# Chapter 9

# Downstep and recursive phonological phrases in Bàsàá (Bantu A43)

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This paper identifies contexts in which a downstep is realized between consecutive H tones in absence of an intervening L tone in Bàsàá (Bantu A43, Cameroon). Based on evidence from simple sentences, we propose that this type of downstep is indicative of recursive prosodic phrasing. In particular, we propose that a downstep occurs between the phonological phrases that are immediately dominated by a maximal phonological phrase ($\phi$max).

## 1 Introduction

In their book on the relation between tone and intonation in African languages, Downing & Rialland (2016) describe the study of downtrends as almost being a field in itself in the field of prosody. In line with the considerable literature on the topic, they offer the following decomposition of downtrends:

1. Declination
2. Downdrift (or 'automatic downstep')
3. Downstep (or 'non-automatic downstep')
4. Final lowering
5. Register compression/expansion or register lowering/raising

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In the present paper, which concentrates on Bàsàá, a Narrow Bantu language (A43 in Guthrie's classification) spoken in the Centre and Littoral regions of Cameroon by approx. 300,000 speakers (Lewis et al. 2015), we will first briefly define and discuss declination and downdrift, as the language displays both phenomena. We will then turn to the focus of this paper, that is ('non-automatic') downstep. The fact that, under the influence of floating Low tones, Bàsàá displays downstepped High tones, i.e. tones that are identified as phonologically High but display a register that is lower than an immediately preceding H, is well known (a.o. Dimmendaal 1988; Bitjaa Kody 1993; Hyman 2003; Hamlaoui et al. 2014). The originality of the present paper lies in the fact that downstep can also be found at certain word junctures where it cannot be traced to the presence of a lexical L tone. In line with Match Theory (Selkirk 2009; 2011) and the Theory of Prosodic Projection (a.o. Ito & Mester 2012), we propose that this type of downstep is indicative of recursive phonological phrasing. More specifically, we propose that in Bàsàá, a downstep occurs between the immediate daughters of a maximal phonological phrase ($\phi$max).

The paper is structured as follows. §2 introduces Bàsàá and its basic tone patterns. It also provides a brief overview of the types of downtrends found in this Bantu language. §3 concentrates on the distribution of the particular type of downstep that interests us, i.e. with no lexical L tone involved. §4 provides a possible analysis for this tonal phenomenon. §5 concludes the paper.

## 2 Basic patterns of tone in Bàsàá

### 2.1 Downdrift

Bàsàá is a tonal language with a three-way underlying opposition between H(igh), L(ow) and toneless (∅) tone-bearing units (TBUs) (Dimmendaal 1988; Hyman 2003; Makasso 2008 and in particular Bitjaa Kody 1993; Hamlaoui et al. 2014; Makasso et al. 2016 on toneless TBUs). As a result of a number of tonal processes, Bàsàá's surface realizations contrast H, L, LH (rising), HL (falling) and ˈH ('downstepped' H) tones. Table 1 provides an illustration of Bàsàá's minimal tonal contrasts.[1]

As in many other African tone languages, in utterances presenting mixed sequences of tone, Bàsàá displays "automatic downstep" or downdrift: "a progres-

[1]The system of transcription used in this work is the IPA. For the readers familiar with previous literature on Bàsàá, we have the following correspondences: /p/ or /b/ → /β/; /t/ or /d/ → /r/; /k/ or /g/ → /ɣ/; /y/ → /j/; /ny/ → /ɲ/; /j/ → /ʤ/; /c/ → /ʧ/.

Table 1: Tonal minimal pairs in Bàsàá (Makasso & Lee 2015)

| H tone | L tone | HL tone | LH tone |
|---|---|---|---|
| jáχ ‘to annoy’ | jàχ ‘also’ | | |
| báŋ ‘to tolerate’ | bàŋ ‘to make’ | | |
| bó: ‘to move out’ | bò: ‘(smell) bad’ | | bǒ ‘nine’ |
| | tù: ‘to be unable to cut’ | tû: ‘shoulder (CL7)’ | |
| | ɲɔ̀: ‘to copulate’ | | ɲɔ̌: ‘snake (CL9)’ |
| | | báŋgà ‘drug’ (CL7) | bàŋgá ‘great’ |

sive lowering of tone realisation” (Downing & Rialland 2016: 2). As seen in the pitch track in Figure 1, corresponding to the sentence in (1), each L tone sets “a new, lower, ‘ceiling’” for the following H tones (Connell 2011).

(1) í-ɓ-ɔ̀ɔ̀ŋgɛ́ ɓáná ɓá-ḿ-ɓárá m-áŋgòlò má ɓ-á$^{\downarrow}$sáŋ.
î-ɓ-ɔɔŋgɛ́ ɓáná ɓá-m-ɓárá m-áŋgòlò má ɓ-àsáŋ
AUG-2-children 2.DEM 2.AGR-PST1-take 6-mangoes 6.CONN 2-fathers
‘These children picked up the mangoes of the fathers.’
(Makasso et al. 2016)

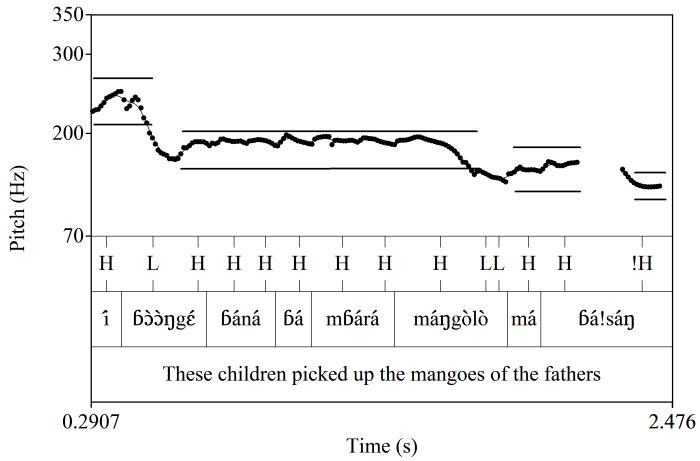


Figure 1: Downdrift in a Bàsàá sentence with a mixed tone sequence (Makasso et al. 2016)

