

AN AUTOSEGMENTAL STUDY OF TONE IN IGBO LANGUAGE

Nneoma Fyne Ugorji, Ph. D

Clifford University, Owerri, Abia State, Nigeria.
nneoma_ugorji@yahoo.com 07063737095

Abstract

Igbo is a language under the New Benue-Congo which is a sub-branch of the Niger-Congo languages. Igbo is a language spoken in southeastern part of Nigeria. Tone is the distinctive pitch level of a syllable. This paper is aimed at examining tones in some aspects of the Igbo language. Data for the study were obtained from competent native speakers by the elicitation method of recording and observation of the speakers as they pronounced some Igbo words. Some of the objectives of this paper are: to demonstrate the occurrence of downdrift in Igbo as a register tone language, to show that a floating high tone displaces a low tone at word boundary and gets relinked to the immediate segmental tier. The framework adopted for the analysis of data in this paper is the Autosegmental Theory of tonal analysis where lines are used in the connection of the tonal tiers to the segmental tiers. Some of the findings in this paper are: that in the imperative verb form, the high and low tone verbs take a low tone harmonizing suffix, that downdrift in Igbo, is as a result of tone lowering on account of their position in an utterance, that downstep tones occur at word boundary between two high tones or at word final positions where the preceding tone is high.

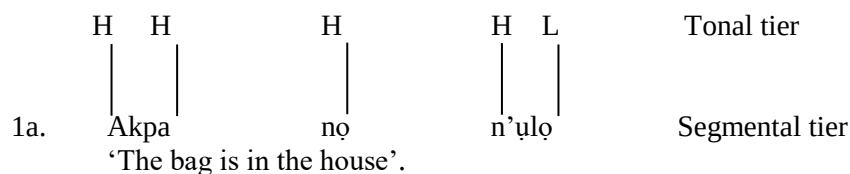
Keywords: Tone, Pitch, Downstep, Downdrift, Autosegmental and Tonal Tiers.

Tone

The word, 'tone' transcribed [t n] is a monosyllabic word. Tone is the distinctive pitch level of a syllable. Tone is the rise and fall of the voice in an utterance. This could be a word, phrase, or a full sentence. Tone is a phonetic feature which depicts how high or low a syllable is. Welmers (1973, p.172) has it that, "tone has to do with the distinction of pitch in the flow speech" From Welmers's assertion, one can say that tone is used to establish contrasts in the pitch of voice in an utterance. According to Ogbalu (1974, p.18), "tone is the stress on the syllable of a word, whether they are high, low or intermediate". This means that tone is physically marked on a word to show the pitch of the voice on that syllable. Williamson (1984, p.41) defines tone as "the pitch of the voice". This means that 'tone' as defined here is in reference to the loudness of one's voice, which contrasts with other referents of the word like: the shade of colour, the firmness of one's muscle, the character, attitude or the general atmosphere of a thing. Crystal (1987, p.172) states, too, that, "in well over half of the languages of the world, it is possible to change the meaning of a word simply by changing the pitch level at which it is spoken". Thus, words which are spelt alike could

have different meanings by just a contrast in the pitch of voice. Ifode (1995, p.77) defines tone as the “variations in pitch which affect the meaning of words”. In other words, one can say that tones are meaning-bearing segments since a variation in tone leads to a change in meaning. Ejele (1996, p.76) asserts that tone is “the significant but relative pitch on each syllable”. Thus, for one to say that a tone is high or low, it must be in a relative comparison with other tones in the same construction with it. Matthews (2007, p.409) defines tone as a phonetic or phonological unit belonging to a set distinguished or primarily distinguished by levels of or by changes in pitch”. This implies that tone is a phonetic feature which depicts variations in the pitch of voice as one speaks. Essien (2008, p.58), refers to tone as “contrastive pitch”. By Essien’s assertion, for tone to be a phenomenon in a language, it must be in contrast with other tones in that language.

