

## An Autosegmental Analysis of Berom Tones and Tonal Processes

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### Abstract

Tone is notorious for its independence from the segments on which it is realized (Yip 2002). This paper adopts a descriptive approach to the study of Berom tones and tonal processes alongside the application of the autosegmental phonology framework in examining how these phenomena operate in Berom. Berom is a language spoken in Northern Plateau with speakers occupying four local government areas namely- Jos South, Jos North, Barkin Ladi and Riyom; but the data obtained for this study is based on the dialect spoken in Riyom. Tones play a very significant role in Berom. Tones have the tendency to influence segments, syllables, morphemes and even words in Berom. Berom exploits three (3) distinctive register tones- High [´], mid [ˊ], low [ˋ] and two contour tones: rising [ˊˋ] and falling [ˋˊ] tones; both of which perform lexical and grammatical functions. This paper adopts the autosegmental framework in its analysis with the view to clearly illustrate how Berom tones function and highlight two (2) tonal processes in Berom- tone copying and tonal replacement. This paper finds out that in tone copying, the plural prefix ‘be-’ is underlyingly toneless; therefore, it copies the tone of the root it is attached to in its derivation (whether it is high or low). Whereas in tonal replacement, a high tonal morpheme [´] replaces the tone(s) of root from which they are derived. More so, tonal replacement in Berom is applicable to some irregular plural formations and the derivation of the progressive aspect of Berom verbs.

**Keywords:** Berom, Autosegmental phonology, tone, tonal copying, tonal replacement

### Introduction

This study provides an autosegmental account of Berom tonal patterns and examines two tone processes in Berom. Berom is a language spoken in the highlands of Northern Plateau and belongs to the East-Benue-Congo branch of the Niger-Congo family. Berom as a language is spoken in Jos (the Plateau State capital), Jos South, Barkin Ladi, Riyom and is significantly represented in Jos North Local Government Areas of Plateau State (Gwom, 1992; Chollom, 2004 & Piyo, 2007) and amongst the Aboro people of Sanga L.G.A of Kaduna State with about 200,000 speakers (based on the 1991 census figures (Gwom 1992 & Nyam, 2005:129)). Gwom (1992) distinguishes seven (7) intelligible dialects in Berom language; which are spoken in the eleven districts of Berom. These districts are: Bachi, Du, Fan, Foron, Gashish, Gyel, Heipan, Kuru, Ropp, Riyom and Vwang. This study is situated within the Berom speaking people located in Riyom whose dialect is referred to as a more ‘central’ dialect (Blench & Dendo, 2006:2).

The researchers observed that there exists a big academic chasm in the study of Berom owing to the dearth of quality linguistic works in the language in general and particularly in the aspects of the suprasegmental phonology. Therefore, this work is very significant in that it fills this gap identified in the language. The paper aims at: (1) Examining the phenomenon of tone in Berom by stating its patterns and functions in the language, (2) To see if the autosegmental phonology approach can be applied in the analysis of Berom tones and (3) To highlight the various grammatically-conditioned tone processes that occur in Berom.

Berom has seven (7) vowel phonemes- /a, e, ε, i, o, ɔ, u/ and twenty-four (24) consonant phonemes- /p, b, t, d, k, g, k<sup>w</sup>, g<sup>w</sup>, f, v, s, z, ʃ, h, tʃ, dʒ, m, n, ŋ, ɲ, l, r, j, w/; making a total of thirty-one (31) sound inventory in Berom (Bouquianx 1970, Kuhn & Dusu 1985 & Ukaegbu 2011). Williamson and Blench (2000:38) believe that typical Benue-Congo languages have five contrasting places of articulation: labial, dental/alveolar, palatal (including post-alveolar), velar and labial-velar. This is evident in Berom Consonantal phonemes and there is a clear contrast between the velar sounds /k/ and /g/ and labialized velar sounds /k<sup>w</sup>/ and /g<sup>w</sup>/ as can be seen in these words-

Example 1.	/k/	kit ‘yam’, dük ‘room’	/g/ gùl ‘wind’ zèng ‘dry season’
	/k <sup>w</sup> /	kwēt ‘arrow’, nkwérét ‘trumpet’	/g <sup>w</sup> / gwì ‘sun’ and ñgwì ‘dream’

Berom has different syllable structure types but the most common of all is the CV. Therefore, a basic Berom syllable structure has consonants in the onset and coda which are optional and vowel or a syllabic nasal (which is always a tone bearing unit) as the peak/nuclei. Also in Berom, what is observed is a partial vowel harmony system where vowels of the three sets; +ATR (e,o), -ATR (ε,ɔ) and Neutral (a,i,u) can co-

occur in some words in the language; therefore the vowels of Berom occur in words without much restriction. The following examples illustrate this claim:

- |    |    |         |          |                         |
|----|----|---------|----------|-------------------------|
| 2. | a. | bibos   | /bibos/  | 'masquerade/divination' |
|    | b. | kyome   | /ki'ome/ | 'to be'                 |
|    | c. | reiting | /reitiŋ/ | 'to be bold'            |
|    | d. | mane    | /mãne/  | 'to be sticky'          |

