Tonal Processes in the Kom Language: An Autosegmental Approach

By

Njuasi Ivo

Department of Linguistics, University of Buea
njuasi.ivo@ubuea.cm
+237682765749

Abstract

This study examined tonal processes in the Kom language, a Bantu language spoken in North West Cameroon. To identify tonal changes in the Kom language, Kom native speakers serving as language consultants were made to pronounce a list of words in isolation and in frames of phrases. When the language consultants read these same words in different frames, it was realized that they pronounced them differently in different contexts. The alternations observed when moving from underlying forms to surface realizations were scrutinized and patterns of regularity regarding the changes were revealed. These changes included tone lowering, tone simplification, low tone spread, tonal metathesis and tone docking. To illustrate what happened that made underlying forms surface with different tonal patterns, autosegmental derivations were constructed showing the step-wise processes that map underlying forms to their surface realizations. The derivations showed significant interaction between tonal changes and vowel alternations. Finally, tone rules that appeared to regulate tonal behaviour were formulated following the Autosegmental Phonology formalism.

Keywords: tone, tonal processes, autosegmental derivation, tone rules

I. Introduction

The Ring group of Grassfields Bantu languages exhibits enormous complexities. Hyman (1980) specifically refers to the Kom and Oku languages as posing the most phonetic complexities, segmentally and suprasegmentally. This study attempts to fill this lacuna by way of offering a detailed account of tonal alternations and the rules that regulate them in the Kom language. The specific objectives of this study are: (i) to identify and analyze the tonal processes that are observed in the language, (ii) to construct sample derivations that map the underlying forms to their surface realizations, and (iii) to state the rules that account for these tonal processes. Hyman (2003) states that phonologists would not be talking about autosegmentalized H(igh) and L(ow) features for Chinese tonal contours if it were not for the input from Hausa, Igbo and Mende. What this implies is that the study of African languages indisputably has implications for the global linguistic theory. The Kom language is a syntactically, morphologically, phonologically and semantically

fascinating language. Despite the presence of some methodically researched and documented works on the Kom language done mostly by non-native speakers, a lot more that has the potential to contribute significantly to linguistic theorization and conceptualization still has to be done. A review of the available literature in the Kom language reveals a number of theoretical and conceptual lapses. Jones (1996) investigates tone in the Kom noun phrase. In this study, Jones, identifies eight underlying tone patterns in the Kom noun after considering their tones in isolation and in the associative construction. Also of importance is Jones (1997) which is an extension of his 1996 study. While Jones (1996) only looked at tone in the associative construction, his subsequent study expanded the data to include various types of noun phrases, viz, those with possessive adjectives, those with numeric adjectives, those with interrogative adjectives, and those with descriptive adjectives. He found that noun phrases constructed with possessive adjectives in the Kom language bear very close similarity with the associative construction. The issue with Jones (1996) and (1997) as with many other studies of the Kom language is lack of theoretical depth. For instance, phonological processes are identified but no theoretical orientation is adopted to systematically account for them and the derivations of phonetic from phonological forms.

Apart from Jones (1996), (1997) and Hyman (2005), whose central concern is not tonal processes but which touch on tone, there is no available research work that attempts to identify and account for tonal processes such as tone lowering, tone simplification, low tone spread, tonal metathesis and tone docking in the Kom language.

II. Methodology and Theoretical Framework

The study is based on data that came directly from Kom native speakers. First, words were extracted from the Kom-English Lexicon of Jones, (2001) which is a database of over 4,000 Kom words and their English renderings. Then, three Kom native speakers serving as language consultants were made to pronounce the list of words in isolation and equally read out phrases containing the same words. The researcher transcribed as well as recorded the first two consultants separately and then verified their pronunciation with the third speaker. Apart from differences in voice quality, there were no discrepancies between the pronunciation of the first language consultant and the second one.

The method of data analysis for this study is both descriptive and theoretical. The descriptive method helps to describe and illuminate phenomena in the phonological structure of the Kom language using prose explanations. The theoretical aspect of the analysis involves the construction of derivations following the autosegmental phonology formalism to illustrate the stepwise movement from underlying to surface forms.

The methodology followed to achieve the three objectives of this research is as follows: To take care of the first objective which is to identify and analyze the

tonal processes that are attested in the Kom Language, I got language consultants to pronounce a list of given words. The same words were subsequently put in noun phrases and prepositional phrases following guidelines from Hyman (2014) on how to identify tonal alternations. The language consultants read out these phrases. In the course of this, I noted tonal alternations between words uttered in isolation and the same words uttered in concatenation with other words in noun and prepositional phrases.

To tackle the second objective of this research which is to construct derivations that map underlying forms to surface forms, I used the autosegmental phonology model of Goldsmith (1976) to illustrate the step-by-step process involved in the changes that take place when moving from phonological form to the practical phonetic realizations.

To attend to the last objective of this research which is to state the rules that account for tonal processes, I examined the tonal behaviour of words uttered in isolation and in conjunction with other words in noun and prepositional phrases. The tonal patterns of words uttered in isolation turned out to be significantly different from those of the same words put in phrases. These changes mostly happened in a well-patterned manner forming the basis for the postulation of tone rules.

