

**In Search of Prosodic Domains in Lusoga**

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“... the very types of prosodic category above the foot and syllable are syntactically grounded and universal.” (Selkirk & Lee 2015:3)

“... the prosodic phonology of Luganda is among the most intricate and complex of any language.”  
(Hyman & Katamba 2010:69)

**1. Introduction**

The purpose of this paper is to raise the question whether the phrasal tonology of Lusoga (Bantu; Uganda), the most closely related language to Luganda, is syntactically grounded—or is free to apply without respect to syntax. Outside of Bantu, cases have been reported where phrasal or post-lexical tonology applies whenever two words meet within a clause, independently of the syntax, and hence without the need of prosodic domains. This includes the VSO Chatino languages of Mexico (Cruz 2011, Campbell 2014, McIntosh 2015, Sullivant 2015, Villard 2015) and the SOV Kuki-Chin languages of NE India and Myanmar, e.g. Hakha Lai (Hyman & VanBik 2004) and Kuki-Thaadow (Hyman 2010). In such languages appropriate tonal alternations occurring between words are blocked only by pause or “sentence breaks”.

The story is considerably different in the SVO Bantu languages. Although there is considerable variation, the expectation is that there will be extensive interaction between the syntax and the prosodic phonology, specifically between syntactic constituency and/or information structure (focus) with tone and/or penultimate lengthening. Specifically, we expect the syntax to be prosodically reflected by an asymmetry between what precedes vs. follows the verb. Thus, in a number of works on Luganda, e.g. Hyman, Katamba & Walusimbi (1987), Hyman & Katamba (2010), we have recognized the following postlexical domains within which tone rules act on the lexical stem and word tones:

- (1) a. a smaller tone group (TG), within which H tone plateauing (HTP) occurs
- b. a larger tone phrase (TP), within which H tone anticipation (HTA) occurs

(We also recognize an intersecting clitic group (CG), which pertains mostly to vowel length alternations.) One question is whether this sensitivity to syntax can be attributed, perhaps universally, to the SVO syntax of Luganda (and other Bantu languages), or whether the prosodic phonology of an SVO language can also apply across the board, without any sensitivity to syntactic structure.

In what follows I will first briefly identify the above Luganda domains, then consider the corresponding structures in Lusoga, which seems not to recognize either prosodic domain. I will then show what Lusoga does have and what this might mean for syntax-phonology interactions and the quest for universals.

**2. Prosodic domains in Luganda**

The analysis of Luganda tone is given in (2), as summarized by Hyman & Katamba (2010:70):

- |     |                                |                        |                    |
|-----|--------------------------------|------------------------|--------------------|
| (2) | <i>level of representation</i> | <i>tonal contrasts</i> | <i>description</i> |
|     | a. underlying input (URs)      | /H, Ø/                 | privative          |
|     | b. intermediate                | H, L, Ø                | ternary            |
|     | c. broad phonetic output       | H, L                   | equipollent        |

As indicated, moras are either marked by an underlying privative /H/ or are toneless (Ø). Within the lexical (word-level) phonology, L tones arise in one of two ways, illustrated in (3).

- (3) a. /ba-lab-a/ → bá-làb-a ‘they see’  
           H H                   H L  
       b. /ba-bal-a/ → bá-bàl-a ‘they count’  
           H                   H L

In (3a) Meeussen’s Rule converts a sequence of Hs on successive moras to one H followed by all Ls. A sequence /H-H-H-H/ would thus become H-L-L-L. In (3b) L tone insertion applies after a lone H which would not be subject to Meeussen’s Rule. The result is an intermediate ternary contrast between H, L, and Ø. Finally, after the phrasal phonology applies, the Øs are all filled in with either H or L, thereby bringing the system back to a binary contrast, this time equipollent. (We needn’t be concerned with the marginal downstepped <sup>1</sup>H which arises when two phonological phrases meet, the first ending in a HL falling tone, the second beginning with H.)

