gɑ⁴]** **/L-kʋɔ̀g-á/**
"graven, carved" (c.3)

(7) **[kʋɔ⁴.ʔɔ⁴]** **/L-kʋɔ̀kɔ́/**
"fallen trunk" (c.3)

The rule is presented in (8).

(8) **/k/ → [g] / V__-V**
"the allophone of **/k/**is voiced ([**g**]) in stem-final position intravocalically"

2.1.1.3 The Boundary between Stems in a Word

A third boundary within the word is that which exists between one stem and another. Words of this kind include kinship terms and possessive pronouns.[9] An example in Njyem is found in (9), where the expression "my paternal aunt" is a phrase, and in (10), where it is a word.

[8] The use of two high or two low tone marks (/**a̋**/ or /**à**/, respectively) indicates that two tones are associated with, or have spread to, the same vowel. In other papers, these conventions may have a different usage, such as indicating a super-high or a super-low tone, but that is not the case here.

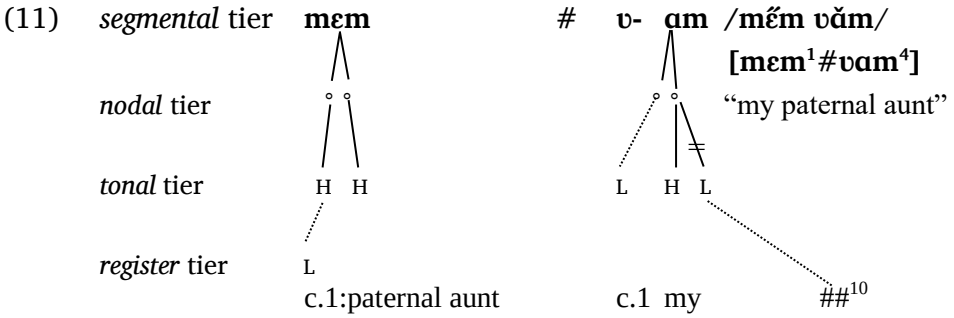
[9] The formation of one word from two has an analogy in English, where "blackbird" is the product of "black" and "bird", but is a single word.

(9) **/mɛ́m ʊ-ă̌m/** **[mɛm¹#ʊɑm⁴]**
"my paternal aunt" (two words)

(10) **/mɛ́m-ɑ̂m/** **[mɛ¹.mɑm¹⁴]**
"my paternal aunt" (one word)

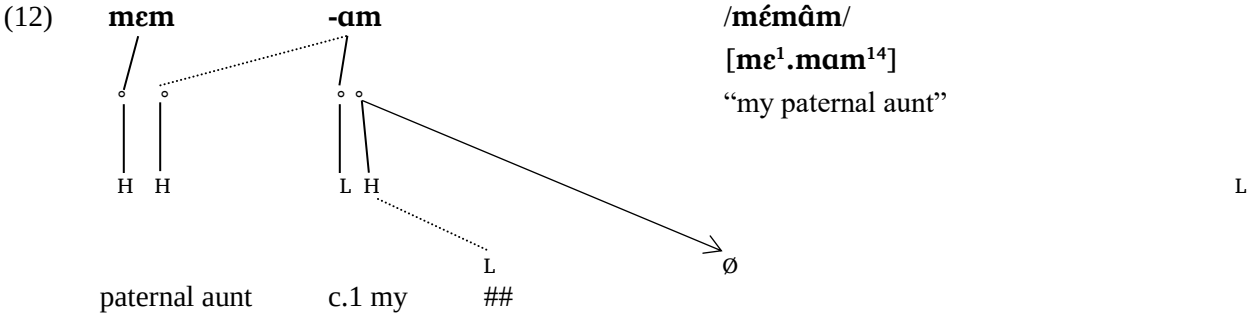
It should be noted in (10) that several things have happened to generate the word meaning "my paternal aunt". The most obvious of these changes is the dropping of the prefix of the possessive pronoun, such that the root, **/-ă̌m/**, now lacks a segmental indication of class membership. The second change is not immediately apparent, having to do with the assignment of tones to tone-bearing units and the number of nodes per final base. These changes become evident only through the use of autosegmental notation. As is seen in (11), the nodal tier of (9) consists of four nodes, two for each vowel. (The second stem tone of the possessive pronoun, low, is deleted because it is the third tone of a single syllable.)

(11)



The noun phrase in (9) and (11) may undergo reduction to a single word of two syllables, as in (12).

(12)



Two morpheme structure conditions enter into the formation of (12). The first concerns the number of nodes permitted for a base, requiring that a base possess no more than one node more than the number of its syllables. A disyllabic base, such as is seen in (10) and (12), is therefore limited to having no more than *three* nodes. The second morpheme structure condition (abbreviated "MSC") concerns the number of tones per node, requiring that a node have no more than two tones.

In (12), the problem of four nodes for a disyllabic base is eliminated by shedding the fourth node and associating the second and third nodes to the second syllable.

The second MSC—which concerns the number of *tones* permitted—is also solved by tonal deletion. The first three tones are assigned to the first three nodes, and all other tones are deleted. The second and third nodes are then associated with the second syllable.

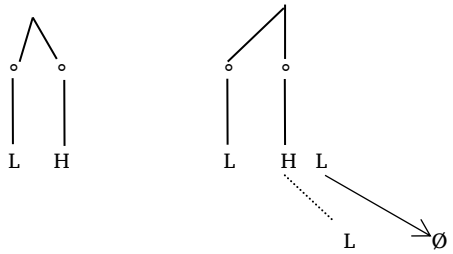
Examples (13) and (14) provide further examples of what occurs when the tones on both sides of the inter-stem boundary are nonidentical. Tone-deletion occurs, as was seen in (12) since they were nonidentical. Instead, the second node of the first stem is assigned to the second stem,[11] and the fourth tone and node are

[10] At the end of utterance, a low boundary tone exists which lowers the pitch of a high tone to the level of a preceding *low* tone.

[11] The association shown here of a node from one stem to another amply warrants the creation of a separate tier for nodes.

deleted. This reflects the application of the morpheme structure condition mentioned above, which stipulates that no more than two tones may associate with a single syllable.

(13) **ci** **ʋ- ɑm** **/cǐ vǎm/**

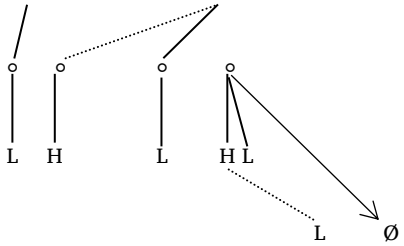


[tʃi^{41}#ʋɑm^{4}]

"my in-law"

c.1:in-law c.1 my ##

(14) **ci - ʋ- ɑm** **/cìvâm/**



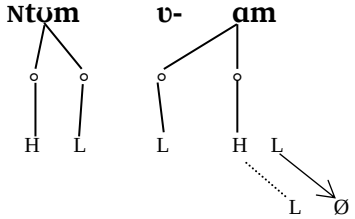
[tʃi^{4}.ʋɑm^{14}]

"my in-law"

c.1:in-law c.1 my ##

In other cases of base-building, however, conditions exist in which tones *coallesce* with a shared node. Tone-coallescence is similar to tone deletion in the effect that they have, decreasing the number of tones. Coallescence ccurs when contiguous tones in adjacent word-building morphemes are identical, however, as is seen in (15), where one notes there that the second tone of "brother of a female ego" is low and identical to the first tone of "my". These two low tones can associate with the same node, since they are contiguous across a morpheme boundary. The second tone of "my" is associated with the first node of that morpheme. The remaining tone is deleted, since it would be the fourth tone of a two syllable word, exceeding the maximum allowable number of tones. The second and third nodes, with their tones are then associated with the second syllable. The fourth and final node is then deleted.

(15) **Nʊm** **ʋ- ɑm** **/Nûm vǎm/**[12]



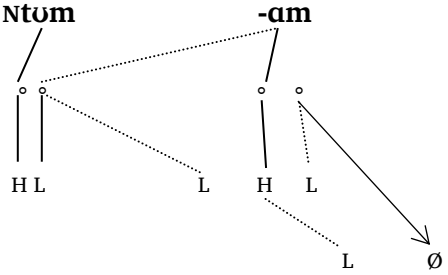
[nʊm^{14}#ʋɑm^{4}]

"my brother (ego is female)"

brother c.1 my ##

[12] The character **N** represenets a nasal archiphoneme. Such a notation is found before oral consonants, before which there is a loss of contrast between the nasal phonemes. The point of articulation of a nasal archiphoneme is predictable, being the same as that of the following consonant. For more on this, see §2.1.4.6.

(16) **Ntʊm -ɑm** **/Ntʊ́mắm/**



[ntʊ¹.mɑm⁴]

"my brother (ego is female)"

brother c.1 my ##

The deletion of /**ʊ**/ in (12) and in (16) but not in (14) can be accounted for with reference to the phoneme present in the syllable-final position of the preceding word. When the preceding word ends in a consonant, /ʊ/ is deleted (12), but not when it ends in a vowel (14). Reference to morpheme boundaries in a phonology is not ideal but is, in Njyem at least, an unavoidable necessity. Word boundaries and morpheme boundaries constitute different environments for tonal processes, as has been seen in the preceding data. These and other boundaries will be referred to in the balance of this phonology.

2.1.2 Vowels

The vowels are seen in Table 1, which gives their features. Note that there is a level of openness that I call "Close-mid". The vowels at this level do not have the phonetic properties which would be required of "lax" vowels, since the tongue tip is as flat and tense as it is with the vowels on the levels above and below them. Their allophones are indicated in Table 2. A discussion of certain difficult points of interpretation will follow.

Table 1: Inventory of Vocalic Phonemes

	–Back		+Back	
	–Round	+Round	–Round	+Round
Close	**i**			**u**
Close-mid	**ɪ**			**ʊ**
Open-mid	**e**			**o**
Open	**ɛ**	**œ**	**ɑ**	**ɔ**

Table 2: Vocalic allophones of Njyem[13]

Phon-emes	Allo-phones	Environment	Examples		Translations
			Phonemic	Phonetic	
i	**[y] ~ [ɥi]**	as a portmanteau together with /ʊ/ in other than a –CV# base	**ʟ-lʊ́ĭb**	**[lyb⁴]**	"speech"
		without change to [**y**]	**lè-ɟʊ́ː́b-i-ʟ**	**[le⁴.dʒɥiː¹⁴.bi⁴⁵]**	"to worship"
	[i]	elsewhere	**lè-lí-ʟ**	**[le⁴.li²⁴]**	"to clear brush"
ɪ	**[ʏ] ~ [ɥɪ]**	as a portmanteau together with /**ʊ**/ in other than a –CV# base	**ʟ-mʊ́ĭd**	**[mʏɾ⁴]**	"medicine"
	[ɪ]	elsewhere	**lè-lí-ʟ**	**[le⁴.lɪ²⁴]**	"to give counsel"
e	**[e]**		**lè-lé-ʟ**	**[le⁴.le²⁴]**	kick [a ball]"
ɛ	**[ɛ]**		**kɛ́l**	**[kɛl²¹]**	"sister of male ego"
ɑ	**[ɑ]**		**lè-là-ʟ**	**[le⁴.lɑ⁴⁵]**	"to block or bar the way"

[13] The predictable lengthening of vowels will be discussed in §2.1.2.2. Nasalization of vowels is discussed in §2.1.2.3.

Phon-emes	Allo-phones	Environment	Examples		Translations
			Phonemic	Phonetic	
œ	**[œ]**		**lè-lɔ̀m-L**	**[lœm^{45}]**	"anoint, paint"
u	**[ũ]**	between nasal consonants	**lè-múŋ-ò**	**[le^{4}.mũ^{1}.ŋo^{14}]**	"to be delighted"
	[u]	elsewhere	**lè-lû**	**[le^{4}.lu^{24}]**	"night"
ʊ	**[ʊ̃]**	between nasal consonants	**L-nʊ̌n**	**[nʊ̃n^{4}]**	"bird"
	[ʊ]	elsewhere	**lè-lʊ́-L**	**[le^{4}.lʊ^{24}]**	"to bite"
o	**[o]**		**l-ô**	**[lo^{24}]**	"your (sg.) c.5"
ɔ	**[ɔ̃]**	between nasal consonants	**ɲɔ̌ŋ**	**[ɲɔ̃ŋ^{4}]**	"mother"
	[ɔ]	elsewhere	**ɲɔ̂**	**[ɲɔ^{24}]**	"this (c.9 or 10)"

2.1.2.1 The Phonemic Status of Length

All vowels are contrastively long or short, with length being interpreted as part of the phoneme. This is seen in (17), in which the contrasts are found in open syllables.

(17) /V/ ≠ /V:/

/cǐ/	**[tʃi^{4}]**	"in-law (c.1)"
/cí́:/	**[tʃi:^{1}]**	"neck (c.9)"
/L-bí́/	**[bɪ^{2}]**	"hole (c.7)"
/lè-bí:-L/	**[le^{4}.bɪ:^{24}]**	"to enchant, or cast an evil spirit into a person"
/lè-bè-L/	**[le^{4}.be^{45}]**	"to plant"
/lè-bè:-L/	**[le^{4}.be:^{45}]**	"to see"
/bè-bʋé-là/	**[be^{4}.bʋɛ^{1}.lɑ^{4}]**	"midwives (c.2)"
/lè-gʋé:-bɑ-L/	**[le^{4}.gʋɛ:^{1}.bɑ^{14}]**	"to unravel"[14]
/bœ́hœ́/	**[bœ^{2}.hœ^{2}]**	"pond"
/lè-gœ́:-L/	**[le^{4}.gœ:^{14}]**	"to burn the hairs of an animal"
/L-sɑ̂/	**[sɑ^{24}]**	"thing"
/lè-sɑ́:-L/	**[le^{4}.sɑ:^{24}]**	"to look for"
/L-kʊ̌/	**[ku^{4}]**	"hole (c.3)"
/L-kʊ̀:/	**[ku:^{45}]**	"mosquito (c.7)"
/ɟʊ̀ /	**[ɟʊ^{45}]**	"vomit"
/L-ɟʊ́:/	**[dzʊ:^{1}]**	"game (c.7)"
/mè-gô/	**[me^{4}.go^{24}]**	"quarrels (c.6)"
/bì-gô:/	**[bi^{4}.go:^{24}]**	"fines (c.8)"
/ɲ-ɔ̂/	**[ɲɔ^{24}]**	"this/these (c.9 or c.10)"
/ɲ-ɔ́:/	**[ɲɔ:^{2}]**	"their (c.9 or c.10)"

Contrastive length of most vowels is also found in open syllables following /**ʋ**/, as is seen in (18). Note, however, the absence in the data of /**ʋ**/ before /**œ**/, /**œ:**/, /**u**/, /**u:**/, /**ʊ**/ and /**ʊ:**/.

(18) /ʋV/ ≠ /ʋV:/ in open syllables

/mpʋî/	**[mpy^{14}] ~ [mpɥi^{14}]**	"white hairs"
/bè-pʋí:/	**[be^{4}.py:^{2}] ~ [be^{4}.pɥi:^{2}]**	"instances of begging"
/lè-bʋì-L/	**[le^{4}.bʏ^{45}] ~ [le^{4}.bɥɪ^{45}]**	"to receive or take"
/lè-bʋì:-L/	**[le^{4}.bʏ:^{45}] ~ [le^{4}.bɥɪ:^{45}]**	"to restrain, separate"
/pʋè.lé.lé/	**[pʋe^{4}.le^{1}.le^{1}]**	"explicitly"
/lè-ɟʋé:l-o-L/	**[le^{4}.ɟɥe:^{1}.lo^{24}]**	"to guard lest it flee"

[14] This is derived from the verb /-**gʋé**-/, "undo, take apart".

/gʊè-bà/	**[gʊɛ⁴.bɑ⁴⁵]**	"comb"
/lè-gʊè:-bɑ-L/	**[le⁴.gʊɛ:⁴.bɑ:⁴⁵]**	"to come apart"
/lè-gʊá- L/	**[le⁴.gʊɑ²⁴]**	"to place"
/lè-gʊà:- L/	**[le⁴.gʊɑ:⁴⁵]**	"to develop"
/sʊɔ́l-à:/	**[sʊɔ¹.lɑ:²⁴]**	"united all at once"
/lè-sʊɔ̀:b-ɑ-L/	**[le⁴.sʊɔ:⁴.bɑ:⁴⁵]**	"to occur by chance"

Long vowels contrast with short vowels in closed syllables as well, given the existence of verbs with that have a long vowels that receive the **[-ˆŋ]** imperative, hortative or augmentative suffix[15]. This is seen in Table 3 with regard to words without **/ʊ/** in the onset and in Table 4 with the complex onset.

Table 3: Contrasts between long and short vowels in closed syllables (without /ʊ/)

	l o n g v o w e l s			s h o r t v o w e l s		
i ≠ i:	**/fì:-ˆŋ/**	**[fi:ŋ⁴¹⁴]**	become numerous (impv)	**/lè-lìŋ-L/**	**[le⁴.liŋ⁴⁵]**	to transform
ɪ ≠ ɪ:	**/bí:-ˆŋ/**	**[bɪ:ŋ¹⁴]**	enchant (impv)	**/lè-dìŋ/**	**[le⁴.dɪŋ⁴⁵]**	to hammer on
e ≠ e:	**/bè:-ˆŋ/**	**[be:ŋ⁴¹⁴]**	see (impv)	**/lè-déŋ-L/**	**[le⁴.deŋ¹⁴]**	to wander around
ɛ ≠ ɛ:	**/lé:-ˆŋ/**	**[lɛ:ŋ¹⁴]**	say (impv)	**/lè-lèŋ-L/**	**[le⁴.lɛŋ⁴⁵]**	to allow to pass on
œ ≠ œ:	**/gœ́:-ˆŋ/**	**[gœ:ŋ¹⁴]**	burn the hairs off (animals) (impv)	**/lè-bœ̌ŋ/**	**[le⁴.bœŋ⁴]**	the eaves of the house
ɑ ≠ ɑ:	**/sá:-ˆŋ/**	**[sɑ:ŋ¹⁴]**	look for (it) (impv)	**/kpɑ́ŋ/**	**[kpɑŋ²]**	calao

Table 4: Contrasts between long and short vowels in closed syllables (with /ʊ/)

	l o n g v o w e l s			s h o r t v o w e l s		
ʊi ≠ ʊi:	**/ɟʊí:-ˆŋ/ [dʒɥi:ŋ¹⁴]~[dʒy:ŋ¹⁴]**	lend (impv)		**/lè-ntʊíŋ-L/ [le⁴.ntɥi:ŋ¹⁴] ~ [le⁴.ntyŋ¹⁴]**		to abandon
ʊɪ ≠ ʊɪ:	**/ɟʊì:-ˆŋ/ [dʒɥɪ:ŋ⁴¹⁴]~[dʒʏ:ŋ⁴¹⁴]**	wash (impv)		**/lè-kʊìŋ-L/**	**[le⁴.kʊɪŋ⁴⁵]**	to incline the ear to hear better
ʊɛ ≠ ʊɛ:	**/kʊé:-ˆŋ/ [kʊɛ:-ŋ¹⁴]**	flee (impv)		**/mè-kʊèŋ/**	**[me⁴.kʊɛŋ⁴⁵]**	a way of fishing

The data shown above supports the contrastiveness of long and short vowels, but it is clear that the data is not uniformly strong. Where data tends to be weaker is in cases of **/œ/** and **/œ:/**, **/ɔ/** and **/ɔ:/**, and **/ɛ/** and **/ɛ:/**.

1. The contrast between **/œ/** and **/œ:/** was found between a monosyllabic verb root and an bisyllabic noun stem:
   /lè-gœ́:-L/ **[le⁴.gœ: ¹⁴]** "to burn off the hairs of an animal"
   /bœ́hœ́/ **[bœ².hœ²]** "pond"[16]
2. Regarding **/ɔ/** and **/ɔ:/**, the supporting data is found in the concording elements of the noun phrase: a deictic and a possessive pronoun.
   /ɲ-ɔ̂/ **[ɲɔ²⁴]** "this/these (c.9 or c.10)"
   /ɲ-ɔ̋:/ **[ɲɔ:²]** "their (c.9 or c.10)"[17]
3. In the case of **/ɛ/** and **/ɛ:/**, the available contrast is limited to the first syllable of disyllabic verbs.

[15] For a comprehensive explanation of the allomorphs of this suffix, see "La morphologie de l'impératif et du subjonctif en njyem" par K. Beavon, 2006.

[16] Ideophones widely known for containing sounds that lie outside the regular sound system of a language. Given that proviso, I would nevertheless offer the following data that supports the existence of a short /œ/: **/bœ̀bœ̀bœ̀/** **[bœ⁴.bœ⁴.bœ⁴⁵]** "(an intervening period of time has passed by)".

[17] Another example of a phonetically short /ɔ/ from a noun phrase constituent is **/ɲɔ́/** "the aforementioned (c.9/10)".

/**bè-bʊé-là**/ [**be⁴.bʊɛ¹.lɑ⁴**] "midwives (c.2)"
/**lè-gʊé:-bɑ-L**/ [**le⁴.gʊɛ:¹.bɑ¹⁴**] "to unravel"

2.1.2.2 The Phonemic Status of Nasalization

The vowels /**u**/, /**ʊ**/, /**o**/ and /**ɔ**/—the [–front] vowels other than /**ɑ**/—are nasalized between nasal consonants. Only in this section of the phonology will phonetic nasalization be noted, however.

Examples of the nasalization of /**ɔ**/ and /**ʊ**/ are found in (19) and (20).

(19) /**ɲɔ̌ŋ**/ [**ɲɔ̃ŋ⁴**] "mother/maternal aunt (c.1)"

(20) /**nù-ɔ̌ŋ**/ [**nʊ̃ɔ̃ŋ⁴**] "take (imperative)"

There is no perceptible nasalization of vowels apart from /**u**/, /**ʊ**/, /**o**/ and /**ɔ**/. This can be seen in (21) and (22).

(21) /**mè-ɲɑ̀n**/ [**me⁴.ɲɑ̃n⁴⁵**] "courage (c.6)"

(22) /**m-ɑ̂ɲ**/ [**mɑ̃ŋ²⁴**] "ocean (c.6)"

2.1.2.3 The Phonemic Status of Front Rounded Vocoids

There are three front rounded vocoids—[**y**], [**ʏ**] and [**œ**]—as is seen in (23).

(23) [**y**] /**L-lwɨ̌b**/ [**lyb⁴**] "language"
/**lè-sʊík-L**/ [**le⁴.ʃyʔ²⁴**] "to return"

(24) [**ʏ**] /**lè-sʊ̀ì:**/ [**le⁴.sʏ:⁴⁵**] "death"
/**lè-ɟʊ̂ì**/ [**le⁴.dzʏ²⁴**] "viper"
/**lè-Nsʊ́ɨ́:**/ [**le⁴.nsʏ:²**] "poverty"

(25) [**œ**] /**lè-lɔ̀:-L**/ [**le⁴.lœ:⁴⁵**] "nest of a hornbill"

The first of these front rounded vocoids, [**y**], is in complementary distribution with the sequence /**ʊ**/ plus /**i**/, but it is also in free variation with the sequence [**ɥi**], as is seen in (26).

(26) [**ɥi**] /**Npʊíó**/ [**mpɥi¹.o¹**] "rain"
/**lè-ɟʊ̂ì:b-ì**/ [**le.dʒhi:¹⁴.bi⁴⁵**] "to worship"

The second of these, [**ʏ**], is in complementary distribution with the sequence /**ʊ**/ plus /**ɪ**/ and in free variation with the sequence [**ɥɪ**], as is observed in (27).

(27) [**ɥɪ**] /**lè-bʊ̀ì-L**/ [**le⁴.bʏ⁴⁵**]~ [**le⁴.bɥɪ⁴⁵**] "to receive"

By analogy, one might expect to find that the remaining front rounded vocoid, /**œ**/, is in complementary distribution as well, either with the sequences of /**ʊ + e**/ or /**ʊ + ɛ**/. The data in (28) and (29) shows, however, that [**œ**] is in contrast with these sequences. The conclusion I reach is that [**œ**] is a phoneme.

(28) /**œ**/≠/**ʊ + e**/ /**lè-bʊéh-L**/ [**le⁴.bɥeh²⁴**] "to despise"
/**mè-N-pɑ́ehɑ́**/ [**me⁴.mpœ².hœ²**] "ponds"
/**lè-dʊèh-L**/ [**le⁴.dɥeh⁴⁵**] "to flash"
/**d-ɑ̂eh**/ [**dœh²⁴**] "small quantity, handful; plantain (sp.)"

(29) /**œ**/≠/**ʊ + ɛ**/ /**lè-kʊɛ́:-L**/ [**le⁴.kʊɛ:²⁴**] "to flee"
/**kɑ̂e:**/ [**kœ:²⁴**] "Cercopithecus nictitans"[18]
/**lè-bʊɛ́-l-L**/ [**le⁴.bʊɛl²⁴**] "to assist in giving birth"[19]
/**lè-bɑ̀e-l- L** / [**le⁴.bœl⁴⁵**] "to make something rot"[20]

[18] This is a species of a monkey.
[19] This is derived from the verb /**-bʊɑ́-**/, "give birth"

2.1.3 Consonants and Semivowels

There are twenty consonants and semivowels in the Njyem language, as is reflected in Table 4. The allophones of these consonants are found in Table 5. The phonemes **/kp/** and **/gb/** are doubly-articulated labial-velar stops.

Table 4: Inventory of Consonant Phonemes

		Labial	Alveolar	Palatal	Velar	Labialvelar
Stop	vl	**p**	**t**	**c**	**k**	**kp**
	vd	**b**	**d**	**ɟ**	**g**	**gb**
Fricative	vl	**f**	**s**		**h**	
Nasal	vd	**m**	**n**	**ɲ**	**ŋ**	
Lateral	vd		**l**			
Glide	vd	**ʋ**		**j**		

Table 5: Allophones of Njyem Consonants

Phon-emes	Allo-phones	Environment	Examples		Translation
			Phonemic	Phonetic	
p	**[p]**	stem-initial	**lè-pú-L**	**[le⁴.pu²⁴]**	"to dig"
b	**[b]**	stem-initial	**lè-bá-L**	**[le⁴.bɑ²⁴]**	"to marry"
		stem-medial	**bì-pàbâ:**	**[bi⁴.pɑ⁴.bɑ:²⁴]**	"scales"
		stem-final	**L-tàb**	**[tɑb⁴⁵]**	"goat"
t	**[t]**	stem-initial	**L-tàb**	**[tɑb⁴⁵]**	"goat"
d	**[d]**	stem-initial	**lè-dú-L**	**[le⁴.du²⁴]**	"to follow"
	[ɾ]	elsewhere	**lè-bjéd-L**	**[le⁴.bjeɾ²⁴]**	"to mount up"
c	**[tʃ]**	before [+high]	**cícîl**	**[tʃi¹.tʃil¹⁴]**	"calm"
			cjêm	**[tʃjem²⁴]**	"monkey"
	[ts]	elsewhere	**lè-cén-ê**	**[le⁴.tse².ne²⁴]**	"to change"
ɟ [21]	**[dʒ]**	before [+high]	**lè-dʒíl-ô**	**[le⁴.dʒi².lo²⁴]**	"to become satisfied"
			lè-dʒè- L	**[le⁴.dʒje⁴⁵]**	"tooth"
	[dz]	elsewhere	**lè-dzò- L**	**[le⁴.dzʊ⁴⁵]**	"to climb"
k	**[k]**	stem-initial	**mè-kǎn**	**[me⁴.kɑn⁴]**	"words"
	[ʔ]	stem-medial	**kókó**	**[kʊ¹.ʔʊ¹]**	"maternal uncle"
		stem-final	**lè-ɟvɛ̀k-L**	**[le⁴.dʒɥɛʔ⁴⁵]**	"to know"
		stem-final, intervocalic after [+high] vowel	**dík-î:**	**[di¹.ʔi:¹⁴]**	"burn [it]"
	[g]	stem-final, intervocalic after [–high] vowel	**kvàk-â:**	**[kvɑ⁴.gɑ:¹⁴]**	"engrave, carve [it]"
			ɟvìk–î:	**[dzʏ⁴.gɪ:¹⁴]**	"measure, propose [it]"
g	**[g]**	stem-initial	**lè-gʊ̌l**	**[le⁴.gʊɔl⁴]**	"ear"
		stem-medial	**sìgò**	**[ʃi⁴.go⁴⁵]**	"fire"
kp	**[kp]**	stem-initial	**kpàkpà**	**[kpɑ⁴.kpɑ⁴⁵]**	"toothbrush"
gb	**[gb]**	stem-initial	**ngbìngbìm**	**[mŋgbɪ⁴. mŋgbɪm⁴⁵]**	"lion"
f	**[f]**	stem-initial	**lè-Nfâŋ**	**[le⁴.ɱfɑŋ²⁴]**	"to do on purpose"
s	**[ʃ]**	stem-initial before [+high]	**sǐ**	**[ʃi²¹]**	"earth"
			lè-sjêh	**[le⁴.ʃjeh²⁴]**	"young woman"

[20] This is derived from the verb /**-bò-**/, "rot".