III. Data Analysis

This section presents and analyzes the data that helps in determining the tonal changes observed in the Kom language, namely tone lowering, tone simplification, low spreading and tonal metathesis. First, the input which are nouns with their phonetic isolation tones as presented in Jones (1997) are given and then the surface realizations when they interact with the tones of neighbouring words in phrases. It is worth noting that the input tones are the tones of word citation forms as they are pronounced in isolation by native speakers. It is equally pertinent to note here that what is considered as underlying forms in this study is at variance with what Hyman (2005) posits as underlying forms in Kom which are theoretical constructs not consistently intelligible to native speakers. The surface tones are the resultant tones when words are combined with other words in phrases. After a careful examination of the tonal changes that occur when moving from the underlying forms to the surface forms, autosegmental derivations of tonal rules are performed to account for such changes, and then tone rules are postulated and explained.

III.I Tone Lowering

Tone lowering is a process whereby an underlying tone is realized in a lower tone register in its surface form (Awambeng, 2002), for instance, an underlying high tone which surfaces as a mid-tone. This process is demonstrated in the structure of the form "N_1+AM+N_2" where N represents noun and AM represents associative maker. Consider the Kom examples in (1) and (2) below:

Input form	**Output form**	**Gloss**

(1)	a. /āfó ā fɔ̀in/ → (thing of king)	[āfó ā fɔ̀in]	'The king's thing'
	b. /ātú ā fɔ̀in/ → (head of king)	[ātú ā fɔ̀in]	'The king's head'
	c. /āfól á fɔ̀in/ → (cap of king	[āfól á fɔ̀in]	'The king's cap'
	d. /ābé á fɔ̀in/ → (compound of king)	[ābé á fɔ̀in]	'The king's compound'
	e. /āwú ā fɔ̀in/ → (hand of king)	[āwú ā fɔ̀in]	'The king's hand'
	Input form	**Output form**	**Gloss**
(2)	a. /ālə̂ʔ ā āfó/ → (place of thing)	[ālə́ʔ āfō]	'Place of a thing'
	b. /ālə̂ʔ ā ātú/ → (place of head)	[ālə́ʔ ātū]	'Place of a head'
	c. /ālə̂ʔ ā āfɔ́l/ → (place of cap)	[ālə́ʔ āfɔ̄l]	'Place of a cap'
	d. /ālə̂ʔ ā ābé/ → (place of compound)	[ālə́ʔ ābē]	'Place of a compound'
	e. /ālə̂ʔ ā āwú/ → (place of hand)	[ālə́ʔ āwū]	'Place of a hand'

Data set (1a-e) shows no tonal alternation in the tone patterns of N_1, but when the same nouns in the N_1 position in data set (1a-e) are now put in the N_2 position of the associative construction in data set (2a-e) we observe a tonal change: the H tone of the noun stem changes to an M tone. The lowering of the H tone to an M tone is not the only change that takes place: in fact the lowering is the final stage in a procedure that can be explained as follows: first, the associative marker "ā" disappears as a result of vowel contraction. The second change involves the tonal pattern of N_2 which changes from M-H /*āfó*/to M-M *[āfō]*. The tonal change here is spurred by vowel contraction. The derivation of the surface form from the underlying form requires a number of processes which can be explained as follows: first the vowel contraction that occurs between the associative marker and N_2 leaves a floating tone which docks to the right on the initial syllable of N_2 and displaces the M tone further rightward. The M tone fuses with the H tone on the second syllable of N_2 creating a MH

contour which simplifies to an M tone through the delinking of the right contour.

The derivation of (1a), [āfō] from /āfó/, can be captured autosegmentally as in Fig 1.

Fig 1: a. /a l ø ʔ a a f o/ Input form
M H L M M H

b. a l ø ʔ a f o Vowel contraction
M H L (M) M H

c. a l ø ʔ a f o Rightward tone docking plus M tone spreading
M H L M M H

d. a l ø ʔ a f o Delinking of the H tone plus contour simplification
M H L M M H

e. [a l ø ʔ a f o] Output form
M H M M

The realization of the surface form can be formalized in a tone lowering rule as follows:

Tone Rule 1: Tone lowering

H ⟶ M/M + H # M+_#
V V V V V

The tone lowering rule states that the H tone of a noun with an M-H tone pattern is lowered to an M tone when the M-H noun is immediately preceded by a noun with an M-H tone pattern. From this rule and its derivational process, it is clear that tone lowering in the Kom language is a complicated process that involves other phonological processes both segmental, viz, vowel contraction, and suprasegmental, viz, tone docking, tone spreading and contour simplification.

III.II Tone Simplification

Data for this paper reveals two types of tone simplification in Kom. The first one is where an underlying HL contour tone becomes a simple low tone at the surface level. The second one is where an underlying HM contour tone becomes a simple low tone at the surface level.

