Afrikanistik online

https://doi.org/10.18716/ojs/aaeo/2014_3410

Notes on Underspecification and Reversal in Kimbundu Tonology[1]

Fernando O. de Carvalho, *Graduate Program in Linguistics Federal University of Rio de Janeiro (UFRJ), Rio de Janeiro, Brazil*

Abstract

The present paper advances two claims concerning the tones of Kimbundu (H.20 Bantu, Angola): first, that the language makes a phonological distinction between two surface low tones, one underlyingly present and the other inserted by a default rule, the diagnosis for this difference being the behavior of word-final syllables with respect to an H-spreading rule. We also show that this difference is diachronically significant, in that underlying low tones correspond to Proto-Bantu (PB) low tones and default low tones correspond to PB high tones. Second, we extend this diachronic pattern by showing that for some other items as well there is an apparent 'tone reversal' when PB forms are contrasted to Kimbundu forms. The arguments supporting these claims are all built on a re-analysis of the account given in Arvanites (1976) which remains, to this date, the most comprehensive analysis of the Kimbundu tone system.

Zusammenfassung

Der vorliegende Aufsatz stellt zwei Hypothesen bezüglich der Töne im Kimbundu (H.20 Bantu, Angola) vor. Zum einen, dass die Sprache zwei tiefe Oberflächentöne unterscheidet, von denen der eine in der Tiefenstruktur an tontragende Segmente gebunden ist, während der andere nach einer Default-Regel eingesetzt wird. Unterschieden werden können die beiden Töne aufgrund der Regel zur Ausbreitung des Hochtons auf den beiden letzen Silben von Wörtern. Zum anderen gibt es für einige andere Elemente außerdem offensichtlich eine Tonumkehr, wenn die PB Formen mit denen aus dem Kimbundu verglichen werden. Die Argumente für die Hypothesen stützen sich auf eine erneute Auswertung von Arvanites (1976), bis heute die umfassendste Analyse des Kimbundu Tonsystems.

Resumo

O presente estudo apresenta duas propostas acerca da fonologia do Kimbundu (Bantu H.20, Angola): em primeiro lugar, argumentamos que a língua faz uma distinção fonológica entre dois tons baixos (L), um deles sendo subjacentemente associado a unidades portadoras de tom e o outro, inserido por meio de uma regra default. O diagnóstico para essa distinção baseia-se no comportamento das sílabas em final de palavra no que diz respeito à operação de uma regra de espraiamento de tom alto (H). Adicionalmente, apresentamos evidências de que esta diferença é diacrônicamente relevante, uma vez que os tons L subjacentes correspondem à tons L nas formas reconstruídas para o Proto-Bantu (PB) e os tons L de superfície correspondem à tons H. Em segundo lugar, demonstramos que esse padrão de correspondência é representativo de um conjunto mais amplo de formas na línguas, formas essas em que há constatamos aparente "reversão tonal", quando as formas do Kimbundu são comparadas com os seus antecedentes no PB. Os argumentos que sustentam essas afirmações são construídos tendo como base uma reanálise das propostas de Arvanites (1976) que permanece, até o momento, o estudo mais detalhado e exaustivo das tonologia nominal do Kimbundu.

[1] The contents of this paper have been presented at the conference 'The Phonetics and Phonology of Sub-Saharan Languages' which took place at Witwatersrand University, Johannesburg, 7-10 July 2013. I thank the audience there, especially Antonio Augusto, Linda Jordan, Ian Maddieson and William Gardner, for interesting and stimulating comments. This paper was written while I was a visitor at the Linguistics Department of the Max Planck Institut für Evolutionäre Anthropologie (MPI/EVA) under a CAPES/DAAD scholarship.