In sentence (1), tones that are phonologically identified as H are realized on four different pitch registers. The first three of these correspond to the phenomenon known as 'downdrift'. We will come back subsequently to the last change of register, a case of (non-automatic) downstep. Note in passing that H tones preceding a L tone display H-raising, a phenomenon also found in languages like Yoruba (a.o. Connell & Ladd 1990; Laniran 1992; Laniran & Clements 2003) or Dagara (Rialland & Somé 2000; Rialland 2001), and that the first H in (1) displays greater H-raising than the next H that also precedes a L (but that no such raising is observed when the initial H is followed by a H, as in Figure 2 and Figure 3).

## 2.2 Declination

In addition to having downdrift, Bàsàá also exhibits declination, that is, 'a gradual modification (over the course of a phrase or utterance) of the phonetic backdrop against which the phonologically specified F0 targets are scaled' (Connell & Ladd 1990; Connell 2011). Declination, which is considered a phonetic universal (Ladd 1984; Connell 2011), is found in both Bàsàá declarative sentences and *yes/no*-questions. This is illustrated in Figure 2 and Figure 3, for the sentence with only H tones in (2) (Makasso et al. 2016).

(2) a. híndá í kóp í-ń-lámá jéŋ ŋwér.
7.black 7.CONN hen 7.AGR-PST1-may search 1.owner
'The black hen may look for its owner.'

b. híndá í kóp í-ńlámá jéŋ ŋwér-é.
7.black 7.CONN hen 7.AGR-PST1-may search owner-Q
'May the black hen look for its owner?'

Before we turn to the focus of this paper, that is the downstepping of adjacent H tones, let us briefly discuss (non-automatic) downstep under the influence of a lexical floating L tone.

## 2.3 Downstep under the influence of a floating L tone

Several tonal/segmental processes have been identified that result in the realization of a downstepped H tone. High Tone Spread (HTS), the major tonal process of present day Bàsàá according to Hyman (2003), can lead a L tone to disassociate and lower a following H. This is the case in example (1). The word for 'fathers' is underlyingly L-H. When following the H-toned class 2 connective, it acquires a

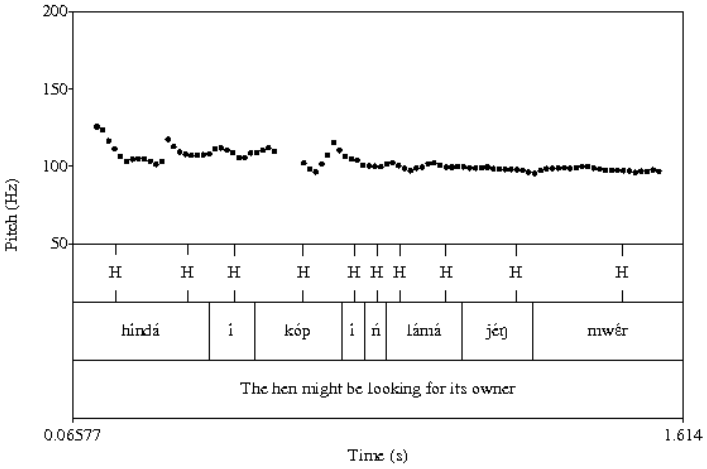


Figure 2: Assertion – High tones only (Makasso et al. 2016)

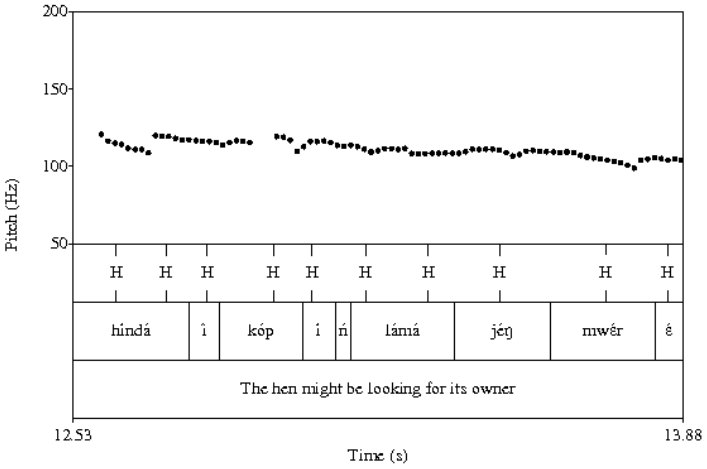


Figure 3: *Yes-no* question – High tones only (Makasso et al. 2016)

H on its first TBU through HTS. That has the effect of disassociating the initial L, which in turn creates a downstepped H (ꜜH, see again Figure 1).

Floating L tones are also pretty common in Bàsàá, some of them clearly resulting from a historical loss of segments. The augment in (1) introduces a floating L, which systematically creates a downstep on a following H.[2] This is also the case of the present tense morpheme and the locative marker, for instance, illustrated respectively in (3) and (4).

(3) à-ń-ꜜʤɛ́.
à-ń̀-ʤɛ́
1.AGR-PRES-eat
'He/She is eating.'