III.II.I HL Simplification

Input form	**Output form**	**Gloss**

(3) a. /ālô ā īfô/ → [ālǿ īfò] 'Place of cutlass'
(place of cap)
b. /ālô ā ābî/ → [ālǿ ābǐ] 'Place of camp wood'
(place of camp wood)
c. /ālô ā əlû/ → [ālǿ əlù] 'Place of honey'
(place of honey)
d. /ālô ā āsûŋ/ → [ālǿ āsùŋ] 'Place of elephant grass'
(place of elephant grass)
e./ālô ā īkɔ̂ŋ/ → [ālǿ īkɔ̀ŋ] 'Place of love'
(place of love)

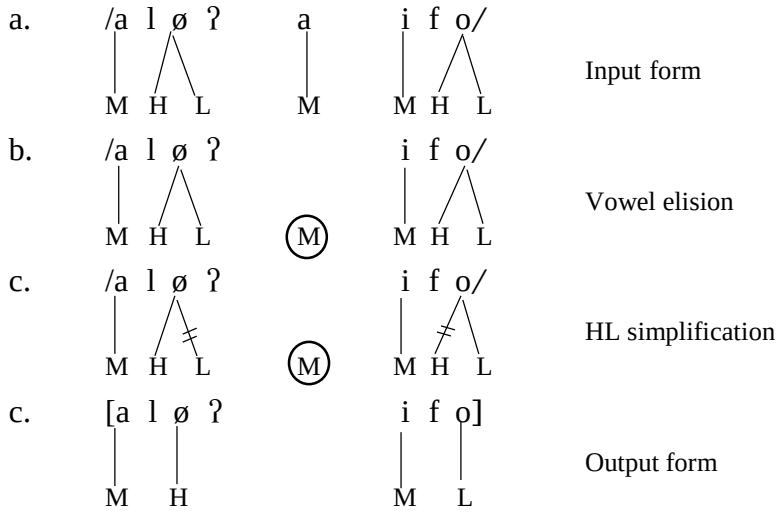
	Input form	**Output form**	**Gloss**
(4)	a. /ífô ī fɔin/ → (cutlass of king)	[ífó ī fɔin]	'The king's cutlass'
	b. /ābî ā fɔin/ → (lap of king)	[ābí ā fɔin]	'The king's lap'
	c. /ābû ā fɔin/ → (hole of king)	[ābú ā fɔin]	'The king's hole'
	d. /āsûŋ ā fɔin/ → (elephant grass of king)	[āsúŋ ā fɔin]	'The king's elephant grass'
	e. /īkɔ̂ŋ ī fɔin/ → (love of king)	[īkɔ́ŋ ī fɔin]	'The king's love'

	Input form	**Output form**	**Gloss**
(5)	a. /fɔin AM + īfô → (king of love)	[fɔn ìfò]	'The king of love'
	b. /wúl + AM + ābî/ → (person of lap)	[wúl àbì]	'The lap owner'
	c. /ɲám + AM + ābû?/→ (animal of hole)	[ɲám àbù?]	'A burrower'
	d. /ndó + AM + āsûŋ/→ (house of elephant grass)	[ndō àsùŋ]	'Elephant grass house'
	e. /ndʒàŋ + AM + īkɔ̂ŋ/ → (song of love)	[ndʒàŋ ìkɔ̀ŋ]	'A love song'

In data set (3a-e) which has the general format "place of something", both the N_1 and the N_2 end in the HL contour tone at the underlying level. At the phonetic

level, both N_1 and N_2 get their HL contour tones changed to level tones. While the HL contour tone of N_1 simplifies to an H tone, that of N_2 simplifies to an L tone. In data set (4a-e) we get more nouns ending in an HL tone and put them in the N_1 position of the associative construction, but with the exception that the N_2, this time around, does not have a contour tone. Still the contour tone of N_1 gets simplified to an H tone. In data set (5a-e), we get nouns without contour tones and place them in the N_1 position yet the HL contour tone of N_2 surfaces as an L tone. What data sets (3), (4), and (5) reveal is that whether the M-HL noun is put in the N_1 position or the N_2 position, tone simplification is unavoidable as far as the Kom associative construction is concerned. In the N_1 position, the HL contour tone simplifies to an H tone through a delinking of the L contour while in the N_2 position, it simplifies but to an L tone through a delinking of the H contour. This leads us to propose two tone rules to account for High-Low simplification. The first rule accounts for High-Low simplification in the N_1 position of the associative construction while the second rule accounts for HL simplification in the N_1 position of the associative construction. The autosegmental derivation of *[ī fò]* from /ī fô/ in Fig 2 illustrates how the process of HL simplification works to bring out the surface form from the underlying one:

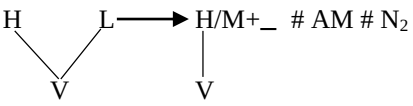
Fig 2:



The above autosegmental derivation begins with vowel elision which is a phonological process that involves "the omission, deletion or total loss of a sound segment" (Yul-Ifode, 2014:161). In the Kom language, vowel hiatus across certain morpheme boundaries causes one of the vowels to be deleted. Specifically, the associative markers for noun classes 1-10 which are single vowels, viz, /ɨ/, /a/ and /i/ get elided before a vowel initial noun. The deletion of one of two adjacent vowels at word boundaries is a phenomenon equally attested in other languages such as Yoruba (Akinlabi and Liberman, 2001) and Pulleyblank (1986). In the case above, the noun class associative marker "ā" is

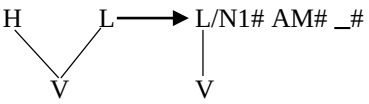
deleted because it is immediately followed by a vowel-initial noun. The vowel elision process leaves a floating M tone which gets neutralized before the M tone on the N_2 prefix. Then, while the HL contour tone of the second syllable of N_1 simplifies to an H tone through the delinking of its L contour, that of N_2 simplifies to an L tone through a delinking of its H contour. This leads us to the postulation that in the Kom associative construction, an M-HL tone pattern, changes to an M-H tone pattern in the N_1 position but in the N_2 position an M-HL tone pattern changes to an M-L tone pattern. These tonal changes can be formalized in two tone rules as follows:

T-Rule 2a: HL simplification in N_1 position



T-Rule 2a states that the HL contour tone of an M-HL noun simplifies to an H tone when placed in the N_1 position of the associative construction.