[21] Since the voiced palatal stop [**ɟ**] never appears as one of this phoneme's allophones, this constitues an instance of absolute neutralization. See section 2.1.4.3.

Phon-emes	Allo-phones	Environment	Examples		Translation
			Phonemic	Phonetic	
	[s]	stem-initial before [–high] vowels	**sə̋ŋ**	**[sɔŋ^{21}]**	"father"
		stem-medial, V._	**jèsè**	**[je^{4}.se^{45}]**	"prow"
		stem-medial, C._	**lè-ɲèks-à**	**[le^{4}.ɲɛʔ^{4}.sɑ^{45}]**	"to itch"
		stem-final	**lè-fàs-L**	**[le^{4}.fɑs^{45}]**	"reflect"
h	**[h]**	stem-final	**L-pêh**	**[peh^{45}]**	"a piece; a part"
		stem-medial	**L-Npìhà**	**[mpi^{4}.hɑ^{45}]**	"an ear of corn"
l	**[l]**	stem-initial	**L-lô**	**[lʊ^{24}]**	"head"
		stem-final	**kɛ́l**	**[kɛl^{21}]**	"sister of a male ego"
m	**[m]**	stem-initial, stem-final	**mɛ́m**	**[mɛ̃m^{1}]**	"paternal aunt"
n	**[n]**	stem-initial, stem-final	**nŏn**	**[nõn^{4}]**	"bird"
	[ŋ]	stem-initial, / ._**f**	**lè-nfâŋ**	**[le^{4}.ŋfɑŋ^{24}]**	"to do on purpose"
	[mŋ]	stem- initial, / ._**gb/kp**	**ngbìngbìm**	**[mŋgbɪ^{4}. mŋgbɪm^{45}]**	"lion"
ɲ	**[ɲ]**	stem-initial, word-initial	**ɲŏŋ**	**[ɲõŋ^{4}]**	"mother"
		stem-initial, word-medial	**bè-ɲŏŋ**	**[be^{4}.ɲõŋ^{4}]**	"mothers"
ŋ	**[ŋ]**	stem-initial, word-initial	**ŋú-ŋʊɛ́h-ɛ̂:**	**[ŋũ^{1}.ŋʊɛ^{1}.hɛ:^{14}]**	"Strike repeatedly!"
		stem-initial, word-medial	**lè-ŋʊɛ̂h**	**[le^{4}.ŋʊɛh^{14}]**	"to strike"
		stem-medial, word-medial	**sə́ŋá**	**[sɔ^{2}.ŋɑ^{1}]**	"well (n.)"
		stem-final, word-final	**sə̋ŋ**	**[sɔŋ^{21}]**	"father"
		stem-final, word-medial	**nsjèŋ-á**	**[nsjɛ^{4}.ŋɑ^{4}]**	"assembly"
ʊ	**[y]**	by optionally coallescing with /**i**/	**L-lʊ̌ĭb**	**[lyb^{4}]**	"speech"
	[ʏ]	by optionally coallescing with /**ɪ**/	**lè-ɟʊîl**	**[le^{4}.dzʏl^{24}]**	"Gabon viper"
	[ɥ]	before /**i**/, without fusion[22]	**NpʊíÓ**	**[mpɥi^{2}.o^{2}]**	"rain"
		before /**ɪ**/, without fusion[23]	**lè-ɟʊí:-L**	**[le^{4}.dzɥɪ:^{24}]**	"to govern"
		before /**e**/	**lè-ɟʊe-L**	**[le^{4}.dʒɥe^{45}]**	"to die"[24]
		before /**ɛ**/	**lè-ɟʊɛ̀k-L**	**[le^{4}.dʒɥɛʔ^{45}]**	"to know"
	[ʊ]	before [–front] vowels	**kʊə̋d**	**[kʊɔɾ^{1}]**	"village"
		word-initially	**vɑ̂**	**[vɑ^{24}]**	"here"
j	**[j]**	stem-initial, word-medial	**lè-jàl-à**	**[le^{4}.jɑ^{4}.lɑ^{45}]**	"to answer"

[22] The fusion of /**ʊ**/ and /**i**/ into [**y**] is a matter of free fluctuation. The same words can be pronounced with the semivowel–vowel sequences [**ɥi**].

[23] The fusion of /**ʊ**/ and /**ɪ**/ into [**ʏ**] is a matter of free fluctuation. The same words can be pronounced with the semivowel–vowel sequences [**ɥɪ**].

[24] The wave file for this word does not represent the word as an infinitive, but in the future tense, phrase finally. The latter aspect reveals itself in the fact that the pitch level rises: [^{41}].

The contrastiveness of consonants will now be established with regard to the following five positions within the stem: stem-initial, stem-medial, stem-final, the coda of the first syllable in a bisyllabic stem, and the onset of the second syllable of a two-syllable stem. These will be discussed in §2.1.3.1 - §2.1.3.5.

2.1.3.1 In the Stem-Initial Position

The phonemes that appear in stem-initial position are seen in Table 6.

Table 6: Inventory of Consonants Appearing in Stem-Initial Position

	Labial	Alveolar	Palatal	Velar	Labiovelar
Stop, vl	**/p/ [p]**	**/t/ [t]**	**/c/ [ts] ~ [tʃ]**	**/k/ [k]**	**/kp/ [kp]**
Stop, vd	**/b/ [b]**	**/d/ [d]**	**/ɟ/ [dz] ~ [dʒ]**	**/g/ [g]**	**/gb/ [gb]**
Fricative	**/f/ [f]**	**/s/ [s] , [ʃ]**			
Nasal	**/m/ [m]**	**/n/ [n] , [ɳ]**	**/ɲ/ [ɲ]**	**/ŋ/ [ŋ]**	
Lateral		**/l/ [l]**			
Glide	**/ʋ/ [ʋ] , [ɥ]**		**/j/ [j]**		

The only consonantal phoneme which is absent in stem-initial position is /**h**/, which contrasts nevertheless with /**s**/ through the appearance of both phonemes in stem medial and stem-final positions.[25]

(30) /**s**/≠/**h**/ stem-medially: /**jèsè**/ [**je⁴.se⁴⁵**] "prow"
/**lèhé**/ [**le⁴.he⁴**] "laziness"

(31) /**s**/≠/**h**/ stem-finally: /**lè-fɑ̀s-L**/ [**le⁴.fɑs⁴⁵**] "to reflect, ponder"
/**lè-pɑ̀h-L** / [**le⁴.pɑh⁴⁵**] "rise from the dead"

The consonants /**c**/, /**ɟ**/ and /**s**/ all have two allophones each, one at the alveopalatal and one at the alveolar point of articulation. The environments for the alternation between these allophones seem evident at first but end up proving to be complicated.

The phonological rule that first seems to hold is as follows: "The phonemes /**c**/, /**ɟ**/ and /**s**/ are backed, having allophones [**tʃ**], [**dʒ**] and [**ʃ**], repectively, before [+high] continuants." The [+high] continuants are /**i**/, /**u**/, /**ʋ**/ and /**j**/. The distribution of the allomorphs of /**s**/, /**c**/ and /**ɟ**/ is illustrated in (32) to (34).[26]

(32) /**s**/→[**ʃ**] /__ [+high] /**sǐ**/ [**ʃi¹**] "land"
/**sǔm jé**/ [**ʃum¹ je¹**] "his place"
/**lè-sjêh**/ [**le⁴.ʃjeh²⁴**] "girl"
/**lè-svòh-L**/ [**le⁴.ʃvoh⁴⁵**] "to greet"
/**svínô**/ [**ʃy¹.no¹⁴**] "fly"
/**s**/→ [**s**] /__ [–high] /**lè-sà-L**/ [**le⁴.sɑ⁴⁵**] "to pillage"
/**lè-svǐ**/ [**le⁴.sʏ:⁴⁵**] "death"

(33) /**c**/→ [**tʃ**] /___ [+high] /**cì-cîl**/ [**tʃi⁴. tʃil¹⁴**] "calm"
/**á-cjêm-bì-kǎ**/ [**ɑ².tʃjem¹⁴.bi⁴.kɑ²**] "cricket"
/ **L-cvɛ̀k-nsɑ̀m**/ [**tʃɥe?⁴.nsɑm⁴⁵**] "bird (sp.)"
/**lè-cví-à**/ [**le⁴.tʃy¹.jɑ⁴**] "to care well for"
/**c**/→ [**ts**] /__ [–high] /**lè-cén-e- L** / [**le⁴.tse¹.ne¹⁴**] "to change"

[25] Contrast is made with /**s**/ because [**s**] and [**h**] are allophones in the Nzime and Badwe'e dialects of Koonzime.

[26] An exception to this rule is where /**ʋ**/ is followed by /**ɪ**/. In this case, the result is a front rounded vowel, [**ʏ**]. Affrication of these consonants does not occur in such a case.

(34)	/ɟ/→ [dʒ] /___ [+high]	/lè-ɟíb-o-L/	[le⁴.dʒi².bo⁴⁵]	“to steal”
		/lè-ɟù-L/	[le⁴.dʒu⁴⁵]	“to pull up”
		/nɟjɛ̀m/	[ndʒjem¹]	“Njyem people”
		/lè-ɟʊɛ̀k-L/	[le⁴.dʒɥɛʔ⁴⁵]	“to know”
		/lè-ɟʊí:b-i-L/	[le⁴.dʒy:¹⁴.bi⁴⁵]	“to worship”
	/ɟ/→ [dz] /__ [–high]	/lè-dzɔ̀- L/	[le⁴.dzɔ⁴⁵]	“to vomit”
		/lè-ɟʊí-L/	[le⁴.dzʏ:²⁴]	“to rule over”

A consonant can be considered as being in “stem-initial position” even if it is preceded by a homorganic nasal. Those consonants for which this is attested are shown in Table 7. Supporting data is found following the table. Note that there is not necessarily agreement in voicing between the homorganic nasal and its adjacent consonant.

Table 7: Inventory of Consonants Appearing in Stem-Initial Position after Nasals

	Labial	Alveolar	Palatal	Velar	Labiovelar
Stop, vl	**/p/ [p]**	**/t/ [t]**	**/c/ [ts] , [tʃ]**	**/k/ [k]**	**/kp/ [kp]**
Stop, vd	**/b/ [b]**	**/d/ [d]**	**/ɟ/ [dz] , [dʒ]**	**/g/ [g]**	**/gb/ [gb]**
Fricative	**/f/ [f]**	**/s/ [s] , [ʃ]**			

(35) /N/+/**p**/: /Nɲ̀hà/ [**mpi⁴.hɑ⁴⁵**] “corn”

(36) /N/+/**t**/: /N**tèd**/ [**nteɾ⁴⁵**] “hundred”

(37) /N/+/**c**/: /N**cìlò**/ [**ntʃi⁴.lo⁴⁵**] “gorilla”

(38) /N/+/**k**/: /N**kɑ̀**/ [**ŋkɑ⁴⁵**] “plate of food”

(39) /N/+/**kp**/: /N**kpằk**/ [**mŋkpɑʔ⁴**] “road”

(40) /N/+/**b**/: /N**bì-à**/ [**mbɪ⁴.ɑ⁴⁵**] “be well”

(41) /N/+/**d**/: /N**dàm-à**/ [**ndɑ⁴.mɑ⁴⁵**] “ruin”

(42) /N/+/ɟ/: /Nɟ́ɔ̀b/ [**ndzob²**] “fish hook”

(43) /N/+/**g**/: /N**gès-L**/ [**ŋges⁴⁵**] “sparkle”

(44) /N/+/**gb**/: /N**gbìngbɛ̀m**/ [**mŋgbɪ⁴.mŋgbɪm⁴⁵**] “lion”

(45) /N/+/**f**/: /N**fɑ̀ŋ-L**/ [**ŋfɑŋ⁴⁵**] “desire”

(46) /N/+/**s**/: /N**sjè-L**/ [**nʃje⁴⁵**] “come”

2.1.3.2 In the Stem-Medial Position

The consonants occurring in stem-medial position are shown in Table 8.

Table 8: Inventory of Consonants Appearing in Stem-Medial Position

	Labial	Alveolar	Palatal	Velar	Glottal
Stop, vl				**/k/ [ʔ]**	
Stop, vd	**/b/ [b]**	**/d/ [ɾ]**		**/g/ [g]**	
Fricative		**/s/ [s] , [ʃ]**			**/h/ [h]**
Nasal	**/m/ [m]**	**/n/ [n]**		**/ŋ/ [ŋ]**	
Lateral		**/l/ [l]**			

(47) -V.**k**V: /**d-jɛ̀ké**/ [**djɛ⁴.ʔɛ⁴**] “clay”

(48) -V.**b**V: /**kúbô**/ [**ku¹.bo¹⁴**] “chicken”

(49) -V.**d**V: /**lè-bádá**/ [**le⁴.bɑ².ɾɑ²**] “toad”

(50) -V.**g**V: /**dúgá**/ [**du².gɑ²**] “outhouse”

(51) -V.**s**V: /**jèsè**/ [**je⁴.se⁴⁵**] “prow”

(52) -V.**h**V: /**ɴpìhà**/ [**mpi⁴.hɑ⁴⁵**] “corn”

(53) -V.**m**V: /**ɴpùmó**/ [**mpu⁴.mo⁴**] “fruits”

(54) -V.**n**V: /**sʋínó**/ [**ʃy¹.no¹⁴**] “fly”

(55) -V.**ɲ**V: /**sɔ́ŋá**/ [**sɔ².ŋɑ²**] “well”

(56) -V.**l**V: /**kɛ́là**/ [**kɛ².lɑ⁴**] “mouse trap”

2.1.3.3 In the Stem-Final Position

The consonants occurring in stem-final position and word-finally are shown in Table 9. Those stem-final consonants that are found followed by a vowel-initial suffix are shown in Table 10.

Table 9: Inventory of Consonants Appearing in Stem-Final, Word-Final Position

	Labial	Alveolar	Palatal	Velar	Glottal
Stop, vl				**/k/ [ʔ]**	
Stop, vd	**/b/ [b]**	**/d/ [ɾ]**			
Fricative		**/s/ [s]**			**/h/ [h]**
Nasal	**/m/ [m]**	**/n/ [n]**		**/ŋ/ [ŋ]**	
Lateral		**/l/ [l]**			

(57) -V**k** : **/lè-ɟʋèk-ʟ/** **[le⁴.dʒɥɛʔ⁴⁵]** “to know”

(58) -V**b** : **/ʟ-tɑ̀b/** **[tɑb⁴⁵]** “sheep; goat”

(59) -V**d** : **/m-ʊ̀d/** **[mʊɾ⁴⁵]** “person”

(60) -V**s** : **/lè-fɑ̀s-ʟ/** **[le⁴.fɑs⁴⁵]** “ponder”

(61) -V**h** : **/pɑ̀h-ʟ/** **[pɑh⁴⁵]** “rise from the dead”

(62) -V**m** : **/ʟ-ljə̂m/** **[ljem²⁴]** “heart”

(63) -V**n** : **/sʋ̌n/** **[ʃʋɔn⁴]** “ant”

(64) -V**ŋ** : **/sɔ̋ŋ/** **[sɔŋ²¹]** “father”

(65) -V**l** : **/kɛ́l/** **[kɛl²¹]** “sister (of a male ego)”

Table 10: Inventory of Consonants Appearing in Stem-Final, Intervocalic Position

	Labial	Alveolar	Palatal	Velar	Glottal
Stop, vl				**/k/ [g] , [ʔ]**	
Stop, vd	**/b/ [b]**	**/d/ [ɾ]**			
Fricative		**/s/ [s] , [ʃ]**			**/h/ [h]**
Nasal	**/m/ [m]**	**/n/ [n]**		**/ŋ/ [ŋ]**	
Lateral		**/l/ [l]**			

(66) -V**k**-V: **/ɟʋìk-î:/** **[dzʏ⁴.gɪ:¹⁴]** “measure [it]”

(67) -V**k**-V: **/dík-î:/** **[di¹.ʔi:¹⁴]** “burn [it] ”

(68) -V**b**-V: **/lè-jʋíb-ì/** **[le⁴.dʒɥi¹.bi⁴]** “to worship”

(69) -V**d**-V: **/lè-tìd-à /** **[le⁴.ti⁴.ɾɑ⁴⁵]** “start a fire”

(70) -V**s**-V: **/fɑ̀s-á/** **[fɑ⁴.sɑ⁴]** “way of thinking”

(71) -V**h**-V: **/lè-dvìh-ò/** **[dy^{4}.ho^{45}]** “leave”

(72) -V**m**-V: **/lè-cím-ô/** **[le^{4}.tʃi^{1}.mo^{14}]** “to cry out”

(73) -V**n**-V: **/tún-ô/** **[tu^{1}.no^{14}]** “announcement”

(74) -V**ɲ**-V: **/nsjèŋ-á/** **[nsjɛ^{4}.ŋɑ^{4}]** “assembly”

(75) -V**l**-V : **/lè-jàl-á/** **[le^{4}.jɑ^{4}.lɑ^{45}]** “to answer”

2.1.3.4 In the Coda of the First Syllable in a Bisyllabic Stem

The consonants occurring in coda of the first syllable in a two-syllable stem are shown in Table 11.

Table 11: Inventory of Consonants Appearing in the Coda Position of Syllable One

	Labial	Alveolar	Palatal	Velar	Glottal
Stop, vl				**/k/ [ʔ]**	
Stop, vd	**/b/ [b]**	**/d/ [ɾ]**			
Fricative					**/h/ [h]**
Nasal	**/m/ [m]**	**/n/ [n]**		**/ŋ/ [ŋ]**	

(76) -V**k**.C: **/lè-ɲèk.s-à/** **[le^{4}.ɲɛʔ^{4}.^{ə}sɑ^{45}]** “to itch”

(77) -V**d**.C: **/ɴbɔ́d.gɔ̀/** **[mbɔɾ^{4}.gɔ^{45}]** “dripping mud”

(78) -V**h**.C: **/lè-dvɛ́h.b-ɑ̂/** **[le^{4}.dɥɛh^{1}.^{ə}bɑ^{14}]** “to be light-weight”

(79) -V**m**.C: **/lè-ɴpùm.s-à/** **[le^{4}.mpum^{4}.sɑ^{45}]** “filth”

(80) -V**n**.C: **/lè-gɔ́n.b-ɑ̂/** **[le^{4}.gɔn^{1}.^{ə}bɑ^{14}]** “to go uphill”

(81) -V**ŋ**.C: **/lè-djɔ́ŋ.l-ô/** **[le^{4}.djɔŋ^{1}.^{ə}lo^{14}]** “to look at”

(82) -V**b**.C: **/lè-pjèb.l-ò/** **[le^{4}.pjeb^{4}.^{ə}lo^{45}]** “to make a hand gesture”

2.1.3.5 In the Onset of the Second Syllable after a Closed Syllable

The consonants occurring in onset of the second syllable in a bisyllabic stem are shown in Table 12.

Table 12: Inventory of Consonants Appearing in the Onset Position of Syllable Two

	Labial	Alveolar
Stop, vd	**/b/ [b]**	**/d/ [d]**
Fricative		**/s/ [s]**
Lateral		**/l/ [l]**

(83) -VC.**s**: **/lè-ɲèk.s-à/** **[le^{4}.ɲɛʔ^{4}.^{ə}sɑ^{45}]** “to itch”

(84) -VC.**b**: **/lè-mvɔ̀k.b-ò/** **[le^{4}.mvɔʔ^{4}.^{ə}bo^{45}]** “to set (in the case of the sun)”

(85) -VC.**l**: **/lè-djɔ́ŋ.l-ô/** **[le^{4}.djɔŋ^{1}.^{ə}lo^{14}]** “to look at”

(86) -VC.**d**: **/lè-pvɔ̀m.d-ò/** **[le^{4}.pvɔm^{4}.^{ə}do^{45}]** “to caress”

The sequences of consonants found internally in the stem are shown in Table 13.

Table 13: Consonant Clusters in Root-Medial Position

	C.**b**	C.**d**	C.**s**	C.**l**
V**b**.C		**lè-báb.d-ò** "to lean on"		**lè-pjèb.l-ò** "to make a hand gesture"
V**k**.C	**lè-cík.b-ò** "to pass through"	**lè-sjèk. d-ò** "to shake"	**sùk.s-ò** "shaken (id.)"	**lè-ɲàk.l-ò** "to scratch"
V**d**.C	**ɴ-gʊɔ̀d.b-á** "bent"			
V**h**.C	**lè-dʊɛ́h.b-à** "to be light"			
V**m**.C	**á-lɔ̀n.mbɔ́** "moon"	**lè-pwɔ̀m.d-ò** "to caress"	**lè-pàm.s-à** "to escape"	**lè-tìm.l-ì** "to consider corporately"
V**n**.C	**lè-gɔ́n.b-à** "to go uphill"			
V**ŋ**.C				**lè-djɔ́ŋ.l-ò** "to look at"

2.1.4 Problems of Analysis

I will now touch on some problematic parts in the analysis.

2.1.4.1 The Glides

The semivowels, /**ʊ**/ and /**j**/, occupy a place among the [–syllabic] phonemes in virtue of their distribution, being found in the onset of a syllable along with other consonantal phonemes. They are similar to vowels with which they share a feature, [+high], which is important as a conditioning environment for the phonemes /**c**/, /**ɟ**/ and /**s**/. This is seen in Table 5. The only vowels with this feature, [+high], are /**i**/ and /**u**/. Since semivowels and these two [+high] vowels function identically with regard to the modifications of /**c**/, /**ɟ**/ and /**s**/, this underscores the similarity between them.

2.1.4.2 The Phoneme /**ɲ**/

The phone [**ɲ**] is inherently ambiguous, being interpretable either as a unitary palatal nasal phoneme (/**ɲ**/) or as the sequence of phonemes—the alveolar nasal phoneme, followed then by the palatal semivowel: /**ɴ**/+/**j**/.

I interpret [**ɲ**] as /**ɲ**/, a unitary phoneme, since there is no clear case of two semivowels (i.e., *CSSV) in the data. There are, however words such as [**ɲɥɔʔ**^{24}] or [**njɥɔʔ**^{24}] "wild mango", in which [**j**] and [**ɥ**] follow each other in that order. It would be difficult to argue that the semivowels /**j**/ and /**ʊ**/ co-occur only when they occur in that order and when the preceding consonant is /**n**/. Such a distribution is irregular and highly specified. It is more likely that the sequence [**ɲɥ**] or [**njɥ**] reflects the more commonly-occuring sequence of a consonant, /**ɲ**/, followed by a *single* semivowel, /**ʊ**/. This word would thus be represented phonemically as /**ɲʊɔ̂k**/.

2.1.4.3 Absolute Neutralization

A paradox exists in many languages, and also in Njyem, whereby certain elements in the phonemic inventory—in this case, /**ɟ**/ and /**c**/—do not correspond to phones in the phonetic inventory that are written with the same glyphs. Where such a paradox exists, one speaks of the presence of "absolute neutralization", the case where the allophones of a given phoneme do not include the very phone to which the chosen glyph for the phoneme seems to correspond.

With regard to Table 5, it was claimed that there were voiced and voiceless oral stops at the palatal position, /**ɟ**/ and /**c**/, even though these phonemes are never realized as occlusives. The phones *[**ɟ**] and *[**c**] fail to occur among the allophones of theses phonemes. Instead, one finds that these phonemes appear as alveopalatal grooved affricates before high vowels and semivowels, or as [**dʒ**] and [**tʃ**], respectively.

Elsewhere, they are represented as alveolar affricates, [**dz**] and [**ts**]. Table 3 is reproduced below, with the two phonemes that exemplify absolute neutralization in grayed boxes:

Table 14: Inventory of Consonant Phonemes

		Labial	Alveolar	Palatal	Velar/Glottal	Labialvelar
Stop	vl	**p**	**t**	**c**	**k**	**kp**
	vd	**b**	**d**	**ɟ**	**g**	**gb**
Fricative	vl	**f**	**s**		**h**	
Nasal	vd	**m**	**n**	**ɲ**	**ŋ**	
Lateral	vd		**l**			
Glide	vd	**ʋ**		**j**		

With regard to the allophones of /**ɟ**/ and /**c**/ I said that they are always affricates, but I call them stops and have no place in the inventory of consonants for affricates. If one were to attempt to avoid absolute neutralization, one would necessarily posit affricates in addition to stops, as is shown in Table 15. Note, in this case, that one will be arbitrarily deciding whether the phoneme is more alveolar than palatal, and that one would be producing ten cells that lack any phonemes. These are shown as grayed-out cells in the following table.

Table 15: An Alternate Inventory of Consonant Phonemes (Hypothetical)

		Labial	Alveolar	Palatal	Velar/Glottal	Labialvelar
Stop	vl	**p**	**t**		**k**	**kp**
	vd	**b**	**d**		**g**	**gb**
Affricate	vl		**ts**			
	vd		**dz**			
Fricative	vl	**f**	**s**		**h**	
Nasal	vd	**m**	**n**	**ɲ**	**ŋ**	
Lateral	vd		**l**			
Glide	vd	**ʋ**		**j**		

For reasons of economy, I do not posit the existence of affricates at the level of the phonemic inventory, but rather provide rules in which the stops /**ɟ**/ or /**c**/ are affricated at either the alveolar or alveopalatal points of articulation.

2.1.4.4 The Labialized Velar Nasal

The status of the labialized velar nasal [**ŋw**] is another problem in the phonology.

