

The syllabification of VV-sequences in Dàgáàrè

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Introduction

Anttila & Bodomo (2009, 2019) propose that Dàgáàrè makes crucial use of a minimally bimoraic foot, using evidence from vowel-length alternations. Specifically, they propose that vowels lengthen to meet binarity requirements on the foot.

Their proposal, however, does not explicitly specify the intermediate prosodic structure. It is possible for a foot to be bimoraic in two ways:

- Monosyllabic $[(\mu)_\sigma]_\phi$
- Bisyllabic $[(\mu)_\sigma(\mu)_\sigma]_\phi$

This poster has two goals:

1. to illustrate that **both monosyllabic and bisyllabic feet are necessary** to explain tonal asymmetries in VV-sequences.
2. to **reanalyze number marking** described in Anttila & Bodomo (2009), specifically considering the syllable structure of their vowel-epenthesis number marking.

Discussion

A database containing roughly 22500 word tokens from the variety spoken in Sombo, Ghana has been collected. While the data presented here is from published sources, we are currently in the process of comparing our results here with the data in our corpus.

Conclusions

1. Surface tone is one possible diagnostic for syllable structure:
 - i. Morphological concatenation leads to vowel hiatus, rather than diphthongization or long vowels
 - ii. Phonological lengthening is predicted to always yield level surface tone, due to monosyllabicity (only one TBU)
2. Morpheme boundaries are opaque to syllable association lines
3. Some instances of vowel-epenthetic (lengthening) number marking is moraic-affixation

Data: Lengthened vowels are always level tones

Nominal Number (Anttila & Bodomo, 2009)		Action Nominals (Anttila & Bodomo, 2019)		Imperfective (Anttila & Bodomo, 2019)	
Root	Surface	Root	Surface	Root	Surface
a. /bì/	[bíí-rí] 'child-PL'	a. /da/	[dáá-ú] 'buy-NMLZ'	a. /wa/	[wàà-rá] 'come-IPFV'
b. /tì/	[tìì-rí] 'tree-PL'	b. /kpá/	[kpáá-ù] 'boil-NMLZ'	b. /la/	[làà-rá] 'laugh-IPFV'
c. /kù/	[kúú-rí] 'wild.rat-PL'	c. /nyú/	[nyúú-ù] 'drink-NMLZ'	c. /mí/	[míí-rè] 'rain-IPFV'
d. /wù/	[wúú-rí] 'wallet-PL'	d. /ɪ/	[íí-ú] 'do-NMLZ'	d. /bù/	[búú-rò] 'come.(of.rain)-IPFV'
e. /gù/	[gúú-rí] 'thorn-PL'	e. /dí/	[díí-ú] 'take-NMLZ'	e. /zù/	[zúú-rò] 'steal-IPFV'
f. /bù/	[búú-rí] 'goat-PL'	f. /kyé/	[kyíé-ù] 'cut-NMLZ'	f. /ɲmɛ/	[ɲmíè-ré] 'beat-IPFV'
g. /nó/	[núó-rí] 'mouth-SG'	g. /kpɛ/	[kpíé-ú] 'enter-NMLZ'	g. /kyɛ/	[kyíè-ré] 'cut-IPFV'
h. /pò/	[pùò-rí] 'back-SG'	h. /gbe/	[gbíé-ú] 'grind.roughly-NMLZ'	h. /gbe/	[gbìè-ré] 'grind.roughly-IPFV'
i. /yó/	[yúó-rí] 'name-SG'	i. /kó/	[kúó-ù] 'farm-NMLZ'	i. /bó/	[búó-rò] 'want/look.for-IPFV'
j. /yò/	[yùò-rí] 'penis-SG'	j. /ko/	[kúó-ú] 'dry-NMLZ'	j. /yó/	[yúó-rò] 'roam-IPFV'

Data: Morphologically concatenated vowels need not be

Plural Marker /-E/ (Anttila & Bodomo, 2009)

Root	Surface	Root	Surface
a. /gbé/	[gbé-è] 'child-PL'	g. /mí/	[mí-è] 'rope-PL'
b. /lè/	[lè-é] 'bead-PL'	h. /kù/	[kù-é] 'hoe-PL'
c. /kpé/	[kpé-è] 'malt-PL'	i. /nó/	[nó-è] 'mouth-PL'
d. /bí/	[bí-è] 'seed-PL'	j. /pò/	[pò-é] 'back-PL'
e. /pì/	[pì-é] 'rock-PL'	k. /yó/	[yó-è] 'name-PL'
f. /yí/	[yí-è] 'house-PL'	l. /yò/	[yò-é] 'penis-PL'

Key Generalizations

- **Generalization 1:** The tone of a lengthened vowel is level while the tones of morphologically adjacent vowels are distinct.
- **Generalization 2:** VV-sequences in lengthening environments restricted to {uo, uɔ, ie, iɛ} or identical vowels
VV-sequences in morphologically concatenated are {uo, uɔ, ie, iɛ, ue, oe, ɔɛ} or identical vowels