Autosegmental phonology is a theory of tonal analysis proposed by Goldsmith in 1976. The major premise of autosegmental phonology is that speech observed as articulatory activity consists of gestures such as tongue movement, lip movement and language activities which are coordinated, but which by no means start and finish all at the same instant. (cf. Akmajian, A., Demers, R. A, Farmer, A. K. and Harnish, R.M. 2008, pp.140-144). In this theory, sounds are not seen as simple rows of segments as in the Standard Linear Theory where all phonological processes are seen to be taking place at one single level. In Autosegmental Theory, phonological representations are regarded as complex arrays of elements arranged on different levels or tiers. Matthews (2007, p.33), commenting on autosegmental phonology, indicates that, in it, autosegments are represented at a structural level which is higher than that of the individual vowel or consonant segments. The ways in which they are realised in particular forms are then shown by association lines which relate the units at each structural level, or tier, to an autosegmental tier that marks the tone of each syllable which could be high (H) or low (L). We may illustrate this using the Igbo sentences below:

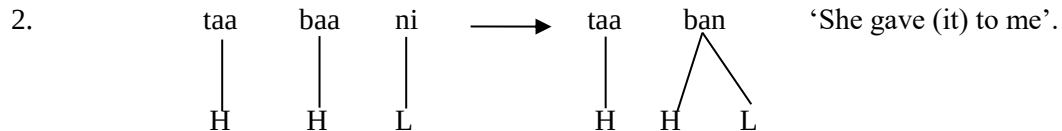


‘I want to drink water’ (I am thirsty).

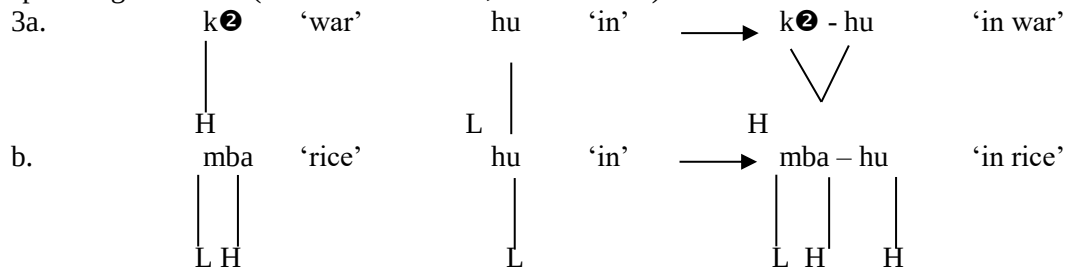
According to Leben, (2006, p.1), “an attractive aspect of autosegmental phonology pointed is that it posits a simple, elegant theory of operations. These are restricted to the following:

- Add a tone
- Add a link
- Delete a tone
- Delete a link

These simple operations provide an explicit way of framing analyses”. He goes on to illustrate how elegantly the autosegmental formalism captures the Hausa contraction rule.

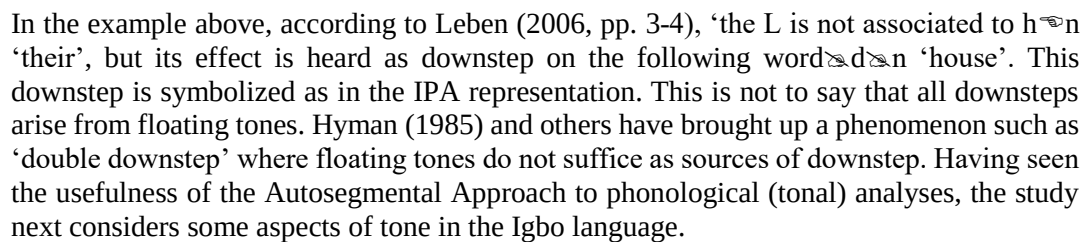


According to Leben (2006, p.2), “the rule neither affects tone nor is conditioned by tone. It simply states that pronouns such as first person singular **ni** ‘me’, lose their vowel in specific cases. In the example above, when the vowel is deleted, its tone remains. Due to a general principle of Hausa, this tone is unable to remain as unassociated or floating tone and so it must link up to some TBU (Tone Bearing Unit). Due to the general constraints of autosegmental phonology, the only available candidate is the TBU of **ba** ‘n’. The resulting tone is, thus, a rise and fall glide. Another argument of Leben (2006, p.2) is that the autosegmental principle captures tone spreading, too. He provides an example of tone spreading in Mende (South West Mende, Sierra Leone).