A study of the lexicon yields the observation that [**ŋ**] occurs in stem-initial occurrence only when it is followed by [**ʋ**], as in [**le⁴.ŋʋɛh¹⁴**] "to strike". I initially adopted the interpretation that the sequence [**ŋʋ**] occupied the position of the nasal labiovelar phoneme, /**ŋm**/. Such a hypothesis would account for the existence of [**ŋʋ**] in stem-initial position while also accounting for the absence of [**ŋ**] in that position followed by a vowel. This appeared all the more plausible in the light of the existence of *oral* labiovelar stops: /**kp**/ and /**gb**/.

What tends to refute this analysis of [**ŋʋ**] is the data concerning the reduplication of the verb stem (Beavon and Beavon, 2006: pp. 7, 71-73). The rule one formulates for the reduplication of a verb of the structure -CSV(CV) is as follows:

1.) Copy the consonant,
2.) Replace the semivowel with a corresponding vowel,
3.) Associate the lexical tone with the first copy of the verb.

The grammatical tone of the verbal construction remains associated with the second part of the verb, as is seen in (87), where the semivowel is /**ʋ**/ and in (88), where the semivowel is /**j**/.

(87) **lè-tʋɔ́d-ʟ** [**le⁴.tʋɔɾ¹⁴**] → **lè-tú-tʋɔd-ʟ** [**le⁴.tu¹.tʋɔɾ⁴⁵**]
"to pick out randomly" "to frequently pick out randomly"

(88) **lè-ljékl-o-L** [**le^{4}.lje^{1}ʔ.^{ə}lo^{14}**] → **lè-lí-ljekl-o-L** [**le^{4}.li^{1}.ljeʔ^{4}.lo^{45}**]
"to show" "to frequently show"

The verb with a root-initial [**ŋʊ**], "to strike", is reduplicated as is seen in (89). It follows the pattern seen in (87) above, whereby the [**ʊ**] is treated as a semivowel, /**ʊ**/, rather than as the second part of a complex labiovelar phoneme */**ŋʊ**/. The sequence /**ŋ**/ plus /**ʊ**/ is reduplicated as the rules shown above dictate, with /**ŋʊ**/ becomine /**ŋu-ŋʊ**/. If the sequence [**ŋʊ**] were viewed psycholinguistically as being a labiovelar phoneme, one would expect a different reduplicated form, such as ***lè-ŋʊí-ŋʊɛh-L** or ***lè-ŋʊí-ŋʊɛh-L** rather than what follows.[27]

(89) **lè-ŋʊɛ́h-L** [**le^{4}.ŋʊɛh^{14}**] → **lè-ŋú-ŋʊɛh-L** [**le^{4}.ŋu^{1}.ŋwɛh^{45}**]
"to strike" "to frequently strike"

Given this analysis, there is a four-way contrast between the velar nasal /**ŋ**/ and the other three nasals consonants (/**m**/, /**n**/ and /**ɲ**/) before the vowel /**u**/, as is shown below.

(90) **lè-mʊɛ̀k-L** **[le^{4}.mʊɛʔ^{45}])** → **lè-mù-mʊɛk-L** **[le^{4}.mu^{4}.mʊɛʔ^{45}]**
"to sprinkle" "to frequently sprinkle"

lè-nʊɔ̀d-L **[le^{4}.nʊɔɾ^{45}])** → **lè-nù-nʊɔd-L** **[le^{4}.nu^{4}.nʊɔɾ^{45}]**
"to set a trap" "to frequently set a trap"

lè-ɲʊɔ́l-L **[le^{4}. ɲʊɔl^{14}])** → **lè-ɲú-ŋʊɔl-L** **[le^{4}.ɲu^{1}.ɲʊɔl^{45}]**
"to lose weight" "to frequently lose weight"

lè-ŋʊɛ́h-L **[le^{4}.ŋɥɛh^{14}]** → **lè-ŋú-ŋʊɛh-L** **[le^{4}.ŋu^{1}.ŋʊɛh^{45}]**
"to strike" "to frequently strike"

The inherent weakness of this analysis is that the environments for proving contrast between the four nasal consonants are highly restricted, this being before the labial semivowel and before /**u**/ in the first part of a reduplicated verb. This notwithstanding, it seems best to claim that there is a four-fold contrast within the nasal consonants.

2.1.4.5 The Partial Neutralization of Phonemes /**k**/ and /**g**/

The status of /**k**/ and /**g**/ is another problem in the phonology, since there is loss of contrast in certain environments. Strong support exists for claiming that they are both phonemes, since they occur stem-initially, as in (91), and stem-medially, as in (92).

(91) /**k**/≠/**g**/ stem-initially: /**gʊɔ́d**/ [**gʊɔɾ^{21}**] "one:c.7"
/**kʊɔ́d**/ [**kʊɔɾ^{21}**] "village"

(92) /**k**/≠ /**g**/ stem-medially: /**Nkpágá**/ [**mŋkpɑ^{2}. gɑ^{2}**] "fishing pole"
/**L-sáká**/ [**sɑ^{2}.ʔɑ^{2}**] "stalk"

In stem-final position, however, there is no contrast between [**g**] and [**k**], since /**g**/ is absent there and /**k**/ is represented either by [**ʔ**], word-finally, or by [**g**], before a suffix, as in (93) - (95).

(93) **lè- Nsùk -ò** [**le^{4}.nsu^{4}.go^{45}**] "to suffer (c. 15)"
c.15 suffer INF

(94) **lè- nìk -ò** [**le^{4}.ni^{4}.go^{45}**] "to bend (c. 15)"
c.15 bend INF

(95) **L- mák -á** [**mɑ^{1}.gɑ^{1}**] "piled up (c. 3)"
c.3 pile.up INF

[27] The reduplication of the verb in Koonzime is /**eŋmìŋmɛ̂h**/.

2.1.4.6 The Nasal Archiphoneme

The nasal consonants /**m**/, /**n**/, /**ɲ**/ and /**ŋ**/ fail to contrast before a consonant. As a result, one may argue that none of these occur in that position, but rather that a nasal archiphoneme is present, one which has allomorphs in that position that reflect the point of articulation of the following consonant. This nasal archiphoneme is represented as /**N**/, and has allophones as are shown in Table 16. The nasal archiphoneme does not occur before /**j**/, /**l**/, /**h**/ or before any of the nasal consonants.

Table 16: The Allophones of the Nasal Archiphoneme

Following consonant	Allophone	Examples		
labial	**[m]**	**/Npùmó/**	**[mpu^{4}.mo^{4}]**	"fruit (pl.)"
		/Ǹ-bɛ́h víhí/	**[mbɛh^{1}#ɥi^{1}.hi^{1}]**	"our house"
		/L-mʊă/	**[mʊɑ^{4}]**	"generation"
dental	**[ɱ]**	**/lè-Nfâɲ/**	**[le^{4}.ɱfɑŋ^{24}]**	"to do on purpose"
alveolar	**[n]**	**/Ǹtɛ̀d/**	**[nteɾ^{45}]**	"hundred"
		/lè-Ndám-â/	**[le^{4}.ndɑ^{1}.mɑ^{14}]**	"to ruin"
		/lè-Nsùk-ò/	**[le^{4}.nsu^{4}.go^{45}]**	"to suffer"
		/N-cìlò/	**[ntʃi^{4}.lo^{45}]**	"gorilla"
		/Ǹ-cɛ̀dá/	**[ntsɛ^{4}.ɾɑ^{4}]**	"distant"
		/N-ɟʊ̀/	**[ndʒɥe^{45}]**	"dead person"
		/Ǹ-ɟɔ́b/	**[ndzob^{2}]**	"fish hook"
velar	**[ŋ]**	**/Nkŭ/**	**[ŋkʊ^{4}]**	"pig"
		/N-gʊ̃́d/	**[ŋgʊɔɾ^{2}]**	"one (c.1)"
labiovelar	**[mŋ]**	**/Ǹ-kpằk/**	**[mŋkpɑʔ^{4}]**	"road"
		/Ǹgbìngbìm/	**[mŋgbɪ^{4}.mŋgbɪm^{45}]**	"lion"

2.1.5 Syllable Structures

As is seen in Table 17, syllables in Njyem are both open and closed. They may begin with a vowel or a consonant. Consonant clusters are limited to occuring in the onset of a syllable.

Table 17: Syllable Types

	Open Syllable		Closed Syllable	
V(C).	**/í/**	in	**/nù.âŋ/**	Take (it).
CV(C).	**/nè/**	with	**/sɔ̃́ŋ/**	father
NCV(C).	**/Npà/**	nandinie	**/Npɔ̃́n/**	circumcision
CSV(C).	**/gʊă/**	hunt (n.)	**/kʊ̃́d/**	village
NCSV(C).	**/Npʊ̂/**	dog	**/Nkʊ̂l/**	snail

Vowel-initial syllables are usually open, as in (96).

(96) **í** **[ɪ^{1}]** "in, at, between, among, etc."

The only rare syllable type is VC. The known examples of this syllable are grammatically complex, including the imperative or hortative suffixes, as is shown in (97).

(97) **lè- nù -ò :** **nù -âŋ** **/nù-âɲ/** **[nɔ̃^{4}.ãŋ^{24}]**
c.15 take inf. : take Impv
"to take (it/some)" : "Take (it/some)."

The odd VC syllable type seen above could be eliminated by positing a metathesis rule, as in (98).

(98) ***nù ŋâ** → **nù -âŋ** **/nùâŋ/** **[nɔ̃^{4}.ãŋ^{24}]**
take Impv "Take (it/some)."

2.2 Suprasegmental Phonology

Njyem, being a Bantu language, is tonal, as would be expected.[28] The expression "tonal language" means that it is a language of which the lexemes, or units of sound and meaning, consist of two kinds of phonemes—those that are segmental and those that are suprasegmental, reflecting differences of pitch. The latter are called either "tonemes" or "tones", interchangeably, and have lexical importance because of the observation that differences in pitch exist and are contrastive. To say that these differences in pitch are "contrastive" is equivalent to saying that they are unpredictable. There is no constraint such as stress or consonant feature that would enable one to guess the pitch. To know the pitch means knowing the tones that are specified for the given lexeme in the lexicon. These tones are specified on the same basis as the consonants and vowels that are employed for the word. Lexical meaning, therefore, is associated with two kinds of phonemes: phonemes which are segmental, such as consonants, vowels and semivowels, and those that are suprasegmental, which consist of tones.

A word must be written about the distinction between "tone" or "toneme" and "pitch". Tones or tonemes are logical constructs of reality, with the reality being the pitches themselves. Tones are represented by different pitches depending on a variety of factors. Speakers differ from one another in their natural ability to pitch their voices, with the result that they employ different ranges of frequency. A given speaker may adopt a higher or lower register for varying reasons, at one point of the discourse speaking at a higher frequency than at another. What is of immediate interest, however, is the range of pitches given to a toneme within a single sentence. Changes of register may indicate agitation or some variation of the speaker's frame of mind, but variations of pitch—above some level of significance—signal grammatical and lexical information. This is the kind of pitch variation that I will be addressing and attempting to account for in the remainder of this phonology.

In discussing variations of pitch, I will adopt the habit of referring to the "usual" or "normative" pitch for a tone. A departure from this pitch will be due to one of two factors: low boundary tones that have been posited and have phonological, grammatical or syntactic import, and other tones with their pitches, these occurring in the immediate context of the affected tone.

Wave files, available to the reader upon request, will give further definition to the pitch transcriptions. Since there are multiple ways of referring to tonemes and to pitches, I will show some of these (99)-(101).

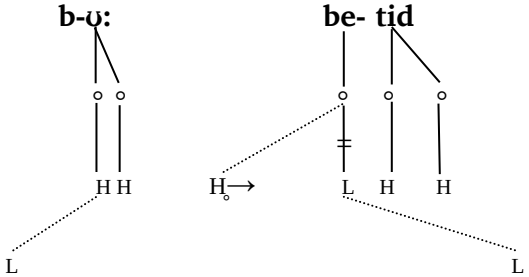
(99) **/mɛ̋m/** [**mɛm^{1}**] ˥ 156 Hz "paternal aunt"

(100) **/sɔ̋ŋ/** [**sɔŋ^{2}**] ˦ 137 Hz "father"

(101) **/ɲɔ̌ŋ/** [**ɲɔ̃ŋ^{4}**] ˩ 117 Hz "mother"

After many attempts to fit numbers to pitch levels and after testing the adequacy of each system, I have concluded that for Njyem the numbering should be from [^{1}] to [^{5}], giving one access to six pitch levels. The highest pitch is [^{1}]. The pitches of [**mɛm^{1}**], [**sɔŋ^{2}**] and [**ɲɔŋ^{4}**] are represented by the numbers "^{1}", "^{2}" and "^{4}", respectively, even though there is as much distance, measured in Hertz, between [**mɛm^{1}**] and [**sɔŋ^{2}**] as there is between [**sɔŋ^{2}**] and [**ɲɔŋ^{4}**].The explanation for this is that there is another pitch found between [**sɔŋ^{2}**] and [**ɲɔŋ^{4}**] that is important to represent. This pitch, [^{3}], is seen in (102).

(102)



/bő: bétĭ́d/
[bʊ:^{32}#be^{2}.tir^{1}]
(155-177 177 199 Hz)
"[some/different] animals"

[28] Swahili is generally acknowledged as being the sole Bantu language that is nontonal.

The usual tonemes encountered in Bantu languages are high and low. Since morpheme structure conditions permit two tones on some vowels, I will represent high and low tones as is shown in (103).

(103) **a̋** -A vowel with two associated high tones.
á -A vowel with one associated high tone.
à -A vowel with one associated low tone.
a̋̀ -A vowel with two associated low tones.

Mid is a "developing" toneme, one which is infrequent in the lexicon and about which more will be written in §2.2.2. When it occurs in the surface phonemic representation, it will be represented by the macron, as in (104).

(104) **ā** -A vowel with one associated mid tone.

Sequences of nonidentical tones will be shown as in (105).

(105) **â** -A vowel with associated high and low tones.
ǎ -A vowel with associated low and high tones.

2.2.1 Lexical Tones: High, Mid and Low

Surface phonemic transcriptions are shown between slashes (/.../) and are accompanied by a phonetic transcription, shown between braces ([...]). They show the final products of meaningful or contrastive tone interactions.

High and low tones contrast in both monosyllabic and disyllabic stems, as is seen in Tables 18 - 20.

Table 18: Contrast between High and Low Tones in Monosyllabic Stems

		T^2: high			T^2: low	
T^1: high	/**bá̋**/	[**ba^{2}**]	two (c.10)	/**bâ**/	[**ba^{24}**]	marry
T^1: low	/**L-bǎ**/	[**ba^{4}**]	piece of bark (c.7)	/**bà̋**/	[**ba^{45}**]	cut up (an animal)

Table 19: Contrast between High and Low Tones in Monosyllabic Stems after a Low Tone Prefix

	T^2: high			T^2: low		
T^1: high	**lè-sá̋**	[**le^{4}.so^{2}**]	friendship (c.5)	**lè-só-L**	[**le^{4}.so^{24}**]	chase away
T^1: low	**lè-sǎ**	[**le^{4}.so^{4}**]	hiding-place (c.5)	**lè-sò-L**	[**le^{4}.so^{45}**]	take off

Table 20: Contrast between High and Low Tones in Disyllabic Stems

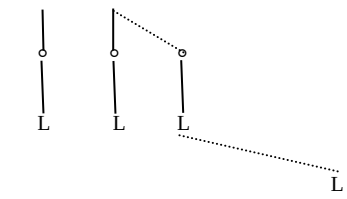
	T^2: high			T^2: low		
T^1: high	**L-díbó**	[**di^{2}.bo^{2}**]	stream(c.7)	**kélà**	[**kɛ^{2}.lɑ^{45}**]	mousetrap (c.7)
T^1: low	**kànǎ**	[**ka^{4}.na^{4}**]	belt (c.1)	**L-kànà**	[**ka^{4}.na^{45}**]	story (c.7)

Tables 18 and 19 show the contrastiveness of high and low tone in both first and second positions of monosyllabic stems, with the same contrasts seen in disyllabic stems in Table 20. Note in (106) and (107) that verb bases are formed of a suffix consisting, in part, of one node and a stem having either one node or none.[29] The second of two nodes in the base, that of the suffix, conveys grammatical information about voice and aspect. In the cases shown below, the extra low tone is a secondary indication that the verb is in the infinitive. The primary mark of the infinitive is the c.15 prefix, |**lè**-|.

One influence in the specification of a tone's pitch is the end of utterance. This is represented in (106) and (107) as a low boundary tone, which has the effect of depressing or lowering a pitch. The last two low tones of (106) are produced as a low falling pitch contour: [^{45}]. Similarly, the HL tone sequence in (107) are produced as a mid-falling pitch contour: [^{24}].

[29] It will be shown that six verbs are toneless, with no tone being present in the root. These verbs only have a tone due to the verbal suffix that they possess in a given grammatical construction.

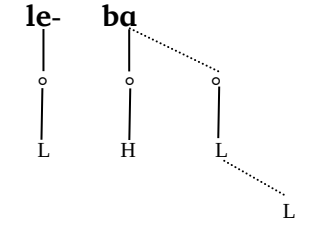
(106) **le- bɑ** **/lèbɑ̀/**



[le^{4}.bɑ^{45}]
"to cut up [an animal]"

c.15 cut:up INF ##

(107) **le- bɑ** **/lèbâ/**



[le^{4}.bɑ^{24}]
"to marry"

c.15 marry INF ##

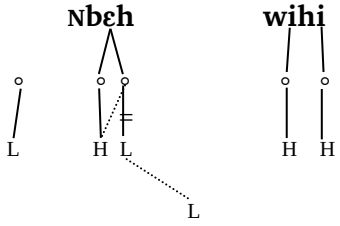
Phonemes have allophones that are phonologically or grammatically conditioned, and the same is true of tonemes. There are six pitch levels in Njyem, although there are only three tonemes. High tone may have as its phonetic manifestation all but the lowest of these pitch levels, while low tone may have as its phonetic manifestation pitch levels [^{2}], [^{4}] and [^{5}]. The rules and contexts accounting for these phonetic manifestations will all be discussed in detail below.

Table 21: Correspondences between Level Pitches and Tone Sequences

Pitch levels	Tone(s)	Example
[1]	H	Ex. (108)
[1]	H-L before BT	Ex. (109)
[1]	L before ←P	Ex. (114)
[2]	H before ←P	Ex. (115)
[2]	H	Ex. (110) - (111)
[3]	H/M	Ex. (116)
[4]	H/L	Ex. (116)

(108) **/kúkú/** **[kʊ^{1}.ʔʊ^{1}]** "maternal uncle"

(109) **ɴbɛh wihi** **/Ǹbɛ́h wíhí/**



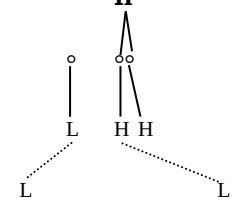
[mbɛh^{1}#wi^{1}.hi^{1}]
"our (excl.) house"

c.3 house BT c.3:our (excl.)

Contour Simplification Rule: Before a low boundary tone boundary (in this case, that found between a noun and its possessive pronoun) the contour-simplification rule causes deletion of a root's second tone if it is non identical to the first root tone. In this manner, the tone is deleted which has an associated low boundary tone.

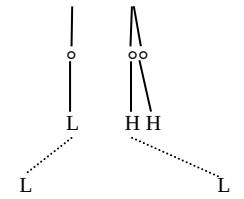
Rule: High Tone Pitch Assignment: Before the application of any rules, the pitch of a high tone is [^{1}].

(110) **lɪ**



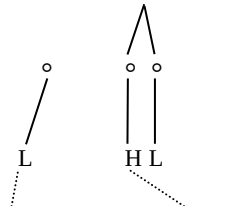
/lī/
[lɪ^{2}]
"tree"

(111) **bi- lɪ**



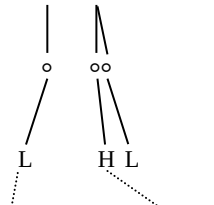
/bìlī/
[bi^{4}.lɪ^{2}]
"trees"

(112) **sɑ**



/sɑ̂/
[sɑ^{24}]
"thing"

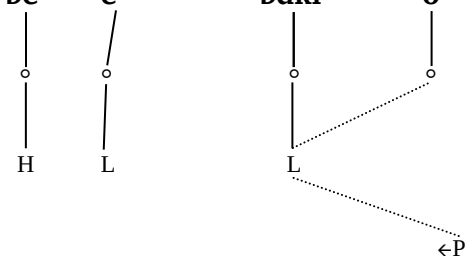
(113) **bi- sɑ**



/bìsɑ̂/
[bi^{4}.sɑ^{24}]
"things"

Rule: Utterance-final Lowering: At the end of utterance, there is a low boundary tone that associates with the first low tone of the preceding word. If the low tone is assigned to a vowel in the final representation of the expression, lowering of tones to the right of that low tone will be observed. High tones are lowered to [^{2}].

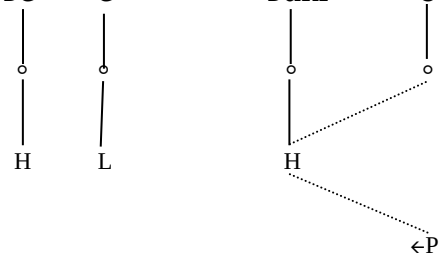
(114) **be e bɑkl -o**



3p IMPV.CONSEC take.care.of FV:IMPV.CONSEC

/bé è bákl-ó/
[be:^{14}#bɑʔ^{1}.ˀlo^{1}]
"They should then take care of [it/them]."

(115) **be e bɑkl -o** /**bé è bākl-ō**/



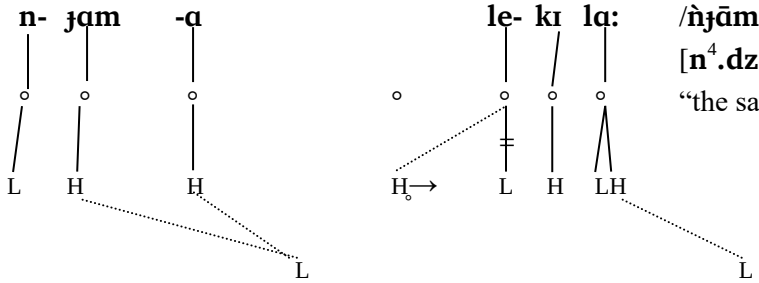
[**be:**^{14}#**bɑʔ**^{2}. **ˀlo**^{2}]

"They should then double [it/them]."

3p IMPV.CONSEC double FV:IMPV.CONSEC

Rule: Generated polar tone. A suffixed polar tone will make the tone become its polar opposite: if the previous tone is high, it becomes mid, and the pitch of that tone is [^{2}]. if the

(116) **n- ɟɑm -ɑ** **le- kɪ lɑ:** /**ǹɟāmā lē-kǐ lǎ:**/



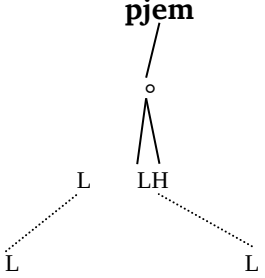
[**n**^{4}**.dzɑ**^{3}**.mɑ**^{2}#**le**^{2}**.kɪ**^{1}#**lɑ:**^{4}]

"the said boiled egg"

c.3 prepare c.3.GER BT c.3:AM c.5 egg art.c.5 ##

Rule: High-lowering Due to Low Boundary Tone: An associated low boundary tone will lower a high tone to [^{2}]. This boundary tone, BT, associates to the left. Note that the pitch of [**mɑ**] is lower than [**kɪ**^{1}].

(117) **pjem** /**pjěm**/



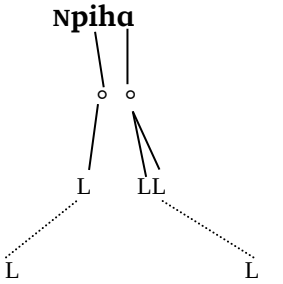
[**pjem**^{4}]

"garden"

c.7 garden

Rule: Utterance-final Lowering: At the end of utterance, there is a low boundary tone that associates with a low tone to the left. If the low tone is assigned to a vowel in the final representation of the expression, lowering of tones to the right of that low tone will be observed. An utterance-final high tone preceded by a low tone will be lowered to [^{4}], matching the pitch of the preceding low tone.

(118) **ɴpihɑ** /**Ǹpìhɑ̀**/



[**mpi**^{4}**ha**^{45}]

"an ear of corn"

c.7 corn

Rule: Low Tone Pitch Assignment: Prior to the application of any rules, the pitch of a low tone is [4].

Multiple tones can be assigned to a single syllable depending on the morpheme structure conditions for the part of speech in question. As is seen in Table 22, the product of tonemes combining on a single syllable is a phonetic contour. There are 9 phonetic pitch levels, all of which are predicted based on the existence of two tonemes, three low boundary tones and tone rules.

Table 22: Correspondences between Contour Pitches and Tone Sequences

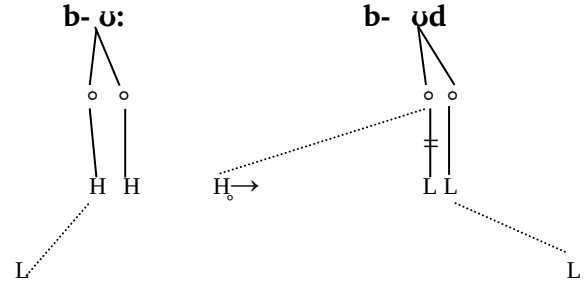
Falling Pitch Contours	Tones	Example
[1-2]	HH	Ex. (121)
[1-4]	HL	Ex. (119)
[2-4]	HL	Ex. (113)
[4-5]	L	Ex. (118)

Rising Pitch Contours	Tones	Example
[2-1]	HH	Ex. (120)
[3-2]	HH	Ex. (121) , (119)
[4-1]	LH	Ex. (122)
[4-2]	LH	Ex. (123)

(119) **b- ʊ: b- ʊd** **/bʊ́: bʊ̂d/**

[bʊ:^{32}#bʊɾ^{14}]

"[some/other] people"

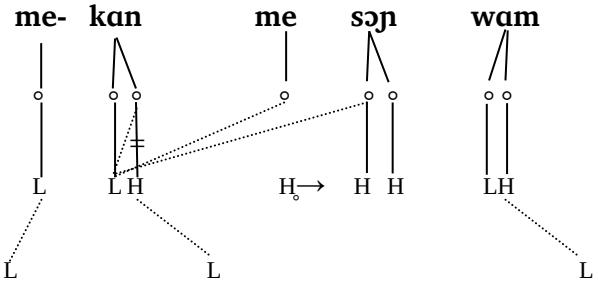


Rule: High Tone Pitch Assignment: Before the application of any rules, the pitch of a high tone is [1]. Note: The Utterance-final Lowering Rule lowered the first low tone of "people" vacuously, leaving the high tone to be produced at pitch [1].