(4) í ꜜndáp
í̀ ndáp
LOC 9.house
'in the house'

The rightward association of floating L tones that creates ꜜH tones is found within prosodic words ($\omega$), i.e. prosodic units roughly corresponding to lexical heads, within phonological phrases ($\phi$), i.e. prosodic units based on (lexical) syntactic phrases (XPs), and within intonational phrases ($\iota$), i.e. prosodic units based on syntactic clauses, in a prosodic hierarchy where $\iota > \phi > \omega$ (see for instance Selkirk (2011) and references therein for details on the prosodic hierarchy, and Hamlaoui & Szendrői (2015; 2017) for the definition of syntactic 'clause' assumed here).

## 3 Where adjacent Hs are distinguished

We have briefly illustrated in Figure 1, Figure 2 and Figure 3 than whenever two H tones are brought together in Bàsàá, within words and between words, they form a plateau. This is also what we have observed in all the repetitions of various sentences that we have recorded (see Makasso et al. (2016) for an overview). At least on the surface then, Bàsàá thus differs from a language like KiShambaa (Bantu G23, Tanzania), in which downstep applies between any two independent H tones (Odden 1982). We have however identified a few contexts in which

[2] See example (14) for a case where both the H and L tone of the augment are carried by the noun it modifies, suggesting that this type of downstep involves an underlying lexical L.

two adjacent H tones are realized on different registers, where the second one is perceived as downstepped. Let us look at them in turn.

### 3.1 In the phrasal domain

First, in the phrasal domain, [Dem N] and [Wh N] present a downstep at the juncture between the two words. They are so far the only noun phrases in which we have observed a downstep, and in that they contrast with [N Dem], [N Adj], [N CONN N], [POSS N] and [N POSS], where no such downstep is found.

(5) íní ˈkwémbé
7.DEM 7.box
'this box'

(6) ndʒé ˈsóɣól
which 1.grandfather
'which grandfather'

According to Hyman (2003) and Hyman & Lionnet (2012), who assume a H vs. L underlying tonal distinction in both Abo (Bantu A42, Cameroon) and Bàsàá, all noun class prefixes are underlyingly L. In their approach, prefixless nouns thus start with a floating L tone which would be responsible for the downstep observed in examples (5), (6) and (7) to (17). Whenever the prefixless noun follows e.g. a verb or a connective, i.e. a context where HTS (or metatony) applies, this floating L tone could be overridden and thus not create a downstep. We provide sentences in the next subsection in which words that are not analysed by Hyman and Hyman & Lionnet as starting with a floating L tone also display a downstep when preceded by a word that ends with a H tone.

### 3.2 At the sentence level

Whenever the proper tonal configuration is met, a downstep distinguishes the two complements of a verb. This is illustrated in (7) to (11), with different types of complements. Sentence (8) is illustrated in Figure 4.

(7) ɓá-ń-tí sóɣól ˈkwémbé.
2.AGR-PST1-give 1.grandfather 7.box
'They gave the grandfather the box.'

(8) mɛ̀ ǹ-tí líwándá lí sóɣól ˈndáp.
I PST1-give 5-friend 5.CONN 1.grandfather 9.house
'I gave the friend of the grandfather the house.'

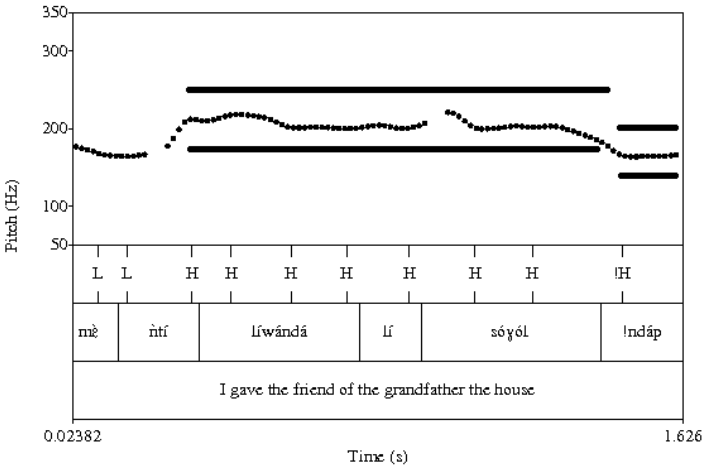


Figure 4: Downstep between two complements in sentence (8)

(9) mɛ̀ ǹ-tí í-ˈsóɣól núnú ˈndáp jɔ̂ŋ.
I PST1-give AUG-1.grandfather 1.DEM 9.house 9.your
'I gave this grandfather your house.'

(10) mɛ̀ ǹ-tí nʤɛ́ mááŋgɛ́ ˈnʤɛ́ múràá?
I PST1-give which 1.child which 1.woman
'Which woman did I give to which child?'

(11) mɛ̀ ǹ-tí málêr ŋ̀kéŋí ˈndáp ìkéŋí.
I PST1-give 1.teacher 1.big 9.house 9.big
'I gave the big teacher the big house.'

Example (12) is crucial in connection to Hyman and Hyman & Lionnet's hypothesis, as demonstratives are not, to the best of our knowledge, among the words that they would posit have a floating L tone but still display a downstep when they are the second complement of a verb.

(12) mɛ̀ ǹ-tí sóɣól ⊠íní ˈkwémbé.
I PST1-give 1.grandfather 7.DEM 7.box
'I gave the grandfather this box.'

If an initial floating L tone were posited to be associated with demonstratives, it would remain to be explained why no downstep is found in [N Dem] phrases, as in (9) and (13) (Hyman 2003: 273), a context where HTS does not apply (Hamlaoui et al. 2014: 28). The absence of downstep before the second complement in example (27) in §5, which starts with a demonstrative, would also be unexpected if a lexical L tone is present in the underlying representation.

(13) í-ɓɔ̀ɔ̀ŋgɛ́ ɓáná
AUG-2.children 2.DEM
'these children'

(14) líˈwándá líní
AUG.5-friend 5.DEM
'this friend'

A further context in which a downstep is inserted at the sentence level is between a complement and a verb modifier, as illustrated in (15).