T-Rule 2b: HL simplification in N_2 position



T-Rule 2b states that the HL contour of the M-HL noun simplifies to an L tone when the M-HL noun is placed in the N_2 position of the associative construction.

III.II.II HM Simplification

In Kom, an underlying HM contour changes to a low tone at the surface level. Consider data sets in (6) and (7) below:

	Input form	**Output form**	**Gloss**
(6)	a. /təbǐ́ tə́ ālə̂ʔ/ → (kola nuts of place)	[təbí t'álə̀ʔ]	'cola nuts of somewhere'
	b. /tələ́ŋ tə́ ālə̂ʔ/ → (bamboos of place)	[tələ́ŋ t' álə̀ʔ	'bamboos of somewhere
	c. /fəɲúin fə́ ālə̂ʔ/ → (birth of place)	[fəɲúin f' álə̀ʔ]	'a bird of somewhere'
	d. /fəbɔ̌m fə́ ālə̂ʔ/ → (jug of somewhere)	[fəbɔ́m f' álə̀ʔ]	'a jug of somewhere'
	e. /təfə̌ tə́ ālə̂ʔ/ → (leaves of place)	[təfə́ t' álə̀ʔ]	'leaves of somewhere'

	Input form	**Output form**	**Gloss**
(7)	a. /ālə̂ʔ ā təbǐ́/ →	[ālə́ʔ ā təbì]	'Place of Kola nuts'

(place of kola nuts)

b. a. /ālə̂ʔ ā tələ́ŋ/ → [ālə́ʔ ā tə́lə̀ŋ] 'Place of bamboos'
(place of bamboos)

c. /āləʔ ā fənyuī̂n/ → [ālə́ʔ ā fə́nyùin] 'Place of a bird'
(place of bamboos)

d. /ālə̂ʔ ā fəbɔ́m/ → [ālə́ʔ ā fə́bɔ́m] 'Place of a jug'
(place of jug)

e. /āləʔ ā təfə̄/ → [ālə́ʔ ā tə́fə̀] 'Place of leaves'
(place of leaves)

The HM simplification is an unusual form of tone simplification in the Kom language whereby the surface tone is neither of the two tones that make up the contour tone at the underlying level. In **III.II.I**, the HL simplifies to an L tone, meaning that one of its contours simply gets delinked, leaving the other. But in HM simplification, the surface L tone can neither be traced back to the H nor the M of the HM underlying contour tone. We only refer to this process as simplification because a contour tone has changed to a level tone. Data set (6a-e) reveals that when an M-HM noun is placed in the N_1 of the associative construction, the HM contour tone simplifies to an H tone. But when an M-HM noun is places in the N_2 position as in data set (7), the HM contour tone simplifies to an L tone. This implies that one HM tone simplification rule will be inadequate to account for this process in the Kom language. There must be two HM simplification rules if one has to sufficiently account for HM simplification in the Kom language. To construct a single derivation for these two rules, we have to get data where both N_1 and N_2 have an M-HM tone pattern as follows:

	Underlying form	**Surface form**	**Gloss**
(8)	a. /ākū́ á təbī̂/ →	[ākú á tə́bì]	'kola nut forest'
	(forest of kola nuts)		
	b. /ākū́ á fəbɔ̌m/ →	[ākú á fə́bɔ̀m]	'Forest of a jug'
	(forest of jug)		
	c. /fəbɔ̌m fə́ ākū́/ →	[fəbɔ́m f'ákù]	'Jug of the forest'
	(jug of forest)		
	d. /təbī́ tə́ ākū́/ →	[təbí t' ákù]	'Bitter kola'
	(kola nuts of forest)		
	e. /təfvə́ tə́ ākū́/ →	[təfvə́ t' ákù]	'Forest leaves'
	(leaves of forest)		

This HM simplification process illustrated in (8) is further explained by an autosegmental derivation of [tə́bì], the surface form, from [təbǐ], the underlying form in Fig 3 below.

Fig 3: a. /a k u a t ə b i/ — Input form
M H M H M H M

b. /a k u a t ə b i/ — H tone spreading
M H M H M H M

c. /a k u a t ə b i/ — Tone delinking
M H M H M H M

c. /a k u a t ə b i/ — M tone lowering
M H (M) H (M) H L

c. [a k u a t ə b i] — Output form
M H H H L

In Fig 3, first the H contour of the last syllable of N_2 spreads leftward to the noun class prefix displacing its original M tone further leftward which is left floating. After the H tone has spread, it delinks from the last syllable and leaves the M contour there which is then lowered to an L tone. The M tone of the HM contour tone of N_1 also gets delinked from its host vowel and leaves only the H contour. The entire process can be stated in two HM tone simplification rules, one for N_1 and the other for N_2 as follows:

T-Rule 2c: HM simplification on N_1

H M ⟶ H/_#AM#M+H M#
V V V

T-Rule 2c states that a high-mid tone becomes an H tone when the noun with the HM tone is placed in the N_1 position of the associative construction. The derivation in Fig 3 is a clear way of accounting for the emergence of the surface high tone on N_1.