(120) **me- kɑn me sɔŋ wɑm** **/mèkɑ̀n mè sɔ́ŋ wɑ̌m/**

[me^{4}.kɑn^{4}#me^{4}#sɔŋ^{21}#wɑm^{4}]

"my father's words"

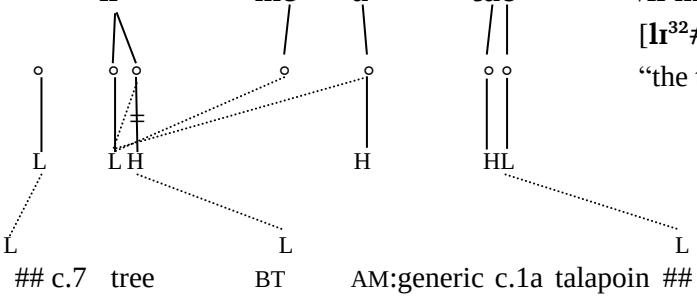


Rule: Low-Tone Spread: A low tone on the first noun of the associative construction spreads to an associative marker prefix, if one exists. It then spreads to a noun lacking a tonal prefix which has an initial high tone, lowering it to [2].

(121) **lɪ me ɑ- tuo** **/lɪ́ má:túò/**

[lɪ^{32}#mɑ:^{12}.tu^{1}.o^{4}]

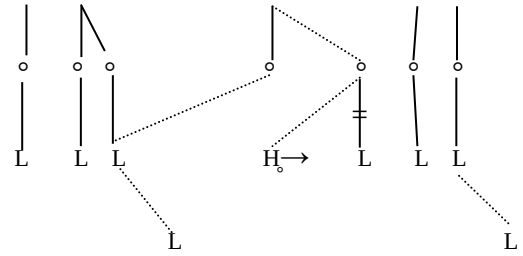
"the tree of the talapoin monkey"



Rule: Utterance-initial Lowering: At the onset of speech, there is a low boundary tone that associates with a low tone to the right. The first high tone to the right of that low tone is slightly lowered.

Rule: High-lowering due to Associated Low Boundary Tone: A low boundary tone will lower a high tone to [ꜜ]. It associates with an immediately-preceding high tone.

(122) **me-de me ɴkɑnɑ** **/mèdè mě nkànà/**



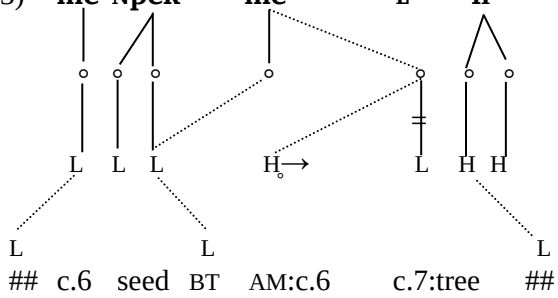
[me⁴.de⁴#me⁴¹#ŋkɑ⁴.nɑ⁴⁵]

"food available in the city"

Rule: Low-Tone Spread: A low tone on the first noun of the associative construction spreads to an associative marker prefix, if one exists.

Rule: High Floating Tone Spread to AM: A tonal prefix that has become high will spread to the left to an AM prefix, if one exists. For more on this, see (122) and (123).

(123) **me-ɴpek me ʟ- lɪ** **/mèɴpɛ̀k mě lǐ/**



[me⁴.mpeʔ⁴#me⁴²#lɪ¹]

"the seeds of a tree"

Rule: Low-Tone Spread: A low tone on the first noun of the associative construction spreads to an AM prefix, if one exists.

Rule: High Floating Tone Spread to AM: A tonal prefix that has become high will spread to the left to an AM prefix, if one exists.

Rule: Dissimilation: When two high tones are separated by a word-medial morpheme boundary, the first high tone is lowered to [ꜜ], making it dissimilar to the second. For more on this, see (123).

2.2.2 The Status of Mid

I am motivated to posit the existence of a mid toneme both in the lexicon and in the grammar. It will be shown in §2.2.2.1, that support for positing a mid toneme remains weak. The weakness of the phonemic status of mid is further evident in the fact that, in the morphophological analysis, a mid pitch can reflect either an underlying high or low tone. To include a mid toneme in the inventory of phonemes would admittedly add to the complexity of the phonology, but it seems, on balance, an unavoidable conclusion.

2.2.2.1 Mid at the Lexical Level

At present, I am aware of only two lexemes that require being described as having a mid phoneme of tone: /**nē**/, the third person singular pronoun that occurs after the preposition /**nè**/ "with"[30], and /**bē**/, the auxiliary verb.

[30] Elsewhere the third person singular pronoun is /**ɲè**/.

Note, in (124) to (126), that the speech introducer ends with the focus marker ("FOC"), which has |**é**| as its basic or least determined allomorph. Note, in (125) and (126), that tonally contrastive pronouns are found in the same environment. The frequencies of the three expressions are seen in Table 23.

(124) /**ɲè nè nē é**/ [**ɲe^{4} ne^{4} ne:^{21}**]
3s with 2s FOC
"he/she said to him/her:"

(125) /**ɲè nè mè é**/ [**ɲe^{4} ne^{4} me:^{41}**]
3s with 1s FOC
"he/she said to me:"

(126) /**ɲè nè bé é**/ [**ɲe^{4} ne^{4} be:^{1}**]
3s with 3p FOC
"he/she said to them"

Table 23: The Three Tones Found in Pronouns

		ɲè	**nè**	[**nē/mè/bé**]	**é**
		he/she	with	pronoun	focus marker
nē	"him/her"	109Hz	109Hz	120Hz	141Hz
mè	"me"	92Hz	92Hz	92Hz	126Hz
bé	"them"	96Hz	96Hz	146Hz	146Hz

The frequencies in the above table are approximations of the actual acoustic data. As can be seen in the column labeled "pronoun", the difference between the frequency of the mid-tone pronoun "him/her" and that of the low-tone pronoun "me" is about 28Hz. The difference between the frequency of the mid-tone pronoun "him/her" and that of the high-tone pronoun "them" is about 26Hz. These differences of pitch correspond to three phonemes of tone: high, mid and low.

The other word with a mid tone is the verbal auxiliary. This is used in addition to a main verb, which may be finite or a nominal verb. In each of these contexts, its tone is mid. The main verb, based on a purely semantic criterion, is the infinitive. Constructions with the auxiliary verb are either general past ((127) and (129)) or recent past ((128) and (130), and may be in the progressive ((127) and (128)) or perfective aspects ((129) and (130)).

(127) /**bé á bē í lè- ɟám- L**/ [**bɑ:^{1}#beɪ^{21}#le^{4}.dzɑm^{24}**]
3p P2 Aux. Locative c.15 prepare:food Inf.
"They were in the process of preparing food (yesterday or prior)."

(128) /**bé L bē í lè- ɟám- L**/ [**be^{14}#beɪ^{21}#le^{4}.dzɑm^{24}**]
3p P1 Aux. Locative c.15 prepare:food Inf.
"They were in the process of preparing food (earlier today)."

(129) /**bé á bē í ɟám- L**/ [**bɑ:^{1}#beɪ^{21}#dzɑm^{24}**]
3p P2 Aux. Pfv prepare:food P2:Pfv
"They prepared food (yesterday or prior)."

(130) /**bé L bē í ɟám- L**/ [**be^{14}#beɪ^{21}#dzɑm^{24}**]
3p P1 Aux. Pfv prepare:food P1:Pfv
"They prepared food (earlier today)."

In addition to these four constructions, there is a fifth construction with the auxiliary verb, this being the negated present habitual construction ((131)-(132)). Note, in (132), the presence in the negative morpheme of a replacive high tone that replaces a low tone to its left, in the subject pronoun. This replacive tone has a vacuous effect in the case of high tone pronouns, as is seen in (131).

(131) **/bé ←H à- bē lè- ɟám- L/** **[bɑ:^{14}#be^{2}#le^{4}.dzɑm^{24}]**
3p NEG AUX c.15 prepare:food Inf.
"They are not preparing food."

(132) **/ɲè ←H à- bē lè- ɟám- L/** **[ɲɑ:^{14}#be^{2}#le^{4}.dzɑm^{24}]**
3s NEG AUX c.15 prepare:food Inf.
"[He/she] is not preparing food."

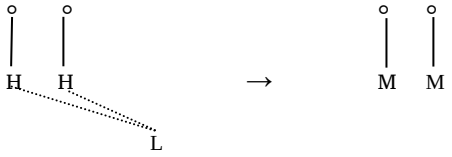
The auxiliary verb, /**bē**/, is found in the full range of tonal environments—between high tones, as in (127) and (129), and between low tones, as in (131) and (132)

While mid tone is rare as a lexical tone, it is observed relatively frequently as the product or outcome of morphophonemic rules.

2.2.2.2 Mid Generated by Grammatical Factors

It is also found that high tones become mid when they are lowered to mid when they precede a low boundary tone ("BT"). The low boundary tone exists at the margin between the noun and the possessive pronoun, as is seen in (133). A low boundary tone also exists before the associative marker (140). The following formula covers both cases.

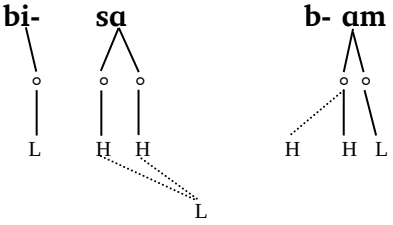
(133) The Syntax of the Boundary between Noun and Possessive Pronoun



"If a high tone attached to the second node of a noun is associated with a low boundary tone, it becomes mid, as does a high tone on to its left."

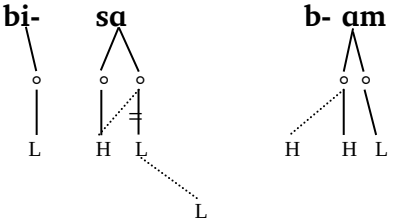
The noun "plums" in (134) has two high tones to which the low boundary tone associates. These become mid tone, with the pitch [^{2}]. In the surface-phonemic transcription, this is indicated by a macron.

(134) **bi- sɑ b- ɑm** **/bìsā bâm/**
[bi^{4}.sɑ^{2}#bɑm^{14}]
"my plums"



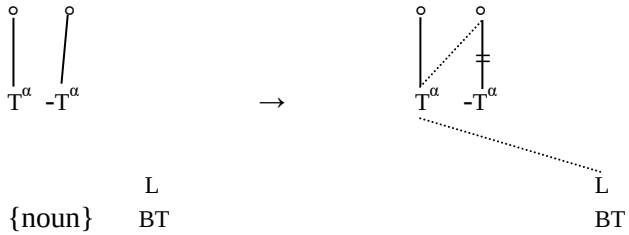
Note in (135), however, that the underlying tones of the noun "thing" are high and low and that a contour simplification rule applies before the low boundary tone, by which the tone of the first node spreads to the tone of the second node, which is disassociated.

(135) **bi- sɑ b- ɑm** **/bìsā̋ bjâm/**
[bi^{4}.sɑ^{1}#bjɑm^{14}]
"my things"



The contour-simplification rule seen above can be summarized in (136), where T$^{\alpha}$ and -T$^{\alpha}$ represent different tones. Note that the low boundary tone is the environment for the rule taking effect.

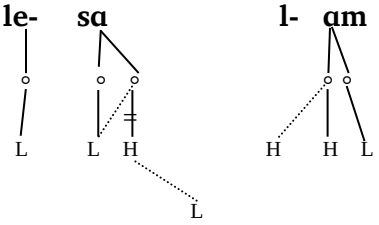
(136) The contour-simplification rule



"Before a low boundary tone, a sequence of differing tones will be simplified, with the second tone being disassociated from the second node. The first tone is associated with this node."

Note in (135) that the contour being simplified was H-L, with the effect of the low boundary tone being seen in the resulting two high tones of "things". A contour of L-H is seen in (137), and the effect of the low boundary tone is seen in the low tones of "feather".

(137) **le- sɑ l- ɑm** **/lèsɑ̀ lɑ̂m/**
[le⁴.sɑ⁴#lɑm¹⁴]
"my feather"



The low boundary tones in (137) and in (135) are associated with doubly-associated tones, a low tone in (137) and a high in (135). In the case of a low tone, however, the boundary tone has no effect, whereas it has an effect on a high tone, lowering it approximately 17 Hz, taking it down from an average pitch of 156 Hz to a pitch of about 138 Hz. In other words, the pitch of the lowered high tone of "prune" is mid: /**-sā**/. Rather than calling the tone a lowered high tone in the phonemic representation, I will refer to it as a mid tone, since mid tones are attested independently.

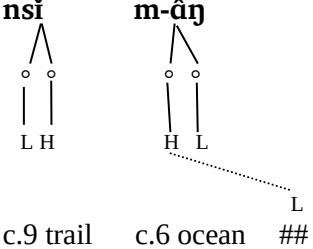
The low boundary tone of the noun-possessive pronoun construction produces a mid pitch in high-tone nouns before the possessive pronoun. This contrasts in pitch with nouns having a HL contour at the lexical level (135), where the boundary tone is associated with a *disassociated* low tone and has vacuous effect.

A low boundary tone is also found before the "associative marker", AM, as will be described in the next section. The same rules of contour-simplification and high-tone lowering will be observed.

2.2.2.3 Mid through a Low Boundary Tone: Before the AM

Two nouns coming together in a syntactic and semantic unit can be called an "associative construction" (AC). An associative construction has a grammatical link between the two nouns, the associative marker. If the first noun is in classes 1, 1a , 9 or 10, the AM is null, as is seen in (138). There is no low boundary tone in such a case.[31]

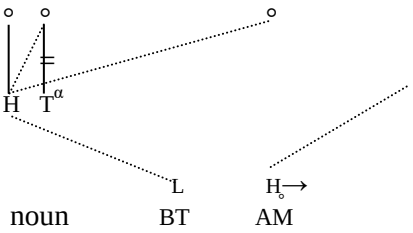
(138) **nsǐ m-ɑ̂ŋ** **/nsǐ mɑ̂ŋ/**
[nsɪ⁴¹#mɑŋ²⁴]
"the trail leading to the ocean"



[31] A noun of any class may be followed by a generic associative marker identical to that of the c.6 AM if the second noun is animate. Usually the relationship expressed is that of "possession".

The non-null AM's are preceded by a low boundary tone, as is seen in (139). The association of a high tone with a low boundary tone corresponds to a mid pitch, provided the lowered high is associated with a vowel. This boundary tone is identified as the "boundary tone of the AM" and glossed "BT" in the autosegmental representation of the data.

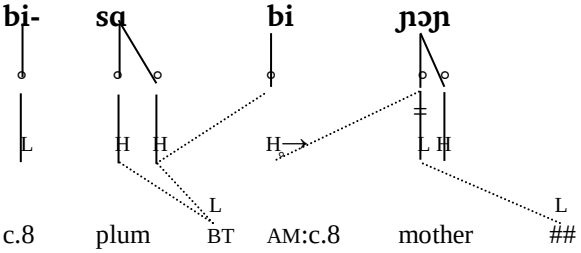
(139) The Source of Mid Pitch in Associative Constructions



"At the boundary of a noun and AM, there exists a weak boundary and a low boundary tone. This boundary tone associates with the adjacent tone to the left. If the tone of the first node is the same as the tone on the second node, it also associates with the first node. A high tone lowered by the low boundary tone is articulated at pitch [^{2}]. A low tone is articulated at pitch [^{4}]."

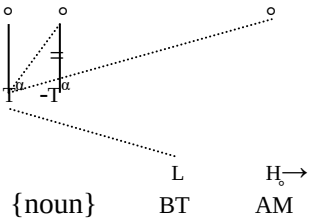
The AC in (140), illustrates what happens when the low boundary tone associates itself with a high tone. A mid pitch is created, which is indicated by the macron in the surface-phonemic transcription. This has been observed already in two circumstances: once with the auxiliary verb and again in a lexical HH noun before a possessive pronoun. In this third context, the macron appears where one encountered lexical HH nouns that were lowered before the AC.

(140) **bi- sɑ bi ɲɔɲ** **/bìsā bī ɲɔ̄ŋ/**
[bi^{4}.sɑ^{2}#bi^{2}#ɲɔŋ^{1}]
"[his/her] mother's plums"



A sequence of non-identical tones in the root of the first noun creates the possibility of contour simplification. The rule requires that there be an AM, which is preceded by a weak boundary. It also requires that the first noun be of the tone class {variable}. Under these circumstances, contour simplification will occur and the second stem tone will be deleted. The low boundary tone will consequently be deleted along with its host tone, as is shown in (141).

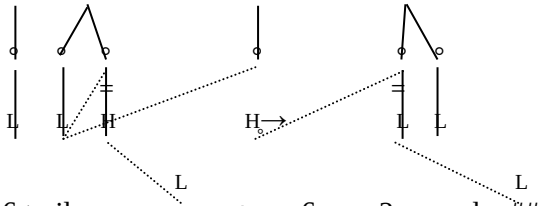
(141) The Low Boundary Tone Associating with H-L or L-H Nouns



"At the boundary of a noun and AM, there exists a weak boundary and a low boundary tone. This boundary tone associates with the adjacent tone to the left. If the tone of the first node is different than the the tone on the second node, a contour simplification is observed, whereby the tone of the first node replaces the tone of the second node. The tone of the second node is deleted together with the low boundary tone. A high tone on the nodes of the noun is articulated at pitch [^{1}]. A low tone is articulated at pitch [^{4}]."

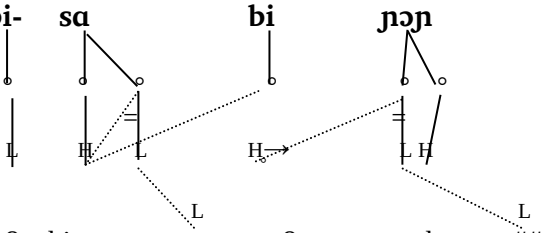
The contour-simplification rule may have the effect of deleting a high tone, as is seen in (142), or a low tone, as in (143).

(142) **me- nsɪ me b- ʊd** **/mènsɨ̀ mè bʊ̂d/**



[me⁴.nsɪ⁴#me⁴#bʊɾ¹⁴]
"the trails of people"

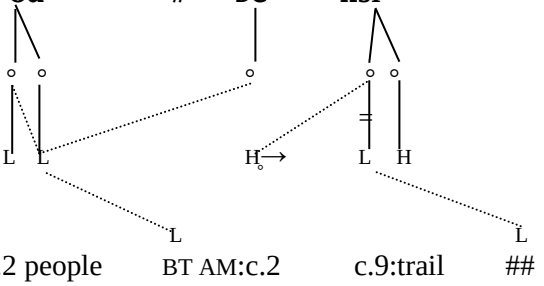
(143) **bi- sɑ bi ɲɔŋ** **/bì-sɑ́ bí ɲɔ̋ŋ/**



[bi⁴.sɑ¹#bi¹#ɲɔŋ¹]
"[his/her] mother's things"

The low boundary tone has no influence on associated low tones, however, because utterance-medial low tones are not lowerable. This is shown in (144).

(144) **b-ʊd #̃ be nsɪ** **/b-ʊ̀d bè nsɪ́/**



[bʊɾ⁴#be⁴#nsɪ¹]
"the people [of/coming along] the trail"

Low boundary tones occur at the junctions between words in two noun phrases, one including possessive pronouns and the other including the AM. At the same place, one also finds a weak boundary where contour simplification can occur. It seems likely that other noun phrases will be identified with weak boundaries and low boundary tones.

The number of HL nouns that are invariable remains to be ascertained. It will be interesting to see if the hypothesis holds up that borrowed words with that tone pattern are invariable.

Where weak boundaries and low boundary tones occur, the phonetic distinction between HH and HL nouns is reflected in the articulation of nouns at high and mid pitches. Something similar occurs in verbs, as will be shown in the next section. But the distinction between high ([1]) and mid ([2]) is not due to low boundary tones in the case of verbs. Instead, it is due to the action of a polar tone rule that is a component of certain verbal constructions.

2.2.2.4 Mid through a Polar Tone Rule

Tonal morphemes have a range of effects as they impact lexical tones, both high and low. In the preceding section, it was noted that a low boundary tone, which is a component of the associative construction, lowers the pitch of a high tone and thus creates a mid pitch. Such a mid pitch represents the net effect of interactions between multiple morphemes and is reflected by the use of the macron.

Another source of mid pitches that will be denoted by the macron arises from a third and final source—polar tones. In Njyem, polar tones are morphemes that occur as suffixes to verbs. Verbal constructions that include such morphemes are called "polar constructions". There are at least three polar constructions:

- the future imperative construction[32] Ex. (155)- (157)
- the present affirmative focus-marked construction Ex. (158)- (160)
- the present negative habitual construction Ex. (161)- (163)

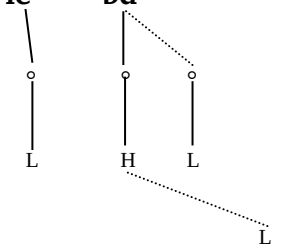
The context for a discussion of polar tone and polar verbal constructions is a description of some nonpolar verbal constructions. Nonpolar constructions have verbal suffixes as well, these differing from polar suffixes in kind and nature. Nonpolar verbal suffixes consist of lexically-defined tones—either high or low tone—that interact with the tone of the verb stem if one is present. These suffix tones may either dock to a node and join previously docked tones or associate with a node and replace the tone that had associated earlier with the node. A diagram of the verbal system shown below places these types of constructions in relation to each other.

Table 2: Types of Verbal Constructions

	Polar verbal constructions	Nonpolar verbal constructions	
"Verbal suffix is defined...	...relative to previous tone."	...absolutely (i.e. in the lexicon)."	
"Tone associates...	...transforming a tone at the left to its polar opposite"	...replacing a tone at the node."	...adding itself to any tone at the node."
Examples	(155)-(161)	(150)-(153)	(145)- (149)

One of the many nonpolar constructions is the infinitive, which has a low tone verbal suffix. The low tone infinitive suffix is shown in monosyllabic verbs in examples (145) to (147) and in disyllabic verbs in examples (148) to (149). A monosyllabic toneless verb is in shown in (147).

(145) **le- ba** **/lèbâ/**

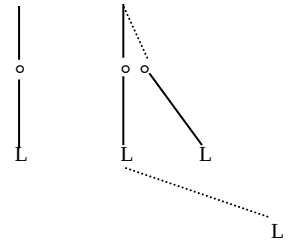


[le⁴.ba²⁴]

"to marry"

c.15 marry INF ##

(146) **le- ba** **/lèbà/**



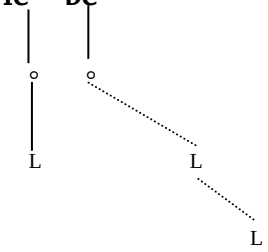
[le⁴.ba⁴⁵]

"to cut up [an animal]"

c.15 cut:up INF ##

[32] The future imperative construction can also be called a "sequential imperative" or "conditional imperative" construction. It occurs in natural text in two contexts, after a conditional phrase, and after a normal imperative. An example of the former, with the phrase corresponding to a future imperative construction underlined, is "If you should see it, kill it." An example of the latter is "Get some cudgels. Get some dogs and go."

(147) **le- be** **/lèbè/**



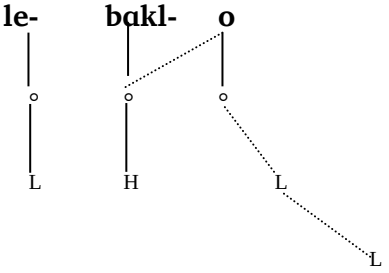
[le⁴.be⁴⁵]

"to be"

c.15 be INF ##

Many verb roots have identical segments but different lexical tones.[33] One pair of these verbs are /-**bákl**-/ "double" and /-**bàkl**-/ "take good care of". These are seen in examples (148) and (149).

(148) **le- bakl- o** **/lèbáklô/**

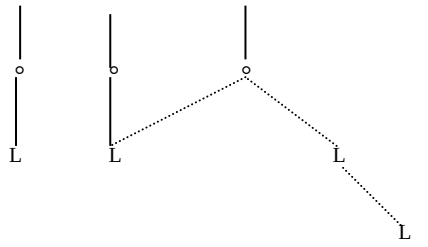


[le⁴.ba?¹.lo¹⁴]

"to do twice, double"

c.15 double FV INF ##

(149) **le- bakl- o** **/lèbàklò/**



[le⁴.ba?⁴.lo⁴⁵]

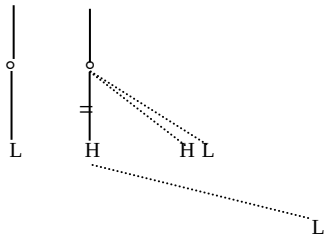
"to care for"

c.15 care:for FV INF ##

The preceding verbs are representative of many verbs that differ solely with regard to lexical tone. Since there is a heavy semantic load being carried by the tone of a verb, it is correspondingly of great importance to know how to maintain these lexical distinctions throughout the different phonologically-defined types of verbal constructions. Upon examination, it seems to be the case that there is only one construction—the hortative—in which lexical tone of the verb is neutralized. The hortative construction imposes a HL tonal contour on all verbs, and this replacive tonal morpheme causes verbs to become tonally indistinguishable with each other. If tone was the only phonemic difference between the lexemes, one is obliged to resort to guesses about which word is intended. In the absence of pragmatic clues, one is at a loss to know whether [**ɲe⁴#ba?¹⁴**] means "let him marry" (150), or "let him cut [it] up" (151). Likewise, it is the pragmatic clues that would assist the speaker's audience to know whether [**ɲe⁴#ba?¹⁴.la:⁴**] means "let [her/him] care for [it]" (152) or "let [her/him] double [it]" (153).

[33] Verbs such as "resurrect" /**lè-pɛ̀h-L**/ and "select" /**lè-pɛ́h-L**/, "cut up" /**lè-bà-L**/ and "marry" /**lè-bá-L**/, "prepare [food]" /**lè-ɟám-L**/ and "copulate" /**lè-ɟàm-L**/ are a few of the many pairs of verbs that differ tonally.

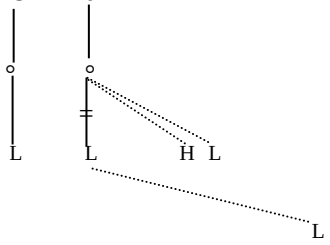
(150) **ɲe ba- k** /**ɲè bâk**/



[**ɲe⁴#baʔ¹⁴**]

3s marry HORT ## “let him marry”

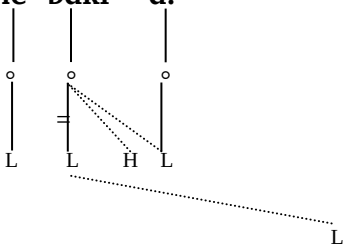
(151) **ɲe ba- k** /**ɲè bâk**/



[**ɲe⁴#baʔ¹⁴**]

3s cut:up HORT ## “let him cut up”

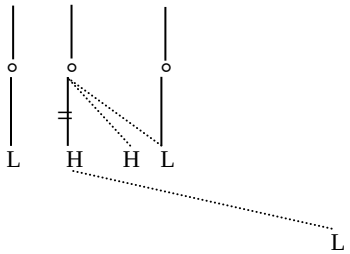
(152) **ɲe bakl- a:** /**ɲè bâklà:**/



[**ɲe⁴#baʔ¹⁴.la:⁴**]

3s care:for HORT ## “let [her/him] care for [it]”

(153) **ɲe bakl- a:** /**ɲè bâklà:**/



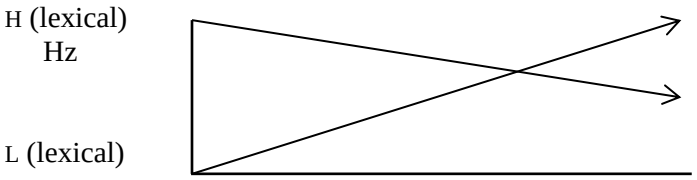
[**ɲe⁴#baʔ¹⁴.la:⁴**]

3s double HORT ## “let [her/him] double [it]”

Although Njyem allows for the neutralization of lexical tone contrasts in verbs, this neutralization of contrast is avoided in the three polar constructions. Verbal constructions that are nonpolar are exemplified by the infinitive ((145)-(149)) and by hortative constructions ((150) - (153)), both of which have verbal suffixes that have replacive or nonreplacive tones. Some verbal suffixes have low tones, as was the case of the infinitive, and others have high tones, such as the recent past construction, which will be described in §2.3.2.3.

