

THE PHONOLOGICAL PHRASE AS A PROSODIC DOMAIN IN AKÓÓSE

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Akóóse, like most Bantu languages, has a number of phonological rules applying to words and phrases which are sensitive to syntactic structures. The language therefore presents a test for the theory of the interaction between syntactic structure and phonology, that is, its phrasal phonology.

In this paper, I investigate the relevant prosodic domain for the application of phonological rules beyond the word level in Akóóse. The claim is that the phonological phrase is the level or domain for the application of phrasal rules in this language. This domain is motivated in Akóóse by the existence of postlexical rules that apply beyond the word level and the clitic group, but within a unit smaller than the utterance. The paper therefore seeks to show that there are phonological rules that are peculiar to the phrasal phonology of Akóóse and that the phonological phrase is the domain for the application of such rules.

A l'instar de beaucoup de langues bantoues, la phonologie de la langue akóóse contient des règles phonologiques qui s'appliquent au niveau du mot ou du syntagme et qui sont sensibles aux structures syntaxiques. La langue est ainsi un champ idéal pour tester la théorie de l'interaction entre la syntaxe et la phonologie, c'est-à-dire, sa phonologie syntagmatique.

L'objet de cet article est focalisé sur le domaine prosodique approprié pour l'application des règles phonologiques au-delà du niveau du mot en akóóse. Nous soutenons l'hypothèse selon laquelle le syntagme phonologique est le domaine privilégié pour l'application des règles syntagmatiques dans cette langue. Le choix de ce domaine est motivé par l'existence des règles postlexicales qui s'appliquent au-delà du niveau du mot et du groupe de clitique mais endéans d'une unité plus petite que l'énoncé. Cet article cherche à montrer qu'il y a des règles phonologiques qui s'appliquent exclusivement dans la phonologie syntagmatique de l'akóóse et que c'est le syntagme phonologique qui est le domaine d'application de telles règles.

0. INTRODUCTION

This paper analyses the interaction between phonological rules and syntactic structures in Akóóse, a Bantu language spoken in the South West Province of Cameroon, with an attempt to show that some phonological rules are conditioned by the syntax of this language. To achieve this, theories of the interaction between syntax and phonology have to be taken into consideration.

There are two major current trends that account for rules that refer to phrasal conditions. The first trend assumes that phonological rules have access to syntactic information and that this information should simply be included in the structural description of the phonological rule. This approach, advocated by Clements (1978), Odden (1987), and Kaisse (1985), is generally referred to as the 'direct approach'. The second trend is represented by linguists who claim that the 'direct approach' gives too much power to the phonology. They maintain that phrasal rules refer to prosodic domains that are constructed on the basis of the syntax but are not isomorphic to syntactic structure. This approach is known as the 'prosodic Hierarchy theory', and was initially developed by Selkirk (1980a; 1980b; 1984; 1986). It later on received support from other linguists like Nespor and Vogel (1982; 1983; 1986), Hayes (1989; 1990) among many others.

To account for the facts of Akóóse phrasal phonology in this paper, the Prosodic Hierarchy theory is used. This is because this approach helps to reveal that some rules are peculiar to the phrasal phonology of this language as a result of the interaction between its phonology and syntax. Through the prosodic hierarchy theory, the domain for the application of phrasal rules in Akóóse is revealed. The rest of the paper is organized as follows: Section 1 gives a brief description of the Prosodic Hierarchy theory in general and then introduces the relevant level present in Akóóse phrasal phonology. Section 2 which is the core of this paper presents a detailed analysis of the domain present within the phrasal phonology of this language, bringing out the different phonological rules that have this domain as their level of application. Section 3 concludes the paper.

1. DESCRIPTION OF THE PROSODIC HIERARCHY

The investigation of the phrasal (prosodic) phonology reveals that tone rules as well as segmental rules apply within postlexical domains that are derived by mapping syntactic structures into phonological constituents as advocated by the theory of prosodic hierarchy (Selkirk (1984; 1986) and Nespor and Vogel (1986)). The aim of the Prosodic Hierarchy theory is to account for consistent empirical observations concerning the domains of application of postlexical rules. One such observation is domain clustering, that is, the observation that there are sometimes more postlexical rules than there are postlexical rule domains. This suggests that in each language there is a limited set of domains and that each postlexical rule applies within at least one of these domains. The theory of Prosodic Hierarchy provides such a set of domains in which all postlexical rules take place.