T-Rule 2d: HM simplification on N_2

H M ⟶ L/M+H M#AM#M+_#
V V V V

T-Rule 2d states that HM contour of an M-HM noun becomes an L tone when the M-HM noun is placed in the N_2 position of the associative marker. The

autosegmental derivation in Fig 3 indicates that the emergence of a surface L tone from an underlying high-mid contour tone is attributed to the delinking of the H contour and the lowering of the M contour

III.III Low Spread

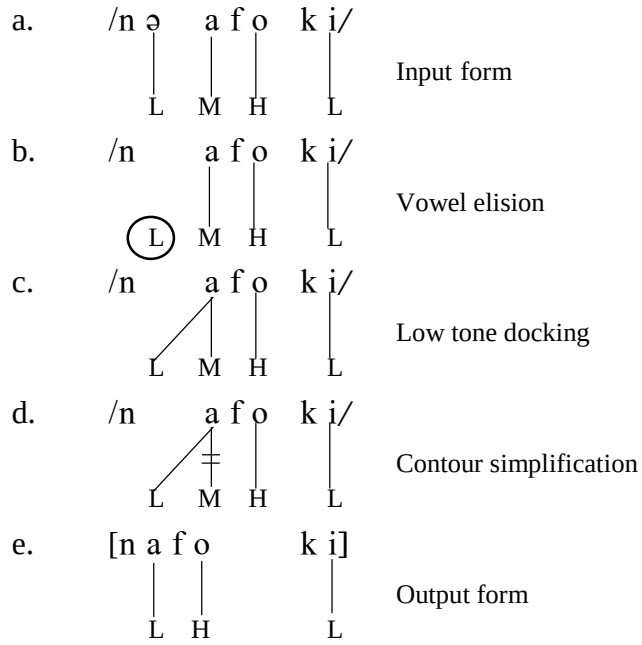
Low spread occurs in the Kom language when a low tone on a tone bearing unit (TBU) spreads rightward to a mid tone TBU across a word boundary and delinks the mid tone from its host syllable. Consider data sets (9a-e) and (10a-e) below.

	Underlying form		**Surface form**	**Gloss**
(9)	a. /āfó kì/	→	[āfó kì]	'That thing'
	(thing that)			
	b. /əkwó və/	→	[əkwó və]	'That money'
	(money that)			
	c. /íbáin zə/	→	[íbáin zə]	'That light'
	(light that)			
	d. /fəbúʔ fì/	→	[fəbúʔ fì]	'That chimpanzee'
	(chimpanzee that)			
	e. /fətám fì/	→	[fətám fì]	'That fruit'
	(fruit that)			
	Underlying form		**Surface form**	**Gloss**
(10)	a. /nə āfó kì/	→	[nàfó kì]	'with that thing'
	(with thing that)			
	b. /nə əkwó və/	→	[nəkwó və]	'with that money'
	(with money that)			
	c. /nə íbáin zə /	→	[nìbáin zə]	'with that light'
	(with light that)			
	d. /nə fəbúʔ fì/	→	[nə fə̀búʔ fì]	'with that chimpanzee'
	(with chimpanzee that)			
	e. /nə fətám fì /	→	[nə fə̀tám fì]	'with that fruit'
	(with fruit that)			

Data set (9) does not show any tonal alternation from the underlying form to the surface form. All the M-H morphemes placed word-initially fail to exhibit any tonal changes in their surface forms. In data set (10), the same words are placed after the low tone preposition *nə* "with". This time around, the surface forms emerge with a different tone pattern. The low tone of the preposition *nə* spreads to the initial syllable of its object noun and delinks its original mid tone from its host syllable.

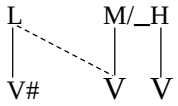
The indication of this process is illustrated in Fig 4 below.

Fig 4:



The derivation process in Fig 4 begins with the vowel of the preposition "*nə̀*" getting elided thanks to a vowel deletion rule in Kom that elides the final vowel of a proposition if that preposition is immediately followed by a vowel-initial morpheme. What follows is the docking of the floating low tone left after the deletion of the vowel of the preposition "*nə̀*" The next stage in the derivation is the simplification of the low-mid contour of the initial syllable of */āfó/* to a low tone through a delinking of the right contour. This leaves a stranded M tone which gets deleted in the phonetic realization. *T-Rule 3* below captures this process.

T-Rule 3: Low spreading



T-Rule 3 states that the low tone of the preposition "*nə̀*" will always spread to the mid tone prefix of its object noun.

III.IV Tonal Metathesis

Awambeng (2002:114) defines tonal metathesis as "a process whereby two elements interchange their normal positions with each other". In the Kom language there is enough data that supports the postulation of a tonal metathesis rule observed at the tonal tier between two register tones on the N_2 of certain associative constructions.