In (3a-b), hu ‘in’, which has a low tone assimilates the high tone of the preceding segment due to tone spreading.

4a. h^hn ‘their’ ḏḏn ‘house’



Igbo as a register tone language has two significant tone levels which are high and low. There is also a tonal phenomenon referred to as downstep. Tone in the Igbo language plays significant roles in the grammar of the dialect, cf. Anyanwu (2007, p. 4). In this paper, the behaviour of tones in the imperative mood, past and present perfect tenses, and the habitual aspect will be considered. The occurrence of downstep, downdrift and floating tones will also be demonstrated as a feature of the dialect.

In Igbo, the imperative verb forms take a harmonizing vowel suffix which is also a tone bearing segment. In the imperative verb form, the high tone verbs take a high tone suffix, while the low tone verbs also take a high tone suffix. The high tone verbs change the high tone of their stem to a low tone and the low tone verbs retain the low tone of their stem. However, the juxtaposition of the low and high tone in the high tone imperative verb forms give low-rising tones in both the high and low tone verbs which give low-rising contour patterns showing that there are also tonal glides in the dialect. For example:

5a. $\begin{array}{cc} L & H \\ | & | \end{array}$ b. $\begin{array}{cc} L & H \\ | & \end{array}$ c. $\begin{array}{cc} L & H \end{array}$

r i e ‘eat’
g a a ‘go’
n u o
 ‘hear’

1.2.2. Low Tone Imperative Verb Forms

6a. L H
b. L H
c. L H
| |
| |
| |
b a a ‘enter’
z a a ‘sweep’
k e e ‘share’

1.3. Tone Pattern of Past Verb forms

The –rv suffix in the Igbo language is used to mark the past tense and to indicate an assertive statement. The vowel of the –rv suffix also harmonizes with the vowel of the verb stem. The –rv suffix inherently has no vowel of its own but copies the vowel of the verb to which it is suffixed. In the past verb form, the high tone verbs lose their high tone which is copied by the vowel of the –rv suffix, but the low tone verbs retain their low tone in the past verb form and the vowel of the –rv suffix copies the low tone, in low tone verbs. For example:

1.3.1. High Tone past Verb Forms

8a. L L
b. L L
c. L L
| |
| |
| |
r i r i
g a r a
n u r u
 ‘ate’ ‘went’ ‘heard’

1.3.2. Low Tone past Verb Forms

9a. L L
b. L L
c. L L
| |
| |
| |
b a r a
z a r a
k e r e

1.4. Tone of the Perfective Verb Form

The perfective, in the Igbo language, is expressed by the use of a harmonizing prefix a-/e-, the harmonizing imperative suffix, and the perfective suffix –la. In the perfective, the high

tone verbs retain their high tone, but take a low tone prefix and high tone imperative and perfective suffixes, while the low tone verbs retain their low tone in the root, but they take a high tone prefix and high tone imperative and perfective suffixes. For example:

1.4.1. High Tone Perfective Verb Forms

- 10a. $\begin{array}{cccc} & L & & H & & H & & H \\ & | & & | & & | & & | \\ e & r & i & e & l & a \end{array}$
'has eaten'
- b. $\begin{array}{cccc} & L & & H & & H & & H \\ & | & & | & & | & & | \\ a & g & a & a & l & a \end{array}$
'has gone'

1.4.2. Low Tone Perfective Verb Forms

- 11a. $\begin{array}{cccc} & H & & L & & H & & H \\ & | & & | & & | & & | \\ a & b & a & a & l & a \end{array}$
'has entered'
- b. $\begin{array}{cccc} & H & & L & & H & & H \\ & | & & | & & | & & | \\ e & k & e & e & l & a \end{array}$
'has shared'