In the theory of the Prosodic Hierarchy, the phonological string is exhaustively parsed or divided up into prosodic phrases based upon certain fundamental aspects of the string and its syntactic phrase marker (for example, Xo, Xi, Xii). These prosodic phrases are in turn exhaustively combined into larger phrases, which are in turn combined into still larger phrases, and so on, until the entire string is exhaustively parsed on every prosodic level. In this way, a hierarchy of prosodic levels is obtained. Given that different domains or prosodic levels parse the phonological string in different ways, the result of such a process is the hierarchical organization of the different levels. Each prosodic level of the hierarchy is composed of one or more units of the immediately lower prosodic level. Conversely, each prosodic level is exhaustively contained in the immediately higher prosodic level. This organization is referred to by Selkirk (1984; 1986) as ‘Strict Layering’.

The prosodic structure serving as part of phonological representation has been claimed to have certain properties. These properties can be phonologically represented as follows:

(-----)	Utterance (U)
(-----)	Intonational Phrase (IP)
(-----)	Phonological Phrase (PP)
(-----)	Phonological word (Pw)
(-----)	Foot (Ft)
(-----)	Syllable (Syll)

The prosodic hierarchy generally consists of the above mentioned levels. However, some linguists claim that the prosodic hierarchy comprises five levels. Below is one of the recent versions suggested in Nespor and Vogel (1986), as well as Hayes (1989; 1990):

Utterance (U)
 Intonational phrase (I)
 Phonological phrase (P)
 Clitic Group (C)
 Word (W)

Ideally, constituents are constructed in a ‘bottom-up’ manner, combining smaller units at each step to build larger ones.

In the view of this criterion, the discussion of prosodic domains (phrasal phonology) in Akóóse will be centered on the phonological phrase. As earlier mentioned, this level or domain is motivated in Akóóse by the existence of postlexical rules that apply beyond the word level and the clitic group, but within units smaller than the utterance.

2. THE PHONOLOGICAL PHRASE

Following the prosodic hierarchy, the prosodic level below the intonational phrase is the Phonological Phrase. The Phonological Phrase in Akóóse is the domain for the application of the rules that Selkirk (1980a) refers to as phrasal juncture rules. According to Ekanjume (2005), phonological phrases in Akóóse fall into two groups in terms of phrasing. This is as a result of the fact that nouns and verbs behave differently in this language. It is for this reason that I deem it necessary to deal with the Phonological Phrase in two phases: phrasing in noun phrases, and phrasing in verb phrases.

2.1. PHRASING IN NOUN PHRASES

The treatment of phrasing in Noun Phrases is dealt with in relation to the construction in which the noun is followed by an adjective. The choice of this particular noun phrase is motivated by the presence of all the rules considered to be prosodic (phrasal). Before delving into phonological phrases that involve a noun followed by an adjective, I will begin by giving some of the nouns and adjectives to be used.

(1) Nouns in isolation (or in subject position)

mwăd	woman	etùú	ear
ngùú	pig	ndáb	house
ekùù	leg	mù	intestine
ngòn	moon	asùng	tooth
káb	antelope	kím	monkey
abû	breast	nyáà	mother

(2) Adjectives

mbáá	big
ekólé	new

Looking at the examples in (1), we find the nouns featuring with the following tones: a high tone (´), a low tone (`), a low-high tone (˘), a high and low tone (´`), a low and low tone (``), and a low and high tone (`´) in the root. In (2), the adjectives given are all high tone root words. The initial vowel of one of the adjectives (like most initial vowels in Akóóse) is toneless. When analyzed in isolation, it gets its tone from default Low at the postlexical level. However, when this adjective is used in phrasal constructions, the initial vowel behaves differently. In some cases we find this vowel being deleted, while in others it changes its features. Below are some examples of the nouns seen in (1), followed by the adjective **ekólé** ‘new’ and **mbáá** ‘big’