(15) à-ǹ-sómb móó ˈlɔ́ŋgɛ̂.
1.AGR-PST1-buy 6.oil 7.well.
'He did buy the oil.'

Whenever the verb is followed by a complement and a locative adjunct though, as in (16) and (17), no such downstep occurs between them (the downstep on the last word, 'ndáp' is due to the floating L introduced by the locative). Sentence (16) is illustrated in Figure 5, where the last H tone of the second complement forms a plateau with the first H tone of the locative phrase.

(16) í-ɓɔ̀ɔ̀ŋgɛ́ ɓáná ɓá-ḿ-ɓárá kwémbé í sóɣól
AUG-2.children 2.DEM 2.AGR-PST1-pick.up 7.box 7.CONN 1.grandfather
í ˈndáp.
LOC 9.house
'These children picked up the box of the grandfather at home.'

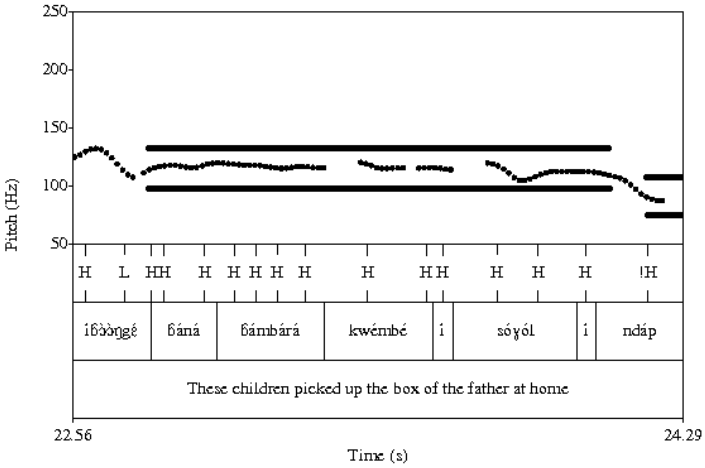


Figure 5: Absence of downstep between a complement and a locative phrase (16)

(17) í-ɓɔ̀ɔ̀ŋgɛ́ ɓáná ɓá-ń-tí sóɣól ˈkwémbé í
AUG-2.children 2.DEM 2.AGR-PST1-give 1.grandfather 7.box LOC
ˈndáp.
9.house
'These children gave the box to the grandfather at home.'

# 4 Why adjacent Hs are distinguished

## 4.1 Recursive prosodic phrasing

In Hamlaoui et al. (2014) and Hamlaoui & Szendrői (2015; 2017), we have discussed two tonal processes which, we have argued, allow us to diagnose certain prosodic edges. First, we have proposed that the contexts in which HTS is blocked from happening indicate the presence of a phonological phrase right edge ("a H tone is prohibited from spreading across the right edge of a Phonological Phrase", Hamlaoui et al. 2014: 27). In the proper tonal configurations, we have thus established that a simple sentence displays the phonological phrasing indicated in (18).

(18) XP)$_{\phi}$ V XP)$_{\phi}$ XP)$_{\phi}$.

We have also examined various types of phrases, and concluded that the non-application of HTS indicates that the configurations in (19) contain two right phonological phrase edges, while those in (20) are monophrasal. The wh-phrase is the only context we have identified so far where both HTS and downstep apply.[3]

(19) a. Dem)$_\phi$ N)$_\phi$
b. N)$_\phi$ Dem)$_\phi$
c. N)$_\phi$ Adj)$_\phi$
d. Adj)$_\phi$ N)$_\phi$
e. N)$_\phi$ CONN N)$_\phi$

(20) a. POSS N)$_\phi$
b. N POSS)$_\phi$
c. wh N)$_\phi$

Note that the groupings given in (19) and (20) are not affected when such phrases are embedded within a sentence. This is briefly illustrated in (21a) and (21b) with two types of NPs as complement of a verb.

(21) a. XP)$_\phi$ V N)$_\phi$ A)$_\phi$
b. XP)$_\phi$ V N)$_\phi$ CONN N)$_\phi$

In other words, in both (21a) and (21b), the application of HTS indicates more prosodic cohesion between a verb and the word that immediately follows it than between words (like a noun and its modifier) which can reasonably be assumed to be part of the same lexical XP. This will become particularly relevant subsequently in the phrasing of sentences in Figure 7 and Figure 8. This appears to be a mismatch between syntax and phonology.

Second, we have proposed that Falling Tone Simplification (FTS), in its turn, provides evidence for the presence of intonational phrase left edges (see Hamlaoui & Szendrői (2017) for an extended discussion). In contrast with HTS, FTS

[3] A downstep in the wh-phrase is, at first sight, problematic for the proposal we make in this paper as, if we are on the right track regarding HTS, the latter process indicates that [Wh N] is monophrasal. Note however that wh-words seem to carry a floating H which, as we have shown in Hamlaoui & Makasso (2011), triggers the lengthening of the wh-word in certain contexts. The rightward association of a H tone at play in this type of phrases might thus differ from what goes on in the other types of phrases listed here and thus not be sensitive to (non-max) phonological phrase edges.

applies between all the phrases in a simple sentence like (18), which constitutes an intonational phrase. This is illustrated in (22).

(22) $(\text{XP V XP XP})_{\iota}$.

We have seen that the configurations in which we observed a downstep could not be traced to the presence of a lexical floating L tone. What then determines the presence of these downsteps? We propose that the contexts in which downstep occurs in Bàsàá correspond to the maximal phonological phrase of the prosodic hierarchy, where $\phi$ and other prosodic categories are recursive (a.o. Ito & Mester 2012). More specifically, we propose that Bàsàá inserts a downstep between the phonological phrases that are the immediate daughters of a maximal phonological phrase. The distinction of adjacent H tones in absence of a lexical floating L is thus indicative of recursive phonological phrasing.