1.5. Tone of the present tense and habitual aspect

The present tense and the habitual aspect are marked by the use of a low tone prefix which is the auxiliary 'na' 'is' for the present tense and the habitual aspect. The auxiliary 'na', is joined to the verb with a dash (-) in writing. In both the present tense and the habitual aspect, the verb takes a harmonizing prefix a-/e- attached to the stem. The prefix 'a-', is used with the verbs that have contracted vowels [ɔ̃, ɛ̃, ɔ̃, ɛ̃], while the prefix 'e-', is used with verbs that have expanded vowels [i, e, o, u]. These are illustrated below:

1.5.1. High Tone Present and Habitual Verb forms

- 12a. $\begin{array}{cccc} & L & & H & & H \\ & | & & | & & | \\ n & a & - & e & r & i \end{array}$
'is eating/eats'
- b. $\begin{array}{cccc} & L & & H & & H \\ & | & & | & & | \\ n & a & - & a & g & a \end{array}$
'is going/goes'

1.5.2. Low Tone Present and Habitual Verb forms

- 13a. $\begin{array}{cccc} & L & & L & & L & & L \\ & | & & | & & | & & | \end{array}$
- b. $\begin{array}{cccc} & L & & L & & L & & L \\ & | & & | & & | & & | \end{array}$

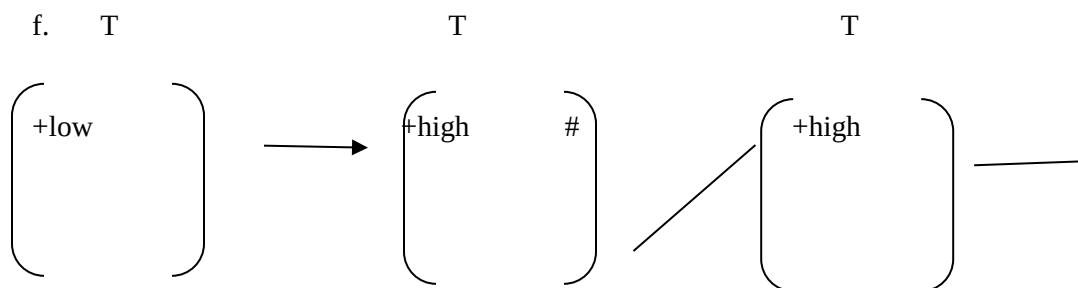
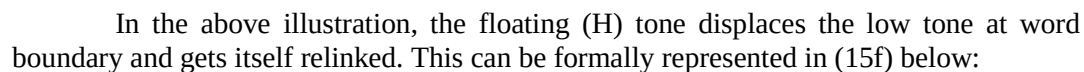
n a - e k e
'is sharing/shares'

Downstep is a phenomenon in register tone languages where in a sequence of two high tones, the second-high tone is slightly lower in pitch than the preceding high. Emenanjo (1978, p.12) describes the downstep as “a high tone which is one step lower than the preceding high tone”. The downstep is usually marked with an arrow [↘] pointing downwards or with a macron [-] placed above the syllable. In this paper, the argument is that the downstep is a tonal phenomenon that occurs after a high tone only but cannot occur in isolation or in word initial position. In examples (9a-b) below, the second tone is a downstep and it is designated ‘S’ in the autosegment. For example:

b. H S
 |
 i 'head'

The term ‘floating tone’ has been used to refer to tonal segments which at a given moment in derivation are not associated with any vowel or tone bearing segment, (cf. Goldsmith 1990, p.20). The argument behind this is that if a tone bearing segment is deleted, say, a vowel or a syllabic consonant, the tone associated with it may be said to become floating. Katamba (1989, p.139) says that “floating tones are tones which occur without being associated with any vowel or tone bearing segments. In adjacent position, floating tones get segmentalized on nearby tone bearing syllables”. Matthews (2007, p.141) states that a floating tone is “a tone in a tone language which is not associated at an underlying level of segmentation with a syllable or other segment”. In other words, floating tones are loose tones seeking a tone bearing segment to which it can relink. For example:

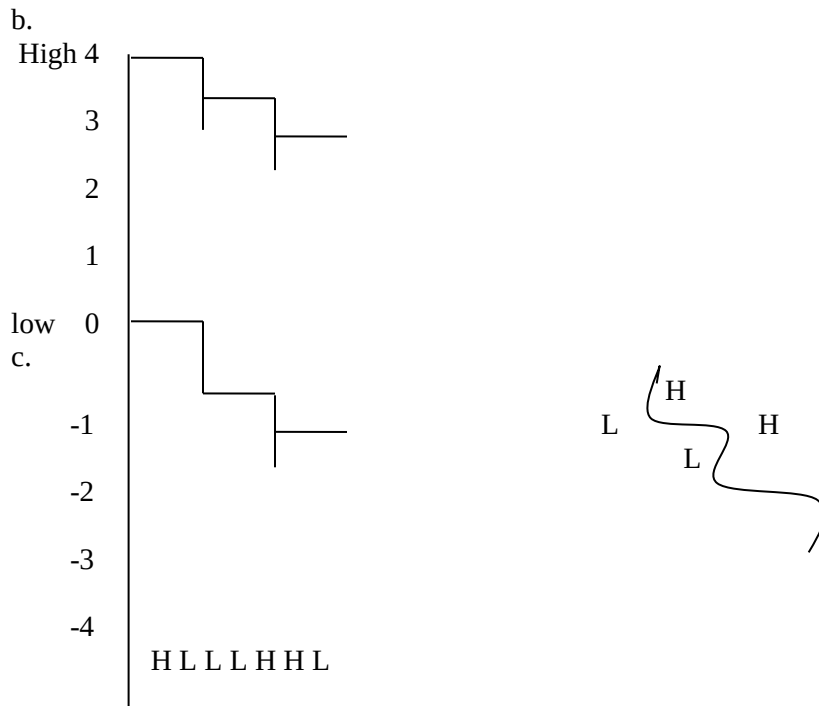
15a.	H		H		L		L		L			
	V		C		V	C	V	C	V			underlying
												representation
	i		s		i		o	t	u		v	u
			'head'				'navel'					'top of navel'
b.	H		(H)		L		L		L			



Downdrift is a phenomenon found in registered tone languages. It is the automatic and predictable lowering of tones on account of their position in an utterance. As a result of

downdrift, the pitch of a high tone is lowered by one step every time it follows a non-initial low tone and that of a low tone is lowered by one step every time it follows a high. Therefore, in an utterance, there is a series of alternate high and low tones. Because of the automatic lowering of these tones, the utterance progresses down like the levels of a terrace or the steps of a staircase. Downdrift is illustrated below in Igbo.

- 16a. Anyi ga-aaga udo.
[ʔ - - - ʔ ʔ ʔ ʔ ʔ -]
H L L L H H L
'We shall go home'.

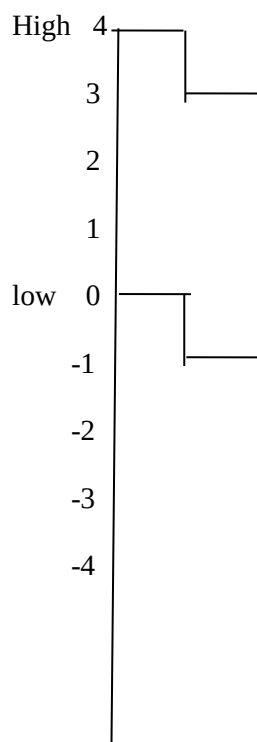


In the example above, the basic high is at level 4, while the basic low is at level 0. The basic high lowers the next low to level -1, and this lowers the next high to level 3, which in turn lowers the next low to level -2, and this lowers the next high to level 2. The -2 lowers the next high level to level 1, which in turn lowers the next low level to -3. The -3 lowers the next high level to 0 and this, in turn, lowers the next low to -4. Thus, the alternating highs and lows progress like the steps of a staircase. The utterance has three perceptibly different

pitch levels of high, (the last high being downstepped) and four levels of low. The figure in (16b) represents a staircase while that of (16c) represents a terrace with alternating high tones and low tones in decreasing heights. Downdrift occurs not only in sentences, but also in words that have more than one syllable of both high and low or a disyllabic word with two high tones. For example:

d. a kwu kwɔ
 [ʔ - ʔ]
 H L H
 ‘book’

e. n n se
 [ʔ ʔ]
 H S
 ‘mother’