### 2.1. The tone phrase (TP)

We are now ready to consider the two prosodic domains mentioned in (1). As illustrated in (4), within the tone phrase (TP), H tone is anticipated across words onto any number of preceding (underlined) toneless moras (%L marks an initial boundary tone):

- (4) a. verb + object   a-bal-a e-bi-kópò → à-bál-á é-bí-kópò   ‘s/he is counting cups’  
   H L    %L                   H L  
       b. object + object   a-bal-ir-a o-mu-limi e-bi-kópò → à-bál-ír-á ó-mú-límí é-bí-kópò  
   3SG-count-APP-FV                   H L   %L                   H L  
   ‘s/he is counting cups for the farmer’

The example in (4a) shows H tone anticipation (HTA) applying from the direct object onto the verb, while (4b) shows HTA from the second object through the first object and, again, onto the verb (which is marked by the applicative *-ir-* suffix). In (5) we see that HTA also applies between a right-dislocation (RD) and the verb and between RDs, again onto the verb:

- (5) a. verb + RD       a-bi-bal-a e-bi-kópò → à-bí-bál-á é-bí-kópò  
   s/he-them-count                   H L    %L                   H L  
   ‘s/he is counting them, the cups’  
       b. RD + RD    a-bí-mù-bal-ir-a o-mu-limi e-bi-kópò → à-bí-mù-bál-ír-á ó-mú-límí é-bí-kópò  
   s/he-them-him-count-APP-FV                   H L   %L H L                   H L  
   ‘s/he is counting them for him, the farmer, the cups’

HTA does not, however, apply from the verb to what precedes, whether the subject, an adverb, or a left-dislocation (LD):

- (6) a. subj + verb    o-mu-limi a-bi-láb-à → ò-mù-lìmi à-bì-láb-à ‘the farmer sees them’  
   H L                   %L                   H L  
       b. LD + LD    o-mu-limi e-bi-kópò a-bi-láb-à → ò-mù-lìmi è-bì-kópò à-bì-láb-à  
   H L                   H L   %L                   H L    H L  
   ‘the farmer, the cups, he sees them’















pre-verbal constituents the same as post-verbal ones. In the next section we will see that HTI leads to the same conclusion.

### 3.2. H tone insertion (HTI)

In this section it will be briefly demonstrated that HTI can also apply across any syntactic boundary. Because nouns have a prefix which is underlyingly toneless, this will have to be demonstrated by means of other word classes, e.g. verbs and demonstratives. Consider first (32a), where the subject prefix *a-* is underlyingly toneless:

- (32) a. o-mu-kàzi a-sek-a → ò-mú-kàzi à-sék-á ‘the woman laughs’  
           |                  |                  |                  |                  |  
           L                                  %L H L                  H%
- b. a-ba-kàzi bà-sek-a → à-bá-kàzì bà-sèk-á ‘the women laugh’  
           |                  |                  |                  |                  |  
           L                  L                  %L H L H L                  H%

In this case the subject noun ‘woman’ ends with a L tone by virtue of the LTS rule. Therefore, the final H% cannot spread onto the subject noun. Compare this now with (32b), where the subject prefix /bà-/ has an underlying /L/. In this case HTI overrides LTS onto the final mora of the subject noun. In historical terms, the \*H of \*bá- has been anticipated from the verb onto the subject (cf. Luganda *à-bà-kàzì* *bá-sèk-á*). The same facts are seen with left-dislocations:

- (33) a. e-bi-bàla a-bi-bal-a → è-bí-bàlà à-bí-bál-á ‘the fruits, s/he counts them’  
           |                  |                  |                  |                  |  
           L                                  %L H L                  H%
- b. e-bi-bàlà bà-bi-bal-a → è-bí-bàlá bà-bi-bál-á ‘the fruits, they count them’  
           |                  |                  |                  |                  |  
           L                  L                  %L H L H L                  H%

In (33a), H% does not reach the left-dislocated noun ‘fruits’, whose /L/ spreads onto the final mora. In (33b), however, where the subject prefix *bà-* has /L/ tone, HTI applies onto the final mora of the left-dislocated noun. In fact, HTI will apply across any sequence of words, provided that the preceding word does not end in a single /L/. This is illustrated in (34).