### Literature Review

In tone languages (which Berom is one), pitch is used to differentiate between word meanings or to convey grammatical distinctions. Tone languages mark syllable with a specific tone (pitch). Hence, any change in tone can invariably bring about a change in the meaning of words (Anyanwu 2008:200). Emenanjo (2015:107) asserts that the pitch of voice is a phonetic exponent of tone, a phonological concept and it is used to differentiate the meanings of morphemes, words, phrases, clauses and sentences which otherwise are the same in terms of their segments (vowels, syllabic nasals and consonants). Tone can be said to be the use of variation in the pitch of voice to signal meaning contrast or distinction at both lexical and sentential levels of linguistic representation (Ndimele 2003; Omachonu 2011). This therefore means that tone is not a segmental feature; it is rather a suprasegmental feature superimposed on a segment, be it syllable, morpheme, words or sentence. From the foregoing definitions, it is obvious that tone refers to a distinctive pitch level of a syllable applied to syllables in tone languages which could give contrast in meaning. Put in another way, the tone of voice is determined by the manipulation of the pitch of the voice. However, the pitch of the voice could be low or high as in normal speech based on some linguistic, emotional and psychological undertones (Ladefoged, 1975). Welmers as cited in Oyebade (1992:51) views that "some languages have lexically significant contrastive but relative pitch on each syllable." These languages are called tonal languages because "... Pitch phonemes and segmental phonemes enter into the composition of, at least, some morphemes".

In some languages, tones are usually realized on the vowels and syllabic nasals, that is, tone is mostly a feature of the syllabic. There are two types of tone languages typologically: Register and Contour tone languages. In register tone languages, the pitch is essentially stable, that is, the pitch does not rise and fall anyhow; the tones are steady and level. The different tone levels are uniquely distinct that one cannot be mistaken for another because the faster the rate of vibration of the vocal cords, the higher the pitch and consequently, the height of the tone level. The contour tone on the other hand, is unstable, that is, the pitch glides from one level to another. The three basic register tonemes are: high [´], mid [ˉ] and Low [ˋ]. While the two contour tones are: rising [ˊ] (usually a variant of high in some languages) and falling tone [ˋ]. Different languages have different number of tones. For instance, according to Abiodun (2007:66), Yoruba has three basic register tones- the high, mid and low, while Igede attests four tones- rising, high, mid and low. Hausa according to Amfani (2007:136) attests two level tones of High and low and one falling tone. While Igbo has two basic tonemes of high and low and a down stepped high tone (Emenanjo 2015:107).

In some studies, (like Hyman 1973b; Hyman & Schuh 1974, Abiodun 2007; Anyanwu 2008), discussions on natural tone rules have provided typologies of natural tone rules and have proposed various universals concerning the nature of these tonal processes. A distinction was drawn between natural tone rules which have a phonetic basis and that which have a grammatical basis- these were referred to, respectively as phonetic and morphophonemic tone rules (Anyanwu (2008:264) refers to it as morphotonemic rules). Based on the objectives and scope of this paper, the tonal processes that are grammatically conditioned in Berom is considered in this paper. Tone languages are characterized by a number of grammatical rules which all have something in common- that they refer to specific morphemes or constructions. Some of these tone rules include- tonal dissimilation, tonal copying, tonal polarization, tonal replacement and floating tones. Two out of the grammatically conditioned tone rules- tone copying and tone replacement are discussed here, as they apply to Berom.

According to Hyman (1975:224), "tone copying refers to the process which a syllable (most frequently, a grammatical morpheme) is considered to have no underlying tone of its own, but rather receives its tone from a neighbouring syllable." Hyman (1975:224), gives a language as an example, where copying occurs. In Kru the relative clause marker /a/ takes a high tone after a High-tone verb and a low tone after a Low- tone verb. Anyanwu's (2008) view agrees with that of Hyman (1975) in the sense that it explains tone copying as a process in which a lexically toneless syllable (usually a grammatical morpheme) acquires tone from a preceding or following syllable. She gives her examples with what happens in Igbo verbs (past tense formation). As in:

3. gà 'go' → gàrà 'went'  
 sè 'draw' → sèrè 'drew'

Whereas, in Igbo, most present tense verbs carry the L tone. Therefore, from the above example, it can be noticed that the suffix –r is added to the root alongside the vowel and tone copied from the preceding syllable. Although, she didn't give instances of tone copying with High tones, her opinion corresponds to Hyman's (1975) discussion of tone copying process. Tonal replacement on the other hand, is the process whereby the inherent tone of a morpheme is replaced by a grammatical tone. Hyman (1975:225) states that this phenomenon occurs in Igbo, where the imperative is usually constructed by replacing the first syllable with L tone and adding a suffix:

4. /ri/ 'eat' → /ri-é/ 'eat!'

It is also worthy to note here that Hyman (1975) claims that tone replacement frequently takes place in the verb paradigm and in noun-noun compounding.