The “polar” constructions preserve the distinction between high- and low-tone nouns, but only in a indirect manner. The verbal suffixes of polar constructions replace lexical tones with their polar opposites. The polar opposite of a low tone is high, as might be expected, but the polar opposite of a high tone is a mid tone. This can be thought of as a “failed” low tone—one that moved in the direction of the usual pitch for low tones, but only got as far as the mid pitch, represented as [^{2}]. Because this mid pitch is an amalgam or portmanteau of tones representing more than one morpheme, I will use the macron in the surface phonemic representation.

(154) The Effects of Polar Tone Rules on Lexical Tones



"The polar tone rule converts a lexical low tone to its opposite, a high tone. This generated high is at pitch [^{1}] and it represents a portmanteau consisting of the original lexical low tone and the tone rule conveying grammatical information. The polar tone rule likewise converts a lexical high tone to its opposite, a low tone, but this generated low is at pitch [^{2}]. It represents a portmanteau consisting of the original lexical low tone and the tone rule conveying grammatical information."

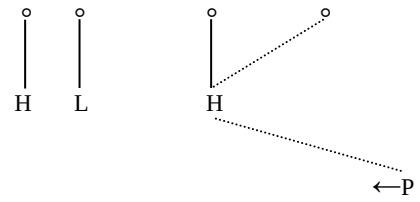
Three polar tone constructions have been observed so far:

- the present affirmative focus-marked construction,
- the present negative habitual construction and
- the future imperative construction.

I will begin with the latter, showing the how its polar tone interacts with the three types of verbs: high-tone, low-tone and toneless.

A high tone verb in the future imperative construction becomes mid, as in (155), since mid is the polar opposite of high.

(155) **be e bɑkl- o** **/bé è bākl̄ō/**



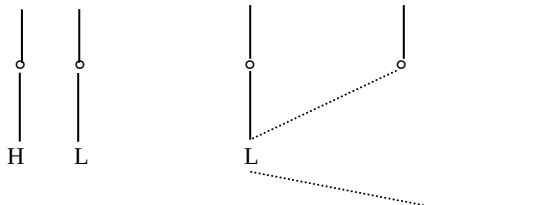
3p F-IMPV double FV F-IMPV

[be:^{14}#bɑʔ^{2}.lo^{2}]

"Then they should double [it/them]."

The low tone verb in the future imperative construction becomes high, as in (156), since the polar opposite of low is high. Note, in both cases, that the tone generated by the polar tone rule spreads to the final vowel suffix, when one is present. These suffixes lack inherent tone.

(156) **be e bɑkl- o** **/bé è bákló/**



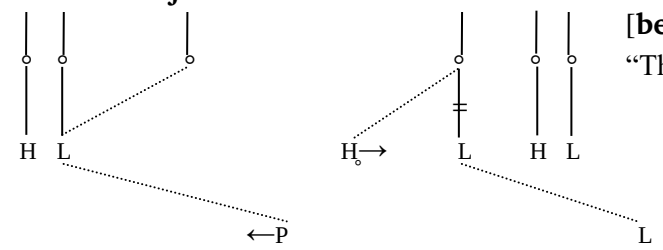
3p F-IMPV take:care:of FV F-IMPV

[be:^{14}#bɑʔ^{1}.lo^{1}]

"Then they should take care of [it/them]."

When toneless verbs occur in polar constructions, the polar tone suffix fails to encounter a lexical tone in the verb and must continue its search beyond the verb, i.e. to the left, until it encounters one. The tone of the toneless verb is therefore the polar opposite of whatever tone preceded it. In (157) the toneless verb "give" becomes high in tone because the morpheme to the left of the verb "F-Impv" is low, and the polar opposite of a low tone is high.

(157) **be e ɟe be- nkɑlɑd /bé è ɟé bénkálàd/**



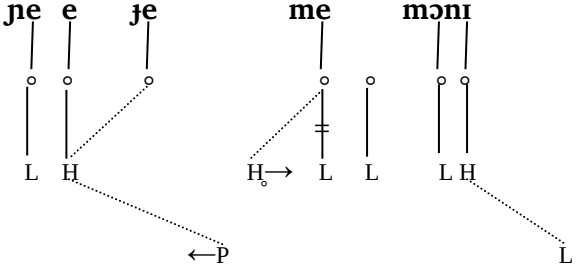
[be:[14]#dze[1]#be[1].ŋkɑ[1].lɑɾ[4]]

"Then they should give [some] books."

3p F-IMPV give F-IMPV F-IMPV c.2 book ##

In the preceding case, it should be noted that the tone to the left of the verb was low and the polar tone became high. A different polar tone construction is found in (158), one with a high tone to the left of the toneless verb. The polar tone becomes the opposite of the high tone, and associates with the verb root. (The label "P0" stands for present tense.)

(158) **ɲe e ɟe me mɔnɪ /ɲè é ɟē mé mɔ̀ní/**



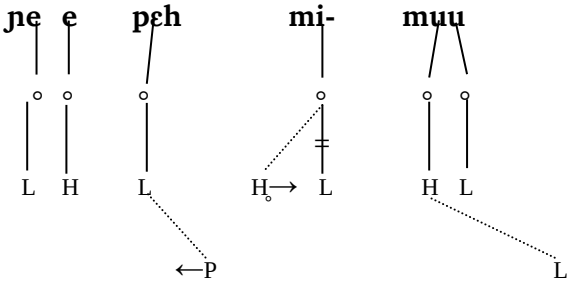
[ɲe:[41]#dze[2]#me[1]#mɔ[4].nɪ[4]]

"It's [he/she] who gives me money."

3p FOC give P0 P0 1s c.7 money ##

Other cases of this polar construction, the present focus-marked construction, are observed in (159) and in (160), in which one finds the lexical low tone and high tone verbs, respectively.

(159) **ɲe e pɛh mi- muu /ɲè é pɛ́h mímû:/**

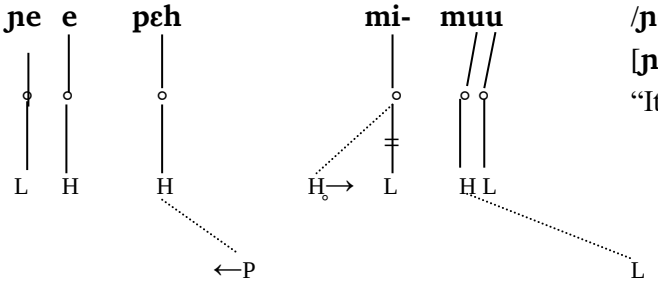


[ɲe:[41]#pɛh[1]#mi[1].mu:[24]]

"It's [he/she] who raises the dead to life."

3p FOC raise P0 P0 c.4 cadavres ##

(160) **ɲe e pɛh mi- muu /ɲè é pɛ̄h mímû:/**



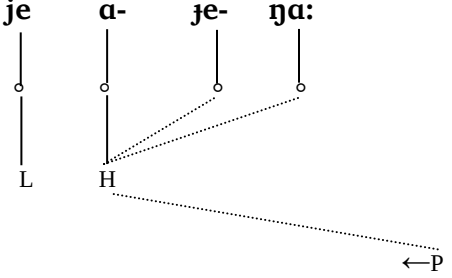
[ɲe:[41]#pɛh[2]#mi[1].muu[14]]

"It's [he/she] who selects cadavres."

3p FOC select P0 P0 c.4 cadavres ##

The third and apparently final polar construction consists of the negated present habitual construction, this being shown in (161) through (163). It will be noted that it, too, has a high tone preceding the verb, which means that toneless verbs in such a construction will be mid, as was the case also in the affirmative present dependent construction in (158).

(161) **je ɑ- ɟe- ŋɑ: jɪmed /já: ɟēŋā: jíméd/**

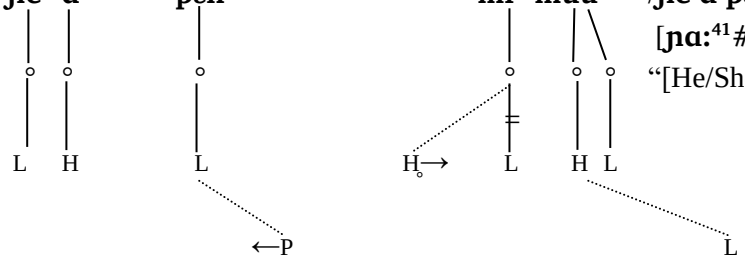


[jɑ:[1]#dze[2].ŋɑ[2]#jɪ[1].mer[1]]

"It's never given all by itself."

3p:c.7 NEG:P0 give PASS NEG:P0 c.7:alone

(162) **ɲe ɑ- pɛh mi- muu /ɲè á pɛ́h mímû:/**

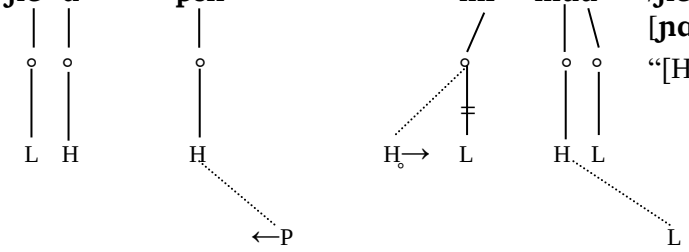


[ɲɑ:[41]#pɛh[1]#mi[1].mu:[24]]

"[He/She] never raises cadavres to life."

3p NEG:P0 raise NEG:P0 NEG:P0 c.4 cadavres ##

(163) **ɲe ɑ- pɛh mi- muu /ɲè á pɛ̄h mímû:/**



[ɲɑ:[41]#pɛh[2]# mi[1].mu:[24]]

"[He/She] never selects cadavres."

3p NEG:P0 select NEG:P0 NEG:P0 c.4 cadavres ##

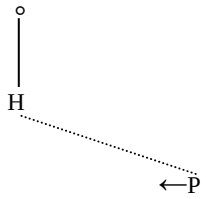
To summarize, verbs are either tonal or toneless. Tonal verbs have either high or low tone. A polar tone suffix changes the lexical tone of the affixed verb to its polar opposite. A toneless verb also acquires a tone through the influence of the polar tone, but its tone is the polar opposite of the tone to its left. Table 24 is a restatement of some of these points.

Table 24: How the Tones Vary through Impact with the Polar Suffix

"If the lexical tone of a verb is...	then the verb's tone, reflecting the work of a polar tone suffix will be...
high,	mid."
low,	high."
nul,	mid, if the tone preceding the verb is high."
	high, if the tone preceding the verb is low."

One source of a mid pitch for which we use the macron has been identified in the verbal auxiliary. A second source for a mid pitch for which we use the macron has been found in noun phrases before the possessive pronoun or before the AM. To these I have shown that a third source of a mid tone for which we will use the macron is due to the polar suffix of a verb with a high lexical tone as in (155), (160) and (163).

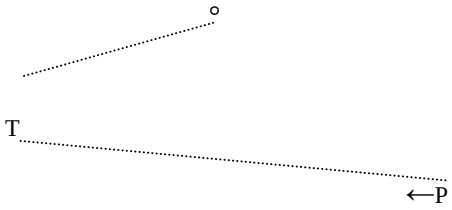
(164) One Source of a Mid Pitch in a Verb



{verb} Suffix indicating tense or aspect

A fourth source of a mid tone that seen in (158) and (161), in which a morpheme with a high tone is followed by a toneless verb that is in a polar verbal construction. In such cases, the polar suffix interacts with the morpheme which precedes the verb.

(165) A Second Source of a Mid Pitch in a Verb



tense/aspect marker {verb} Suffix indicating tense or aspect

"When a toneless verb is followed by a suffix containing a polar tone, the tone which will be associated with the verb's vowel is the polar opposite of the tone that is assigned in the lexicon to the tense/aspect marker preceding the verb. (This is also the immediately preceding lexical tone.)"

2.2.2.5 The Status of Mid as a Phoneme

After a study of lexemes, the associative construction and a wide range of verbal constructions, I thus reach the conclusion that there is mid tone is a growing phoneme in Njyem, playing only a small role in the lexicon but having a more important role in the grammar, where the mid tone is a portmanteau phoneme, representing the interaction between high and low phonemes and polar tone rules or boundary tones. The information conveyed by these portmanteau phonemes is contrastive character. The consequence of their association with lexical tones can produce a mid tone in the surface representation of the construction. This mid pitch, I believe, ought to be noted in the phonemic representation of an utterance.

This does not exhaust the characterization of mid pitch, however. It only exhausts those known occurrences of mid that are composed of plural, meaningful constituents. The remaining occurrences of mid pitch are predictable and need not be indicated by macrons in the surface representation of utterances in which they occur. These remaining mid pitches are lowered high tones that dissimilate predicably before other high tones. Dissimilation will be dealt with in §2.2.3.2 and the reader will know by rule when a sequence of high tones in a "surface phonemic transcription" will include a lowered high.

2.2.3 Tone Rules

The discussion of tone rules has been already begun, this being a practical necessity in order to address the question of the status of mid pitch. I continue the discussion of tone rules in the interest of offering the reader a small reference grammar and summary.

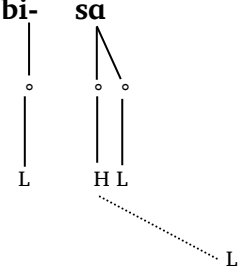
2.2.3.1 Contour Simplification Rule

The high and low tones combine with each other as dictated by the lexicon. Some morphemes have sequences of the same tone (HH or LL) and others have sequences of nonidentical tones (LH or HL). The latter can be called "contours". In this context, "contour simplification" means that, when certain conditions are met, a tone will be detached from its node and deleted because it differs from a preceding tone. Two factors—both concerning boundaries—limit when contour simplification occurs. The first is that contour simplification occurs within a morpheme, rather than across morpheme boundaries, and the second is that the

boundary to the right of the morpheme must be "low" on the boundary-strength scale. The strength or weakness of a boundary is only known by observing the effects that it produces. If tone contours are eliminated in a syntactic context, one discerns that the boundary strength between the two words was weak, permitting the tones to influence each other. There are two respects in which the Njyem contour-simplification rule diverges from what would be expected. One expectation in a contour-simplification rule is that it would function with regard to the tone on the other side of the boundary. A sequence HL would thus become H before a weak boundary followed by H. This "natural" kind of rule would be assimilatory and explanatory. It seems to be absent in Njyem, however. The other expectation of a contour-simplification rule would be that the two kinds of contours— HL and LH—would be treated similarly. This, too, is missing in Njyem.

One noun with a tone contour is **/bì-sâ/** "things". Uttered in isolation, it has mid-low falling contour, [^{24}], which is due to the lowered intonational contour of words in isolation, as in (166).

(166) **bi- sɑ** **/bìsɑ̀/**



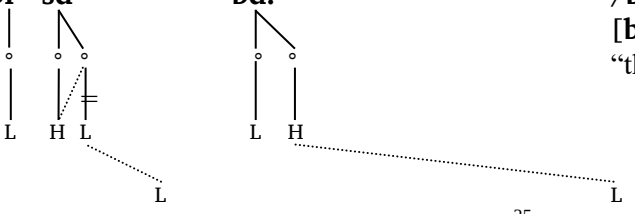
[bi^{4}.sɑ^{24}]

"things"

c.8 thing ##

There is a weak boundary between a noun and an article, deictic, associative marker or possessive pronoun that follows it and agrees with it[34]. This is seen in (167), with respect to an article and in (168), with respect to a possessive pronoun.

(167) **bi- sɑ** **bɑ:** **/bìsɑ́ bɑ̌:/**

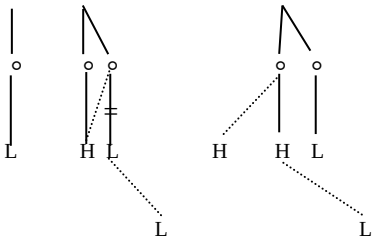


[bi^{4}.sɑ^{1}#bɑ:^{4}]

"the said things"

c.8:thing BT the:said:c.2:not:asserted[35] ##

(168) **bi- sɑ** **b- ɑm** **/bìsɑ́ bâm/**



[bi^{4}.sɑ^{1}#bɑm^{14}]

"my things"

c.8 thing BT c.2 my ##

[34] This list is nonexhaustive. Nouns have inherent class membership, while most other noun phrase constituents acquire membership in a class according to the noun to which they refer. Words in the noun phrase that are not inflected to show class membership are usually in an associative construction.

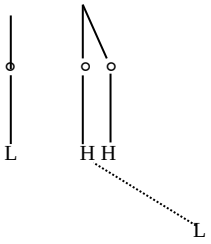
[35] An unusual aspect of class 4 and class 8 nouns is that each of these may govern agreement in two ways, according to the word being asserted. If the possessive pronoun is not being asserted, as is usually the case, it will be of a different class than the noun. If the noun is c.4, the unasserted possessive pronoun will be of c.6; if the noun is c.8, the unasserted possessive pronoun will be of c.2. If the possessive pronouns are asserted, they are of the same class as the noun they refer to, whether they follow or precede the noun.

Note the operation of the contour-simplification rule in the preceding cases. The HL contour is replaced by H as the first tone of "things", spreads to the second node of the root, detaching the low tone. Contour-simplification is not sensitive to the lexical tone of the following word, only to the low boundary tone, as is clear upon comparison of (167) and (168). In the former case, the following word's first tone is low, while in the latter case, it is high.

Note also that the low boundary tone in the construction associates with the immediately-preceding tone, this being the second stem tone of the noun. Since this is also the tone that is deleted, the low boundary tone is deleted with it. The pitch of the noun stem is therefore an unlowered high, which is recorded as [^{1}].

Contrasting with the above case is that of /**bì-sɑ́**/ "plums, plum trees"[36], which has two high tones in the root. In isolation, the low tone at the end of utterance causes the pitch level of the stem to be lowered, as in (169).

(169) **bi- sɑ** **/bìsɑ̄/**



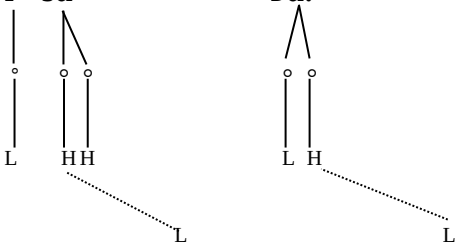
[bi⁴.sɑ²]

"plums"

c.8 plum ##

When this noun is followed by a low boundary tone, the tone associates with the second high tone, as would be predicted. That tone is not deleted by the contour-simplification rule, since there is no contour. As a result, the low boundary tone remains in the surface form of the construction and the high tones of the stem are lowered. This lowering is seen in both tonal environments: where the lexical tone to the right of the noun is low (170), and where it is high (171).

(170) **bi- sɑ** **bɑ:** **/bìsɑ̄ bɑ̌:/**



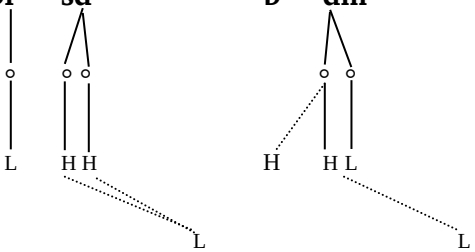
[bi⁴.sɑ²#bɑ:⁴]

"the said plums"

c.8:plums BT the:said:c.2 ##

I cannot presently account for the unlowered high pitch on "my" in (171). It is obvious that the utterance-final boundary tone does not affect it, but there is no deleted tone to which it can be associated, either. This is a residual problem.

(171) **bi- sɑ** **b- ɑm** **/bìsɑ̄ bâm/**



[bi⁴.sɑ²#bɑm¹⁴]

"my plums"

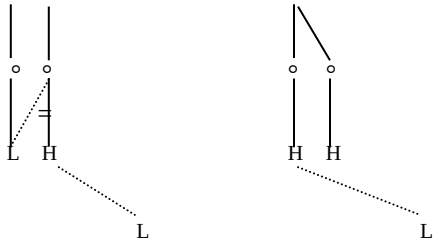
c.8 plum BT c.2 my ##

[36] This is not the European plum tree, but the one that Africans regard as the functional equivalent, known in French as *safoutier* or *prunier*.

The expressions “my things” and “my plums” differ in pitch, the pitch of “plums” in “my plums” being 15 Hertz lower than the pitch of “things” in ”my things”.

The contour-simplification rule has an analogous effect on sequences of low and high tones, but the environments are different. In such cases, the lexical tone following the low boundary tone has crucial importance. If the tone following the low boundary tone is high, as in (172), the contour is simplified. The data in (173) is offered for comparison, showing that there is then loss of tonal contrast between LL and LH nouns after the application of this rule.

(172) **kana** **ve** **/kànà vé/**

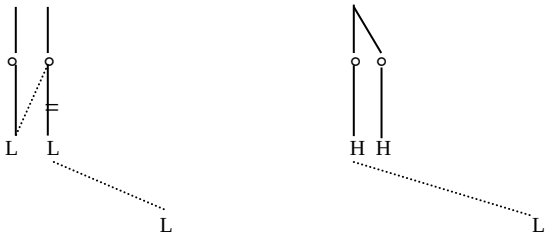


c.1:belt BT his:c.1 ##

[ka⁴.na⁴#ve²]

“his belt”

(173) **kana** **je** **/kànà jé/**



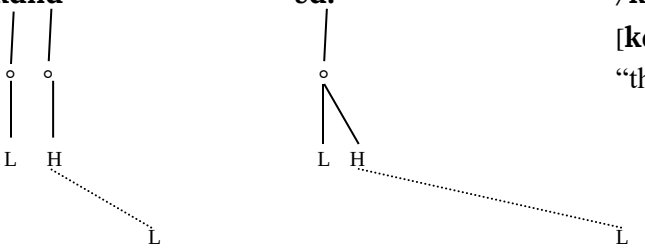
c.7:story BT his/her:c.7 ##

[ka⁴.na⁴#je²]

“his story”

In the preceding noun phrases, the tone of the word following the noun was high and the tonal contrast between LH and LL nouns was neutralized. If the tone of the word following the noun is low, however, the two tone patterns retain their distinctiveness. There, contour simplification fails to occur, as is shown in (174) and (175).

(174) **kana** **va:** **/kàná vǎ:/**

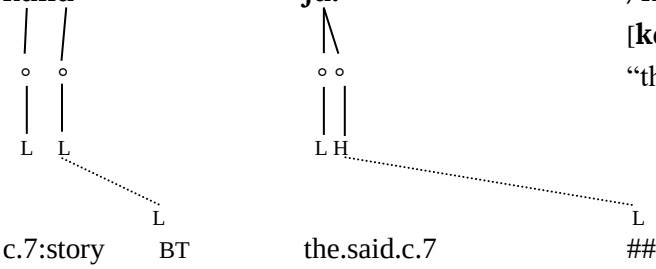


c.1:belt BT the.said.c.1 ##

[**ka⁴.na¹#va:⁴**]

“the said belt” “the belt in question”

(175) **kana** **ja:** **/kànà jǎ:/**



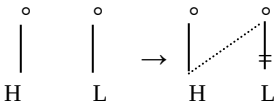
c.7:story BT the.said.c.7 ##

[**ka⁴.na⁴#ja:⁴**]

“the story in question”

The contour-simplification can be summarized as follows.

(176) High Tone Initial Contour Simplification Rule



/__ BT

"The L of a sequence of HL in a noun will be detached as the first tone spreads to the second node. This will happen before a weak low boundary tone followed by a low lexical tone."

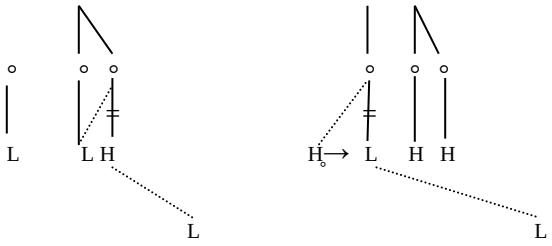
Boundary strength is generally low in noun phrases, and it is common in that environment to encounter contour simplification. The possessive pronoun is preceded by low boundary strength, but that is also true of the AM, the subordinator of the relative clause and deictics.

The associative marker is preceded by low boundary strength as is reflected in a low boundary tone. The boundary tone of the AM associates itself with the first tone to its left, across the weak boundary, and will lower it if it is high, taking it down to pitch [^{2}]. Note that this occurs before a low lexical tone that subsequently becomes high through the influence of the high replacive tone.

(177) **mʊɪd** **bi- lɪ** **/mʊ̀ìd bīlí́/**

[mʏɾ^{4} bi^{2}.lɪ^{1}]

"a medicine for trees"

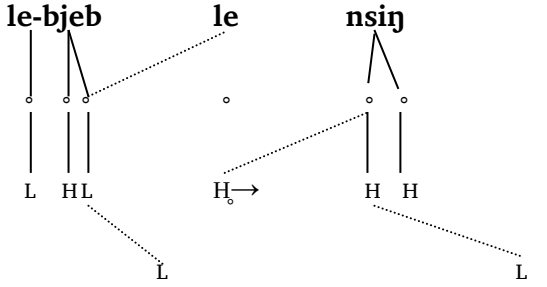


There is a group of HL nouns—apparently numerically few—that violate the contour simplification rule, not letting the deletion of the second tone occur. This can be seen in the following example, in which **/lè-bjéb-L**/ retains its contour even in the presence of a boundary where such contour-simplification should be observed— the position before an associative marker.

(178) **le-bjeb** **le** **nsiŋ** **/lèbjêb lè nsīŋ/**

[le^{4}.bjeb^{14}#le^{4}#nʃiŋ^{2}]

"the [evil/damage/harm] of hatred"

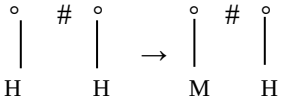


Note that the tone acquired by the AM prefix is that which is closest to it, that being the second stem tone. This respects the law that stipulates that association lines not cross. Nouns that preclude the application of the contour-simplification rule include /**lèsjêh**/ "girl (c.5)" and /**mʊ̂n**/ "child" (c.1) but not /**bʊ̂n**/ "children" (c.2).

2.2.3.2 Dissimilation

A mid pitch arises phonetically due to a process of dissimilation. A full description of this is seen in (179), but a brief account can also be offered: dissimilation means that the high tone lowers in pitch before a word-internal boundary followed by another high tone.

(179)



{prefix} {noun}

"If a high tone noun prefix is adjacent to a stem-initial high tone, it will be lowered to a mid pitch ([²])."

The first example of dissimilation is in (180), where the tone of the prefix of noun class 1a is high and where it precedes a root with an initial high tone. In such a case one observes dissimilation, with the pitch of the prefix being lowered to [²].

(180) **/á-túò/** **[ɑ².tu¹.o⁴]** "talapoin monkey"

The environment for dissimilation is lacking in (181), where the initial tone of the noun is low.