Let us spell out our reasoning. We focus on the sentence level, as this is where our hypotheses concerning the syntactic structure are the most restricted. First, we know from the data we have examined that downstep does not occur between two phrases that do not belong to a larger lexical XP, that is, between subject and verb, for instance, or a complement and (what can safely be assumed) a clause-level adjunct. These phrases form a plateau (a point we will come back to subsequently). Second, we know that downstep does not occur either between a verb and its complement, which do belong to a simple lexical XP (VP). Third, we know that downstep occurs between two complements of a verb, or a complement and a verb modifier. It thus seems that downstep occurs when more syntactic structure is involved within a lexical phrase (here VP), and thus intuitively indicates an 'intermediate' degree of cohesion between two phrases. In a canonical sentence with a verb with more than one complement, it is usually assumed that all the arguments of the verb are contained within a complex V(erb)P(hrase), which can be represented (among other ways) as shown in Figure 6 (Larson 1988).
In this syntactic representation, the VP is recursive. Although it was long assumed that the prosodic structure was flater than the syntactic structure (Selkirk 1981; 1984; 1986; Nespor & Vogel 1986), a number of studies have provided evidence that prosody can be as recursive as syntax (Ladd 1986), and this view can now be considered standard (a.o. Selkirk 1995; 2009; 2011; Truckenbrodt 1999; Wagner 2005; Elfner 2012). If prosodic structure is by default based on syntactic structure, as is assumed here, it is expected that, at least in some languages, phonological evidence is found for recursive prosodic phrasing within VPs. Truckenbrodt (1999), for instance, argues that this is the case in Kimatuumbi (Bantu P13), a distant relative of Bàsàá (Odden 1987; 1990), where prosody suggests that the sequence [V NP NP] is phrased $((\text{V NP})_{\phi}\ \text{NP})_{\phi}$.

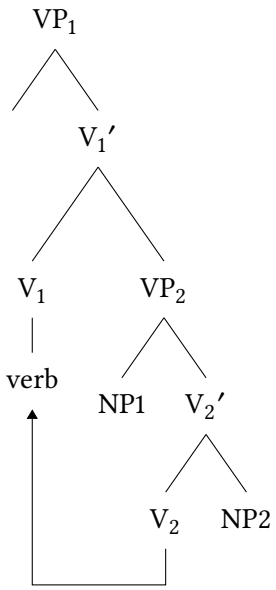


Figure 6: Representation of a Verb Phrase (adapted from Truckenbrodt (1999))

When it comes to Bàsàá sentences, the evidence provided by HTS and downstep is compatible with the phrasing suggested by Truckenbrodt for Kimatuumbi, and repeated in (23). It is also compatible, among others, with the phrasing in (24) (Selkirk 2009; 2011), which better reflects the amount of embedding found in the syntactic structure. Downstep could be a correlate of the phonological phrase that contains the entire VP.

(23) [V NP NP] → ((V NP)$_\phi$ NP)$_\phi$

(24) [V NP NP] → ((V (NP)$_\phi$)$_\phi$ (NP)$_\phi$)$_\phi$

The occurrence of downstep in sentences with "complex" complements as in sentences (10) and (11), however suggests that in Bàsàá, the second complement forms a phrase of its own, as in (24). What we can see indeed is that downstep does not occur just anywhere within a complex VP. The fact that the two complements are distinguished by a downstep suggests that there is more prosodic cohesion within each of the complements than suggested solely by the evidence provided by HTS. Indeed, the phrasing provided by HTS suggests a flat structure within a VP such as the one in example (11). This is shown in (25). In this structure

there does not seem to be a reason why downstep should not occur between any (or each) of the phonological phrases.

(25) V N)$_\phi$ A)$_\phi$ N)$_\phi$ A)$_\phi$

Downstep however only targets the juncture between the two complements, which suggests that there is an additional level of prosodic structure, shown in bold in (26) and reflecting the syntactic cohesion between each nominal head and its modifier.

(26) **(** V N)$_\phi$ A)$_\phi$ **)**$_\phi$ **(** N)$_\phi$ A)$_\phi$ **)**$_\phi$ [full bracketing: ((V N)$_\phi$ (A)$_\phi$)$_\phi$ ((N)$_\phi$ (A)$_\phi$)$_\phi$]

What seems crucial here is that not all phonological phrases are distinguished. In (26), if noun and adjective are indeed contained within a single phonological phrase, how come they do not show downstep just like the two complements of a verb? After all, they seem to be in a comparable syntactic configuration (i.e. two lexical phrases contained in a larger lexical phrase).

We propose that this is due to the fact that downstep only targets the phonological phrases that are immediately dominated by a *maximal* phonological phrase. This is in line with Ito & Mester's (2012; 2013) Prosodic Projection Theory, in which domain-sensitive processes can target different projection levels (i.e. (non-)maximal, (non)-minimal projections). Downstep would here constitute evidence for a certain type of nesting of phonological phrases. Let us examine the prosodic structure that obtains in some of the sentences in which downstep is found, and contrast them with some in which it isn't.

Figure 7 constitutes the representation of a sentence like (7), with simple NPs (nouns) for subject and complements. What we see in Figure 7 is that downstep does not target a phonological phrase of a particular level. Rather, it targets the immediate daughters of a $\phi$max, the maximal projection of a phonological phrase. As long as a $\phi$max displays unary branching, as the one corresponding to the subject in Figure 7, no downstep happens. Note as well that more structure within each of the NPs constituting the complements (as in examples (10) to (11)) does not change the configuration found at the $\phi$max level corresponding to VP1 in Figure 7, and downstep is still rightly predicted to distinguish the two complements (the same applies for a structure consisting of a complement and a verb modifier, as in (15)). Our proposal is also formulated so as not to distinguish daughters of a $\phi$max that do not all correspond to $\phi$s (as in a simple VP).