	Underlying form	**Surface form**	**Gloss**
(11)	a. /āfó ā fɔ̀in/ →	[āfɔ̄ fɔ̀in]	'The king's thing'
	(thing of king)		
	b. /ātúm á ndʒùŋ/ →	[ātúm ā ndʒùŋ]	'The foreign land of fortune'
	(foreign land of fortune)		
	c. /ābé á fɔ̀in/ →	[ābǽ fɔ̀in]	'The king's compound'
	(compound of king)		
	d. /ātám á fɔ̀in/ →	[ātám à fɔ̀in]	'The king's trap'
	(trap of king)		
	e. /īsáŋ í fɔ̀in/ →	[īsáŋ í fɔ̀in]	'The king's corn'
	(corn of king)		

	Underlying form	**Surface form**	**Gloss**
(12)	a. //īsɔ́ŋ í āfó/ →	[īsɔ́ŋ áfō]	'The tooth of something'
	(tooth of thing)		
	b. /ībí́ í ātúm/→	[ībí ǽtūm]	'foreign kola nut'
	(kola nut of foreign land)		
	c. /ākú́ á ābé/ →	[ākú ābē]	'Forest of the compound'
	(forest of compound)		
	d. /īsɔ́ŋ í ātám/ →	[īsɔ́ŋ átām]	'tooth of a trap'
	(tooth of trap)		
	e. /āku ́á īsáŋ/ →	[ākú ísāŋ]	'Forest of maize'
	(forest of maize)		

Data set (11) shows that no tonal metathesis occurs when an M-H noun is placed in the N_1 position of the associative construction. Rather, tone docking is observed in (11a) when the floating mid tone of the elided associative marker docks to the left and forms an HM contour with the H contour of N1, i.e., /*āfo᷄*.

In (11b-e) the surface tones are the same as the underlying tones. In (11c) even though the surface tones are the same as the underlying tones, vowel coalescence takes place between /e/, the last sound of N_1 and /a/, the associative marker. Since both /e/ and /a/ in (11c) bear high tones, the coalesced /æ/ takes only one of the high tones and leaves the other one stranded.

On the other hand data set (12a-e) reveals surface forms with tonal patterns quite different from the tone patterns of their underling forms. While the HM tone of the last syllable of N_1 undergoes tone simplification and becomes a simple H tone, N_2 which has an M-H tone pattern has its two tones interchange places, resulting in tonal metathesis. This transformation is illustrated in an

autosegmental derivation of the surface form from the underlying form in Fig 5.

Fig 5: a. /i s ɔ ŋ i a f o/ — Input form
M H M H M H

b. /i s ɔ ŋ a f o/ — Vowel elision
M H M (H) M H

c. /i s ɔ ŋ a f o/ — Tone simplification
M H M (H) M H

d. /i s ɔ ŋ a f o/ — Tone neutralization
M H M H

e. /i s ɔ ŋ a f o/ — Tonal metathesis
M H H M

f. [i s ɔ ŋ a f o] — Output form
M H H M

The above derivation starts with vowel elision. The simplification of the HM tone of the final syllable of N_1 by delinking the M contour then follows. The delinked M tone and the H tone of the deleted vowel are left without a segment to attach to. With no segment to dock on, they both get neutralized leaving N_1 and N_2 with identical tone patterns. Because it will produce an odd tonal melody to pronounce N_1 and N_2 with an identical tonal melody, the M-H tone of N_2 undergoes tonal metathesis by swapping their positions to produce an acceptable Kom language tonal melody. It is instructive to note that the tone simplification process in Fig 5 is optional as it is quite normal in the Kom language to say [*īsɔ́ŋ áfō*]. Whether one says [*īsɔ́ŋ áfō*]or [*īsɔ́ŋ áfō*]to a Kom native speaker makes no difference. Both are regarded as correct. The tonal metathesis rule is captured in tone *T-Rule 4* below:

T-Rule 4: Tonal metathesis

M H H M/H M_
V V V V V#

T-Rule 4 states that when M-H noun is immediately preceded by a noun that ends in a MH contour, the M and the H of the M-H noun interchange places.

This happens because the tonotactics (permissible combination of tones in a language. It restricts the possible tone sequences in words and across word boundaries) of the Kom language does not allow the mid tone on contiguous word boundaries.

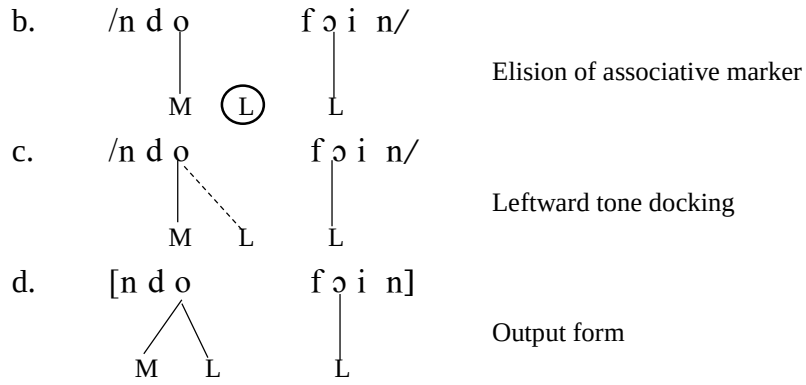
III. V Tone docking

Tone docking is a tonal process whereby an underlying floating tone becomes linked to a segment at the surface level (Awambeng, 2002). Researchers in Niger-Congo languages theorize that floating tones result from the loss of vowels or syllables but not their tones (Watters, 2003; Hyman, 2014; Möller, 2014; Yip, 2002). These stranded tones remain floating around words and have the capability of influencing adjacent TBUs. In the Kom language when H or M-toned class nine nouns are put in the N_1 position of the associative construction, a tonal alternation involving the elision of the associative marker and the formation of a contour tone on the last syllable of N_1 is observed. This is because when the associative marker is deleted, its tone remains floating and then docks to the left on the last syllable of N_1. Consider data set (13 a-e) below.