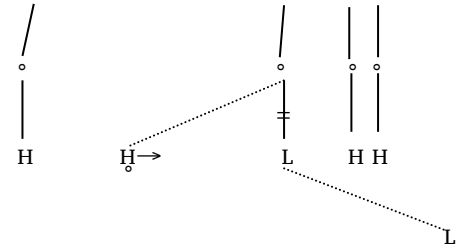
(181) **/á-bʋɛ̌:/** **[ɑ¹.bʋɛ:⁴]** "nursing mother"

The class 1a noun prefix is the only noun prefix with a *lexical* high tone[37]. If a low tone prefix becomes high due to its syntactic or morphological environment, dissimilation fails to occur. This seems to be because the syntactic or morphological change occurs after the dissimilation rule is applied.

2.2.3.3 Tonal replacement with deletion

If a low tone follows a syntactic or morphological replacive high tone, the high tone associates with the vowel and the low tone is deleted. A high replacive tone may be called "syntactic" rather than "morphological" if word order determines its presence. Such is the case when a modifier precedes the noun, as in (119). Other modifiers, such as possessive pronouns, follow their head nouns in unmarked settings, but precede them when they are promoted to prominence,[38] as is seen in (182).

(182) **me** **me- dibo** **/mē mēdíbó/**



[me²#me²di¹.bo¹]

"his/her own water"

c.6:3sg MOD-HD c.6 water ##

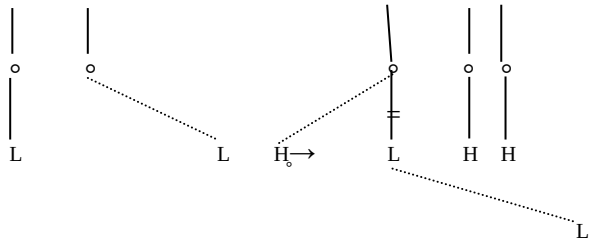
A high replacive tone is deemed "morphological" when its presence conveys grammatical meaning. A morphological replacive high tone occurs as an element in many verbal constructions. It follows the verb and can influence the following word. In (183), one sees it following the infinitive.[39] Note that this tone associates with the node of the syllabic prefix of "water", causing the disassociation of that prefix's lexical tone. Since the prefix is now high in tone and the first tone of the root is also high, the structural definition for the dissimilation rule has been met. The high tone of the prefix is consequently lowered to pitch [²].

[37] All other tonal noun prefixes are low, with some of these being syllabic prefixes with others being nonsyllabic. Some noun prefixes are toneless and nonsyllabic.

[38] The fronting of the possessive pronoun will usually convey the meaning of "own", as in "his own field", as contrasted with the nonfronted possessive pronoun: "his field".

[39] {Infinitive} can be defined in this manner: c.15- {verb}-Inf Inf. The prefix of the verb is /**lè**-/. The suffix is either a final vowel and a low tone or a low tone by itself, in the case of monosyllabic verbs. The remaining morpheme of {Infinitive} is a replacive high tone that associates with an immediately-following low tone. Each of these three parts contributes to the entire construction, which thereby defines "infinitive".

(183) **le- de me- dibo** **/lèdè mēdíbó/**



[le⁴.de⁴#me².di¹.bo¹]

"to drink water"

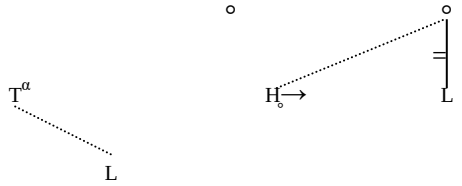
c.15 consume Inf Inf c.6a water ##

Grammatical replacive high tones appear in the following a verb. A high replacive tone is the final constituent of "high tone verbal constructions", which greatly outnumber the "low tone verbal constructions". (See (157) and (158).)

Replacive high tones also have a lexical role. The root of the associative marker is a high replacive tone, as is shown in (122), where the AM has the c.6 prefix, and in (189), where it has a nonsegmental prefix. An abstract form of the AM with the c.6 prefix is seen in (184). There is a null variant of the am if the noun it agrees with is c.1, 1a or 9.

(184) The Associative Marker with Syllabic Prefix (of c.6)

me- **/me$_{\overset{\circ}{H}}$→/**



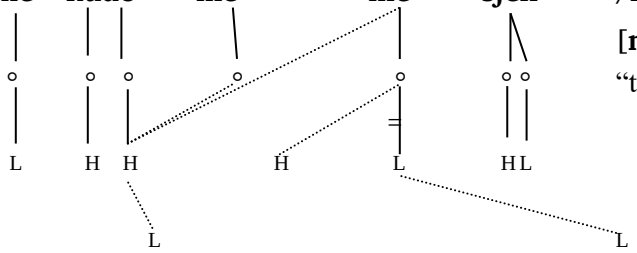
[me][40]

"of, pertaining to, belonging to, etc."

BT c.6 AM:c.6

The high replacive tone of the AM associates with the node to which an immediately-following low tone is assigned by the lexicon. In (185), dissimilation occurs since the first stem tone of the noun is high. Under these circumstances, the prefix tone is lowered so that its pitch will be lower than the pitch of the adjacent high stem tone. Note that the prefix of the AM is syllabic with a macron, **/mē/**, while the prefix of the second noun has a high tone, **/mé/**, yet they are both produced with the same mid pitch, [2]. The reason for this concerns the morphological complexity of the tone for the AM prefix, whereas the tone of the second noun's prefix is morphologically simple, and its pitch is predictable. The prefix of the AM, **/mē/**, represents the high lexical tone of the first noun plus the boundary tone of the AM.

(185) **me- kudo me- me- sjeh** **/mèkūdō mē mēsjêh/**



[me⁴.ku².ɾo²#me²#me².ʃjeh¹⁴]

"the girls' baskets"

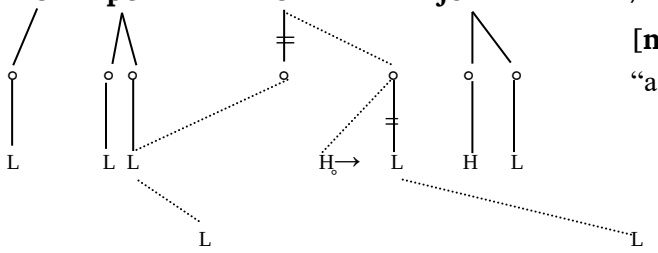
c.6 basket BT c.6 AM:c.6 c.6 girl ##

Dissimilation occurs even when the prefix of the second noun is a floating low tone. As is seen in (186), the prefix of **/ʟ-ɟʊin/** "black person" is a low tone, corresponding to class 7. This tone becomes disassociated after the high replacive tone of the AM associates with its node. This node is then associated

[40] Depending upon the surrounding words, the pitch of the associative marker prefix can be [1], [2], [21] or [4].

with the vocalic AM prefix. Note that it is lowered to pitch [^{2}] because it precedes a high tone and dissimilates from it.

(186) **me- ɴ-pek me ɟʊin** **/mèɴpɛ̀k mé ɟʊîn/**



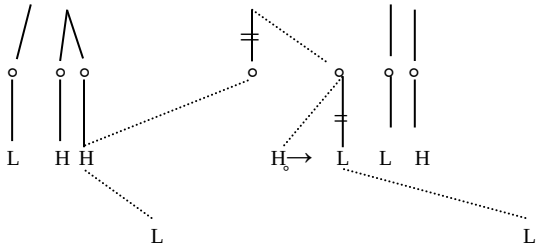
[me^{4}.mpeʔ^{4}#me^{2}#dʒyn^{14}]

"a black person's seeds"

c.6 c.9 seed BT AM:c.6 c.7 black:person ##

Dissimilation fails to occur in the following case, however, since the first stem tone of the second noun is low rather than high.

(187) **bi- lɪ bi diki** **/bìlī bí dìkí/**



[bi^{4}.lɪ^{2}#bi^{1}#di^{4}.ʔi^{4}]

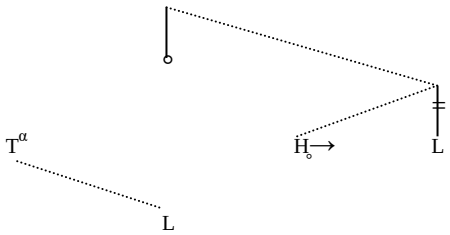
"the trees of the forest"

c.8 tree BT AM:c.8 c.7 forest ##

Up to this point, the examples of the AM have been segmental and tonal, /CV-H⸰→/. Another kind of associative marker exists, however—one that is nonsyllabic: /H⸰→/. As is seen in (188), it consists solely of a low boundary tone and a high replacive tone.[41]

The Associative Marker with a Nonsyllabic Prefix (of c.3 or c.7)

(188) /H⸰→/



[...][42]

"of, pertaining to, belonging to, etc."

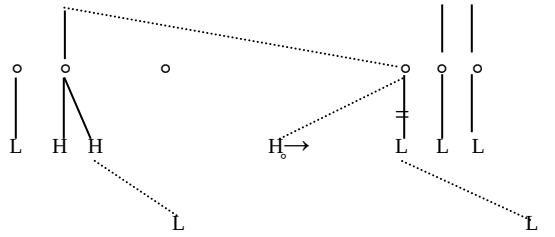
BT AM:c.3 or 7

When such associative markers encounter low tone prefixes, they detach and replace them, as one would expect. The resulting floating high tone does not dissimilate with a high tone that may be found in the radical initial position of the second noun, however. Instead, this floating high tone is at pitch [^{1}], whether or not the following tone is a high tone. A floating high tone first attempts to docks to a syllabic unity having a high tone. If that is not possible, it docks to the left.

In (189) and (190) the generated floating high tone has only one high tone to dock to. In (189), it finds a high tone to the left and docks there; in (190), it docks right.

[41] Such an associative marker constitutes a weak boundary before which the contour-simplification rule goes into effect.
[42] In the absence of lexical tones and syllables, one cannot represent the phonetic properties of this variant of the associative marker.

(189) **lɪ** **ɴkɑnɑ** **/lǐ ɴkànà/**

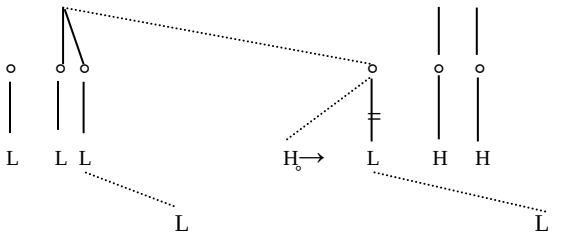


c.7 tree BT AM:c.7 c.7 city ##

[lɪ^{21}#ŋkɑ^{4}.nɑ^{45}]

"a tree located in the city"

(190) **ken** **dibo** **/kěn díbó/**



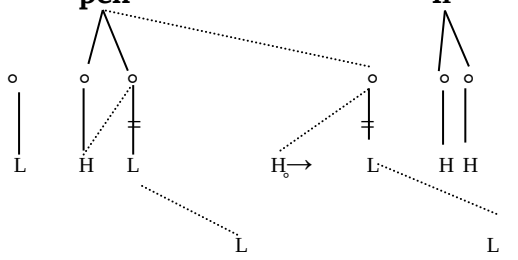
c.7 walk BT AM:c.7 c.7 stream ##

[ken^{42}#di^{1}.bo^{1}]

"the way a stream flows" or "walking in a stream"

In (191) and (192), however, high tones are found on both sides of the floating high tone. In such cases it is unclear where the tone docks, but I prefer saying that it docks left. Note that the high tone is not lowered in pitch before another high tone in the second noun. Dissimilation fails to occur because the noun prefix is nonsyllabic and the AM lacks a syllabic prefix.

(191) **peh** **lɪ** **/péh lǐ/**

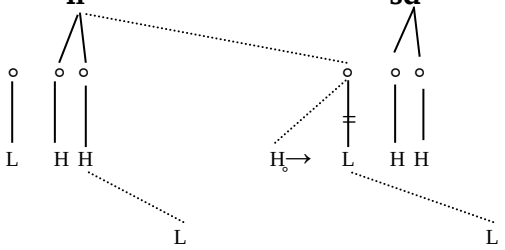


c.7 piece BT AM:c.7 c.7 tree ##

[peh^{1}#lɪ^{1}]

"a piece of wood"

(192) **lɪ** **sɑ** **/lī sɑ́/**



c.7 tree BT AM:c.7 c.7:plum ##

[lɪ^{2}#sɑ^{1}]

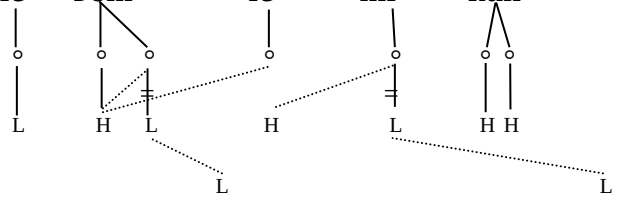
"a plum tree"

The generated floating high tone does not dissimilate with respect to a following high tone. It is audibly high in pitch ([^{1}]) whether or not it precedes a noun with a stem-initial high tone. If it were dissimilating before a high tone, one should have heard ***[ken^{4}#di^{21}.bo^{1}]** rather than **[ken^{4}#di^{1}.bo^{1}]** in (190) and ***[peh^{1}#lɪ^{21}]** rather than **[peh^{1}#lɪ^{1}]** in (191).

One last exception must be made about the dissimilation rule. If a high tone at the highest pitch, [^{1}], precedes a high tone noun class prefix, it does not dissimilate, but will instead match the pitch of the preceding high tone. Note this in (193), where the high tone prefix of "clothes" is at pitch [1], as was the

stem of the first noun and the prefix to the AM. It does not dissimilate before the high stem tone, which would have produced the following output: *[**le⁴.bom¹#le¹#mi².kan¹**].

(193) **le- bom le mi- kan** **/lèbőm lé míkấn/**



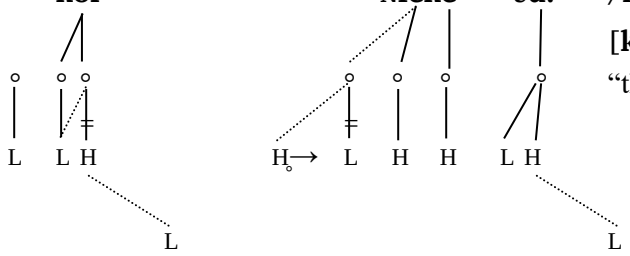
[le⁴.bom¹#le¹#mi¹.kan¹]

"the purchase of clothes"

c.5 purchase BT AM:c.5 c.4-3 clothing ##

In the next example (194), there is a disassociated high tone to the left of the floating high tone, and for this reason it exercises no influence upon the generated high floating tone. This tone docks right, where it finds a vowel with an associated high tone.

(194) **kol ᴎfeke vɑ:** **/kòl ᴎféké vǎ:/**



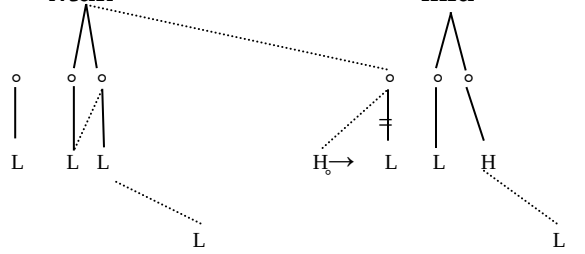
[kol⁴#ŋfe¹.ʔe¹#vɑ:⁴]

"the cord of the said purse"

c.3 cord BT AM:c.3 c.3 purse c.3:the ##

If the generated floating high tone of the noun prefix does not encounter an associated, adjacent high tone, it will dock to the left, as is seen in (195). This creates a phonetic contour tone in the first noun of an associative construction, where one does not otherwise observe them. This does not falsify the claim that there is contour-simplification in the noun preceding the AM, of course. The tones that produce the phonetic contour in (195) are not the lexical tones of the noun, but tones representing two morphemes to the right of the noun—the AM and the prefix of the second noun.

(195) **ᴎtak mɪd** **/ᴎtǎk mǐd/**



[ntɑʔ⁴¹#mɪr⁴]

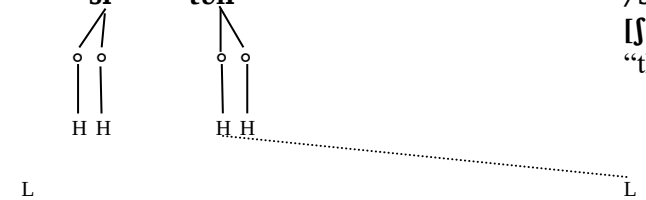
"a bottle of medicine"

c.7 bottle BT AM:c.7 c.3 medicine ##

2.2.3.4 Low Boundary Tone in the AM

The low boundary tone of the AM has been noted and described in the interest of discussing dissimilation above. A low boundary tone precedes an AM, while being absent from associative constructions lacking an AM, as is seen in (196).

(196) **si tʊɪl** **/sǐ tʊīl/**



[ʃi²¹#tʏl²]

"the land belonging to the older sibling"

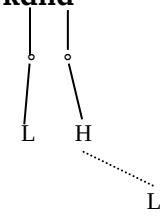
c.9 land c.1 older:sibling (same sex as ego) ##

2.2.3.5 The Lowering of Tone at End of Utterance

The normative pitch of a high tone is [^{1}], but it is lowered either to [^{4}] or to [^{2}] in utterance-final position under certain conditions.

Note in (197) that a high tone becomes low in pitch, [^{4}], following a low tone to which a low boundary tone has associated.

(197) **kɑnɑ** **/kànáˊ/**



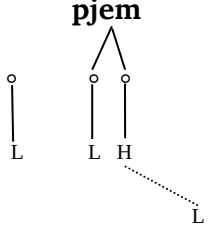
[kɑ^{4}.nɑ^{4}]
"belt"

c.9:belt ##

If the high tone of "belt" is separated from the low boundary tone by another word, as in (174), the low boundary tone has no further influence on the pitch of the high tone.

The same pitch—[^{4}], a non-falling low—is found in utterance-final position in monosyllabic roots, as is seen in (198). Compare this with (199), in which "garden" is not in utterance-final position, and one will observe that the high tone is produced at the regular pitch for high tones, [^{1}].

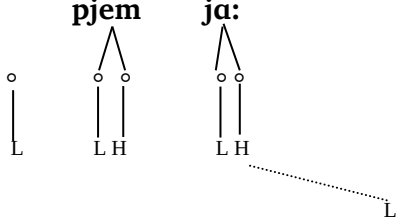
(198) **pjem** **/pjěmˇ/**



[pjem^{4}]
"garden"

c.7 garden ##

(199) **pjem jɑ:** **/pjěm jǎ:/**

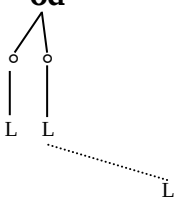


[pjem^{41} jɑ:^{4}]
"the said garden"

c.7 garden c.7:the:said ##

Utterance-final lowering is seen with respect to *low* tones. The pitch of a low tone is generally [^{4}], but in utterance-final position, it becomes low-falling "[^{45}]", as in (200).

(200) **m- ʊd** **/mʊ̀d/**



[mʊr^{45}]
"person"

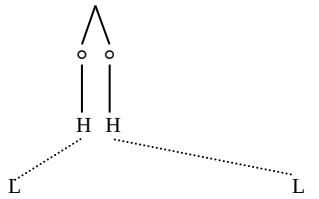
c.1 person ##

2.2.3.6 The Lowering of Tone at Onset of Utterance

A low boundary tone exists at the beginning of utterances that has an appreciable and differential effect on the pitches of high-tone nouns. These observations cause one to identify and distinguish three tone classes according to the susceptibility of a high tone to being lowered.

One way to establish the differences between the three noun classes is to observe their pronunciation in isolation. A noun is in tone class H[1] if its high tone pronounced at pitch [[1]] (201).

(201) **mɛm** **/mɛ́m/**



[mɛm[1]]

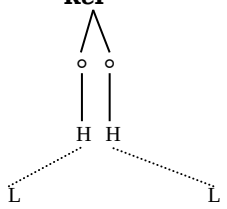
"paternal aunt"

c.1:paternal.aunt

"paternal aunt"

Nouns in tone class "H[2]" are produced at pitch [[2]] in isolation (202).

(202) **kɛl** **/kɛ́l/**



[kɛl[2]]

"sister (of a male ego)"

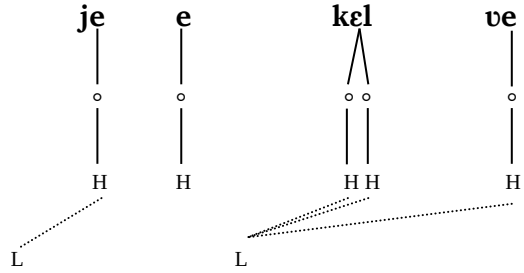
c.1:sister

Noun tone class H[1] is exemplified by /**mɛ́m**/ "paternal aunt". Words of this tone class are apparently few in number.

2.2.3.7 The Lowering of Tone after the Focus Marker

The pitch of a high tone may be lowered after the low boundary tone at the beginning of utterance, provided the noun is of tone class H[2]. There is another context which has a similar effect on high tone nouns—that following the focus marker, |**é**|. The pitch of H[2] nouns such as /**kɛ́l**/,"sister of a male ego" is lowered by a low boundary tone which may be posited as following the focus marker, as is shown in (203). Note also that the pitch of the possessive pronoun following /**kɛ́l**/,"sister of a male ego" is also [[2]].

(203) **je e kɛl ʋe** **/jé é kɛ́l ʋé/**



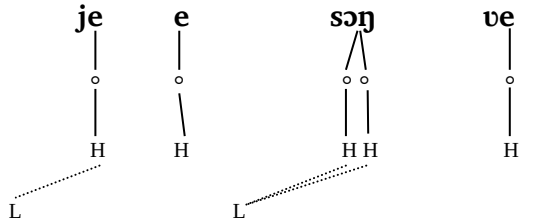
[je:[21]#kɛl[2]#ʋe[2]]

"It's his sister."

3s:c.7 FOC BT c.1:sister PP:3s:c.1

I have considered splitting tone class H[2] into two, H[2A] and H[2B], due to the observation that the high tone possessive pronoun /**ʋé**/ is at pitch [[1]] when following some H[2] nouns, as in (204). This contrasts with example (203), in which the lower boundery tone found after the focus marker spreads to both the noun and its possessive pronoun.

(204)

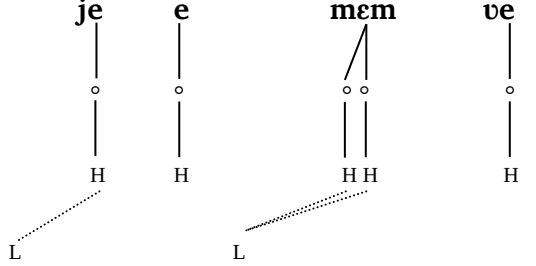


/jé é sɔ̋ŋ vé/
[je:[21]#sɔŋ[2]#ve[1]]
"It's his/her father."

3s:c.7 FOC BT c.1:father PP:3s:c.1

Nouns of tone class H[1] are not lowered by the low boundary tone following the focus marker, as is seen in (205).

(205)



/jé é mɛ̋m vé/
[je:[21]#mɛm[1]#ve[1]]
"It's his/her paternal aunt."

3s:c.7 FOC BT c.1:pat.aunt PP:3s:c.1

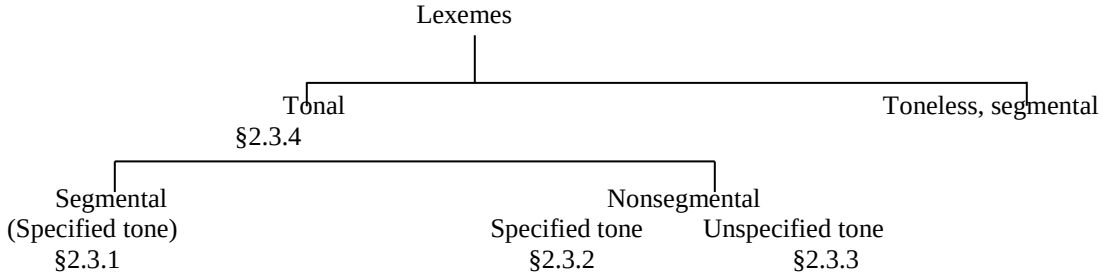
At the intersection between grammar and phonology is the study of parts of speech and the different rules, or morpheme structure conditions, that contribute to lexemes being judged as being well-formed. This is the next subject to be studied.

2.3 Morpheme Structure Conditions and Tone

Words representing different grammatical categories vary with regard to their morpheme structure conditions, as will now be shown with regard to verb roots, noun prefixes, and noun roots.

Even though Njyem is a tonal language, a few morphemes are toneless (cf. §2.3.4). Similarly, there are nonsegmental lexemes that consist solely of tone. Among these nonsegmental lexemes are those that are unspecified with respect to tone (cf. §2.3.3) as well as those that are specified (cf. §2.3.2). Contrasting with nonsegmental lexemes, one finds the vast majority of lexemes, which are specified by both tonal and segmental phonemes (cf. §2.3.1). This is seen in Diagram 3, which shows what are the various possibilities for a lexeme in Njyem.

Diagram 3: The Various Relationships between Lexemes and Tone



2.3.1 Segmental Morphemes with Specified Tones

Most verb stems, noun prefixes and noun stems have in common certain structural similarities concerning the number of their syllables, the number of their tones, and the number of their nodes. These will be described in the next three sections. Some issues that will be dealt with in the context of morpheme structure conditions will be familiar to the reader, having been approached from another perspective earlier.

2.3.1.1 Morpheme Structure Conditions of Verb Stems

Verbs differ from nouns in the number of nodes and tones. They have at most one node and one tone and may be toneless.

A toneless verb has a node but no lexical tone. Any tone occurring with the toneless verb will be contributed by a grammatical morpheme that enables the verb to have tense, aspect or polarity.[43] Toneless verbs are all monosyllabic, which is another way of saying that the final vowel suffix is not allowed in the active voice.

Verbs may be open or closed, but they are always consonant-initial. They may be bisyllabic in terms of their features, which means that they will require a final vowel or other syllabic suffix in order to attain a legitimate surface form. Verbs lacking the feature {bisyllabic} may not acquire the final vowel suffix. They may receive the passive or plural subject suffixes, however.

The second syllable of a bisyllabic verb is a verbal suffix. One such suffix is the Final Vowel, which indicates the active voice, although verbs that disallow the Final Vowel suffix may be equally active in voice. Other verbal suffixes include the passive suffix and the plural subject suffix, which happen to be homophonous.

Table 25 shows all the structural subtypes of verbs that have been identified. Because the verb roots all lack required grammatical tones, none of them are in a final form.