Figure 8 corresponds to a transitive sentence with a simple subject, a complement consisting of a noun and an adjective, and a clause-level adjunct.

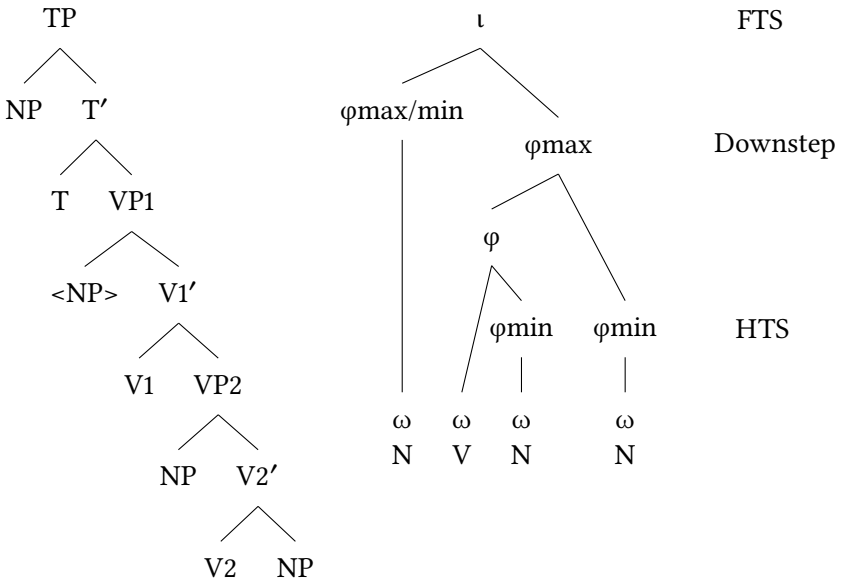


Figure 7: Simplified syntactic representation and corresponding recursive prosodic structure in a Bàsàá ditransitive sentence

As was mentioned above, whenever the first complement of a verb consists of a complex noun phrase, as for instance a noun and an adjective, HTS, which seems to be an indicator of $\phi$min right edges, only applies between the verb and the noun, and never between the noun and the adjective. We propose that this is due to the fact that the verb and noun form a $\phi$ that violates the default syntax-phonology mapping (as it does not correspond to any syntactic lexical phrase). In Figure 7 this extra $\phi$ is simply conflated with the one corresponding to VP2. As can be seen in Figure 8, the $\phi$max corresponding to the VP only has one immediate daughter, so no downstep can be inserted.

## 4.2 How H tones are downstepped

As pointed out by one of our reviewers, the question arises whether Bàsàá has a rule of downstep insertion which specifies the contexts in which downstep takes place, or whether downstep is simply the "elsewhere case". In the latter view, Bàsàá would be underlyingly similar to KiShambaa, in that adjacent independent H tones are systematically distinguished and that this distinction is phonetically implemented as a downstep. Under this view, a process of H-tone

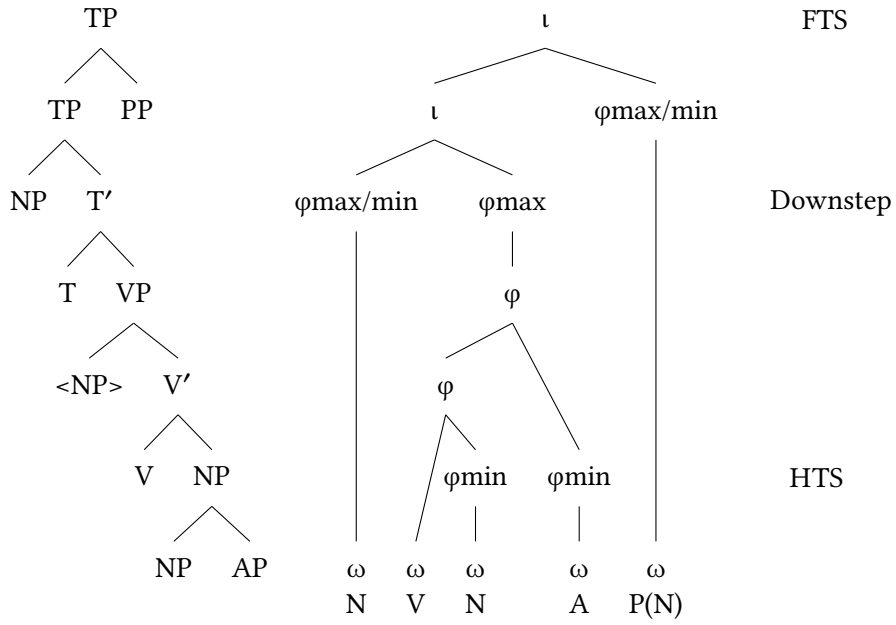


Figure 8: Simplified syntactic representation and corresponding recursive prosodic structure in a Bàsàá transitive sentence

fusion (Odden 1982; Bickmore 2000) would apply within multimorphemic words and non-maximal phonological phrases that would result in H tone plateaus within these prosodic domains. As for the plateaus between maximal phonological phrases, they could be the result of the application of an upstep process systematically taking place at the left edge of that domain (with the idea that downstep + upstep = plateau). Default downstepping of H tones would thus only be visible between the daughters of maximal phonological phrases as neither H-tone fusion nor upstepping applies. This seems like an interesting approach, which according to our reviewer would be more in line with what has been described in other Bantu languages. For the time being, it is however unclear to us whether this inflation in assumptions is generally more desirable to account for the grammar of Bàsàá than assuming that consecutive tones of the same category are realized on the same level (albeit with a slight declination) and that a rule (categorically) distinguishes H tones in one particular prosodic configuration (potentially via the insertion of a L tone at particular prosodic edges). It is also unclear to us whether the H-tone fusion hypothesis makes any empirical predictions that could be tested in Bàsàá.