(3) a.	ndábèkólé	a new house	(3) b.	abíkólé	a new breast
	kímèkólé	a new monkey		nyákólé	a new mother
	kábèkólé	a new antelope		mìkólé	a new intestine
	asùngèkólé	a new tooth		ngúkólé	a new pig
(4) a.	ndábèmbáá	a big house	(4) b.	abìmbáá	a big breast
	kábembáá	a big antelope		mìmbáá	a big intestine
	ekènèmbáá	a big ant’		ngǔmbáá	a big pig
	kímèmbáá	a big monkey’		etùmbáá	a big ear

The examples in (3a) and (3b) reveal the behavior of the adjective ‘**ekólé**’. In (3a), we find this adjective featuring with its initial vowel, but in (3b), this vowel no longer appears. This is because the nouns in (3b) end with vowels, whose presence forces the initial vowel of the adjective to be deleted. Thus, the initial vowel of the adjective ‘**ekólé**’ undergoes the process of deletion. The motivation for the deletion of this vowel and not that at the end of the noun is due to the fact that the latter is a prefix while the former is part of the root word. Thus, Akóóse prefers to deal away with a prefix in a situation of this nature, while preserving segments that constitute the root. The rule of vowel deletion in this language is as follows:

V → Ø / V — (A vowel is deleted when it is preceded by another vowel)

One of the rules that are peculiar to the phrasal phonology of Akóóse is phrasal vowel shortening caused by an adjective that follows a head noun in a noun phrase. This explains why the nouns in (3b) and (4b) appear with short vowels at the surface form, despite the fact that they have long vowels at the underlying representation. Thus, in addition to the process of vowel deletion seen above, the phonological phrases presented in this section also undergo the process of vowel shortening. The motivation for this process is as a result of the fact that the language tries to preserve its preferred syllable structure, that of a CV(C) form. The rule that accounts for this process can be formalized as follows:

VV → V / — [word] (A long vowel in a word is shortened when followed by another word)

The above processes are exemplified in the first (5) derivation below, using examples from (3b).

(5)	abíkólé	a new breast	and	mìkólé	a new intestine
UR	[[<a>bii] [<e>kóle]]			[[mii] [<e>kóle]]	
AC	$\begin{array}{c} \parallel \\ \text{HL} \end{array}$ $\begin{array}{c} \\ \text{H} \end{array}$			$\begin{array}{c} \\ \text{L} \end{array}$ $\begin{array}{c} \\ \text{H} \end{array}$	
HTS	[[abii] [ekóle]]			[[mii] [ekóle]]	
	$\begin{array}{c} \parallel \\ \text{HL} \end{array}$ $\begin{array}{c} / \\ \text{H} \end{array}$			$\begin{array}{c} \\ \text{L} \end{array}$ $\begin{array}{c} / \\ \text{H} \end{array}$	
Vowel Shortening	[[abi] [ekóle]]			[[mi] [ekóle]]	
	$\begin{array}{c} \\ \text{H L} \end{array}$ $\begin{array}{c} / \\ \text{H} \end{array}$			$\begin{array}{c} \\ \text{L} \end{array}$ $\begin{array}{c} / \\ \text{H} \end{array}$	
Tone Docking	[[abi] [ekóle]]			_____	
	$\begin{array}{c} \\ \text{H L} \end{array}$ $\begin{array}{c} / \\ \text{H} \end{array}$				
Vowel Deletion	[abi kóle]			[mi kóle]	
	$\begin{array}{c} \wedge \\ \text{H L} \end{array}$ $\begin{array}{c} / \\ \text{H} \end{array}$			$\begin{array}{c} \\ \text{L} \end{array}$ $\begin{array}{c} / \\ \text{H} \end{array}$	
Default Low	[abi kóle]]			_____	
	$\begin{array}{c} \wedge \\ \text{LHL} \end{array}$ $\begin{array}{c} / \\ \text{H} \end{array}$				
PR	[abíkólé a new breast			[mìkólé] a new intestine	