Table 25: Phonological Types of Verbs

	Nontonal Monosyllabic		Monosyllabic		Tonal Bisyllabic	
CV	**ɟe**	give	**bè**	plant	**bá.n–**	be possible
NCV			**ᴺtà:**	pass	**ᴺcí–**	get sleepy
CSV	**ɟve**	die	**bvá**	give birth	**lvɔ́ɔ́.n–**	fill
NCSV	**ᴺsje**	come			**ᴺsjé.h–**	get scratched
CVC			**bàk**	be vigilent	**báb.l–**	be sharp
NCVC			**ᴺdéŋ**	wander	**ᴺkàŋ.l–**	swell
CSVC			**bvɔ́d**	wear	**bvób.l–**	test
NCSVC			**ᴺcjèŋ**	shake	**ᴺkjèn.b–**	sparkle

2.3.1.2 Morpheme Structure Conditions of Noun Class Prefixes

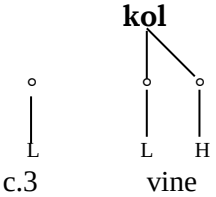
As the name indicates, noun class prefixes indicate the class in which a noun is enrolled. A noun may be in two classes if it has a singular and plural, since one class has “singular” as its meaning and another has “plural” as its meaning. More on this will be said in §6.

A peculiarity of noun class prefixes is that their nodes permit the association of only one tone. Other nodes have the possibility of two tones being associated.

Not all prefixes are syllabic and tonal, however. There are prefixes that are segmental but not syllabic and not tonal, as is seen in (208) with respect to “person”.

Finally, there are noun class prefixes that are nonsyllabic but tonal, as in (206).

(206)



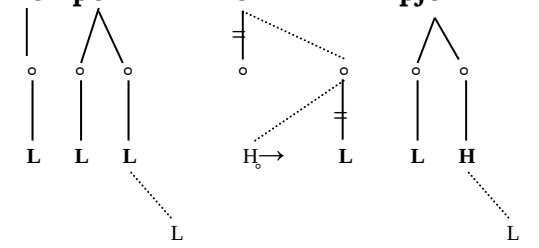
/kŏl/
[kol[4]]
“vine”

Nothing audible indicates the existence of the floating tone in (207), but it can become audible following a high replacive tone, as is the case in many grammatical constructions. At such a time, the existence

[43] This use of "polarity" refers to the property of being affirmative or negative.

of the floating low tone manifests itself. In one example of this, (207), the low tone prefix of "garden" is evident as it becomes high and associates with the AM. When no low tone prefix is present, as in (208), the first stem tone of the following noun becomes high.

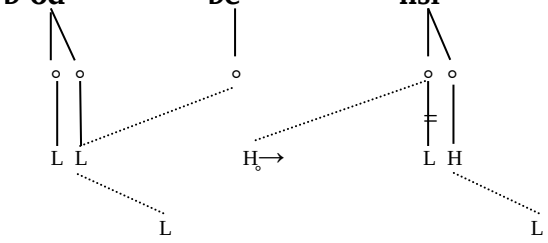
(207) **me-ɴpek** **me** **pjem** **/mèɴpèk mé pjěm/**



[me⁴.mpeʔ⁴#me¹#pjem⁴]

"the plants of the garden"

(208) **b-ʊd** **be** **nsɪ** **/bʊ̀d bè ɴsɪ́/**



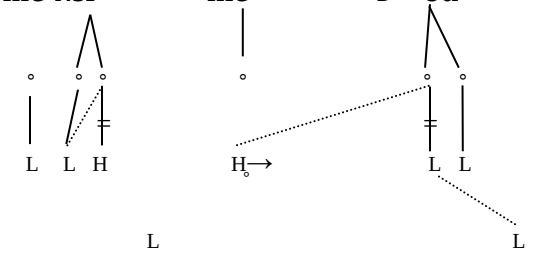
[bɔr⁴#be⁴#nsɪ¹]

"the people on the path"

2.3.1.3 Morpheme Structure Conditions of Noun Stems

A noun stem is more complex than a prefix, since there are two tones present even in monosyllabic stems. This is demonstrable in (208), in which the first tone of "path" was detached from its node due to the association of the floating high tone of the AM. In (209), a similar change can be observed—that in which the first of two low tones becomes H, producing the sequence HL.

(209) **me-ɴsɪ** **me** **b- ʊd** **/mèɴsɪ̌ mè bʊ̂d/**



[me⁴.nsɪ⁴#me⁴#bʊɾ¹⁴]

"the trails [of/used by] people"

Unlike verbs, nouns are never toneless. Every noun has at least two tones and a maximum of three. The existence of two tones in monosyllabic high tone nouns was illustrated in §2.3.1.3.

Table 26 illustrates the variety of syllable structures found in noun stems. It should be borne in mind that the vowel-initial and semivowel-initial stems all would require prefixes. Any stem that is not also a final form is preceded by an asterisk.

Table 26: Varieties of Noun Stems

	Monosyllabic		Bisyllabic			
	Two Tones				Three Tones	
V	***ɑ́**	burning charcoal	***ù.dó**	fireplace		
SV	***vɔ̂**	child	***vì.á**	roof	***ví.ǎ**	kinsman
CV	**bɨ́**	hole	***bì.à**	big one	**pà.bâ:**	scale
NCV	***ɴfâ:**	gardian	***ɴbì.à**	good one		
CSV	***cjɛ́**	condition	***bvò.hó**	small seed		
NCSV	**ɴpvê**	dog	**ɴsjɛ́.hɛ́**	twisted	**ɴkvá.ŋǎ:**	sticks
CVC	***bɑɑ́n**	guarantee	**dúk.lú**	shade	**cîŋ.lí**	drying rack
NCVC	**ɴpà̀h**	side	***ɴdék.lá**	punishment	**ɴɟíb.lǔ**	thief
CSVC	***bvɔ̀k**	mortar	***gvíh.lá**	meeting	**bjěb.lò**	heat
NCSVC	***ɴtjɛ́m**	younger sibling (same sex as ego)	**ɴpvɔ̀ŋ.lò**	trumpet		

2.3.2 Nonsegmental Morphemes with Lexically-Specified Tones

A morpheme may consist of one or more tones, either high or low. These tones necessarily appear together with other morphemes, some of which having segments. In the following sections, I will point out the existence of morphemes of tone, those whose tones are specified in the lexicon.

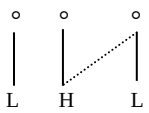
2.3.2.1 The Final Vowel Suffix and Its Tonal Allomorph

Sometimes a morpheme that is nonsegmental and tonal is a variant, or allomorph, of a morpheme that is tonal and segmental. It is not unusual for morphemes to have multiple allomorphs, with the selection of allomorphs being determined by one or more phonological or grammatical factors. One morpheme with multiple allomorphs is called the "final vowel suffix" (FV) by students of Bantu languages. It is not present on verbs in the passive voice, so it may be said to convey the meaning of active voice. The vocalic allomorph of FV is found only in verbs that have the property {disyllabic}. Verbs lacking this property receive a non-segmental FV suffix. This suffix consists of a low tone, as shown in (210).[44]

(210) Final Vowel **–ò /** {+disyllabic}– Ex: **lè-jíb-ò** "to steal"
lè-sùm-ò "to build"
–L / {–disyllabic}– Ex: **lè-sá-L** "to make or do"
lè-sà-L "to pillage"

When there is a syllabic allomorph of FV, if the verb stem ends in a voiced vowel, its tone spreads to vowel of the suffix, as is evident in the case of high tone verbs, as illustrated in (211).

(211) **le- ɟib- o** **/lèɟíbô/**



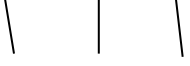
[le⁴.dʒi¹.bo¹⁴]

"to steal"

c.15 steal FV:INF

The spreading of H is blocked by a voiceless coda on the verb stem.

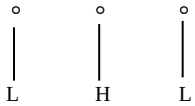
(212) **le- gvɛh- ɛ** **/lègvɛ́hɛ̀/**



[44] This entails an over-simplification, since the final vowel may be /-**e**/ and /-**a**/ in addition to the allomorphs shown here, /**ò**/ and /-**L**/. An exhaustive treatment of all the allomorphs of this important verbal suffix may be attempted in the future.

[le⁴.gʊɛ¹.hɛ⁴⁵]

“to arrive”



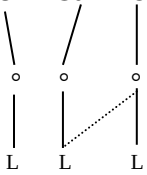
c.15 arrive FV:INF

Rather than restrict the spreading of a stem tone to high tones, it is better to allow for the vacuous spreading of low stem tones also, as is seen in (213).

(213) **le- sum- o** **/lèsùmò/**

[le⁴.ʃu⁴.bo⁴⁵]

“to build”



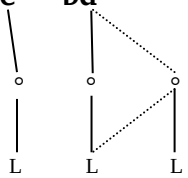
c.15 build FV:INF

The allomorph of FV for {–disyllabic} verbs consists of a low tone, as was asserted above and seen in (214) and (215). In (216), this tonal suffix is found after a toneless verb.

(214) **le- bɑ** **/lèbɑ̀/**

[le⁴.bɑ⁴⁵]

“to cut [an animal] up”

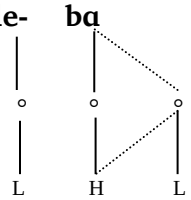


c.15 cut:up FV:INF

(215) **le- bɑ** **/lèbɑ̂/**

[le⁴.bɑ²⁴]

“to marry”

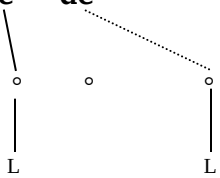


c.15 marry FV:INF

(216) **le- de** **/lèdè/**

[le⁴.de²⁴]

“to consume”

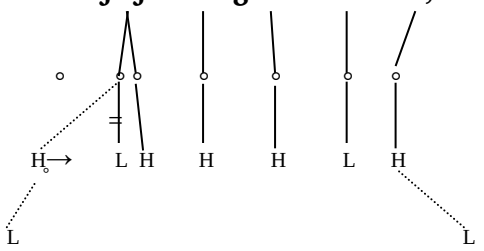


c.15 consume FV:INF

2.3.2.2 The Initial Morpheme Meaning “if”

In the previous morpheme, one allomorph of the FV is nonsyllabic and tonal. The next lexeme to be discussed is discontinuous, and consists of a nonsegmental and lexically-specified replacive high tone, H̥→, which is followed at the end of the conditional phrase by /**ʊ́**/, “if”. The replacement of a low tone by the high replacive tone is observable in (217), but it is vacuously present in (218).

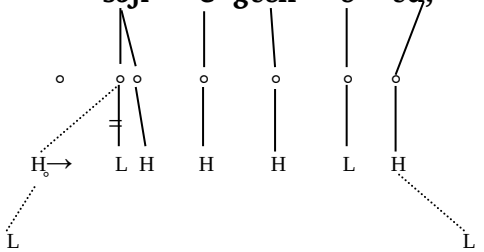
(217) **ɲɔŋ e- gʊɛh -ɛ ʊɑ,** **/ɲɔ̃ŋ égʊ́hɛ̀ ʊ́á/**



[ɲɔŋ²#e².gʊɛ¹.hɛ⁴#ʊɑ²]

"If [his/her] mother should arrive,..."

(218) **sɔŋ e- gʊɛh -ɛ ʊɑ,** **/sɔ̃ŋ égʊ́hɛ̀ ʊ́á/**

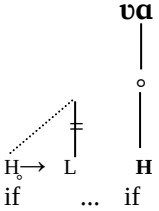


[sɔŋ²#e².gʊɛ¹.hɛ⁴#ʊɑ²]

"If [his/her] father should arrive,..."

The representation of "if" is seen in (219).

(219) **ʊɑ** "if"

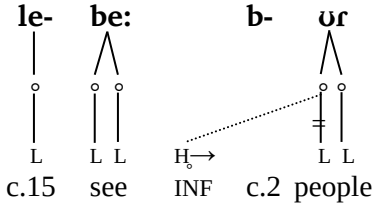


"The conditional construction employs a discontinuous morpheme. The first element is a replacive high tone that precedes the subject. If the first tone of the subject is L, it becomes H. If the first tone is H, this is vacuously replaced by H. The second element is a word that comes at the end of the conditional phrase."

2.3.2.3 The High Replacive Tone Following Verbs

Most verbal constructions contain a constituent that follows the verb and causes an immediately following low tone to become high. One such construction is the affirmative infinitive, a verbal noun which behaves like a verb, since it has an object (220).[45] The constituent in question is a high replacive tone that is glossed "INF" for "infinitive". It causes the low tone prefix of the following noun to become high.

(220) **le- be: b- ʊɾ** **/lèbè: bûɾ/**



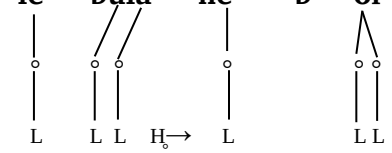
[le⁴.be:⁴#bʊɾ¹⁴]

"to see some people"

[45] In Bekwyel, however, the infinitive is more like a nominal. This is seen in the presence of the associative marker between the infinitive and the notional object.

There is an exception to the rule that this replacive high tone causes detachment of a following low tone. If the word **nè** "with" follows it there will be no detachment ***lèbúlà né bʊ̀ɾ**.

(221) **le- bula ne b- ʊɾ** **/lèbúlà nè bʊ̀ɾ/**



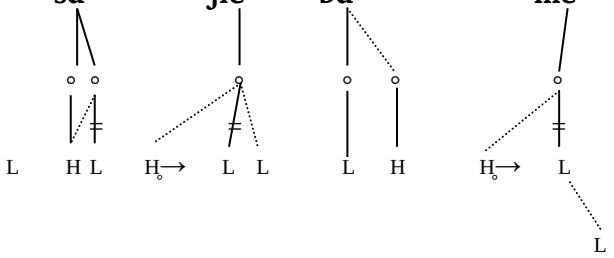
[le⁴.bu¹.la⁴#ne⁴#bʊɾ⁴⁵]
"to return with some people"
("to bring back some people")

c.15 see INF with c.2 people

2.3.2.4 The Recent Past (Dependent) Tense

A third kind of nonsegmental morpheme with specified tones is the recent past morpheme which is found in dependent constructions. The recent past (dependent) morpheme (P^1) is another example of a discontinuous morpheme. Its constituents are a low tone following the subject noun phrase as well as a tonal verb suffix, consisting of a final vowel, in the case of bisyllabic verbs, a high tone suffix to the verb and a high replacive tone following the verb. A strong boundary follows the verb. This morpheme is seen in (222) with a low tone verb.[46]

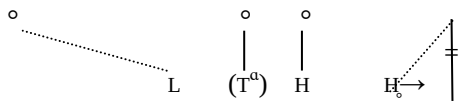
(222) **sɑ ɲe bɑ me** **/sá ɲê bǎ mé/**



[sɑ¹#ɲe¹⁴#bɑ⁴#me¹]
"thing [he/she] cut:up [earlier today] for me"

c.7 thing SUB 3s P^1 cut.up P^1 P^1 1s ##

(223)



"Recent Past (Dependent)"

P^1 FV: P^1 P^1

{subject} {verb} {object}

"The Recent Past (Dependent) construction is used when a noun phrase constituent is focus-marked or when the phrase is within a relative clause. It consists of three tones, which collectively convey the information about tense, these being (1) a low lexical tone that associates with the morpheme that preceding the verb, (2) a high lexical tone that accompanies the verbal suffix and (3) the high replacive tone that follows the verb and affects the post-verbal pronoun or noun phrase[47]. If the verb has no lexical tone, the suffix tone spreads to the node of the verb stem."

Another kind of dependent construction is that found in a sentence with a focus-marked complement to the verb. The focus marker occurs between the verb and the complement. Since the order is SVO, the focus marker follows the subject but precedes the object. The examples of this section that follow all have the subject marked by the focus marker. The focus marker is /**é**/ plus a low boundary tone, which associates

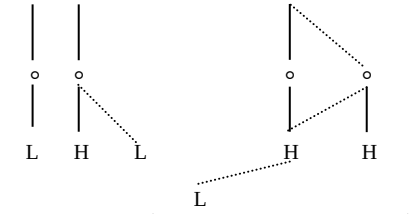
[46] The relative clause shown here would be grammatical in a context where the head noun did not exist. Such would be the case were it to follow a main clause such as **Abe ne** ..., "There was not". In that case the relativized head noun would not be followed by the relative article of c.7, **jí.**

[47] Words other than nouns and pronouns having low tone can follow the verb without being transformed tonally by the high replacive tone. A frequently-occurring case in point is /**nè**/ "with".

with a following high tone, lowering its pitch. First noted in §2.2.3.6, with respect to nouns, the low boundary tone is again observed impacting the high tone of verbs.

The low boundary tone is observed in (224) and (225), lowering the high tones of verbs, both monosyllabic and disyllabic. The pitch of the lowered high tone is [^{2}], and it is represented in the surface phonemic notation by means of a macron.

(224) **me e to** **/mè ê tō/**

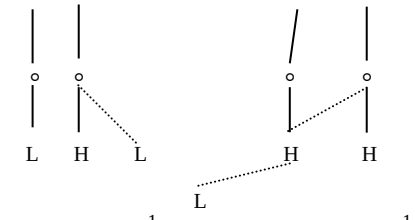


1s FOC P^{1} BT go FV:P^{1}

[me:^{414}#to^{2}]

"It is I who went [earlier today]."

(225) **me e bakl- o** **/ɲè ê bāklō/**



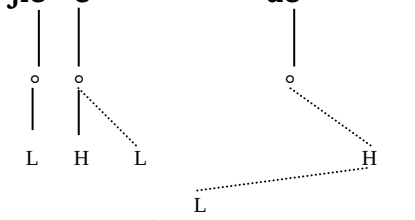
1s FOC P^{1} BT double FV:P^{1}

[ɲe:^{414}#baʔ^{2}.^{ə}lo^{2}]

"It is I who doubled [them earlier today]."

A verb lacks a lexical tone in (226), but the suffix of the verb is tonal, consisting of the high tone that is one of the indices of the recent past (dependent) construction. Note that this high tone is also lowered by the low boundary tone of the focus marker. This high tone is pitch [^{2}] and represented in the surface phonemic notation by means of the macron.

(226) **ɲe e de** **/ɲè ê dē/**



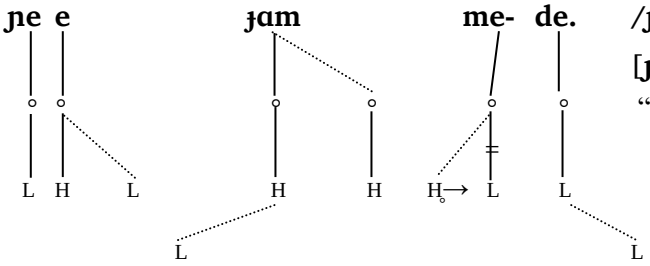
1s FOC P^{1} BT consume FV:P^{1}

[ɲe:^{414}#de^{2}]

"It is she/he who consumed [it earlier today]."

The lowering of a high tone to pitch [^{2}] by the low boundary tone of the focus marker also occurs when the verb is in sentence-medial position, as is seen in the case of a monosyllabic verb (227), a disyllabic verb and a toneless verb with a high tone suffix (229). Note that a third tonal mark of the recent past tense is observable when a post-verbal complement is present, this being a high replacive tone. A verb in the recent past (dependent) construction is followed by a strong boundary, represented by "#" on the line with the nodes. This strong boundary allows the lowering of high tones on the verb and the resetting of the pitch of high tones in the post-verbal complement.

(227) **ɲe e ɟam me- de.** **/ɲè ê ɟām médè/**

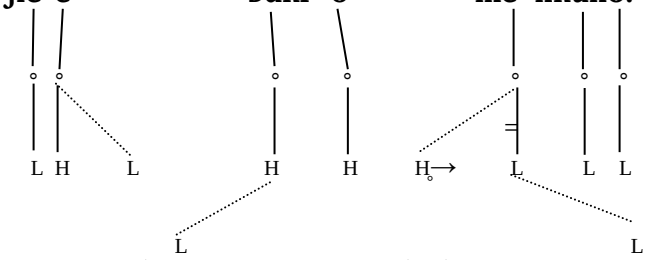


3s FOC P[1] BT prepare FV:P[1] P[1] c.6- food ##

[ɲeː[414]#dzam[2]#me[1].de[45]]

"It is he/she who prepared food [earlier today]."

(228) **ɲe e bakl- o me- nkunuː** **/ɲè ê bāklō mé-nkùnǔː/**

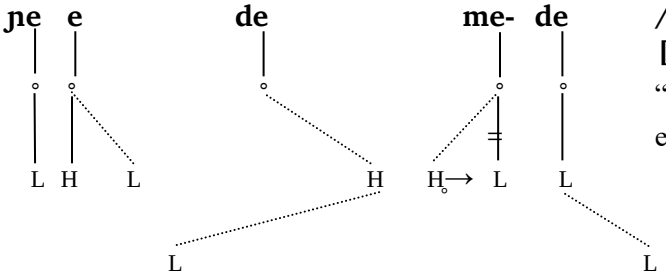


3s FOC P[1] BT double FV:P[1] P[1] c.6- post ##

[ɲeː[414]#baʔ[2].lo[2]#me[1].ŋku[4].nuː[45]]

"It is he/she who placed ("doubled") the posts [in the intervals [earlier today]."

(229) **ɲe e de me- de** **/ɲè ê dē mé-dè/**



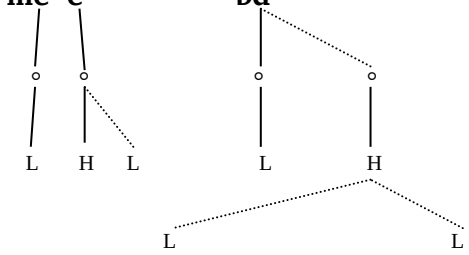
3s FOC P[1] BT consume FV:P[1] P[1] c.6- food ##

[ɲeː[414]#de[2]#me[1].de[45]]

"It is he/she who consumed [something earlier today]."

The sequence of low and high tones in utterance-final position is represented by a non-falling low pitch, [[4]], which is audible in monosyllabic and disyllabic verbs, as is shown in (230) and (231), respectively. There are two low boundary tones in these constructions, one following the focus marker and the other due to the end of utterance. Either one would account for why the pitch of high following a low tone is [[4]].

(230) **me e ba** **/mè ê bǎ/**

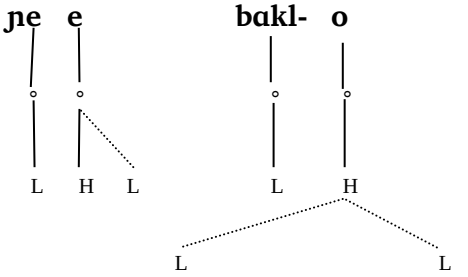


1s FOC P[1] BT cut:up FV:P[1] ##

[meː[414]#ba[4]]

"It is I who cut up [the animals earlier today]."

(231) **ɲe e bakl- o** **/ɲè ê bàkló/**



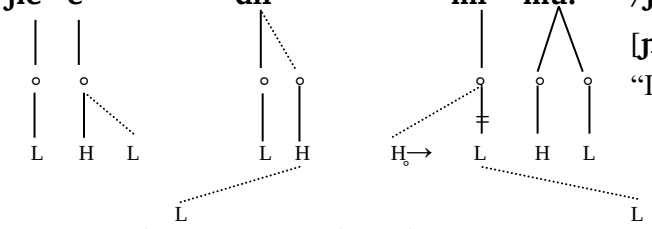
3s FOC P^1 BT care:for FV:P^1 ##

[ɲe:^{414}#baʔ^4.lo^4]

"It is he/she who cared for [them earlier today]."

Example (232) supports the claim that the low boundary tone of the focus marker is responsible for the lowering of the pitch of the high tone to [^{4}].

(232) **ɲe e dɪl mi- mu:** **/ɲè ê dǐl mímû:/**

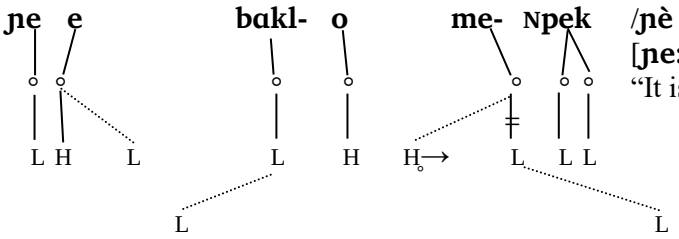


3s FOC P^1 BT bury FV:P^1 P^1 c.4-3 cadaver ##

[ɲe:^{414}#dɪl^4#mi^2.mu:^{14}]

"It is he/she who buried the cadavers [earlier today]."

(233) **ɲe e bakl- o me- ᴺpek** **/ɲè ê bàkló méᴺpèk/**



3s FOC P^1 BT care:for FV:P^1 P^1 c.6- seeds ##

[ɲe:^{414}#baʔ^4.ᵊlo^4#me^1.mpeʔ^{45}]

"It is he/she who cared for the seeds [earlier today]."

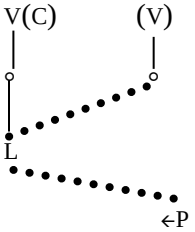
It has been shown that the three components of the recent past (dependent) morpheme are lexically-specified tones: a low tone before the verb, a high tone on the verbal suffix, and a high replacive tone for the post-verbal complement. In the next section, a different kind of nonsegmental morpheme will be discussed—one which is unspecified for tone.

2.3.3 Nonsegmental Morphemes with Unspecified Tone

If the tone of a lexeme is unspecified in the lexicon, this means that its tone is not inherent to the lexeme but rather derived or generated by rule, making use of the tones of other lexemes. One strategy for increasing the number of verbal constructions is to have some constructions be differentiated from others in virtue of their rules. For some constructions, a lexeme's underlying tones will be retained in the surface phonemic representation of the construction. For others, the rule will state that the lexical tone of a verb will be changed into its polar opposite. This kind of verbal construction I choose to call a "polar (verbal) construction". The autosegmental representation of this is shown beginning with (234), and employs the symbol "←P" on a line below the line of the lexical tones. The arrow indicates the direction in which the rule looks to find a tone to change into its polar opposite. Thick dotted lines go to the tone that is acted upon by the rule. If the rule associates itself with a tone, that tone becomes its opposite and then associates with a node. That association line is also a thick, dotted line.

One might suppose that the polar opposite of a high tone is a low tone, and vice versa. In Njyem, however, the polar opposite of a high tone is mid rather than low, which means that there is no neutralization of contrast between lexical high and low tones. These matters are illustrated in the three following diagrams, in which polar tones interact with the three kinds of verbs: low tone verbs, high tone verbs and toneless verbs.

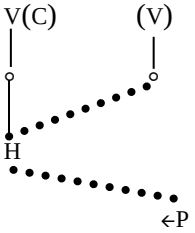
Diagram 4: The Polar Tone Rule Turning a Low Lexical Tone to a High Tone



{verb} {Tense-Aspect suffix}

"The polar tone rule is present in this tense-aspect as a suffix to a low tone verb. It acts upon a tone to its left, turning it into its polar opposite. The opposite of the lexical tone associates with the node and vowel of the verb stem, and with the node and vowel of the verbal suffix, if such is present in the verbal construction. Since the lexical tone of the verb was low, the one or two syllables of the verb now are articulated at pitch [^{1}], reflecting their generated high tones, since high is the polar opposite of low."

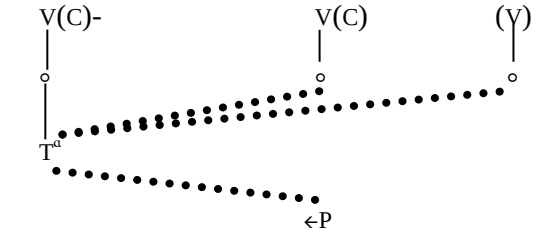
Diagram 5: The Polar Tone Rule Turning a High Lexical Tone to a Mid Tone



{verb} {Tense-Aspect suffix}

"The polar tone rule is present in this tense-aspect as a suffix to a high tone verb. It acts upon a tone to its left, turning it into its polar opposite. The opposite of the lexical tone associates with the node and vowel of the verb stem, and with the node and vowel of the verbal suffix, if such is present in the verbal construction. Since the lexical tone of the verb was high, the one or two syllables of the verb now are articulated at pitch [^{2}], reflecting their generated mid tones, since mid is the polar opposite of high."