If an upstep occurs at certain prosodic edges (e.g. the left-edge of $\phi$max), it seems to us that this would be measurable at certain junctures (e.g. between the last downstepped H of a complement and the first H of a following clausal adjunct, for instance). It would also result in the absence (or reduction) of downdrift when H and L tones alternate. We know that this happens in left-dislocation contexts where FTS is prevented from applying which, according to Hamlaoui & Szendrői (2017), correspond to the left edge of the clause (the core $\iota$). We have informally checked sequences where H and L tones alternate within an intonation phrase (in particular $(\text{H-L})_{\text{subject}}$ $(\text{H-L-X})_{\text{verb}}$ sequences) and we have identified 5 cases out of 13 (in repetitions of 4 sentences) where there was a reset, and thus no downdrift at the left edge of the verb. Although this result does not strongly support the idea that downstep is the elsewhere case, it suggests that more phonetic investigations are needed to decide between the two approaches.

## 5 Conclusion

In this paper, we have concentrated on the distinction of consecutive H tones in absence of an intervening (floating) L tone in Bàsàá, a Northwest Bantu language spoken in Cameroon. Based on evidence from simple sentences, we have proposed that this particular type of downstep is indicative of recursive prosodic phrasing. In particular, and in line with Ito & Mester's (2013) Prosodic Projection Theory, we have proposed that in the present language, a downstep is inserted between the phonological phrases that are the immediate daughters of a maximal phonological phrase. Too little information on the syntactic representation of noun phrases is available at the time of writing to check our proposal against this type of data. Before closing this paper, let us briefly mention that in sentences like (27) and (28), where a downstep is found within each of the complements, the complements themselves fail to be distinguished. Sentence (27) is shown in Figure 9.

(27) mɛ̀ ǹ-tí núnú ˈsóɣól íní ˈkwémbé.
I PST1-give 1.DEM 1.grandfather 7.DEM 7.box
'I gave this grandfather this box.'

(28) mɛ̀ ǹ-tí ndʒɛ́ ˈsóɣól ndʒɛ́ ˈsóɣól?
I PST1-give which 1.grandfather which 1.grandfather
'Which grandfather did I give to which grandfather?'

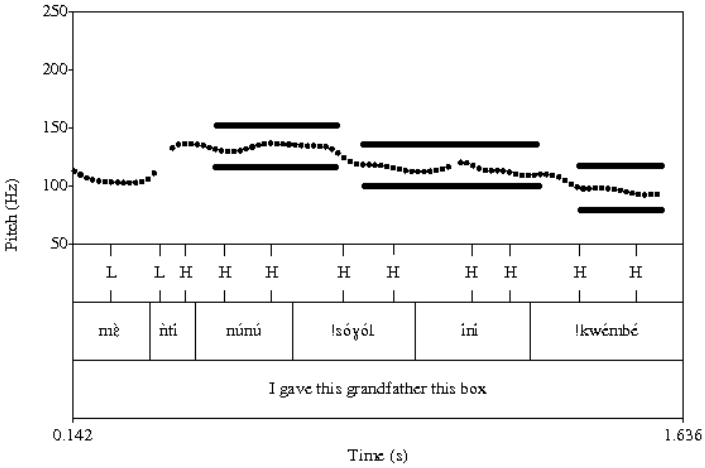


Figure 9: Downstep neutralization in sentence (27)

This might suggest that the number of possible downsteps is maybe not unlimited and that there are cases of neutralizations. We leave this issue open for future research.

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## Abbreviations

| | | | |
|---|---|---|---|
| 1…n | noun class | FTS | Falling Tone Simplification |
| AGR | agreement | H | high tone |
| AP | Adjective Phrase | HL | falling tone |
| AUG | augment | HTS | High Tone Spread |
| CONN | connective | L | low tone |
| DEM | demonstrative | | |

| | | | |
|---|---|---|---|
| LH | rising tone | PRO | pronoun |
| LOC | locative | PST | past |
| NP | Noun Phrase | Q | question particle |
| POSS | possessive | TP | Tense Phrase |
| PRES | present | VP | Verb Phrase |

## References

Bickmore, Lee S. 2000. Downstep and fusion in Namwanga. *Phonology* 17. 297–331.

Bitjaa Kody, Zachée Denis. 1993. Le système tonal du basaa. *Journal of West African Languages* 23(1). 65–72.

Connell, Bruce. 2011. Downstep. In *Companion to Phonology*, 824–847. Oxford: Blackwell publishing.

Connell, Bruce & Robert Ladd. 1990. Aspects of pitch realisation in Yoruba. *Phonology* 7. 1–30.

Dimmendaal, Gerrit J. 1988. *Aspects du basaa*. Leuven: Peeters/SELAF. Translated by Luc Bouquiaux.

Downing, Laura Jo & Annie Rialland (eds.). 2016. *Intonation in African tone languages*. Berlin: Mouton de Gruyter.

Elfner, Emily. 2012. *Syntax-prosody interactions in Irish*. University of Massachusetts Amherst. (Doctoral dissertation).

Guthrie, Malcolm. 1948. *The classification of the Bantu languages*. Oxford: Oxford University Press for the International African Institute.

Hamlaoui, Fatima, Siri Gjersøe & Emmanuel-Moselly Makasso. 2014. High tone spreading and phonological phrases in Bàsàá. In *Proceedings of the 4th International Symposium on Tonal Aspects of Languages*. ISCA Archive.