### Theoretical Framework

According to Yul-Ifode (1999:16), "...there does not exist anything like a full alternative phonological theory, there are a host of partial approaches, each of which do something well, others badly and still others not at all." Autosegmental phonology (the theory adopted in this paper) was introduced as a result of some of the inadequacies inherent in Generative phonology theory, *Sound Patterns of English* (forth with, SPE). One of which is its inability to account for suprasegmentals such as pitch, tone, intonation and accent (Obasi & Ayegba 2011). Following Goldsmith's (1976) publication, the autosegmental phonology as a phonological theory was introduced. It posits two or more parallel tiers of phonological segments. He advocates the autonomy of segments according to their tiers of operations. That is, each tier is to be analyzed separate. It also recognizes two levels of representations- the underlying level and the prosodic features at the same time (each being autonomous) which gave birth to the name- Autosegmental phonology.

Goldsmith (1990:8) laments that "there is an overt deficiency in generative phonology which is the linearity assumption, where phonological representations consists of string of segments. These sound units or phonemes of a language are building blocks, which occur in a row never one on-top of another or overlapping." This justifies the appeal towards a non-linear orientation- that is, autosegmental phonology to account for features that do not occur in a row but above segments. Halle and Vergnaud (1982:62) also agree with Goldsmith (1976);

explaining that 'what has been novel about autosegmental phonology is that the tones of an utterance are not viewed as diacritics of vowels/syllables; rather they constitute an autonomous sequence of entities, separate from and equal to the sequence of consonants and vowels that make up the phonemic core of the utterance.

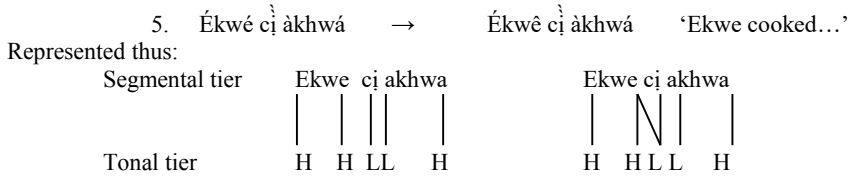
Furthermore, Ikekeonwu (1996) and Oyebade (1998) agree that with the advent of the autosegmental orientation, phonologists can conveniently account for suprasegmental features in their phonological analysis. Again, it is creditably adequate for explaining the operations of complex phenomena like contour tones, floating tones and tone stability in tone language. This indeed makes it a worthwhile venture because, for such a framework to be accredited a true linguistic insight, it must prove itself universally capable of operating effectively beyond tone to include tonological processes, phonological processes and so on in different languages.

Although the autosegmental approach came to solve some problems inherent in the earlier theories:- Classical phonemics and Generative phonology and also formed the foundation for other non-linear models of analysis, though it initially had flaws. Some of its weaknesses include: The earliest model of autosegmental phonology concentrated only on the relationship between tones and other features; that is why they were represented in terms of tonal and segmental tiers linked by a universal convention that Goldsmith calls WFCs (but revised editions came to take care of this). Also, the autosegmental framework could not handle phenomena like stress, length, lenition, and so on; which the Metrical phonology framework and VC phonology could do (c.f. Szigetvári (1999); Dienes (2000); Anyanwu (2008)). Lastly, autosegmental phonology approach is time consuming because of the diagrams and detailed explanation it requires. Despite these aforementioned weaknesses, this paper still finds the autosegmental phonology framework very useful in analyzing tones and tonal processes in Berom.

### Empirical Studies

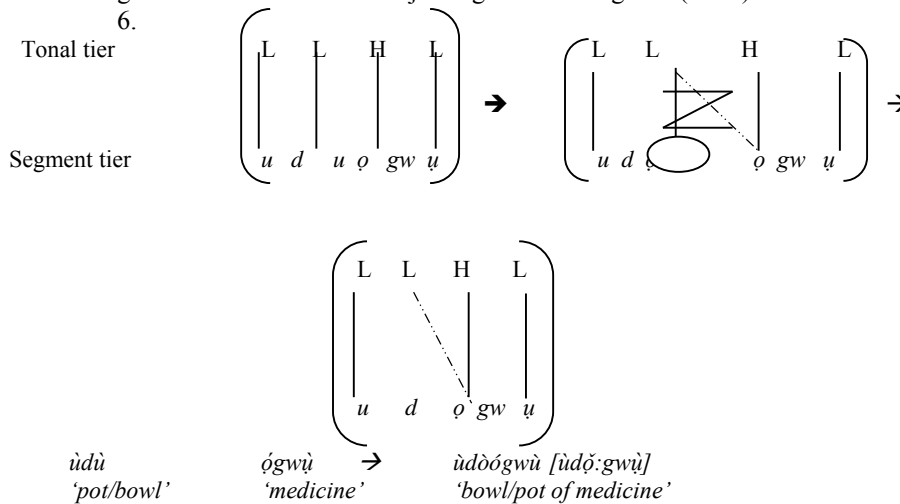
Goldsmith (1976) used the autosegmental approach to show how contour tones could be represented autosegmentally citing an example from Green & Igwe (1963). He observes that the Igbo tone of the verb

stem, suffixes and prefixes is informed by the nature of the ‘form’ clause. An example of a contour tone realization in Qhũhũ Igbo was illustrated in Goldsmith (1976:44-45)