1. Introduction

<1> This short contribution presents an interesting finding concerning diachronic correspondences involving tonal material in Kimbundu (H20), a Bantu language spoken in northern Angola, and their presumed original forms in Proto-Bantu (PB). As far as I know this finding has not been previously reported in the relatively short literature devoted to Kimbundu[2]. We hope that the present study may help to stimulate further study on this and other aspects of the phonology of this relatively poorly described Bantu language.

<2> The paper is organized as follows: in section 1 we provide a critical evaluation of what remains to this day the most complete and controlled study of the tonology of Kimbundu, Arvanites (1976). We will, nevertheless, argue that some fundamental shortcomings in this study have gone unnoticed in the more recent literature on Kimbundu and we will end up sketching an alternative approach to some aspects of the nominal tonology of the language. Section 2 explores one interesting consequence of the original proposal made in section1, which consists in a diachronic pattern so far unreported for Kimbundu, but already reported for other western Bantu languages.

1. Some background on the tonal phonology of Kimbundu nouns

<3> In the course of a preliminary investigation on the tonal phonology of the Kimbundu language, we came across the analysis of the tonal patterns in Kimbundu nouns presented in Arvanites (1976). With the exception of a more extended investigation on the phonology of the language recently proposed in Xavier (2010), Arvanites' was the sole work with a systematic focus on this aspect of Kimbundu phonology.

Arvanites (1976) identifies some basic tone patterns found for Kimbundu nouns in two contexts: before an L tone (and in isolation) and before an H tone (the contextual tones are associated to post-posed possessive markers). These are given in (1) below[3]:

(1) **Nominal tone patterns identified in Arvanites (1976)**

Pre-L, Isolation		Pre-H		
H-L:	[mútù]	L-L:	[mùtù]	'person'
L-HL:	[kùdímà]	L-LL:	[kùdìmà]	'farming'
HL-L:	[mâtè]	L-H:	[màté]	'saliva'
H-LL:	[díkwàkù]	L-LH:	[dìkwàkú]	'hand'
H-LL:	[múhàtù]	L-HH:	[mùhátú]	'woman'
H-ML:	[kúbūsà]	L-HL:	[kùbúsà]	'blowing'
H-MML:	[kúlūmātà]	L-HHL:	[kùlúmátà]	'biting'
H-MM:	[múkīlā]	L-HH:	[mùkílá]	'tail'

<4> The phonological analysis for these surface patterns proposed in Arvanites (1976), assumes that the tone patterns in pre-H context reflect the underlying tonal melodies and

[2] The claim that the Bantu languages of Angola count among the less well-described languages of this family seems to be an observation shared by many researchers (see e.g. Nurse 2006: 137). A recent review of the literature on Kimbundu is given in Xavier (2010). We note that comparative studies of the H20 area have not considered tonal information (e.g. de Sousa, Kukanda & Santiago 2011) and comparative studies on Bantu tone (Greenberg 1948; Kähler-Meyer 1968; Carter 1973) have not considered the evidence from this area. See, however, some of the comments in the final section of the present study.

[3] The pre-L pattern occurs in the context of the post-posed 3rd person singular possessive pronoun /-è/ 'his/her' while the pre-H pattern has a following 2nd person singular possessive /-éé/ 'your' (Arvanites 1976: 133).

goes on, therefore, to derive the pre-L patterns from these by means of phonological rules. An exemplar set of these rules is given in (2) below:

(2) **Some tone rules from Arvanites (1976)**

L-L → H-L / __ L	:	mùtù	→	[mútù]	'person'
L-LL → L-HL / ___ L	:	kùdìmà	→	[kùdímà]	'farming'
L-LH → H-LL / ___ L	:	dìkwàkú	→	[díkwàkù]	'hand'

On the one hand, the rules in (2) consist in the insertion of an H tone in a position that is crucially non-final, being all triggered by a contextual L tone or in pre-pausal position. On the other hand, when followed by an H tone, the underlying tone patterns are faithfully preserved in surface forms.