Hamlaoui, Fatima & Emmanuel-Moselly Makasso. 2011. Bàsàa wh-questions and prosodic structuring. In Laura Jo Downing (ed.), *Questions in Bantu languages: Prosodies and positions (ZASPiL 55)*, 47–63. Berlin: ZAS.

Hamlaoui, Fatima & Kriszta Szendrői. 2015. A flexible approach to the mapping of intonational phrases. *Phonology* 32(1). 79–110.

Hamlaoui, Fatima & Kriszta Szendrői. 2017. The syntax-phonology mapping of intonational phrases in complex sentences: A flexible approach. *Glossa* 2(1). https://www.glossa-journal.org/articles/abstract/10.5334/gjgl.215.

Hyman, Larry. 2003. Bàsàa (A43). In *The Bantu languages*, 257–282. Routledge.

Hyman, Larry & Florian Lionnet. 2012. Metatony in Abo (Bankon), A42. In Michael R. Marlo, Nikki B. Adams, Christopher R. Green, Michelle Morrison

& Tristan M. Purvis (eds.), *Selected Proceedings of the 42nd annual conference on African Linguistics*, 1–14. Somerville: Cascadilla Proceedings Project.
Ito, Junko & Armin Mester. 2012. Recursive prosodic phrasing in Japanese. In Toni Borowsky, Shigeto Kawahara, Mariko Sugahara & Takahito Shinya (eds.), *Prosody matters. Essays in honor of Elisabeth Selkirk* (Advances in Optimality Theory Series), 280–303. Sheffield & Bristol: Equinox.
Ito, Junko & Armin Mester. 2013. Prosodic subcategories in Japanese. *Lingua* 124. 20–40.
Ladd, Robert. 1984. Declination: A review and some hypotheses. *Phonology yearbook* 1. 53–74.
Ladd, Robert. 1986. Intonational phrasing: The case of recursive prosodic structure. *Phonology Yearbook* 3. 311–340.
Laniran, Yetunde. 1992. *Intonation in tone languages: The phonetic implementation of tones in Yorùbá*. Cornell University. (Doctoral dissertation).
Laniran, Yetunde & George N. Clements. 2003. Downstep and high tone raising: Interacting factors in Yoruba tone production. *Journal of Phonetics* 31(2). 203–250.
Larson, Richard. 1988. On the double object construction. *Linguistic Inquiry* 19. 335–391.
Lewis, M. Paul, Gary F. Simons & Charles D. Fennig (eds.). 2015. *Ethnologue: Languages of the world*. Eighteenth. Dallas, Texas: SIL International.
Makasso, Emmanuel-Moselly. 2008. *Intonation et mélismes dans le discours oral spontané en bàsàa*. Université de Provence (Aix-Marseille 1). (Doctoral dissertation).
Makasso, Emmanuel-Moselly, Fatima Hamlaoui & Seunghun Julio Lee. 2016. Aspects of the intonational phonology of Bàsàá. In *Intonation in African tone languages*, 167–194. Berlin: Mouton de Gruyter.
Makasso, Emmanuel-Moselly & Seunghun Julio Lee. 2015. Basaá. *Journal of the International Phonetic Association* 45(1). 71–79.
Nespor, Marina & Irene Vogel. 1986. *Prosodic phonology*. Dordrecht: Foris.
Odden, David. 1982. Tonal phenomena in KiShambaa. *Studies in African Linguistics* 13(2). 177–208.
Odden, David. 1987. Kimatuumbi phrasal phonology. *Phonology Yearbook* 4. 13–36.
Odden, David. 1990. Syntax, lexical rules and postlexical rules in Kimatuumbi. In Sharon Inkelas & Draga Zec (eds.), *The phonology-syntax connection*, 259–277. Chicago: University of Chicago Press.

Rialland, Annie. 2001. Anticipatory raising in downstep realization: Evidence for preplanning in tone production. In *Proceedings of the symposium "Crosslinguistic studies of tonal phenomena: Tonogenesis, Japanese accentology and other topics"*, 301–322.

Rialland, Annie & Penu Achille Somé. 2000. Dagara downstep: How speakers get started. In Vicky Carstens & Frederick Parkinson (eds.), *Advances in African linguistics*, 251–264. Trenton: Africa World Press.

Selkirk, Elisabeth. 1981. On the nature of phonological representation. In Terry Myers, John Laver & John Anderson (eds.), *The cognitive representation of speech*, 379–388. Amsterdam/New York: Elsevier.

Selkirk, Elisabeth. 1984. *Phonology and syntax*. Cambridge, MA: MIT press.

Selkirk, Elisabeth. 1986. On derived domains in sentence phonology. *Phonology Yearbook* 3. 371–405.

Selkirk, Elisabeth. 1995. The prosodic structure of function words. In Jill N. Beckman, Laura W. Dickey & Suzanne Urbanczyk (eds.), *Papers in Optimality Theory*, 439–470. University of Massachusetts, Amherst: GLSA.

Selkirk, Elisabeth. 2009. On clause and intonational phrase in Japanese: The syntactic grounding of prosodic constituent structure. *Gengo Kenkyu* 136. 35–73.

Selkirk, Elisabeth. 2011. The syntax-phonology interface. In John Goldsmith, Jason Riggle & Alan Yu (eds.), *The Handbook of Phonological Theory*, 485–532. Oxford: Blackwell Publishing.

Truckenbrodt, Hubert. 1999. On the relation between syntactic phrases and phonological phrases. *Linguistic Inquiry* 30(2). 219–282.

Wagner, Michael. 2005. *Prosody and recursion.* Massachusetts Institute of Technology. (Doctoral dissertation).