In (4a) and (4b), we have another adjective: **mbáá**. Though this adjective does not undergo segmental changes, we see that in addition to effecting the process of vowel shortening in (4b), in (4a), there is an insertion of the vowel **e**, to break the consonant cluster caused by the final consonant of the head noun and the initial consonant of the adjective. The motivation for this process is for the sake of syllable structure preservation. The preferred syllable structure of Akóóse as already mentioned is CV(C), with the coda consonant tolerated only at the end of a syllable or word. When a syllable or word ends with a consonant and is followed by another that does not begins with a vowel, the language either deletes the coda consonant of the first syllable/word or inserts a vowel to break the cluster. An interesting fact to note here is that consonant deletion is used when the coda consonant of the first syllable/word is part of a verb. Vowel insertion on the

other hand is implored when the coda consonant of the first syllable/word is part of a noun and being followed by an onset consonant of an adjective, like the case in (4a). Note that vowel insertion is also peculiar to the phrasal phonology of this language. The rule that accounts for vowel insertion is formalized as follows:

$$\emptyset \rightarrow V / \underset{\substack{[\text{coda}] \\ [N]}}{C} - \underset{\substack{[\text{onset}] \\ [\text{adj}]}{C}}$$

(Insert a vowel between two consonants if the first one is the coda of a noun and the second an onset of an adjective).

This is illustrated using the following examples from (4a) in the second (6) derivation below.

(6) UR	[[kab]	[mbaa]]	[[< e > ken]	mbaa]]
AC				
	H	H	L	H
HTS	[[kab]	[mbaa]]	[[< e > ken]	mbaa]]
	H	/ H	L	/ H
Vowel Insertion	[[kab] e [mbaa]]		[[eken] e [mbaa]]	
		/		/
	H	H	L	H
Default Low	[kab e mbaa]		[eken e mbaa]	
	H	L	H	L L L
PR	[káb èmbáá		èkènèmbáá]	

The above derivation accounts for the fact that vowel shortening and vowel insertion are syntactically conditioned rules, seen to be applying within the phrasal phonology of this language, with the phonological phrase as their domain of application.

In the foregoing description of the noun phrase, different patterns have been revealed when nouns are followed by an adjective in a construction and both elements (nouns and adjectives) undergo segmental as well as tonal changes.

2.2. PHRASING IN VERB PHRASES

A great deal of the phonological processes at the lexical level of Akóóse revolves around the verb. This is as a result of the fact that the verb in this language has a rich morphology. Consequently, one expects the situation to remain the same as far as the

phrasal phonology of this language is concerned; or to find more facts about the phonological processes of this language.

The lexical categories consisting of verbs have a different set of combinatory properties from those consisting of nouns. However, as far as verb phrases are concerned, I limit my analysis to the verb in the imperative followed by a noun phrase which I call a simple verb phrase. But before looking at the verb phrase, it is necessary to present some of the verbs to be used.

- | | | | | | |
|--------|------------|-------------|--------|------------|---------|
| (7) a. | kě | go | (7) b. | pím | carry |
| | wǎn | fight | | tím | clear |
| | pě | come/arrive | | pád | harvest |

The verbs in (7a) are low tone verbs but feature with a rising tone due to the presence of the imperative marker which is a high tone ('), while those in (7b) are high tone verbs. When these Verbs are followed by a noun (noun phrase), a number of phonological processes take place. For instance, some segments (like the coda consonant of the verb 'to fight') that were present at the underlying form no longer appear at the surface form. Similarly, we find some tonal changes (segments that originally had no tone, now feature with a tone) caused by the concatenation of words. Let us consider the following data.

- | | | | | | | |
|-----|-----------|---|-----------|---|-------------|-------------------------|
| (8) | kě | - | nè | - | mwǎd | go with the woman |
| | kě | - | nè | - | pàn | go with the dish |
| | kě | - | nè | - | kèn | go with the ant |
| | kě | - | nè | - | ŋgùù | go with the pig |
| | wǎ | - | nè | - | njóm | fight with the husband |
| | wǎ | - | nè | - | mwǎn | fight with the child |
| | wǎ | - | nè | - | ŋkìn | fight with the stranger |
| | wǎ | - | nè | - | kèn | fight with the ant |