Constraints Definition

FTBIN	Assign a violation for all feet that do not contain two moras.
*STRUC(σ)	Assign a violation for all syllables.
*I]	Assign a violation for all phonologically derived word-final [+high] vowels (Anttila & Bodomo, 2009, 2019).
*[mid][mid]	Assign a violation for adjacent mid vowels (Anttila & Bodomo, 2009, 2019).
ALIGN[Suffix, L, σ, L]	Assign a violation for all suffixes whose left edge does not correspond to the left edge of the syllables.
CONTIGUITY-IO	Assign a violation for all pairs of segments <i>a, b</i> such that <i>a</i> is adjacent to <i>b</i> in the input but not in the output.

See tableau on following slide

Singular Marking with Epenthetic V

(Anttila & Bodomo, 2009)

- Anttila & Bodomo (2009) analyze two cases of nominal singular V-marking as epenthesis derived due to binarity
- a. and b. show cases where the vowel diphthongizes due to constraints on word-final derived high-vowels
- c. and d. show cases where the epenthetic vowel appears word-medially; **note the tone in these examples.**

Root	Surface
a. /bì/	[bíé] 'child-SG'
b. /kù/	[kúó] 'wild.rat-SG'
c. /gbè/	[gbìé] forehead-SG'
d. /dè/	[dié] 'room-SG'

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Accounting for Length and Diphthongization

Assume for the following that the tone-bearing unit is the syllable.

Syllable boundaries are shown with round brackets and foot boundaries are shown with square brackets.

Morpheme breaks are shown with dashes.

- (1) Lengthening of a root non-mid vowel before suffix

/bi-/	FTBIN	*STRUC(σ)
a. [(bi)-]	*!	*
☞ b. [(bii)-]		*
c. [(bi)(i)-]		**!

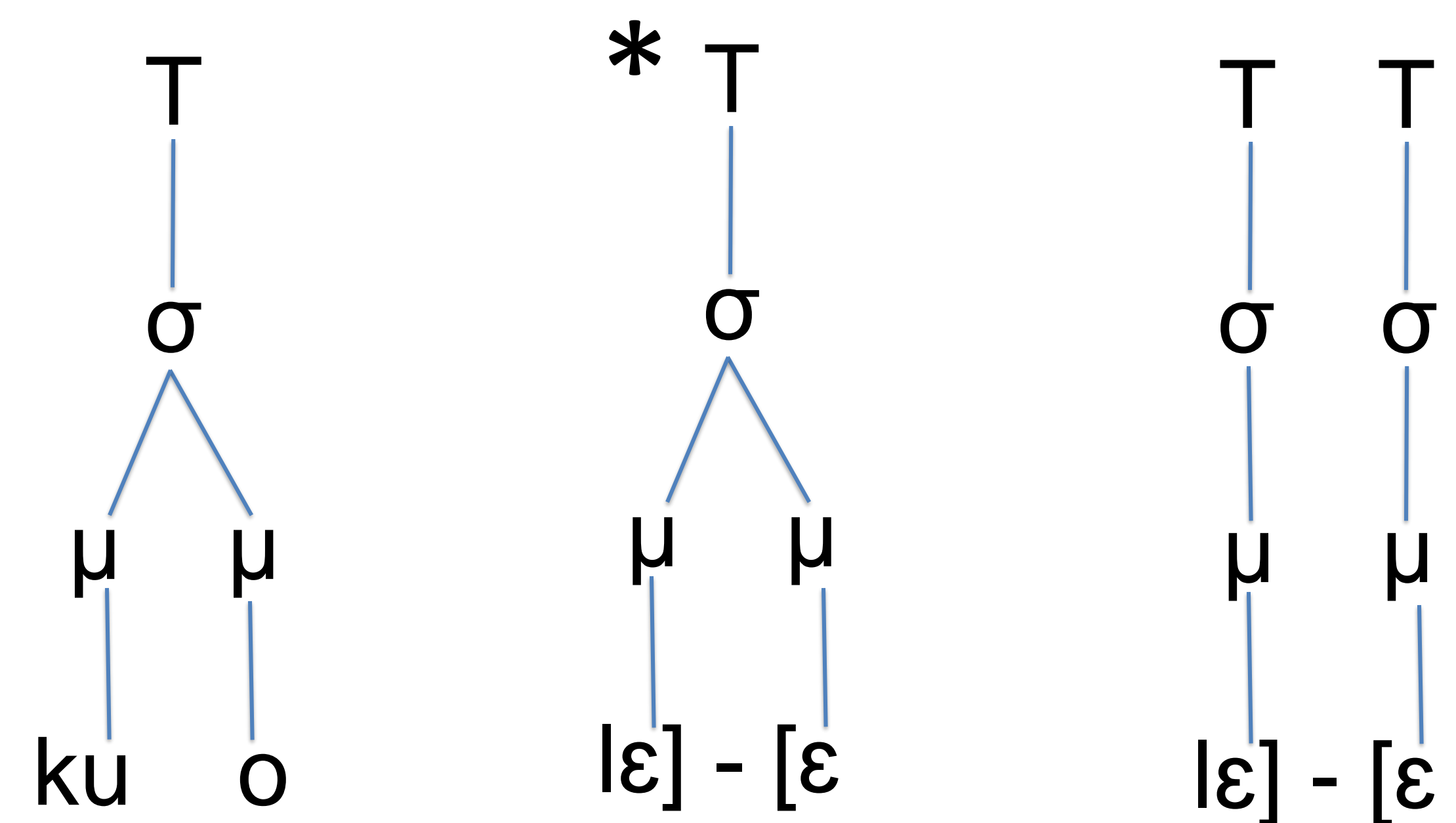
- (2) Diphthongization of a root mid-vowel