	Underlying Form	**Surface form**	**Gloss**
(13)	a. ndō ə̀ fɔ̀in → (house of chief)	[ndṑ fòin]	'Chief's house'
	b. ntūm ə̀ bés → (message of cat)	[ntūm bés]	'A cat's message'
	c. mbē ə̀ fɔ̀in → (chisel AM chief)	[mbḕ fòin]	'Chief's chisel'
	d. ŋkáŋ ə̀ fɔ̀in → (corn beer of chief)	[ŋkáŋ fòin]	'The chief's corn beer'
	e. ŋgwō ə̀ fɔ̀in → (buffalo of chief)	[ŋgwṑ fòin]	'Chief's buffalo'

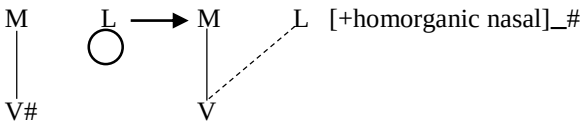
Since noun class 9 associative marker 'ə̀' gets deleted in the associative construction, it is logical to attribute the low contour that appears at the phonetic level to the leftward docking of the floating low tone left after the deletion of the associative marker. This process is further illustrated in an autosegmental derivation of the surface [ndṑ] from the underlying /ndō/ in Fig 6 below:

Fig 6: a. /n d o ə f ɔ i n/
M L L
Input form



The autosegmental derivation in Fig 6 shows how the underlying segmentless low tone associative marker left after the associative marker has been deleted becomes associated with a TBU at the surface level by docking to the left to form a mid-low contour tone. This adds to the findings of earlier researchers in African languages such as Snider (1998) who posited that contour tones are a result of the spreading of level tones from one morpheme to the edge of the TBU of an adjacent morpheme. The tone docking process can be formalized in *T-Rule 5* as follows:

T-Rule 6: Tone docking



T-Rule 5 states that a mid tone becomes a mid-low contour tone in the environment where it is preceded by a homorganic nasal and followed by a floating low tone.

In the foregoing, I have examined tonal alternations in the Kom language. This has been done following guidelines on how to identify tonal processes laid down in Hyman (2014). Since it is impractical to examine tonal alternations in every type of construction in a language, Hyman (ibid) suggests that tonal processes in the associative construction and in the prepositional phrase are quite representative of the tonal changes attested in any given tone language.

III. Discussion of Findings

This section discusses the results of our findings in relation to our research objectives and the body of existing literature on tonal processes in some Bantu languages. With respect to the first objective of this study, I identified and analysed tone lowering, tone simplification, low spread, tonal metathesis and tone docking. With respect to tone lowering, the findings show that an M-H noun will surface as an M-M noun when placed in the N_2 position of the associative construction but when placed in the N_1 position no tonal changes occur. Thus, the H tone of the M-H noun is lowered to an M tone. For illustrative sufficiency, I constructed an autosegmental derivation of the surface M-M noun from the underlying M-H tone pattern. The derivation of an M-M

tone pattern from an H-M one shows that a number of tonal processes come into play in a single derivation in order to yield the required outcome. Although tone lowering has not until now been studied in the Kom language, it had been studied in other Grassfields Bantu languages such as Nkwen (Awambeng, 2002) and Bafut (Mfonyam, 1989).

With regard to tone simplification, I found out that two types of tone simplification occur in the Kom language, namely, HL simplification and HM simplification. The findings reveal that the HL contour tone of an M-HL noun simplifies to an H tone when placed in the N_1 position of the associative construction. However, when placed in the N_2 position of the same construction, it simplifies to an L tone instead. As to the HM simplification, the findings indicate that when the M-HM noun is placed in the N_1 position of the associative construction, the HM contour tone simplifies to an H tone. But when the same noun is placed in the N_2 position, the HM contour tone becomes a low tone.

It was equally found out that low tone spread is sufficiently attested in the Kom language. Specifically, the low tone of the preposition *nə̀* (with) always spreads onto the initial syllable of its object noun. But when this low tone spread occurs, it does not form a contour tone with the existing tone of the initial syllable. Instead, it delinks the original tone from its host syllable and takes its place. This phenomena is unlike what obtains in Nkwen, another Grassfields Bantu language, where tone spreading results in contour tone formation (Awambeng, 2002). Low spread is also attested in the Oku language from a low tone preposition to the initial syllable of its object noun (Hyman 2014). The spreading of the low tone of a preposition might be a cross-linguistic phenomenon common to all Grassfields Bantu languages. This hypothesis remains to be verified by subsequent studies.

Furthermore, the findings indicate that tonal metathesis, a situation where two tones interchange their normal positions, is attested in the Kom language. This finding is revealed in data set (12) when an M-H noun is placed in the N_2 position of the associative construction. Specifically, when an M-H noun is preceded by a noun that ends in an HM contour tone, the M-H noun metathesizes to an H-M noun at the surface level. Tonal metathesis has yet to be identified in other Ring languages but Nkwen has been shown in Awambeng (2002) to exhibit tonal metathesis.

