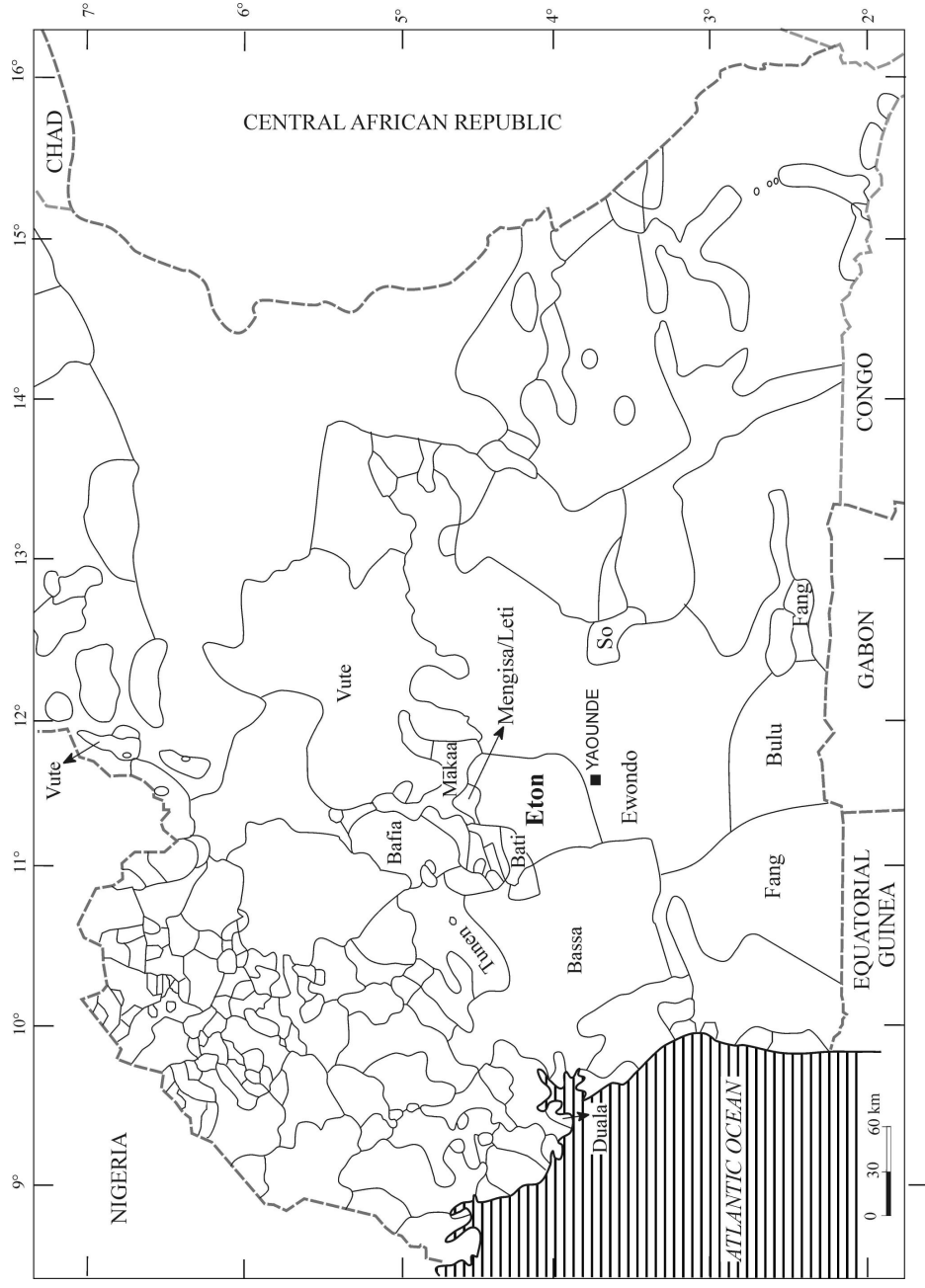




# Tonal morphemes in Eton

Affixes, clitics and (pseudo)words: the  
preservation of morphological structure after  
segmental attrition

# 1. Introduction



# 1. Introduction

- Tone rules refer to different morphological boundaries: - affix, = clitic, #word
- Irrespective of whether morphotemes are structurally linked or not
- Consequently, tonal morphemes can be analysed as affixes, clitics or words
- The resulting analysis of the tonal morphology is strictly concatenative.