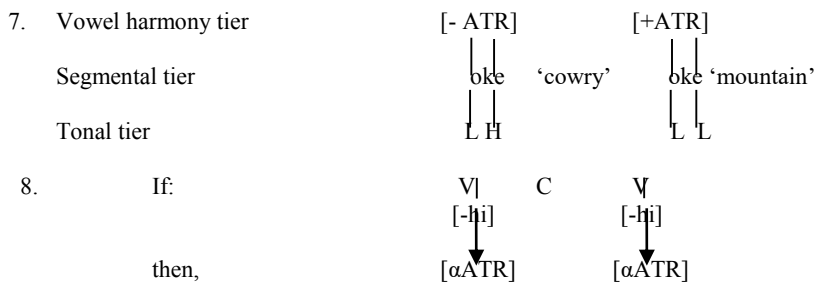
We can observe from the above example that the contour tone influence is from right-to-left (L←R). The final vowel of ‘Ekwe’ is associated with two tones H and L because of the structure of the clause and the process of assimilation.

Furthermore, the autosegmental model has been applied to a host of other phenomenon; one of which is floating tone. Ikekeonwu (2008:198) illustrates how contour patterns arise through derivation whereby an already associated vowel is elided, but the tone on the tonal tier remains, since tones rarely drop out in Igbo. These ‘floating tones’ then ‘dock’ to an adjoining tone bearing unit (TBU):

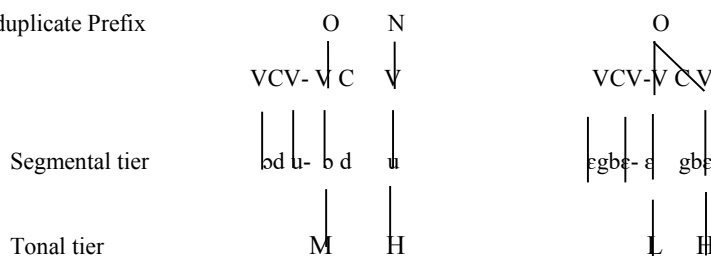


We can see from examples (5) and (6) above that Igbo tones are answerable to autosegmental analysis. The tonal and segmental tiers were represented independently. Also, we see a scenario where floating tone is accounted for in example (6) above.

Oyebade (1998:133) also applied the autosegmental approach to a vowel harmony, reduplication and phonotactic constraints in Yoruba language. Examples (7), (8) and (9) below are illustrations of autosegmental representation of vowel harmony, phonotactic constraints and reduplication. However, it is observed that Yoruba operates partial vowel harmony:



9. Copy/Reduplicate Prefix



The argument put forward by Oyeade (1998) concerning the above analysis is that in such type of reduplication, the tonal tiers are not copied. Again, we see here that the autosegmental approach can be used to analyse tone, reduplication and even vowel harmony. The insights drawn from Oyeade's analysis are useful in a lot of ways as it proves the justification for the choice of the autosegmental phonological framework in this paper to handle the analysis of the phenomena of tone and tonal processes in Berom.

**Methodology**

The research design for this paper is basically descriptive; although the autosegmental theoretical framework is employed in the analysis of Berom tones and its derivations. Since the researchers are non-native speakers, data was elicited through the instrumentation of the Roger Blench's word list and a digital tape recorder from four language consultants using two field assistants.

**Data Presentation/Analysis**

**Tones in Berom**

Yip (2002:4) posits that a tone language is one in which an indication of pitch enters into the lexical realization of at least some morphemes. Welmers as cited in Oyeade (1992:51) states that some languages have lexically significant contrastive but relative pitch on each syllable. Berom obviously is one of such language. It is worthwhile to emphasize that just as has been mentioned earlier, the tone marking convention adopted here is that of Williamson and Emenanjo (c.f. Emenanjo 2015:135), which posits that all high tones should be unmarked, while all low and mid tones should be marked to reduce untidiness and for economy. Berom attests three basic register tones- high [´] (which will be left unmarked), mid [ˊ], low [ˋ] and two contour tones- falling [ˆ] and rising [ˊ]. These tones can function distinctively in Berom. Consider these examples:

**Berom Tone Types**

**Register tones**

10. a. shòt /ʃòt/ 'many'                      toh /to/ 'pound'      bang /baŋg/                      'mount'  
          shòt /ʃòt/ 'strangle'                      tòh /tò/ 'head'      bāng /bāng/                      'cover'  
          shòt /ʃòt/ 'judge'
- b. dyeng /dʒeŋ/ 'lie down'      ònèp /ònèp/                      'non living thing'      vos /vos/ 'pluck'  
          dyèng /dʒèŋ/ 'sneeze'      ònèp /ònèp/                      'catarrh'                      vòs /vòs/ 'clay'
- c. she /ʃe/ 'year'  
          shè /ʃè/ 'bamboo'

Examples (10a-c) above show that the three register tone types function distinctively in Berom, that is, they can differentiate between the meanings of words with the same phonemic composition.