- (34) a. e-bí-bàlà bì-nò → è-bí-bàlá bì-nó ‘these fruits’  
           |                  |                  |                  |                  |  
           L                  L                  %L H L H L H%
- b. e-bí-kópò bì-nò → è-bí-kópò bì-nó ‘these cups’  
           |                  |                  |                  |                  |  
           L                  L                  %L H L H L H%

The proximate demonstrative /-no/ ‘this, these’ requires a L tone noun class agreement prefix, here /bì-/. As seen in (34a), the prefix conditions HTI on the final mora of ‘fruits’. In (34b), on the other, the noun ‘cups’ ends in a single /L/ and hence HTI is blocked.

We thus arrive at the conclusion that syntactic constituency never blocks HTI or HTA. Returning to the two hypotheses in (26), we must address whether Lusoga recognizes prosodic domains at all—or whether it simply fails to give evidence of the syntax-to-prosodic domain mapping that Selkirk’s (2011) matching theory predicts. Favoring universality, let’s take the latter position, Hypothesis 2 in (26): Lusoga has prosodic domains, but does not mark them the same as Luganda. As was seen in §2, Luganda



As seen, we begin with two identical stems /-pakàsi/, which both undergo LTS in (36a). HTI also applies twice in (36b). This is followed by HTP in (36c) and assignment of the boundary tones in (36d). Although not exemplified in §2, HTP also applies within a word in Luganda.

More significantly for our purposes, (37) shows that HTP also applies between a possessive enclitic and the host noun:

(37)	$\sigma$	/L/	:	ò-mú-tì	→	ò-mú-tíí =gwè	‘his/her tree’
	$\sigma$ - $\sigma$	/L-Ø/	:	ò-mú-kàzi	→	ò-mú-kází =wè	‘his/her wife’
		/Ø-L/	:	è-kí-kópò	→	è-cí-kópó =cè	‘his/her cup’
	$\sigma$ :- $\sigma$	/LØ-Ø/	:	è-kí-wùùka	→	è-cí-wúúká =cè	‘his/her insect’
		/ØL-Ø/	:	à-ká-sáàlè	→	à-ká-sáálé =kè	‘his/her arrow’
		/ØØ-L/	:	è-kí-déédè/	→	è-cí-déédé =cè	‘his/her grasshopper’
	$\sigma$ - $\sigma$ - $\sigma$	/L-Ø-Ø/	:	ò-bú-thùpùzi	→	ò-bú-thúpúzi =bwè	‘his/her corruption’
		/Ø-L-Ø/	:	ò-mú-pákàsi	→	ò-mú-pákási =wè	‘his/her porter’
		/Ø-Ø-L/	:	ò-bú-vúbúkà	→	ò-bú-vúbúká =bwè	‘his/her adolescence’

The tones of the unpossessed nouns, all of which have a H to L pitch drop, are shown after HTI and LTS have applied, but without a final H%. As seen, the L tone enclitic /-è/ ‘his/her’ fuses with a noun class agreement prefix. When HTI applies to the preceding noun, HTP applies, and the H to L pitch drop is lost. (There is no final H%, since the forms end H-L.) As can be recalled from (15a), noun+possessive is an environment where HTP applies in Luganda as well. The examples in (38a,b) show that HTP also applies in verb+enclitic constructions:

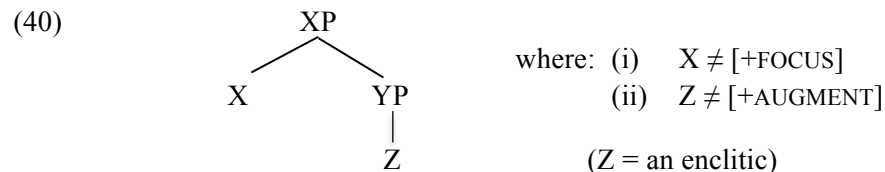
(38)	a.	tw-áà-ghùlir-a	‘we heard’	→	tw-áà-ghúlír-á =kù	‘we heard a little’
		HL L			HØ ØØ H L	
	b.	tw-áà-ghùlir-a	‘we heard’	→	tw-áà-ghúlír-á =cì	‘what did we hear?’
		HL L			HØ ØØ H L	
	c.	ti-twáà-ghùlir-a	‘we didn’t hear’	→	ti-tw-áà-ghùlír-á =kù	‘we didn’t hear a little’
		HL L			H L H L	(No HTP because NEG = [+FOCUS])