<5> The reasons offered in Arvanites (1976) to support the assumption that the pre-H patterns are underlying rather than surface-derived melodies are mainly historical and comparative: since nominal prefixes are reconstructed for Proto-Bantu (PB) uniformly with L tones and given that this same pattern appears, synchronically in Kimbundu in pre-H context, these patterns are taken as underlying. Setting aside the problematic assumption or expectation that synchronic derivations will "mirror" diachronic sequences of developments[4], there are other far-reaching problems in this analysis.

The first issue concerns the lack of 'plausible motivations' for rules such as those in (2) above. In order to derive the surface H tones that end up associated with the noun class prefixes, factors such as a 'rule of dissimilation from preceding pause' that would turn L to H are considered by Arvanites (1976).

<6> What seems to be, however, the crucial drawback in this proposal is that there is independent evidence suggesting that low tones are rather 'phonologically inert' in Kimbundu, while the H tone is phonologically active, a situation with parallels elsewhere in Bantu (see Arvanites 1976 and Xavier 2010 for the Kimbundu facts). This much assumed, it is very implausible that underlying melodies would surface faithfully in the context of a 'marked', phonologically active contextual feature (a high tone) while being deformed by the action of a contextual unmarked feature that seems to be generally inert (a low tone). The exact opposite is, in effect, expected.

<7> By taking the pre-H patterns to be derived by the action of a phonologically active high tone in a post-lexical environment, one is able to account neatly and in a more illuminating manner for the Kimbundu tonal alternations. This alternative account is sketched in (3):

(3) **An alternative account of the tonal patterns in Kimbundu nominals**

	Underlying	Pre-L, Isolation		Pre-H		
(a)	H-L	H-L:	[mútù]	L-L:	[mùtù]	'person'
(b)	L-HL	L-HL:	[kùdímà]	L-LL:	[kùdìmà]	'farming'
(c)	HL-L	HL-L:	[mâtè]	L-H:	[màté]	'saliva'
(d)	H-LL	H-LL:	[díkwàkù]	L-LH:	[dìkwàkú]	'hand'
(e)	H-LL	H-LL:	[múhàtù]	L-H:	[mùhátú]	'woman'
(f)	H-HL	H-$^{!}$HL:	[kúbúsà]	L-HL:	[kùbúsà]	'blowing'
(g)	H-HL	H-$^{!}$HL:	[kúlúmátà]	L-HL:	[kùlúmátà]	'biting'
(h)	H-H	H-$^{!}$H:	[múkílá]	L-H:	[mùkílá]	'tail'

[4] In section 2, however, we will see one way in which diachronic patterns seem to be reflected in the phonology of Kimbundu.

<8> Some comments are now required on the differences between the representations postulated in (3) above and the ways in which these differ from those proposed in Arvanites (1976), presented in (1). Note first that we have re-interpreted the mid tone (M) as a downstepped high ($^{!}$H) instead, a possibility of reanalysis considered in Arvanites (1976: 134) as well. An important consequence of this is that it allows for an analysis of downstep with striking parallels elsewhere in Bantu and for a simplification of the underlying tone patterns. Arvanites (1974: 134) observes that any sequence of two H tones will dissimilate as in (4):

(4) **H-Dissimilation rule** (as in Arvanites 1976: 134)
H → M / H _

<9> The rule in (4) will actually fail to account for the distribution of M tones in Arvanites' account. Thus, for surface [kífūbā] 'bone', for instance, the first application of the rule will bleed the second application necessary to derive the sequence of M tones, since the rule requires two adjacent H tones (UR: Underlying representation; SR: Surface representation):

(5) **Derivation in Accordance to H-Dissimilation Rule in (4):**

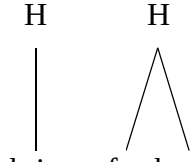
UR:	H-HH
H-Dissimilation:	H-MH
SR:	*H-MH

With the proposed re-analyses presented in (3) the following scenario emerges: note that now, rule (4) is re-framed as a downstep rule:

(6) **H-Downstepping Rule**
H → $^{!}$H / H _

<10> By comparing the forms in (3) across the two surface contexts, it becomes clear that this rule is triggered only by the prefixal H, that is, across a morpheme boundary. This pattern is almost identical to that reported by Odden (1982: 187) for Kishambaa. The solution to the bleeding problem pointed out above, which remains even with rule (6), is to consider stems, and morphologically underived domains in general, as showing tonal associations that are OCP-complying, as indicated in (3) by the elimination of the 'double H' tone patterns found in (1). That is, only across morpheme boundaries can the rule in (6) apply (see also Odden 1986 for similar arguments for Shona):

(7) **Tonal Association in Downstep Structures**



→ [kí-$^{!}$fúbá]

<11> In the pre-H context, as indicated in (3), the prefix high tone is deleted. This deletion, whatever its motivation, bleeds the downstep rule, which does not apply and the noun surfaces with an 'ordinary' H tone (N.A.: Non-Applicable; we will return below to this rule of prefixal-H deletion):

(8)

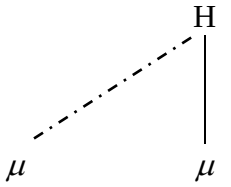
	Derivation in pre-L context	**Derivation in pre-H context**	
UR:	mú-kílá	mú-kílá	
Pre-H deletion	N.A.	mu-kílá	
H-Downstep	mú-ˡkílá	N.A.	
Default L insertion	N.A.	mù-kílá	
SR:	[múˡkílá]	[mùkílá]	‘tail’

<12> As shown in the derivations above, the deletion of the prefixal H tone is triggered in the pre-H context and bleeds the application of the H downstep rule. After the prefixal H tone is deleted, a rule inserts a default, surface L tone. This surface L tone, and its difference from an underlying L tone, will play a pivotal role in the remaining of the present discussion.

Moving on in the discussion, we note that the perspective change introduced in (3) also allows for the expression of a phonetically natural or ‘plausible’ generalization that passed unnoticed giving the assumptions in Arvanites (1976): this generalization describes a dependency between the contextual, postposed H and the presence of an H tone in the final syllable of the nominal.

Referring back to (3) note that, with the exception of the pattern in row (h), where an H tone is already underlyingly associated to the last syllable, all the other patterns only show an H tone word-finally if the contextual H tone follows. That this is an important generalization in the phonology of Kimbundu is witnessed by independent proposal of a ‘tone sandhi’ rule in Xavier (2010) for this language, given here as in (9) below:

(9)



<13> Once the patterns found in pre-H context are taken to be derived rather than underlying, this rule of leftward H-spreading is able to account for the derivation of the items in tonal classes 2a, 2c and 2d of Arvanites (1976):

(10) **Tone Class 2a** [row (c) in (3)]

HL-L	→	L-H / _ H	
mûtwè	→	mùtwé	‘head’
dîsù	→	dìsú	‘eye’

(11) **Tone Class 2c** [row (d) in (3)]

H-LL	→	L-LH / _ H	
múlòndè	→	mùlòndé	‘bridge’
dítàbù	→	dìtàbú	‘stream’

(12) **Tone Class 2d** [row (e) in (3)]

H-LL	→	L-HH / _ H	
múhàtù	→	mùhátú	'wife'
tétèmbwà	→	tètémbwá	'star'

<14> Two points need explanation concerning the proposed derivations. The first one is how to account for the difference between tone classes 2c and 2d above: in the former the contextual H tone spreads to the last syllable of the nominal only; in the latter, however, it spreads to both syllables of the disyllabic stem. The second point concerns the rule, already noted in (8), that deletes the H associated to the class prefix in the pre-H context (which may described thus as a dissimilation rule). We will for the moment postpone the discussion of the first point since it introduces the analysis that will motivate the paper's next section, on the comparative and diachronic consequences of the hypotheses proposed here.