**Contour tones**

11. a. wèi /wèj/ 'died'                                      sɪng /sɪŋg/ 'soak'                      hāi /haj/ 'bush'  
          wèi /wèj/ 'melt'                                      sɪŋ /sɪŋg/ 'local beer'                      hāi /hāj/ 'scoop up'
- b. \* chāng /ʃāng/ 'relation (Sng)'      dyàm /djàm/ 'money'                      \*chìng /ʃìŋg/ 'fly (Sng)'  
          chang /ʃāng/ 'relations (Pl)'      dyàm /djàm/ 'iron/metal'                      ching /ʃìŋg/ 'flies (Pl)'
- c. lǒh /lǒ/ 'sharpen'                      rêy /rèj/ 'pot'                      wèi /wèj/ 'died'  
          loh /lò/ 'home/house'                      rěy /rěj/ 'parents'                      wèi /wěj/ 'melt'

Also, it is clear that from example (11) above, contour tones in Berom can bring about meaning difference between words with same phonemic composition. Except “*chàng*” and “*chìng*” which were asterisked in (11b) where it brings about plural formation.

### Tone distribution in Berom

The Tone Bearing Units (TBUs) in Berom are vowels and the syllabic nasal. Tone distribution in Berom shows that high and low tones can occur in the first, second, third and other syllables of a word, but the occurrence of mid tones seem to be restricted to word initial and word final environments only. The data below clearly illustrates this:

12. a. /H/ á ‘it is’, é ‘him/her/it’, dá ‘father’, chat ‘among/at’, bóp ‘early’  
 b. /HH/- pá má ‘brass/bronze’, péng péng ‘penury’, só ró ‘roof’  
 c. /HHH/- shágá rák ‘stubborn/sloppy’, shé rék shé ‘disorderly’, só gólók ‘indistinctly’  
 d. /L/- à ‘of/for’, èy ‘yes’, dà ‘without’, chèn ‘language’, gbòng ‘hat’  
 e. /LL/- àròng ‘also/too’, òsòng ‘breath’, gwònòn ‘wood pecker’, gwòò  
 f. /LLL/- àgùgù ‘fern’, nègàràng ‘height/diameter’, nèbwèrèp, àyàbà ‘banana’  
 g. /M/- nòd ‘boil’, gām ‘he-goat’, kūt ‘caterpillar’, mīn ‘spider’, fū ‘mat’  
 h. /MM/- gōrō ‘roundness’, vūrū ‘brain’, sōrō ‘marrow’, jāmā ‘hunt’

From example (12) above, it is obvious that the mid tone does not occur as often as the high and low tones in Berom. Besides, contour tones as in Rising and falling occur in Berom in both first and other syllable of words. Examples include:

### 13. Rising tone [ ˊ ]

- |    |         |           |                                      |
|----|---------|-----------|--------------------------------------|
| a. | pyǎl    | /pjǎl/    | ‘garden egg’,                        |
| b. | nèbwěj  | /nèbwěj/  | ‘breadth/width’                      |
| c. | ngàrà m | /ngàrà m/ | ‘wild date’                          |
| d. | ntěj    | /ntěj/    | ‘saliva/spittle’                     |
| e. | wěj     | /wěj/     | ‘to melt’                            |
| f. | tǎlú    | /tǎlú/    | ‘floating’                           |
| g. | pyǎn    | /pjǎn/    | ‘stone wall dividing separate rooms’ |

### 14. Falling tone [ ˋ ]

- |    |         |           |                       |
|----|---------|-----------|-----------------------|
| a. | pyê ré  | /pjê ré/  | ‘food stuffs’         |
| b. | rétô    | /rétô/    | ‘power/authority’     |
| c. | sákwèt  | /sákwèt/  | ‘wild sugar cane’     |
| d. | zàngwêy | /zàngwêy/ | ‘noon day sun’        |
| e. | zing    | /zîng/    | ‘virgin’              |
| f. | gwông   | /gwông/   | ‘footpath/motor road’ |

### Functions of Tone in Berom

There are basically two broad roles tones perform in Berom- They are lexical and grammatical functions.

Lexical Function: Tones can be used to distinguish the meaning of two or three words. That is, they can differentiate the meaning of words that have the same phonemic composition. This is a lexical function of tone. As can be seen in example below:

- |     |                 |                  |                           |                     |
|-----|-----------------|------------------|---------------------------|---------------------|
| 15. | ba /ba/ ‘knife’ | lee /lee/ ‘lick’ | lol /lol/ ‘acha chaff’    | bang /bang/ ‘mount’ |
|     | bā /bā/ ‘two’   | lèé /lèé/ ‘song’ | lòl /lòl/ ‘lift down’bàng | /bàng/ ‘cover’      |

Grammatical function: When tones function within phrases and clauses to bring about change in meaning, the function is said to be grammatical. In Berom, tones can be used to differentiate between some singular and plural nouns. This is a grammatical function. Example (16) below illustrates this:

- |     | Singular  |         | Plural                |        |         |                        |
|-----|-----------|---------|-----------------------|--------|---------|------------------------|
| 16. | a. chògòt | /ʃògòt/ | ‘tree’                | chogot | /ʃogot/ | ‘trees’                |
|     | b. pyè    | /pjè/   | ‘thing’               | pye    | /pje/   | ‘things’               |
|     | c. rwík   | /pjǎ/   | ‘rope’                | rik    | /rik/   | ‘ropes’                |
|     | d. chǐng  | /ʃǐng/  | ‘fly’                 | ching  | /ʃing/  | ‘flies’                |
|     | e. pyǎ    | /pjǎ/   | ‘coral tree’          | pyá    | /pja/   | ‘coral trees’          |
|     | f. pyǎn   | /pjǎn/  | ‘wall dividing rooms’ | pyan   | /pjan/  | ‘walls dividing rooms’ |
|     | g. shǎp   | /ʃǎp/   | ‘basket’              | shap   | /ʃap/   | ‘baskets’              |
|     | h. shěp   | /ʃěp/   | ‘young female animal’ | shép   | /ʃep/   | ‘young (f) animals’    |
|     | i. shòk   | /ʃòk/   | ‘bee’                 | shok   | /ʃok/   | ‘bees’                 |
|     | j. shòt   | /ʃòt/   | ‘weevil’              | shot   | /ʃot/   | ‘weevils’              |
|     | k. shùgu  | /ʃùgù/  | ‘speck’               | shugu  | /ʃugu/  | ‘specks’               |

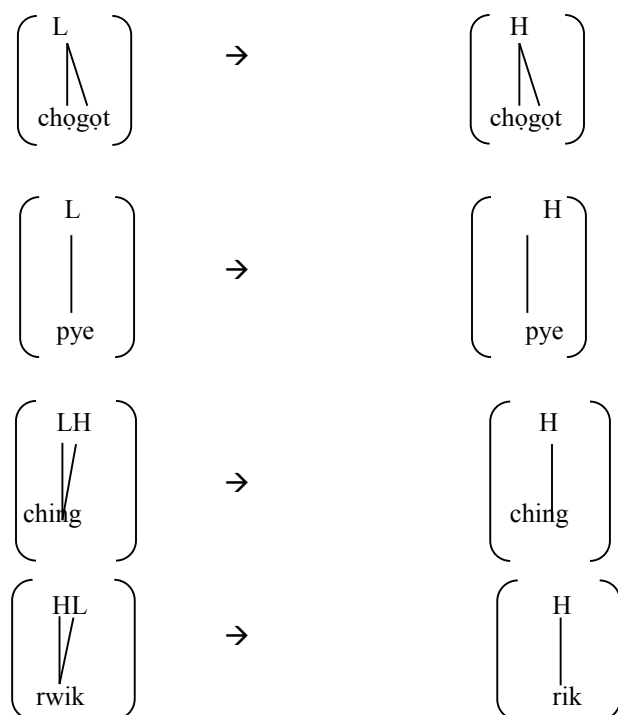
In example, (16) above, the high tone is seen as a plural marker to derive the plurals of some nouns. As we can see in (16), wherever there is a rising tone as in (c), (d), (e), (f), (g) and (h) it becomes a high tone and when it is a low tone as in (a), (b), (i), (j) and (k), the plural form becomes a high tone. Notice also that in (c), the consonant /w/ was deleted in the plural derivative, there are lots of instances where this occurs in Berom. Notwithstanding, this explains that the high tone morpheme serves as plural marker in some plural formations. Again in Berom, tones can be used to differentiate present and past tenses from progressive aspect. This can be seen in the example below:

	<b>Present Tense</b>	<b>Past Tense</b>	<b>Progressive Aspect</b>
17. a.	sàngal /sàngál/ 'sit'	sàngal 'sat'	sangal /sangal/ 'sitting'
b.	tùlam /tùlám/ 'stand'	tùlam 'stood'	twalam /twalam/ 'standing'
c.	talà /tálá/ 'finish'	talà 'finished'	tala /tala/ 'finishing'
d.	yàlà /jálá/ 'call'	yàlà 'called'	yala /jala/ 'calling'
e.	vùrù /vùrù/ 'lose'	vùrù 'lost'	vuru /vuru/ 'losing'
f.	twālā /twālā/ 'gather'	twālā 'gathered'	twala /twala/ 'gathering'
g.	ki /ki/ 'go'	ki 'went'	ki /ki/ 'going'
h.	jùt /džùt/ 'carry'	jùt 'carried'	jut /džut/ 'carrying'
i.	tè /tè/ 'put'	tè 'put'	te /te/ 'putting'

In example (17), note that the grammatical high tone is also used to signal progressive aspects in Berom. Where there is a low or mid tone, a high tone replaces it. But, wherever there is a high tone as in (a)-(c), the high tone is still maintained.