/po-/	FTBIN	*[mid][mid]	*STRUC(σ)
a. [(po)-]	*		*
b. [(poo)-]		*!	*
c. [(po)(o)-]		*!	**
☞ d. (puo)-			*

- (3) Diphthongization of a root high-vowel word-finally

/ku/	FTBIN	*[mid][mid]	*I	*STRUC(σ)
a. [(ku)]	*!		*	*
b. [(kuu)]			*!	*
c. [(ku)(u)]			*!	**
☞ d. [(kuo)]				*
e. [(ku)(o)]				**!

In each optimal candidate, the syllable will associate with the tonal material in a one-to-one fashion. These forms are monomorphemic and monosyllabic, so we expect only a single tone to associate with the syllable, capturing the generalization that the tone of a phonologically lengthened/diphthongized vowel is consistently a level tone.



Accounting for differing tones in morphologically complex environments

- (4) No association lines across morpheme edges

/lε-E/	FTBIN	*[mid][mid]	*I	ALIGN	*STRUC(σ)
a. [(lε-ε)]		*		*!	*
☞ b. [(lε)-(ε)]		*			**

Crucially, in environments where two adjacent vowels are separated with a morpheme boundary, the restriction on tone is lifted. This is accounted for here with an Alignment constraint, which in effect prevents syllable-association lines forming across morpheme boundaries.

Reanalyzing Epenthetic-V number marking (Anttila & Bodomo, 2009)

Turning to "epenthetic V" number marking forms where the vowel surfaces root-medially, this model predicts the incorrect output, with the two vowels forming a diphthongal nucleus. This means that we expect a level-tone, such as *[gbié] or *[gbìè], rather than the attested [gbìé].

- (5) The incorrect output

/gbe/	FTBIN	*[mid][mid]	*I	ALIGN	*STRUC(σ)	CONTIG-IO
a. [(gbe)]	*!				*	
b. [(gbee)]		*!			*	
c. [(gbe)(e)]		*!			**	
d. [(gbe)(i)]			*!		**	
☞ e. [(gbie)]					*	*
f. [(gbi)(e)]					**!	*

- (6) Mora-affixation produces the correct output

/gbe-μ/	FTBIN	*[mid][mid]	*I	ALIGN	*STRUC(σ)	CONTIG-IO
a. [(gbe-e)]		*!		*	*	
b. [(gbe)-(e)]		*!			**	
c. [(gbe)-(i)]			*!		**	
d. [(gbi-e)]				*!	*	*
☞ e. [(gbi)-(e)]					**	*!

Rather than the phonologically-derived analysis proposed in Anttila & Bodomo (2009), we present these root-medially marked forms as morphologically affixed with a mora. The intervening morpheme boundary on the moraic tier leads to an Align violation, forcing the optimal candidate to surface as bisyllabic and thus permitting the surface tonal melody.

Anttila, A. & Bodomo, A. (2009). Prosodic morphology in Dagaare. In Masangu Matondo, Fiona McLaughlin, and Eric Potsdam (eds.), Selected Proceedings of the 38th Annual Conference on African Linguistics (ACAL 38), Cascadilla Proceedings Project, Somerville, Massachusetts. pp. 56-68.
 Anttila, A., & Bodomo. (2019). A Metrically conditioned vowel length in Dàgáàrè. In E. Clem, P. Jenks & H. Sande (Eds.) Theory and description in African Linguistics: selected papers from the 47th Annual Conference on African Linguistics (pp. 21-40). Berlin: Language Science Press.
 Bodomo, A. (1997). The structure of dagaare. Stanford, Calif: CSLI Publications.
 Kennedy, Jack. 1966. Collected Field Reports on the Phonology of Dagaari. Collected Language Notes No. 6, The Institute of African Studies, University of Ghana.