<15> An alternative to the formulation of a deletion rule targeting the prefixal high tones in the context of another H tone would consist in a metathesis rule which associates the high tone of the prefix with the stem. Such a rule would, in effect, obliterate the need for the leftward H-spread rule in the derivations in (10-12) above. Thus, all the forms above could be derived by 'moving' somehow the H tone of the prefix so that it ends up ultimately associated to the stem syllables. We will not sketch such a proposal formally since it is highly problematic. First of all, as noticed above, the rule of H-spreading has independent support from its operation elsewhere in the phonology of the language: Xavier (2010) justifies its operation in verb-object juncture. The second fact is that a metathesis rule would be unable to account for the absence of a high tone in the stems of Arvanites' (1976) class 1a:

(13) **Tone Class 1a** [row a) in (3)]

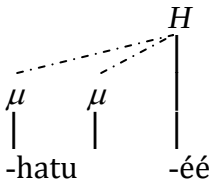
H-L	→	L-L / _ H	
mútù	→	mùtù	'person'
hínà	→	hìnà	'louse'

<16> A metathesis proposal, as opposed to a deletion rule, would be unable to express the association between the presence of the contextual H tone and the *absence* of a prefixal H tone. This much said, we won't propose anything more elaborate on this regard, though we think that a deletion rule is on the right track. The objective here is to advance our understanding of the Kimbundu tone system though clearly much remains to be done. A more complete understanding of this process, taking into account the possibility of domain-related constraints on independent tonal associations as well as locality issues merits further investigation and is in effect the subject of ongoing research by the author.

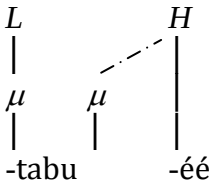
<17> Turning now to the question of the differences in the extent of the H-tone spread that distinguishes classes 2c and 2d above, note that classes 2a and 1a area also minimally distinguished by the application or non-application of H-spread: the monosyllabic stem in the former is affected by spreading, while the monosyllabic stem in the latter is not. We propose that this difference is related to tonal pre-specification of the potential target syllables: H-spreading is unable to apply whenever a syllable bears an underlying specification for a tone – either L or H – but applies freely when no tone is underlying associated to a syllable. If a syllable which is underspecified for tone fails to receive

tone by means of a contextual rule, a redundancy rule inserts a default L tone. The different behavior of these tone classes is shown below:

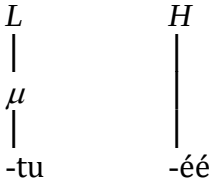
(14) a **H-spreading in Class 2d**



b **H-Spreading in Class 2c**



c **Absence of H-Spreading in Class 1a**



As depicted above, the H-spreading rule is unable to apply to any syllable associated to an underlying tone.

2. Hints on the Diachrony of Kimbundu Tones

<18> In the end of the previous section we advanced a hypothesis to account for the different effects of H-spreading on Kimbundu nouns. The central claim is that surface low tones may have a distinct phonological status: some L tones are underlyingly present, while other L tones associate to syllables that bear no underlying tonal associations and fail to acquire a tonal association by other means, such as the H-spreading rule[5].

Surprisingly, when data from Kimbundu is compared to reconstructed Proto-Bantu (PB) forms, the distinction between underlying and surface, or default, L tones, justified in the synchronic analysis sketched above, turns out to be significant. In particular, as shown in (15) below, syllables associated to an underlying L tone correspond to PB syllables with L tones (15a-e). Syllables which receive only a surface L in Kimbundu – and are therefore underlyingly unspecified for tone – correspond to H-toned syllables in PB (15f-k)[6]:

[5] A similar opposition H vs. L vs. ∅ in word-final syllables has been proposed for other Bantu languages such as Kinande (see Kenstowicz 2008).