#### Autosegmental Representation of Berom Grammatical Tones (Plural Derivation)

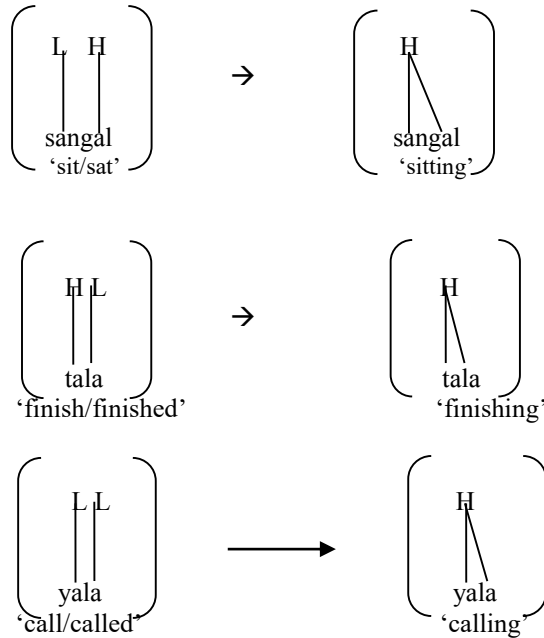
The plural derivations in example (16a-c) above is autosegmentally represented thus:



Drawing from the schema above, it is observed that the low tone of these singular nouns becomes high when the plural form is derived. Therefore, we can say that in the formation of some plural forms in Berom, the tones of some nouns are raised as can be gleaned in the schema above.

#### Autosegmental Representation of Berom Grammatical Tones (Progressive Aspect Derivation)

The progressive aspect derivations in example (17a, c and d) above can be autosegmentally represented thus:



The schema above clearly shows that in Berom, the derivation of the progressive aspect of Berom verbs involves a raising of the tone; where it is low or mid in the present or past tense form, it becomes a high tone in the progressive aspect form. Therefore, there is a consistent raising of the tones of all the present and past tense verbs in order to derive the progressive forms.

**Grammatically-Conditioned Tone Processes**

The term ‘grammatically conditioned tone processes’ was discussed in pages 5-6 above. As explained earlier, there are some morpho-phonemic tone rules which affects Berom tones in certain grammatical environments or contexts they include:

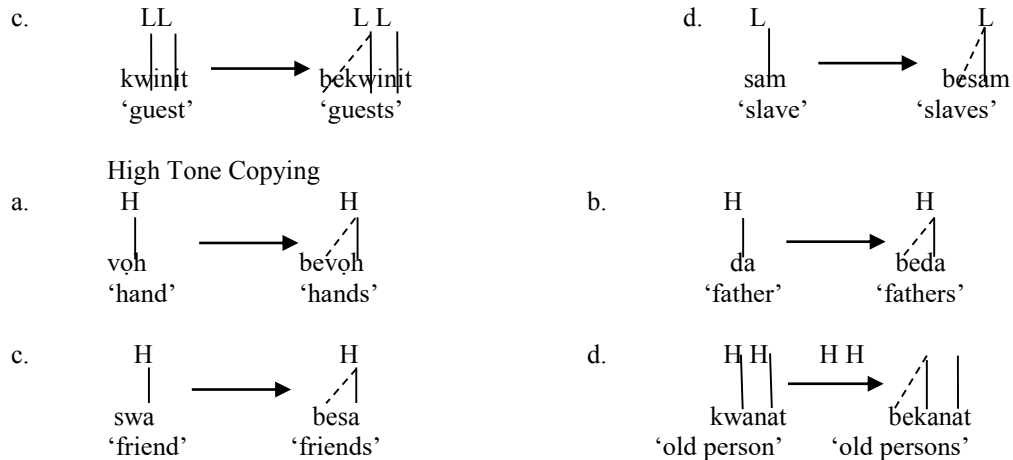
**Tone Copying:** There are instances where a tone in a syllable copies exactly another tone in another/neighbouring syllable (Abiodun 2007:69 & Anyanwu 2008:264). This occurs when the tone of the plural prefix ‘be-’ of some nouns copy the tone of the root word. In this instance, the prefix ‘be-’ is toneless but it acquires its tone from the immediate neighbourhood (from a preceding or following syllable). The examples in (18) and (19) below illustrate this:

- Low Tone Copying**
18. a. **dùk** /dùk/ ‘room’ → **bè-dùk** /bèdùk/ ‘rooms’  
 b. **vwònòs** /vwònòs/ ‘doctor’ → **bè-vwònòs** /bèvwònòs/ ‘doctors’  
 c. **kwinit** /kwinit/ ‘stranger’ → **bè-kwinit** /bèkwinit/ ‘strangers’  
 d. **sàm** /sàm/ ‘friend’ → **bè-sàm** /bèsàm/ ‘friends’  
 e. **gwòng** /gwòng/ ‘road’ → **bè-gòng** /bègòng/ ‘roads’
- High Tone Copying**
19. a. **voh** /voh/ ‘hand’ → **be-voh** /bevoh/ ‘hands’  
 b. **da** /da/ ‘father’ → **be-da** /beda/ ‘fathers’  
 c. **swa** /swa/ ‘friend’ → **be-sa** /besa/ ‘friends’  
 d. **kwanat** /kwanat/ ‘old person’ → **be-kanat** /bekanat/ ‘old people’  
 e. **mwad** /mwad/ ‘person’ → **be-mad** /bemad/ ‘people’