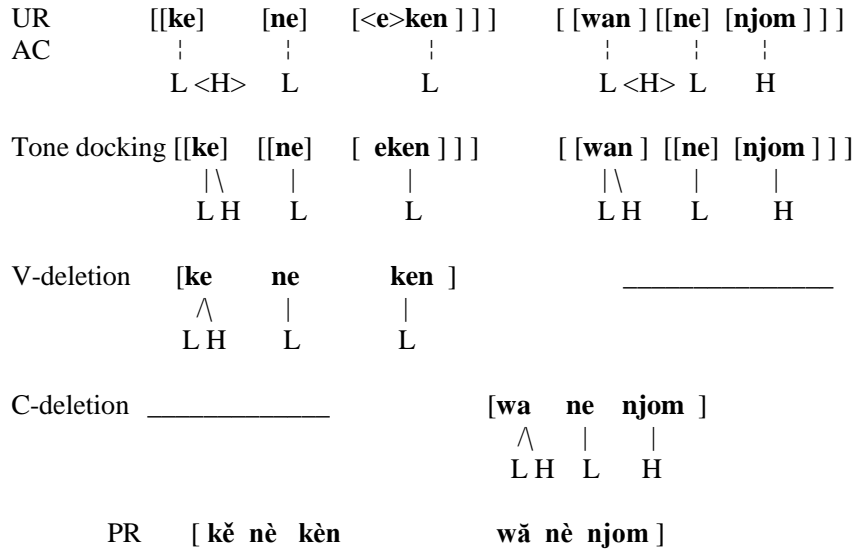
All the constructions in (8) are single phonological phrases made up of two Clitic groups. Looking at the data, we find some of the rules such as the contour tone formation, consonant deletion, and vowel deletion applying. As mentioned previously, when the coda consonant of a verb is followed by an onset consonant of a noun, the coda consonant is deleted. The motivation for this process is once more as a strategy used by this language to preserve its syllable/word structure. The rule for this process is formalized as follows:

$$\begin{array}{ccc}
 C & \rightarrow & \emptyset / \text{---} C \\
 \text{[coda]} & & \text{[onset]} \\
 \text{[V]} & & \text{[N]}
 \end{array}$$

(Delete a consonant when it is the coda of a verb and is followed by an onset of a noun)

Below is a sample derivation taken from (8) to illustrate how the consonant deletion and the other rules operate.

- (9) **kě** – **nè** - **kèn** go with the ant
wǎ - **nè**- **njóm** fight with the husband



From the above derivation, the following explanations can account for the phonetic forms realized. First, the verbs are Low tone verb roots, and the imperative High then docks onto this Low, to give a rising contour. Vowel deletion and consonant deletion are then applied to these forms respectively to give the surface forms we have.

Having looked at verb phrases with low tone verbs, I now analyze what happens when the verb has an underlying High tone. Before looking at the verb phrases, I would like to present some of the nouns to be used. Note that these are the surface forms.

- (10) **ebúmé** umbrella
eyále yard/compound
etòm plantain
ahín bush
mbángé cocoyam
nzàg farm
nzi road

Let us now consider the following verb phrases.

- (11) **pím** – **ébúmé** carry the umbrella
tí – **nzi** clear the road
pím - **étòm** carry the plantain
tí – **nzàg** clear the farm

phrase. In (14a), the phrasal shortening rule reduces the VV sequence in the head verb into a single V, and the imperative high now docks onto the only tone bearing unit of the verb, thereby creating a rising tone (\sim). In (14b), after phrasal vowel shortening, the imperative High becomes stranded and can not dock onto the only tone bearing unit of the verb since it already bears a high tone. This High is thus forced to dock onto the Low tone of the following noun, thus giving it a falling tone (\wedge). After the application of other phonological rules, the surface form is then realized as the derivation below illustrates.

(15)	UR AC	[[mii] [<e>bume]]	[[laa] [<e>boŋge]]
		 L H H	 H H L H
	H- docking	[[mii] [ebume]]	[[laa] [ebŋge]]
		 LH H	 H H L H
	HTS	[[mii] [ebume]]	_____
		 LH H	
	V-shortening	[mi ebume]	[la ebŋge]
		/ L H H	 H H L H
	V-deletion & H- docking	[mi bume]	[la boŋge]
		/ L H H	 H H L H
	PR	[mĩbúmé]	[lábôŋgé]

Before concluding this section on phonological phrases in Akóóse, it is worth noting that verbs in this language occur in varied contexts and reveal interesting tonal and segmental phenomena as seen in the examples used. However, because the phonological processes are similar in the different contexts, I limited my analysis to the type of verb phrase discussed above, so as to avoid too much repetition.