[6] The Proto-Bantu forms cited here come from the Tervuren Database of Bantu Lexical Reconstructions (Bastin, Coupez, Mumba & Schaderberg (2002)).

(15)

	Kimbundu underlying tone pattern	Kimbundu examples		PB	
(a)	HL	mútù		ntù	‘person’
(b)	HL	múdjà		dà	‘intestine’
(c)	HL	kìkóndà		kándà	‘skin’
(d)	HL	kjámà		njàmà	‘animal, meat’
(e)	HL	nʒílà		jìdà	‘path’
(f)	HL∅	dítàbu	‘stream’	jàbú	‘cross river’
(g)	HL∅	kíbàba		pàpá	‘wing’
(h)	HL∅	tâta		tàtá ‘	father’
(i)	HL∅	mûtʃi		tí	‘tree’
(j)	HL∅	mûtwe		tó, cú	‘head’
(k)	H∅∅	kíseke		céké	‘sand’

The data in the table above suggest two facts about the Kimbundu tone system: that when surface forms are contrasted to their putative PB ancestors the system reveals itself as a partially ‘reversive’ system of the sort identified, for instance, in Ciluba (see van Spaandonck 1971; Maddieson 1976). It also indicates that the synchronic distinction between underlying L tones and surface-derived L tones reflects their diachronic origins: surface-derived L tones, inserted by default rules, seem to be the reflex of PB H tones being thus the result of such tone-reversal processes.

<19> In fact, the apparent tone reversals are not restricted to a diachronic correspondence involving H tones in PB and L tones in Kimbundu such as seen above. The opposite pattern, with a PB low tone corresponding to a Kimbundu H tone, is also observed (Kimbundu data from Arvanites 1976; Xavier 2010):

(16) **Morphemes Showing Tone Reversals in Kimbundu**

Kimbundu		Proto-Bantu
/-énd-/	‘to walk’	*-gènd-
/-dím-/	‘to cultivate, to farm’	*-dìm-
/-fúbá/	‘bone’	*-kúpà
/-kílá/	‘tail’	*-kílà
/-tòkwà/	‘ash’	*tó *(cf. area C:* tógó*)*
/-dímí/	‘tongue’	*dímì
/-tádí/	‘stone’	*tádè
/-tʃímá/	‘heart’	*tímà

There seems to be evidence then, to support the claim that the phonological distinction between underlying and surface-derived L tones – proposed in section 1 for independent reasons – maps to a diachronic distinction between “conserved” and “reversed” L tones. As the comparisons in (16) above suggest, there is evidence that tone reversion was an even more general process in the history of Kimbundu than implied by the forms in (15), which are restricted to word-final high tones in PB that correspond to low tones in Kimbundu.

3. Conclusion

<20> The present paper has advanced a hypothesis on the synchronic tonal phonology of nominal forms in Kimbundu. A representational distinction between two kinds of L tones postulated in the synchronic analysis has been shown to reveal some interesting patterns of diachronic correspondence involving tones in PB and their Kimbundu reflexes, a pattern that has been so far gone unremarked in the literature.

We note that it remains an open issue how the apparent tone reversals were brought about in the history of Kimbundu. As Maddieson (1976: 143, 150) notes, a rule that simply reverses the specification for members of a binary opposition is not a natural sound change. Such reversing correspondences are more plausibly the result of successive changes involving natural tonal processes such as displacement, coalescence and so on. More to the point, Blanchon (1998), invokes a process of rightward displacement of the H tone of the augment to account for some of the tone classes in Yoombe, especially those showing an H tone in place of an etymological L tone.