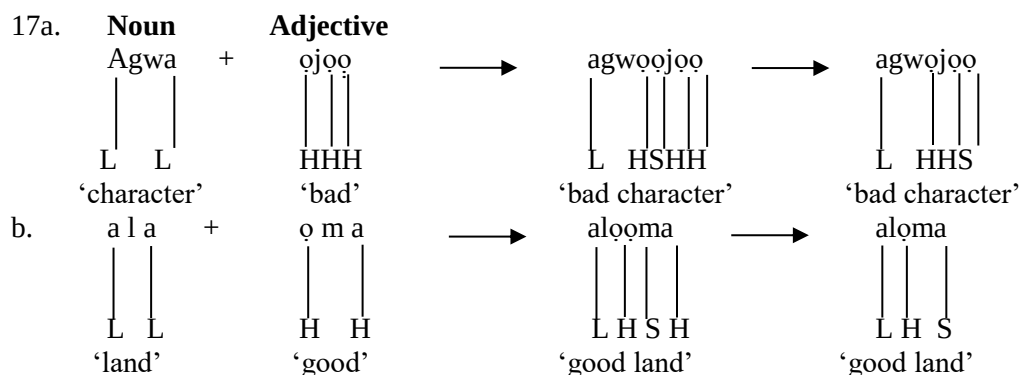


In (16d) above, the basic high is at level 4, while the low is at level 0. The basic high lowers the next low to -1, and this lowers the next high to level 3. Level 3 lowers the next low to -

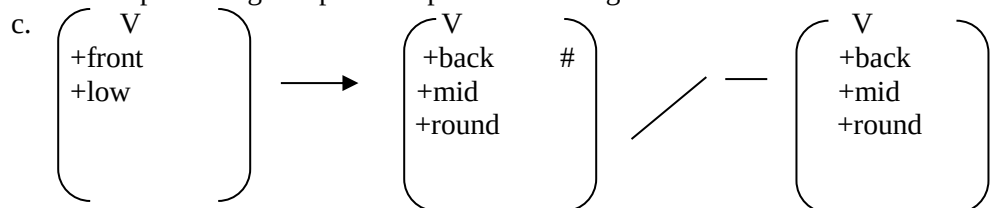
2 which, in turn, lowers the next high to 2. This high level 2, lowers the next low level to -3 which lowers the next high level to 1. The level 1, lowers the next low level to -4 which, in turn, lowers the high level to zero. The utterance in (16d) has two perceptibly different high pitch levels and one low.

1.9. Tone Assimilation and Tone Deletion in Igbo

In Igbo, tone deletion occurs at word boundary in rapid speech when two independent words come together to form another word. For example:



The rule representing this phonetic process can be given as:



This rule reads that a front, low vowel becomes a back, mid, rounded vowel at word boundary before a back, mid, rounded vowel.

In the above examples, at word boundary, there is an anticipatory assimilation of both the tone and the vowel of the adjective. While the vowel and tone of the noun at word boundary are deleted, that of the adjective is retained.

1.10. Functions of Tone in Igbo

In Igbo, as in many other tone languages, tones perform lexical and grammatical functions. This means that tones can cause a change in meaning in sentences or words that are similar

in structure. Below, is a brief account of the lexical and grammatical functions of tone in Ngwa.

1.10.1. Lexical Functions of Tone in Igbo

Tone is a strong feature of words in the dialect, and words which are almost alike in writing are differentiated by tones. This is illustrated below:

- 18a. H H
 | |
 a k a
 ‘hand’
- b) L L
 | |
 a k a
 ‘hunch back’
- 19a. H H
 | |
 o l u
 ‘neck’
- b) L L
 | |
 o l u
 ‘well/ditch.’