4. CONCLUSION

This paper has given an insight into the phrasal phonology of Akóóse, more precisely on how the phonological phrase looks like in this language. The examples and derivations reveal and confirm the fact that the phonological phrase is a prosodic domain for the application of phrasal rules in Akóóse. In this paper, I have proposed the phonological phrase as a postlexical prosodic domain for the application of the phrasal rules seen to be present in Akóóse phrasal phonology. This prosodic domain is part of the prosodic hierarchy. I argued that the motivation for this prosodic domain is because there

are rules which are not found at the lexical domain of this language, but which apply at the domain of the phonological phrase. Although there are larger domains than the phonological phrase domain (i.e. the intonational phrase and the utterance), it remains the domain for the application of Akóóse postlexical rules. Note that the rules seen to be present within the phonological phrase are the same with the constructions above this phrasal domain.

The findings of this paper present the following phonological rules: high tone spreading (HTS), vowel deletion, vowel shortening, vowel insertion, tone docking, default low and consonant deletion. Amongst these, the following rules are posited as phrasal rules of this language: vowel shortening, vowel insertion and consonant deletion. These rules are not present in the lexical phonology of Akóóse.

All in all, this paper has categorized the phonological rules in Akóóse in terms of the domains in which they apply as well as the information they are sensitive to. Although this paper might not be completely exhaustive, the analysis has been instrumental in shading light on the phrasal phonology of Akóóse. Thanks to this paper, it has been revealed that certain tonal and segmental rules in Akóóse phonology are subject to phrasal conditions.

REFERENCES

- Clements, G.N. 1978. Tone and Syntax in Ewe. In K. J. Napoli (Ed.) *Elements of Stress, Tone and Intonation*. Washington D.C.: Georgetown University Press.
- Ekanjume, B. 2005. *The Phrasal Phonology of Tones in Akóóse: Evidence from Naturally Occurring Code-Switching Data*. PhD Dissertation, University of Yaounde 1.
- Hayes, B. 1989. *The Prosodic Hierarchy in Meter*. In Kiparsky P. and G. Youmang (Eds.) *Rhythm and Meter*. Cambridge, Mass.: MIT Press.
- _____. 1990. *Precompiled Phrasal Phonology*. In Inkelas, S. and D. Zec (Eds.) *The Phonology Syntax Connection*. CSLI, Chicago: University of Chicago Press.
- Kaisse, E. M. 1985. *Connected Speech: The Interaction of Syntax and Phonology*. Orlando: Academic Press.
- Nespor, M. and I. Vogel. 1982. *Prosodic Domains of External Sandhi Rules*. in Van der Hulst, H. and N. Smith (Eds.) *The Structure of Phonological Representation (Part 1)*, 225-255. Dordrecht: Foris.
- _____. 1983. *Prosodic Structure above the Word*. In Ladd, R. and A. Cuttler (Eds.) *Prosody: Models and Measurement*. Berlin: Springer-Verlag.
- _____. 1986. *Prosodic Phonology*. Dordrecht: Foris.
- Odden, D. 1987. *Kimatuumbi Phrasal Phonology*. *Phonology Year Book* 4, 13-36.
- Selkirk, E. O. 1980a. *Prosodic Domains in Phonology: Sanskrit Revisited*. In Aronoff, M. and M.A. Kean (Eds.) *Juncture 10*: 107-129. Saratog: Anna Libri.
- _____. 1980b. *The Role of Prosodic Categories in English Word Stress*. *Linguistic Inquiry* 11, 563-605.
- _____. 1984. *Phonology and Syntax: The Relationship Between Sound and Structure*. Cambridge, Mass. : MIT Press.
- _____. 1986. *On Derived Domains in Sentence Phonology*. *Phonology Year Book* 3, 371-405.