<21>After this paper was finished I came across a recent study by Angenot, Angenot & Huta-Mukana (2013), a rather detailed comparative work that cuts across the H and R areas of the Guthrie classification and includes plenty of hypotheses and proposals on the tonology of Kimbundu[7]. Overall, there seems to be no conflict between the analyses presented here and those of Angenot, Angenot & Huta-Mukana (2013): the focus of the latter lies on the tonal modifications that follow the expression of so-called "tone cases" in the left-periphery of the relevant morpho-tonological domains; our attention was, on the other hand, centered on certain tonal alternations observed at the right periphery. The authors do postulate, however, a rule of "final raising" that targets the final (rightmost) syllable in the expression of the Subjective Case in Kimbundu and which, therefore, potentially overlaps with the phenomena under scrutiny here. We note, though, that this tone raising rule is a different matter from the H-spreading rule considered here: both induce an alternation between L and H tones, but in completely distinct triggering conditions.

<22> In a nutshell, it remains to be seen whether a path of diachronic developments similar to those proposed for Yoombe and Ciluba might be justified for the Kimbundu reversals noted here. The overall goal of this paper was to put forth a small contribution to this overall puzzle, based on some proposals on the language's synchronic phonology, and to stimulate further research on Kimbundu tonology.

References:

Angenot, J.P., G. Angenot & D. M. Huta-Mukana 2013
'Comparison Between the Ipala-Ngoya, Kimbundu and Umbundu Tone Case Systems.' *Revista Eletrônica Língua Viva* (Guajará-Mirim, Brazil) 3, 1: 15-17

Arvanites, L. 1976
'Kimbundu Tones: Tone Patterns in Two Contexts.' In: L. Hyman (ed.) *Studies in Bantu Tonology*. Southern California Occasional Papers in Linguistics 3: 131-40

Bastin, Y., A. Coupez, E. Mumba & Th. Schadeberg (eds.) 2002
Bantu Lexical Reconstructions 3. Tervuren: Royal Museum for Central Africa. Online database: http://linguistics.africamuseum.be/BLR3.html (28.01.2014)

[7] The existence of this study was pointed out to me by one of the anonymous reviewers, to whom I'm grateful.

Blanchon, J. A. 1998
‘Semantic/Pragmatic Conditions on the Tonology of the Kongo Noun-Phrase: A Diachronic Hypothesis.’ In: L. Hyman & C. Kisseberth (eds.) *Theoretical Aspects of Bantu Tone*. CSLI Lecture Notes 82, pp.1-32. CSLI Publications

Carter, H. 1973
‘Tonal Data in Comparative Bantu.’ *African Language Studies* 14: 36-52

Greenberg, J. 1948
‘The Tonal System of Proto-Bantu.’ *Word* 4: 196-208

Kähler-Meyer, E. 1968
‘The Tones in Urbantu.’ *Afrika und Übersee* 51: 81-90

Kenstowicz, M. 2008
‘On the Origin of Tonal Classes in Kinande Noun Stems.’ *Studies in African Linguistics* 37, 2: 115-51

Maddieson, I. 1976
‘Tone Reversals in Ciluba – a New Theory.’ In: L. Hyman (ed.) *Studies in Bantu Tonology*. Southern California Occasional Papers in Linguistics 3: 142-65

Odden, D. 1982
‘Tonal Phenomena in Kishambaa.’ *Studies in African Linguistics* 13, 2: 177-208

Odden, D. 1986
‘On the Role of the Obligatory Contour Principle in Phonological Theory.’ *Language* 62, 2: 353-83

Nurse, D. 2006
‘Bantu.’ In: K. Brown & S. Ogilvie (eds.) *Concise Encyclopedia of the Languages of the World.* Elsevier

De Sousa, M. F., V. Kukanda & J. Santiago 2011
‘A Posição Lexical do Songo dentro do Grupo H20.’ *Papia* 21,2: 303-14

van Spaandonck, M. 1971
‘On the So-called Reversive Tonal System of Ciluba.’ *Studies in African Linguistics* 2: 131-44

Xavier, F. 2010
‘Fonologia Segmental e Suprasegmental do Kimbundu.’ Doctoral Dissertation, University of São Paulo