In (38a), the locative noun class 17 enclitic =kù is used also as an attenuative marker. As seen, HTI applies followed by HTP on the host verb. The same is seen in (38b) with the interrogative enclitic =cì ‘what’. However, for HTP to apply, the verb must have the same [-FOCUS] status as was discussed in Luganda. Recall that negative verbs are [+FOCUS], and hence HTI applies before =kù, but there is no HTP in (38c). In addition, there is no HTP with the corresponding nominal interrogative =cì ‘which’ (also paralleling Luganda (cf. mù-kàzi =cì ‘which woman?’)):

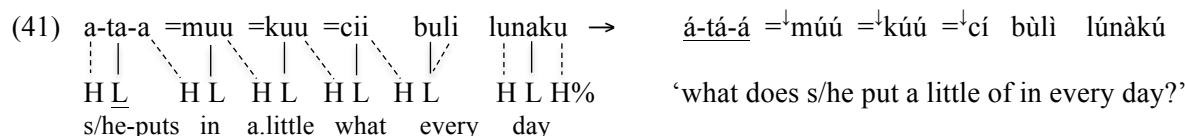
(39)	$\sigma$	/L/	:	mú-tì	→	mú- <sup>l</sup> tíí =cì	‘which tree?’
	$\sigma$ - $\sigma$	/L-Ø/	:	mú-kàzi	→	mú-kází =cì	‘which woman?’
		/Ø-L/	:	bí-kópò	→	bí-kó <sup>l</sup> pó =cì	‘which cups?’
	$\sigma$ :- $\sigma$	/LØ-Ø/	:	cí-wùùka	→	cí-wúúká =cì	‘which insect?’
		/ØL-Ø/	:	ká-sáàlè	→	ká-sáálé =cì	‘which arrow?’
		/ØØ-L/	:	cí-déédè/	→	cí-déé <sup>l</sup> dé =cì	‘which grasshopper?’
	$\sigma$ - $\sigma$ - $\sigma$	/L-Ø-Ø/	:	bú-thùpùzi	→	bú-thúpúzi =cì	‘which corruption?’
		/Ø-L-Ø/	:	mú-pákàsi	→	mú-pákási =cì	‘which porter?’

/Ø-Ø-L/ : bú-vúbúkà/ → bú-vúbú<sup>↓</sup>ká =cì ‘which adolescence?’

As seen, the enclitic =cì ‘which’ does not condition HTP (perhaps because it isn’t a YP), but always inserts a H, potentially conditioning downstepped <sup>↓</sup>H (of which Lusoga has more than Luganda). Thus, clitics work differently from full words. HTP occurs in the same environment as in Luganda, except that Z must be an enclitic. Thus, compare (40) with the corresponding Luganda configuration in (11).



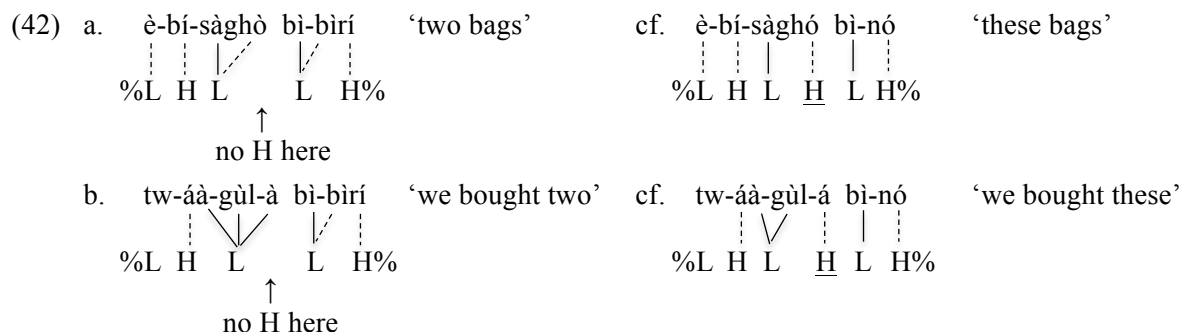
We have seen that there are two kinds of X=cl: those which form a TG satisfying (40), hence HTP, vs. those which don’t satisfy (40), hence occur without HTP. It is possible that the first has the structure of a nested phonological word [ [ word ]<sub>PW</sub> =cl ]<sub>PW</sub>, while the second has the structure of a clitic group [ [ word ]<sub>PW</sub> =cl ]<sub>CG</sub>. An historical conjecture would be that HTP started out in individual words (X), then expanded to X=Z, then X # Z, always meeting the configuration and conditions (i) and (ii) in (40). Note in this regard that enclitics only condition HTP with their lexical host, not with each other:



In Lusoga, all enclitics are /L/, requiring HTI on the preceding mora. They also differ from full words in preventing a preceding long vowel from undergoing final vowel shortening (cf. ‘tree’ and ‘which tree?’ in (39)).