## 2. Eton tonology & morphology

- Two tone levels: high (á) and low (à), in an equipollent opposition
- Five possible surface patterns on a syllable: high (á), low (à), rising (ǎ), falling (â) and downstepped high (†á)
- Complex tones are best analysed as combinations of level tones

## 2. Eton tonology & morphology

- Tone rules: illustrations (1)

(1) a. *d-ù má* ‘nest’ (class 5),  
*mè-ndím* ‘water’ (cl.6),  
*á* locative preposition

b. *á dùmá* ‘in the nest’      H#LH → H FH  
*á mé<sup>4</sup>ndím* ‘in the water’      H#L-H → H H<sup>4</sup>H

## 2. Eton tonology & morphology

- Tone rules: illustrations (2)

(2) à 3SG	bòm̀lò ‘hit’	tádì ‘start’
Hodiernal past perfective	àbômlò	àtádì
	àbómló múǵá	àtádì ú <sup>↑</sup> ǵán
Subjunctive	á <sup>↑</sup> bómlô	á <sup>↑</sup> tádĩ
Consecutive	àbòmló	àtádì
Present	àté bòm̀lò	àté <sup>↑</sup> tádì

## 2. Eton tonology & morphology

- Tone rules: illustrations (3)
  - (3) a. à*má* 'dí 'She ate (it).' (this morning)
  - b. ìngámâ cág 'She crushed it' (some time ago)
  - c. àté mà tìl 'She stops writing.'
  - d. bé'*má*gá 'ból 'They left it.' (yesterday)
  - e. àngábé *mà*gà tì 'She stopped writing.' (some time ago)

## 2. Eton tonology & morphology

Two types of analysis are possible:

- a) Non-concatenative tonal operations in which underlying tones are replaced by other tones in a given context
- b) A model involving floating tones and tone rules that describe the way they attach to the available segmental material

Tonal analyses of the other Beti-Bulu-Fang languages are of the first type.



## 2. Eton tonology & morphology

e.g. Essono's analysis of the Ewondo verb form *mêlâd* 'I sewed (it)' (Essono 2000:512)

an underlying form: |mé-lâd-àgà| (1SG-sew-PST)

two tonological operations called "hypertones":

- **D** *replace the low tone of a verb stem by a high tone in the Hodiernal past perfective (and some other TAM-forms)*
- **A** *replace the high tone of the 1SG subject prefix by a low tone in the Hodiernal past perfective (and a high number of other TAM forms)*

## 2. Eton tonology & morphology

Additional remarks (by Essono):

- this analysis does not work for structurally high verb stems (which surface with a high tone, rather than the predicted falling tone)
- nor for verbs that are followed by a complement (which always surface with a high tone)

Extra problem:

- The analysis does not work for di- or trisyllabic stems either

## 2. Eton tonology & morphology

Alternative analysis for *mêlâd* ‘I sewed (it)’:

Underlying representation:

Phrase final verb form: |mè<sup>H</sup>-lâd| (1SG-PST-sew)

Non phrase final form: |mè<sup>H</sup>-lâd<sup>H</sup>| (1SG-PST-sew-NF)

Limited number of general, exceptionless tone rules.

In order to formulate the necessary tone rules we need to recognise the importance of stem-initial prominence and of morphological boundaries and we must be aware of the fact that morphological boundaries are relevant where there is no segmental material as well.

## 3.1. Tone rules: stem-initial prominence

- Phonotactic  
The occurrence of half of the consonant phonemes is restricted to C1 position (the onset of prominent syllables)
- Phonetic  
prominent syllables have an audibly longer onset consonant than non-prominent syllables
- Phonological  
C1 is not subject to the lenition of /b, d, g/ that applies to non-C1 consonants in intervocalic position

## 3.1. Stem-initial prominence

- Tonological

Prominent syllables can carry two structural tones, non-prominent syllables only one:

- (4) |á # d-ùmá| → *á dùmá* ‘in the nest’  
|á # mè-ndím| → *á mɔ́ndím* ‘in the water’
- (5) |à-bòmlò-<sup>H</sup>| → *àbòm<sup>H</sup>ló* ‘and he hits’
- (6) |à-kè-<sup>H</sup>| → *àkè<sup>H</sup>* ‘and he goes’

## 3.1. Stem-initial prominence

Note:

Due to high tone spread (tonal assimilation), a non-prominent syllable can have a falling surface tone:

(7) |ndógò| → /ndógò/ → [ndówô] ‘mango’

There are some mismatches between prosodic and morphological stems, e.g. |d-ùmá| ‘nest’ in (1b) and

(8) |á mètwâ| → á métwâ ‘in the car’

## 3.2. Tone rules: morphological boundaries

Tone rules refer to morphological boundaries in their context specification.

There is a rule of high tone copy before any morphological boundary:

- (9)  $c\acute{V}- \rightarrow c\acute{V}^H-$   
 $c\acute{V}= \rightarrow c\acute{V}^H=$   
 $c\acute{V}\# \rightarrow c\acute{V}^H\#$

The resulting floating high tone attaches to the following syllable.

## 3.2. Morphological boundaries

The result of high tone attachment depends on the morphological boundary the floating high tone has to cross, if the target syllable is non prominent:

- (10)     $c\acute{v}-c\grave{v}- \rightarrow c\acute{v}-c\acute{v}-$  (tone spread)  
          $c\acute{v} = c\grave{v}- \rightarrow c\acute{v} = c\acute{v}-$  (no tone spread)  
          $c\acute{v} \# c\grave{v}- \rightarrow c\acute{v} \# c\acute{v}^L-$



## 3.2. Morphological boundaries

(11) ćv-c̀v- → ćv-c̀v- (high tone spread)

a. /í**í**síjà bí/

| í-bì-síjà # bí |

AU-8-cat            VIII.DEM

‘these cats’

b. /í**í**l<sup>h</sup>wàlì b/

| í-bì-l<sup>h</sup>lì # bí |

AU-8-duck            VIII. DEM

‘these ducks’