Diagram 6: The Polar Tone Rule Acting on a Toneless Verb



{Tense-Aspect suffix} {verb} {Tense-Aspect suffix}

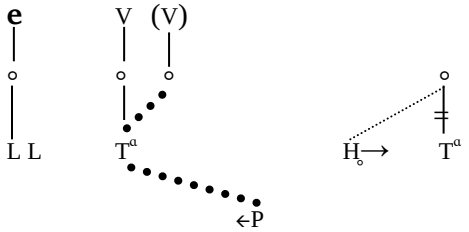
"The polar tone rule is present in this tense-aspect as a suffix to the toneless verb. It acts upon a tone to its left, turning it into its polar opposite. Since the verb is toneless, the rule dictates that the tone it will act upon is to the left of the verb. The first lexical tone it finds to the left will be turned into its opposite of the lexical tone associates with the node and vowel of the verb stem, and with the node and vowel of the verbal suffix, if these are present in the verbal construction. Since the verb lacked a lexical tone, the first tone the polar tone rule could act on was to the left of the verb. In the present example, that tone was high. The two syllables of the verb now are articulated at pitch [^{2}], reflecting their generated low tones, since low is the polar opposite of high."

2.3.3.1 The Affirmative Future-Imperative Morpheme

To say that the affirmative future imperative (F-IMPV) lexeme is "discontinuous" is to draw attention to its being composed of two or more constituents, some of which are separated from each other by other morphemes. Together, these components give the construction a certain tense, aspect, mode or polarity[48].

As is seen in (234) and (235), the first part of the discontinuous future imperative morpheme, **è**, precedes the verb, while the second part, the polar tone rule, is a suffix to the verb, and the third is a high replacive tone that associates with an immediately-following tone.

(234) "affirmative future imperative"

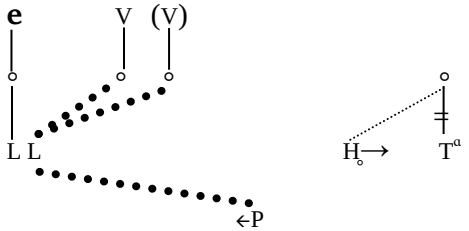


{subject} F-IMPV {verb} F-IMPV F-IMPV

"The future imperative lexeme consists of /**èL**/ located before the verb, and of a polar tone rule suffixed to the verb. The third and final element of this lexeme is a high replacive tone preceding the next word. The polar tone associates with a floating lexical tone to the left, turning the tone into its polar opposite. If the verb has a final vowel or passive voice suffix, the newly generated tone associates with that syllable as well. The polar opposite of a low tone is a high tone, produced at pitch [^{1}]. The polar opposite of a high tone is a mid tone, produced at pitch [^{2}]."

If the verb is toneless—having no lexical tone—the tone that is associated with the verb's node is the polar opposite of the lexical tone to the left of the verb (235).

(235) "affirmative future imperative"



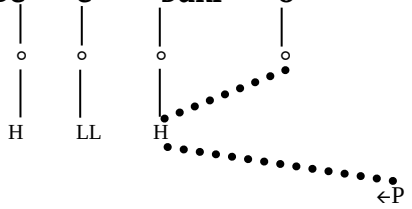
{subject} F-IMPV {verb} F-IMPV F-IMPV

"The future imperative lexeme consists of /**èL**/ located after the subject, and a polar tone suffix to the verb. The third and final element of this lexeme is a high replacive tone preceding the first verb complement that may exist. The polar tone associates with a floating lexical tone to the left of the verb, turning the tone into its polar opposite. The tone of the verb will be the polar opposite of that tone. If the verb has a final vowel or passive voice suffix, the newly generated tone associates with that syllable as well. The polar opposite of a low tone is a high tone, produced at pitch [^{1}]. The polar opposite of a high tone is a low tone, produced at pitch [^{2}]."

[48] By "polarity" I refer to the construction's being affirmative or negative.

An interesting feature of "affirmative future imperative" is the presence in it of both floating and replacive as well as polar tones. The replacive tone is that which effects a tone tone change in the post-verbal noun or pronoun. It causes detachment of an initial low tone in the verbal complement. In (236) one observes that the polar tone of "F-IMPV" encounters a high tone to its left, and that this tone is in the verb. The polar tone rule directs this high tone to become mid and to spread to both the syllables of this bisyllabic verb. They are at pitch [^{2}].

(236) **be e bɑkl -o** **/bé è bākl-ō/**



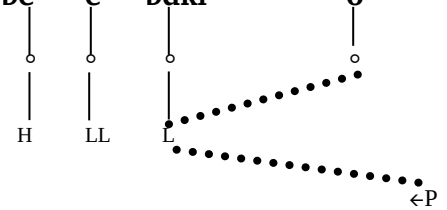
[be:^{14}#bɑʔ^{2}.^{ə}lo^{2}]

"Then they will double [it/them]."

3p F-IMPV double FV F-IMPV

Example (237) is like (236) except in respect to the lexical tone of the verb, which is low. The polar tone rule causes this low tone to become its polar opposite, namely high. This high tone is associated with the final vowel suffix in addition to the vowel of the verb root.

(237) **be e bɑkl -o** **/bé è bákl-ó/**



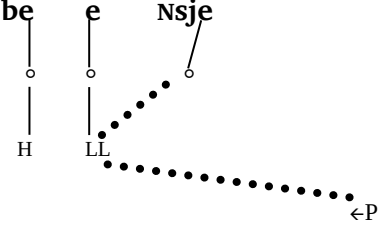
[be:^{14}#bɑʔ^{1}.^{ə}lo^{1}]

"Then they will take care of [it/them]."

3p F-IMPV take.care.of FV F-IMPV

In (238), one observes this verbal construction with a toneless verb found in utterance-final position. In), one observes a different toneless verb before a noun. Note that the high replacive tone precedes this noun.

(238) **be e ɴsje** **/bé è ɴsjé/**

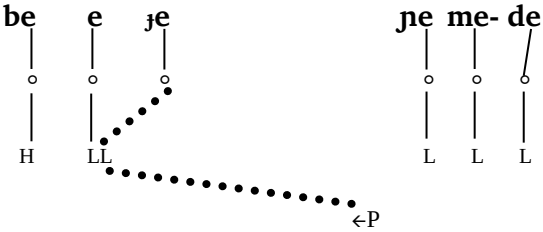


[be:^{14}#nsje^{1}]

"Then they will come."

3p F-IMPV come F-IMPV

(239) **be e ɟe ɲe me- de** **/bé è ɟé ɲé mèdè/**



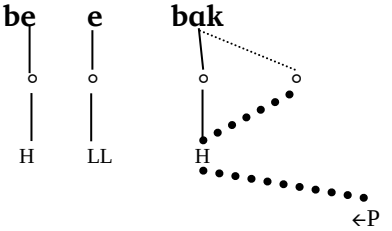
[be:^{14}#dze^{1}#ɲe^{1}#me^{1}.de^{45}]

"Then they will give him food."

3p F-IMPV give F-IMPV F-IMPV 3s c.6 food

Example (240) is like (236) except in respect to the number of syllables of the verb. The verb is monosyllabic, lacking the final vowel suffix.

(240) **be e bak** **/bé è bāk/**

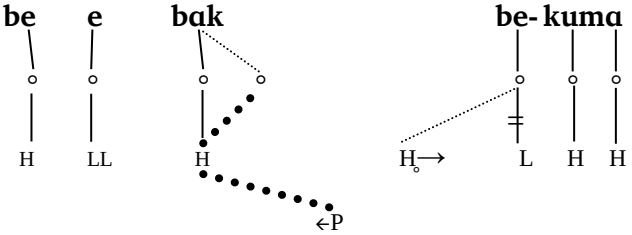


[be:^{14}#ba?^{2}]
"Then they will salute [him/them]."

3p F-IMPV salute FV F-IMPV

A direct object can be added, as in (241), which enables one to observe the activity of the last component of the future imperative construction, a replacive high tone that replaces an adjacent low tone. Note that the prefix tone is phonemically high, but that it is phonetically mid, this reflecting the operation of the dissimilation rule.

(241) **be e bak be- kuma** **/bé è bāk bé-kúmá/**

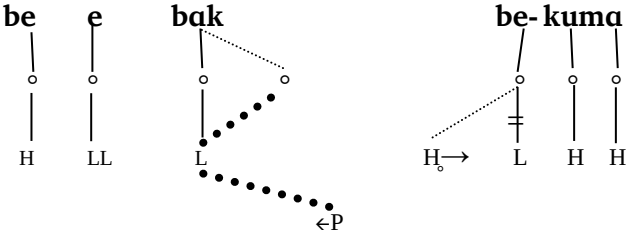


[be:^{14}#ba?^{2}#be^{2}.ku^{1}.ma^{1}]
"Then they will salute the chiefs."

3p F-IMPV salute FV F-IMPV F-IMPV c.2 chief

Example (242) is like (241) except in respect to the lexical tone of the verb. The lexical tone of the verb in (242)-(243) is low, and the polar tone thus becomes the polar opposite of low, or high. The prefix of "chiefs" is at pitch [^{1}] in (242), because of an exception to the dissimilation rule: If the prefix is preceded by high tones at pitch [^{1}], the prefix assumes that pitch rather than dissimilating.

(242) **be e bak be- kuma** **/bé è bák bé-kúmá/**

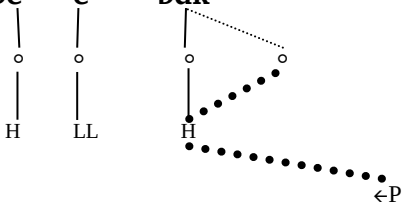


[be:^{14}#ba?^{1}#be^{1}.ku^{1}.ma^{1}]
"Then they will be alert concerning the chiefs."

3p F-IMPV be:alert FV F-IMPV F-IMPV c.2 chief

Example (243) is like (240) except in respect to the lexical tone of the verb. The lexical tone of the verb in (243) is low, and the polar tone rule causes it to become the polar opposite of low, or high, before being associated with the nodes of the verb.

(243) **be e bak** **/bé è bák/**

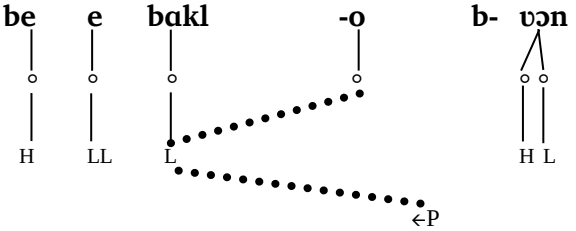


[be:^{14}#ba?^{1}]
"Then they will be alert concerning [him/them]."

3p F-IMPV be.alert FV F-IMPV

Example (244) is like (237) except for having a verb complement. This complement undergoes a tone change as the high replacive tone of "F-Impv" changes its first low tone to high.

(244) **be e bɑkl -o b- vɔn** **/bé è bákl-ó bvɔ̂n/**



[be:^{14}#bɑʔ^{1}.^{ə}lo^{1} bvɔn^{14}]

"Then they will take care of the children."

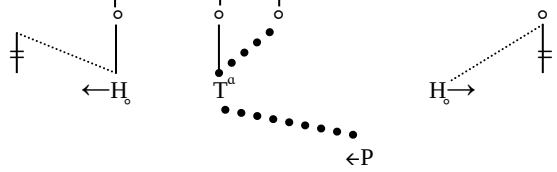
3p F-IMPV take.care.of FV F-IMPV c.2 child

The affirmative future imperative appears to be one of only three lexemes containing a polar tone rule. A second one will now be presented: the negated present habitual construction.

2.3.3.2 Negated Present Habitual

"Negated Present Habitual" (NP^{0}H) is another verbal construction known to have a polar tone rule. It is also a discontinuous morpheme, as are most of the lexemes found in verbal constructions. It is a suffix to the verb, with the rule applying to a tone to its left.

(245) **ɑ** V (V) "Negated Present Habitual with a tonal verb"

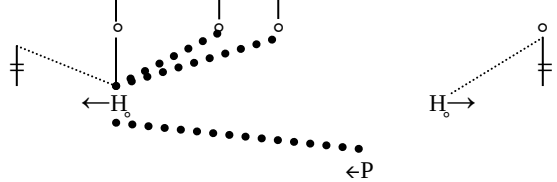


{subject} NP^{0}H {verb} (FV) NP^{0}H NP^{0}H

"The negated present habitual lexeme consists of three components. The first of these is /←H**á**/, located after the subject. A high replacive tone associates with the node of a preceding low tone, detaching it. (Vacuous detachment of high tones is likely.) A second component of this lexeme is a polar tone rule suffixed to the verb. The polar tone rule causes the lexical tone of the verb to become its polar opposite. The opposite of the lexical tone associates with the vowel of the verb root and with the verb suffix, if one is present. The polar opposite of a low tone is a high tone, articulated at pitch [^{1}]. The polar opposite of a high tone is a mid tone, produced at pitch [^{2}]. The final element of this lexeme is a high replacive tone following the verb."

If the verb is toneless, the tone that is associated with the verb's node is the polar opposite of the lexical tone of the morpheme to the left of the verb. In this case, that morpheme is |←H**á**|, another component of the negated present habitual lexeme.

(246) **ɑ** V (V) "Negated Present Habitual with a tonal verb"

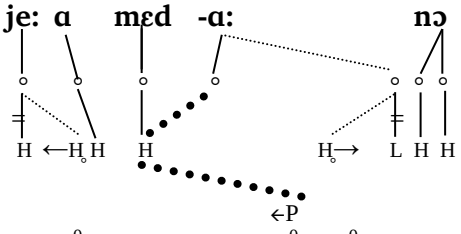


{subject} NP^{0}H {verb} (FV) NP^{0}H NP^{0}H

"The negated present habitual lexeme "NP^{0}H"consists of three components. The first of these is |←H**á**|, located after the subject. A high replacive tone changes the tone of a preceding low tone to high. A second component of this lexeme is a polar tone rule suffixed to the verb. In this case, the polar tone rule causes the lexical tone to the left of the verb to become its polar opposite, mid, which is articulated at pitch [^{2}]. The final element of this lexeme is a high replacive tone following the verb."

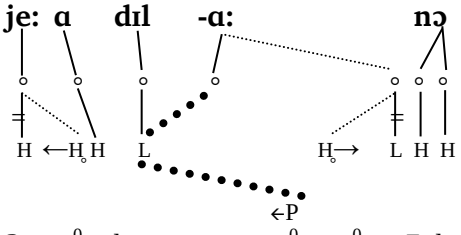
Negated Present Habitual is first illustrated in (247) in relation to a high tone verb, |**lè-mɛ́dʟ**|,"to seize". It is found with a low tone verb in (248) and with a toneless verb in (249).

(247) **je: ɑ mɛd -ɑ: nɔ** **/jé á mɛ̄d-ā: nɔ́/**
[jɑ:¹#mɛ².ɾɑ:²#nɔ²]
"It is never seized like that."



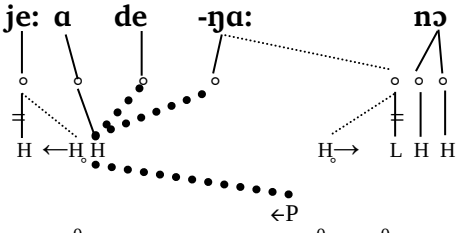
3s NP^{0}H seize PASS NP^{0}H NP^{0}H C.7 thus

(248) **je: ɑ dɪl -ɑ: nɔ** **/jé á díl-á: nɔ́/**
[jɑ:¹#dɪ¹.lɑ:¹#nɔ¹]
"It is never buried like that."



3s NP^{0}H bury PASS NP^{0}H NP^{0}H C.7 thus

(249) **je: ɑ de -ŋɑ: nɔ** **/jé á dēŋ-ā: nɔ́/**
[jɑ:¹#de².ŋɑ:²#nɔ²]
"It is never seized like that."

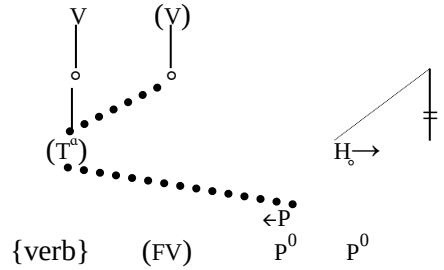


3s NP^{0}H consume PASS NP^{0}H NP^{0}H C.7 thus

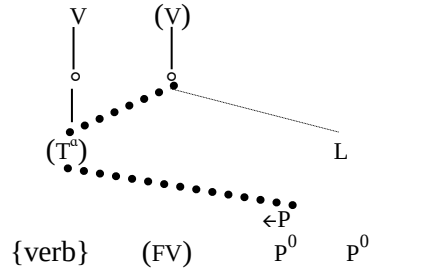
2.3.3.3 Present (Dependent)

I call constructions grammatically "dependent" if they are limited to occurring with a focus-marked noun phrase or if they are contained within a relative clause. The third and final verbal construction using the polar tone rule is the present affirmative dependent construction. There are two forms of this construction: one in which the verb is phrase medial (250) and one in which it is phrase final (251). Note in sentence-final position the presence of a floating low tone that associates with the final node of the verb. This tone is lacking in the sentence-medial present (dependent) construction, which has instead a high replacive tone.

(250) "Present (Dependent) (sentence-medial verb)"

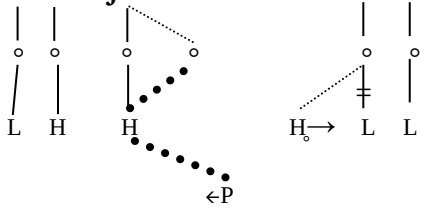


(251) "Present (Dependent) (sentence-final verb)"



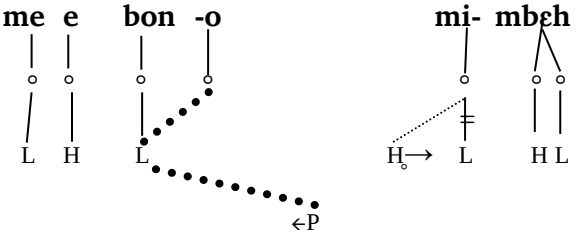
The Present (Dependent) lexeme is seen with sentence-medial verbs in (252)-(254) and with sentence final verbs in (255)-(257). It is found with high tone verbs in (252) and (255). It is found with a low tone verbs in (253) and (256). It is also shown with toneless verbs in (254) and (257).

(252) **me e ɟɑm me- de** **/mè é ɟām médè/**
[me:^{41}#dzɑm^{2}#me^{1}.de^{45}]
"It is I who prepares food."



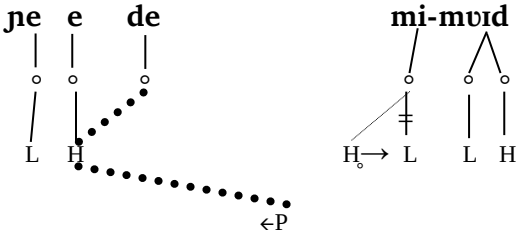
1s FOC prepare FV:P^{0} P^{0} c.6- food

(253) **me e bon -o mi- mbɛh** **/mè é bónó mímbêh/**
[me:^{41}#bo^{1}no^{1}#mi^{1}.mbɛh^{14}]
"It is I who does the foundations of houses."



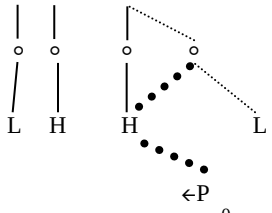
1s FOC do.foundations FV:P^{0} P^{0}
c.4- house

(254) **ɲe e de mi-mʊɪd** **/ɲè é dē mímʊ̌ɪ̌d/**
[ɲe:^{41}#de^{2}#mi^{1}.mʏɾ^{4}]
"It is (he/she) who is taking medicine."



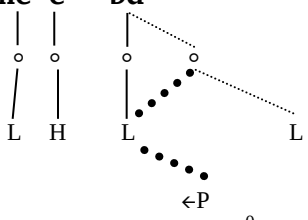
1s FOC consume FV:P^{0} P^{0} c.4-
medicine

(255) **me e to** **/mè é tô̩/**
[me:^{41}#to^{24}]
"It is I who is going (there)."



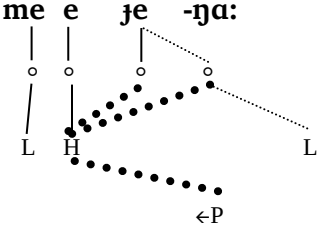
1s FOC go FV:P^{0} ##

(256) **me e bɑ** **/mè é bâ/**
[me:^{41}#bɑ^{14}]
"It is I who is cutting up (the animals)."



1s FOC cut.up FV:P^{0} ##

(257) **me e ɟe -ŋɑ:**



1s FOC give PASS:P^{0} ##

/**mè é ɟēŋɑ̀:**/
[**me:^{41}#dze^{2}ŋɑ:^{24}**]
"It is to me that it is given."

2.3.4 Segmental and Toneless Morphemes

Lexemes may be both segmental and toneless in their lexical representations. Included in this list of toneless lexemes are the following six verbs: /**–ɟwe**/ "die", /**–ɟe**/ "give", /**–be**/ "be", /**–cwe**/ "stumble", /**–de**/ "consume" and /**–nsje**/ "come".[49]

Other toneless morphemes include the final vowel and the passive voice suffix. This is not intended to be an exhaustive listing of toneless verbal suffixes.

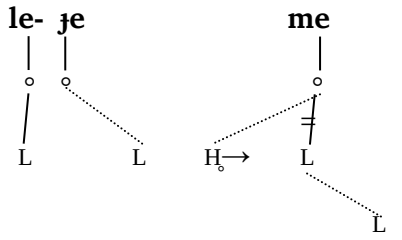
A toneless verb and a toneless passive voice suffix are both seen in (257). It can be seen there that the polar tone becomes the polar opposite of the high tone of the focus marker, /**é**/, since that is the first tone to its left.

All verbs have tone changes according to their verbal constructions. A toneless verb has the possibility of having three level pitches—[^{1}], [^{2}] or [^{4}]—as well as the contour pitches [^{14}], [^{45}] and [^{41}], as is seen in the following examples.

Pitch of **-ɟe**, "give"	Tone of **-ɟe**, "give", after application of association rules	Examples
[^{1}]	H	(260)
[^{2}]	M	(262)
[^{4}]	L	(258), (261)
[^{14}]	HL	(263)
[^{45}]	L	(259)
[^{41}]	LH	(264)

[49] This list of toneless verbs may be exhaustive.

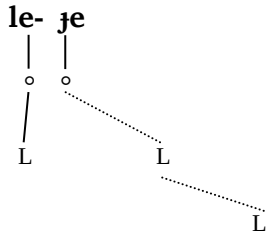
(258) A toneless verb at low tone and low pitch [^{4}] : the infinitive in nonfinal position



/lèɟè mê/
[le⁴dze⁴#me¹⁴]
"to give me"

c.15 give INF INF 1s ##

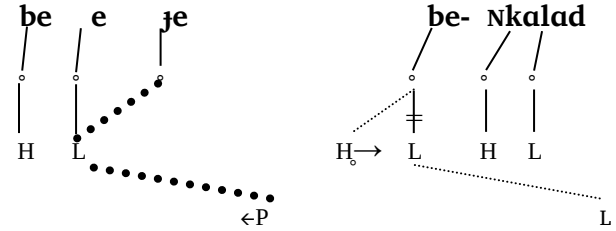
(259) A toneless verb at low tone and low-falling pitch [^{45}] : the infinitive in final position



/lèɟè/
[le⁴dze⁴⁵]
"to give"

c.15 give INF ##

(260) A toneless verb at high tone and high pitch [1]: the future imperative

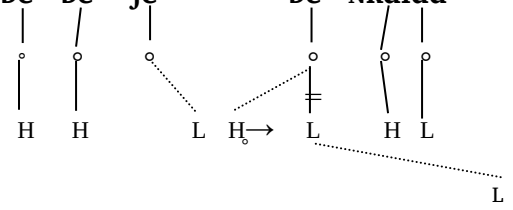


/bé è ɟé béNkálàd/
[be:¹⁴#dze¹#be¹.ŋka¹.lar⁴]
"Then they will give [some] books."

3p F-IMPV give F-IMPV F-IMPV c.2 book ##

The preceding example should be compared with the next one to see that the toneless verb is low in tone and produced at a low pitch, [^{4}], in the affirmative future tense.

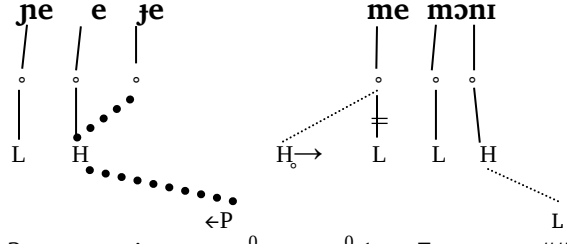
(261) **be be ɟe be- Nkɑlɑd**



/bé bé ɟè béNkálàd/
[be:¹#be¹#dze⁴#be².ŋka¹.lar⁴]
"Then they will give [some] books."

3p F give F F c.2 book ##

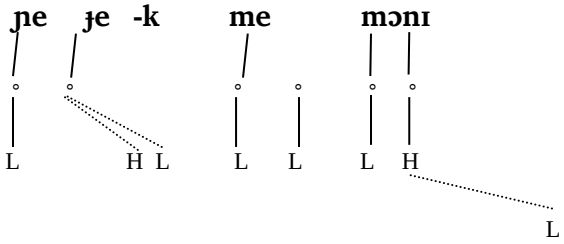
(262) A toneless verb at mid tone and pitch [2]: the present habitual (focus-marked)



/ɲè é ɟē mé mɔ̀ní/
[ɲe:⁴¹#dze²#me¹#mɔ⁴.nɪ⁴]
"It's [he/she] who gives me money."

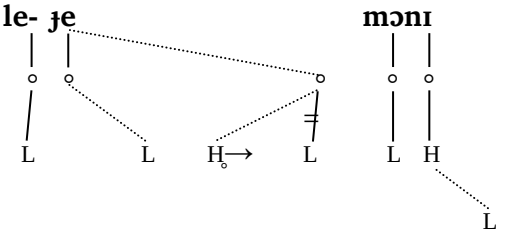
3p FOC give FOC:P^{0} FOC:P^{0} 1s c.7 money ##

(263) A toneless verb at HL tones and high-falling pitch [14] : the hortative



/ɲè ɟêk mè mɔ̀ní/
[ɲe⁴#dzeʔ¹⁴#me⁴#mɔ⁴.nɪ⁴]
"Let [him/her] give me money."

(264) A toneless verb at LH tones and low-rising pitch [^{41}] : the infinitive followed by a c.7 noun[50]



/lèɟě mɔ⁴nɪ⁴/
[le⁴.dze⁴²#mɔ⁴.nɪ⁴]
"to give money"

[50] A class 3 noun would produce the same effect, since it has a low tone as its nonsyllabic prefix.