Diagram Indicating Tone Copying in Berom





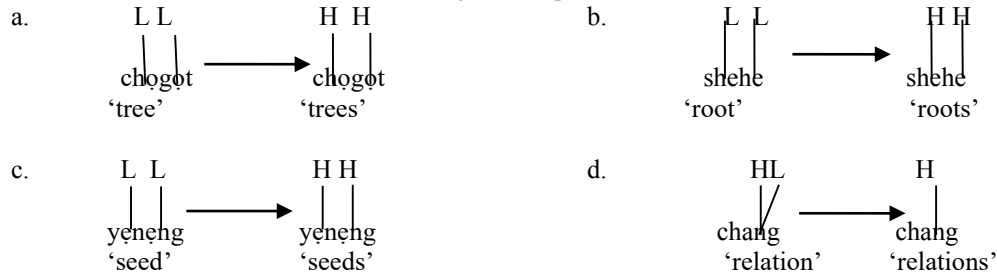


We can notice that the diagrams representing (18) and (19) above, clearly illustrates the fact that the tone of the plural marker prefix ‘be-’ becomes low before a L-tone noun stem and high before a H- toned noun stem. Since the tone of the plural prefix ‘be-’ is identical to the stem which immediately follows it, it therefore shows that this plural morpheme marker ‘be-’ is represented with no underlying tone in Berom.

**Tone Replacement:** Just as morphs could be replaced in internal modification, tones could also be replaced with another tone. Yip (2002:108) notes that tonal replacement (or displacement) is a case where morphemes override the tones of their roots, sometimes replacing them entirely. This can occur in languages where both segmental and tonal morphemes operate. This phenomenon operates in Berom as witnessed in the derivation of some plural forms; where the tone of some nouns is replaced with another tone in the formation of plurals.

Singular	Plural
20. a. chògòt ‘tree’	chogòt ‘trees’
b. shèhè ‘root’	shehe ‘roots’
c. yènèng ‘seed’	yeneng ‘seeds’
d. yàna ‘louse’	yana ‘lice’
e. chàng ‘relation (N)’	chang ‘relations (N)’

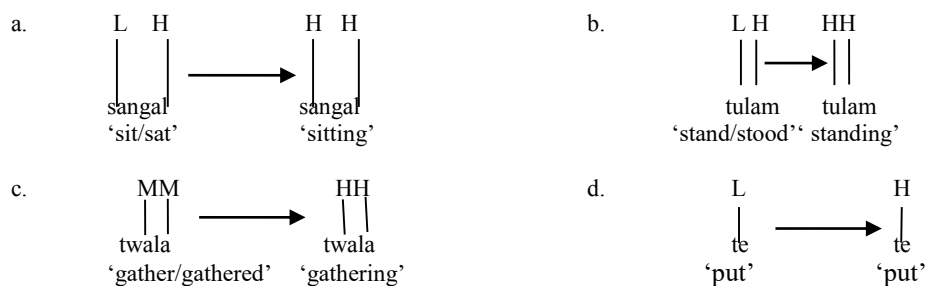
Schema for Berom Plural Derivation Indicating Tone Replacement



The diagrams above illustrate the situation in example (20) above, where a grammatical high tone is seen as a plural morpheme to derive the plurals of some nouns. Here, the low tone in (a) - (c) are completely replaced with a grammatical high tone same as in (e)- the falling tone is also completely replaced with a high tone but in (d), it seems to be a partial replacement because the second syllable of the word is high toned, it is not replaced; it is only the first syllable which is low toned that is replaced that is why the replacement here is said to be partial. In the same vein, low tones of some verbs can be replaced entirely by a high tone in the derivation of Berom progressive aspects like in example (21) below:

Present/Past Tense	Progressive Aspect
21. a. sàngal ‘sit’	sangal ‘sitting’
b. tùlam ‘stand’	tulam ‘standing’
c. twāla ‘gather’	twala ‘gathering’
d. tè ‘put’	te ‘putting’
e. ki ‘go’	ki ‘going’

Diagram for Berom Progressive Aspect Indicating Tone Replacement



It is evident from the schema representing example (21) above that tonal replacement in Berom occurs when the inherent tones of a morpheme is replaced by a grammatical tone. Thus, in the examples above, it is evident that Berom progressive aspect is usually constructed by replacing the low tones of the verb stem with a grammatical high tone. Another observation made in example (21) above, is that, the replacement could either be complete or partial. The low and mid tones of (c) – (e) are completely replaced with a grammatical high tone. But in examples (a) and (b), the replacement is partial because it is only the tone of the first syllable that was replaced while that of the second syllable was maintained.

### Conclusion

There is no end to the quantity/quality of information gathered about a language. And since, studies in language is a progressive venture, it is worthy to note here that what has been done here is not all exhaustive. In this paper, we have examined tones, tone copying and tonal replacement in Berom. This paper has also shown that the autosegmental approach can be used to analyze Berom tones and tonal processes (which is in line with the objective of this paper). Again, the adoption of the autosegmental theoretical framework in the analysis of Berom tones gives a clearer view of the tonal behaviour of words in Berom (both as root words and derived forms).

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