## 3.2. Morphological boundaries

(12)  $c\acute{v} = c\grave{v} \rightarrow c\acute{v} = c\acute{v}$ - (no high tone spread)

a. /bjǎ bísǎ/

|bj-ǎ # bí = ì-sǎ|

8-claw

VIII.CON-7-cat

‘the claws of a cat’

b. /mèvùl mǐlwǎli/

|mè-vùl # mé = ì-lǎli|

6-feather

VI. CON = 7-duck

‘the feathers of a duck’

## 3.2. Morphological boundaries

(13) cʰ # cʰ- → cʰ # cʰL-

a. /á m<sup>ə</sup>ʈʂòŋ/

|á # m<sup>ə</sup>-ʈʂòŋ|

LOC 6-hole

‘in the holes’

b. /á m<sup>ə</sup>ʈʂòŋ/

|á # m<sup>ə</sup>-ʈʂòŋ|

LOC 6-clan

‘in the clans’

## 4. Tonal morphemes

The three morphemes that trigger high tone spread in the previous examples (11-13) all have tonal allomorphs. That is, for all these morphemes there are contexts in which they lost their segmental substance and kept their high tone only.

Interestingly, these tonal allomorphs behave exactly as the copied high tone from their segmental counterparts when they attach to a following syllable. Thus, even in the absence of segmental material, morphological structure is preserved.

## 4. Tonal morphemes

- (14) a. /éɕɔŋ dí/  
|<sup>H</sup>-è-ɕɔŋ # dí|  
AU-5-hole V.DEM  
'this hole'
- b. /éɕɔŋ dí/  
|<sup>H</sup>-è-ɕɔ̀ŋ # dí|  
AU-5-clan V.DEM  
'this clan'

## 4. Tonal morphemes

- (15) a. /bjä bísíjâ/  
|bj-ǎ # H = bî-síjâ|  
8-claw VIII.CON-8-cat  
‘the claws of the cats’
- b. /mèvùl bílwàñi/  
|mè-vùl # H = bî-lòñi|  
6-feather VI.CON = 7-duck  
‘the feathers of the ducks’

## 4. Tonal morphemes

(16) a. /éǝǝ̀ǝ̀/

| <sup>H</sup> # é-ǝǝ̀ǝ̀ |

LOC 5-clan

‘in the clan’

b. /éǝ́ǝ́ǝ́/

| <sup>H</sup> # é-ǝǝ́ǝ́ |

LOC 5-hole

‘in the hole’

## 4. Tonal morphemes

- The connective proclitic of class 3:

(17) àlèd míntèm

|à-lèd H = mìn-tèm|

3-hard III.CON = 3-branches

‘hard branches’ (bad ex. on handout)

- Link tone, a “pseudo word” (see Idiátov 2005):

(18) /mèté twàgdò mót'ndím/

|mèt-Lté # L-tògdò # H # mèt-ndím|

1SG-PR INF-boil LT 6-water

‘I’m boiling water.’



## 5. Illustration

- (3) a. à**má** 'dī 'She ate (it).' (this morning)  
b. ì**ngámá** cág 'She crushed it' (some time ago)  
c. àté **mǎ** tìl 'She stops writing.'  
d. bé'**mágá** 'ból 'They left it.' (yesterday)  
e. à**ngábé** **màgà** tì 'She stopped writing.' (some time ago)

## 5. Illustration

àté *mǎ* tǐl ‘She stops writing.’

|à-<sup>L</sup>té L-mà H L-tǐl|

1SG-PR INF-TMN LT INF-write

|<sup>L</sup>té| ? < à-télô (PR-stand)

L-mà < à-mànà (3-terminate)

H ??? < ?ú (III.CON)

L-tǐl < à-tǐl (3-...)

## 5. Illustration

a. *àmá* <sup>ˈ</sup>*dí* ‘She ate (it).’ (this morning)

|à-<sup>H</sup>-mà-<sup>H</sup> L-<sup>dí</sup>|

I-PST-TMN-NF INF-eat

<sup>H</sup> (PST) < á (PST)

<sup>H</sup> (NF) < ?

b. *bé*<sup>ˈ</sup>*mágá* <sup>ˈ</sup>*bóŋ* ‘They left it.’ (yesterday)

|bé-<sup>H</sup>-mà-gà-<sup>H</sup> L-<sup>bóŋ</sup>|

II-PST-TMN-YP-NF INF-leave

## 8. Conclusions

- Typological relevance: tonal morphemes can have the same degrees of morphological bonding as segmental morphemes.
- Possible relevance for the Bantu (A70) languages and other languages of the region: word forms can be segmented into separate morphemes, no idiosyncratic rules of tone replacement are needed. The resulting description is not only simpler, it also provides insight into the origin of complex tone patterns.

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# Model of description

I use a classic morphophonological model, with three levels of representation:

|morphophonological level| (morphophonemes, morphological boundaries)



representation rules

/phonological level/ (phonemes, prominence (accent), pause)



realisation rules

[phonetic level] (sounds)