#### 4. Two outstanding problems

I would like to end the coverage of tonal phenomena by considering two outstanding problems. The first is to return to numerals, this time in Lusoga. We saw in (10b) that Luganda doesn’t allow HTA from a numeral onto the preceding noun. There is an analogous issue in Lusoga, which is that numerals which begin with /L/ do not condition HTI (vs. demonstratives, which do). This is seen in (42).



We see this between a numeral and noun in (42a) and between a numeral and a preceding verb in (42b). We know that /bi-biri/ has a /L/ on its prefix because of the augmented form, *é-bi-biri* ‘(the) two’, where the augment does receive a H from HTI. Positing an initial %L was said to be unmotivated for Luganda,



(44) puts a check on HTS-left: It spreads as far as it can, but stops short if the result would be a L<sub>PW</sub>[ H sequence.

## 5. Conclusion

To summarize the findings for Lusoga, there is no prosodic evidence for a domain corresponding to the TP in Luganda. The domain corresponding to the TG in Luganda is limited to certain word=enclitic combinations. Specifically, there is no evidence that what precedes the verb is treated differently from what follows it. At this point one might ask what other evidence there might be for prosodic domains in Lusoga. Two possibilities are intonation, which has thus far not yielded anything concrete, and instrumental phonetic studies, e.g. on segment durations, which I have not done—and which in any case would take us beyond my question, which had to do with whether there are discrete, categorical effects of prosodic domains in Lusoga.

I would like to conclude with some further thoughts about Lusoga in terms of linguistic typology, defined for our purposes as the study of how languages are the same vs. different. First, Lusoga is not a counterexample to the claim that syntax-prosody “matching” is universal. Second, nothing looks syntactically or prosodically aberrant in Lusoga. Rather, it is the lack of interest that Lusoga shows for prosodic constituents that is striking, particularly from a Bantu point of view. In fact, Lusoga provides the missing “cell” in the typology of whether LDs and RDs phrase with the main clause in Bantu:

(45) a.	<table border="1"><tr><td>LD</td><td>S</td><td>RD</td></tr></table>	LD	S	RD	Luganda
LD	S	RD			
b.	<table border="1"><tr><td>LD</td><td>S</td><td>RD</td></tr></table>	LD	S	RD	Haya
LD	S	RD			
c.	<table border="1"><tr><td>LD</td><td>S</td><td>RD</td></tr></table>	LD	S	RD	Chichewa
LD	S	RD			
d.	<table border="1"><tr><td>LD</td><td>S</td><td>RD</td></tr></table>	LD	S	RD	Lusoga
LD	S	RD			

We have already seen that Luganda and Haya are mirror images of each other as far as whether LDs (Luganda) or RDs (Haya) are marked off from the main clause. Chichewa has been reported to mark off both LDs and RDs (Downing & Mtenje 2011:1966-7). Finally Lusoga provides the fourth possibility: Neither LDs nor RDs are marked off.

The Lusoga disinterest in marking prosodic domains is remarkable from a Bantuist and perhaps universalist point of view. However, it has long been known that languages vary in how much they “care” about some of the “best bets” in phonology. Lusoga can now be added to the list of languages which have shown a disregard for one or another prosodic property:

- (46) a. syllable structure: Gokana cares very little if at all about grouping its Cs and Vs into syllables (Hyman 2011)
- b. word stress: Bella Coola cares very little if at all about highlighting one syllable per word (Newman 1947:132)
- c. prosodic domains: Lusoga cares very little if at all about reflecting syntactic constituency in the post-lexical phonology (this study)

For me, typology should not only determine the different ways in which universal linguistic properties can be reflected in the grammar of a language, but also how well a grammar can get along without signaling them at all.

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