The findings equally indicate the presence of tone docking in the Kom language. This is shown in data set (13) when the floating low tone of an elided associative marker docks to the left and forms a contour tone with the original tone of the syllable where it has docked. Hyman (2014) refers to the same phenomenon of tone docking in the Oku language as tone grounding. Mfonyam (1989) refers to the same phonological process in the Bafut language as contour formation. Of course, this is the same linguistic phenomenon but different

nomenclatures. But the present study sees contour formation as the end result of the phonological processes of tone docking. In other languages, contour formation is a result of tone spreading (see Snider, 1998). The revelations of the present study, coupled with Snider's position, point to the possibility that contour formation can result from either of two tonal processes, viz, tone docking and tone spreading.

In relation to the fourth objective of this study, I constructed autosegmental derivations that succinctly illustrate in a step-wise manner how surface tone patterns are derived from their underlying forms. The derivations show that tonal processes as well as vowel elision, a non-tonal process, interact with one another to yield the requisite surface form. For instance, vowel deletion leaves a floating tone which leads to tone docking. As seen in the derivations, some tonal processes take place before others in order to yield the right output or surface realization. This does not occur in any strict order to enable us talk about strict rule ordering in Kom phonology. So, it is difficult to say that in the Kom language, there are a number of ordered processes, each occurring once in a derivation. But in Nkwen, there exists a feeding order relationship between tonal processes (Awambeng, 2002). Tonal processes in the Kom language apply in a random sequential order with each tone applying any time the structural description for its rule is met. This tonal behaviour in the Kom language is akin to the behaviour of tonal processes in Bafut, another Grassfields Bantu language, as demonstrated in Mfonyam (1989).

Finally, with regard to the last objective of this study, every tonal process was formalized with a tone rule. The five tonal processes, viz, tone lowering, tone simplification, low spread, tonal metathesis and tone docking were formalized in eight autosegmental rules. This is because tone simplification alone necessitated 4 rules, 2 for HL simplification and 2 for HM simplification

IV Conclusion

The salient feature of this study is that a theoretical perspective (Autosegmental Phonology) has been adopted to present and analyze Kom data from the view point of a native speaker and this enables one to gain insight into the tonal processes that determine the surface forms found in the language. Based on the data presented as well as the number of tonal processes described, autosegmental derivations constructed and rules stated, it is abundantly evident that the Kom language offers a very fertile ground for phonological research. Tonal processes such as down-step and up-step which have been linked by previous studies to other Grassfields Bantu languages like Nkwen and Fe'fe' and which were not attested in these findings could be further investigated with a different set of data. Nonetheless, the present study can serve as a substantial base upon which a number of research outgrowths will spring, not only on the Kom language but also on some of its close relatives, like Bafmeng, Bum, and Oku.

References

Akinlabi, A. and Liberman, M. (2001). Tonal complexes and tonal alignment. In: M. Kim and U. Strauss (Eds.) *Proceedings of the North East Linguistic Society 31*. Amherst, Mass: GLSA, pp. 1-20

Awambeng, E. N. (2002). Tonal processes in Nkwen: an autosemental perspective. *Journal of West African Languages,* 29 *(1),* 103-120.

Bakovic, E. (2013).*Phonology and Phonological Theory*. San Diego: University of California.

Goldsmith, J. (1976). *Autosegmental Phonology*. Massachusetts: MIT.

Hyman, L. M. (1980). Noun Classes in the Grassfields Borderland. *Southern California Occasional Papers in Linguistics,* (8).

------ (2003). Basaa (A34). In: Nurse, D. and Philippson, G. (eds.), The Bantu Languages, 257-282, London: Routledge.

------ (2005). Initial vowel and prefix tone in Kom: Related to the Bantu Augment? Bostooen K. and Maniacky J. (Eds.), *Studies in African Comparative Linguistics with Special Focus on Bantu and Mande: Essays in honour of Yvonne Bastin and Claire Gregoire,* (pp. 313-342). Teruren: Musée Royal de l'Afrique Central (MRAC).

------- (2014). How to study a tone language, with exemplification from Oku (Grassfields Bantu, Cameroon). *Language and Documentation* 10, 525-562.

Jones, J. R. (1996). *Tone in the Kom Noun Phrase.* Yaoundé: SIL.

------- (1997). *Tone in the Kom Noun Phrase, Part II.* Yaoundé: SIL.

Jones, R. (2001). *Provisional Kom-English Lexicon.*Yaoundé: SIL.

Mfonyam, J. N. (1989). Tone in Orthography: the Case of Bafut and Related Languages. PhD Thesis, University of Yaounde 1.

Möller, M. (2014). *Nominal Tone in Mmen*. Gothenburg: University of Gothenburg.

Pulleyblank, D. (1986). *Tone in Lexical Phonology.* Dordrecht: Reidel.

Snider, K. L. (1998). Towards the Representation of Tone: a Three-dimentional Approach. In: H. V. de Hulst and N. Smith (Eds.). *Features, Segmental Structure and Harmony Process (Part 1).* Dordrecht: Foris Publications, pp. 237-265.

Watters, J. R. (2003). Grassfields Bantu. In: D. Nurse and G. Philippson (Eds.). *The Bantu Languages.* London & New York: Routledge, pp. 225-256.

Yip, M. (2002). *Tone.* Cambridge: Cambridge University Press.

Yul-Ifode, S. (2014). *A Course in Phonology.* Port Harcourt: Jireh Publishers.