1.10.2. Grammatical Functions of Tone in Igbo

Tone in Igbo is also used to differentiate the meaning of one sentence from the other. This is illustrated below using declarative, interrogative and the relative clauses.

- 20a. Kelechi b́iara ebe áa tha a. (Declarative)
 Kelechi came here today
- b. Kelechi Ó b́iara ebe áa tha a?
 Kelechi she came here today?
 Did Kelechi come here today? (Interrogative)
- c) Ádha gaara achi a (Declarative)
 ‘Adha went to the market’.
- d) Ádha gaara achi a (Relative Clause)
 ‘Adha that/who went to the market’.

In the contrast between the declarative and the interrogative, the tone of the subject is high in the declarative sentence, but low on the subject of the interrogative. On the contrast between the declarative and relative clause, the tone of the verb is low for the declarative construction, but high on the verb for the relative construction.

1.11. Conclusion

This paper has considered tone in the Igbo language. The paper re-established the fact that Igbo has two contrastive tones – high, low and a tonal phenomenon, called downstep, which occurs in a sequence of two high tones as a result of the lowering of the second high tone in pitch. First, it is found out that there are tonal glides of fall and rise in the use of verbs in the imperative mood in Ngwa-Igbo. It is also discovered that a floating high tone displaces a low tone at word boundary and gets relinked to the immediate segmental tier. Also, in Igbo in the perfective tense, the high tone verbs retain their high tone but take a low tone prefix and high tone imperative and perfective suffixes, while the low tone verbs retain their low tone in the perfective tense but take high tone prefixes and high tone imperative and perfective suffixes. This paper also reveals that there is downdrift in the Igbo language, as a result of tone lowering on account of their position in an utterance. Because of this, the pitch of a high tone is lowered by one step every time it follows a non-initial low tone and that of a low tone is lowered by one step every time it follows a high. Therefore, in an utterance, there is a series of alternate high and low tones. Because of the automatic lowering of these tones, the utterance progresses down like the levels of a terrace or the steps of a staircase. This paper also shows that the framework of autosegmental phonology helps to capture tone spreading after delinking and relinking of a floating tone as in (15a-e). The paper, in using the autosegmental framework has shown that tones, as autosegments are structural levels different from segmental phonemes. The autosegmental framework helps in representing tonal segments in Igbo in a simple, elegant and explicit manner. Finally, the lexical and grammatical functions of tones in Igbo are illustrated showing that tones play an important role in the meaning given to a word or a sentence in the dialect. This paper, therefore, stresses the fact that appropriate tone use is part of the linguistic competence of the native speakers of the Igbo language.

References

- Akmajian, A. Demers, R. A., Farmer, A. K. and Harnish, R. M. *Linguistics: An Introduction to Language and communication*. Fifth Edition. New Delhi: Prentice-Hall, 2008.
- Anyanwu, O. N. *The syntax of Igbo causatives. A minimalist account*. Port Harcourt: M & J Grand Orbit Communications Ltd, 2007.
- Emenanjo, E. N. *Elements of modern Igbo grammar*. Ibadan: Oxford University Press, 1978.
- Essien, O. E. *A grammar of the Ibibio language*. Ibadan: University Press Plc, 2008.
- Ezeibe, M. *Culture and traditions of my people*. Nsukka: Great AP Express Publishers Ltd, 2009.
- Gadour, J. T. *The perception of tone in V.A. Fromkin (ed). Tone: A linguistic*

- survey. New York: Academic Press Inc, 1978.
- Goldsmith, T. *An overview of autosegmental phonology (1976) in Goldsmith J.A Ed. phonological theory*. The Essential Readings. Oxford. Blackwell Publishers Ltd, 1990.
- Hornby, A.S., Wahmeier, S., McIntosh, C., Turnbull, J., Ashby, M. *Oxford advanced learner's dictionary of current English*. Oxford: Oxford University Press, 2005.
- Ifode, D. S. *Basic phonetics*. Port Harcourt: Sunray Publications, 1995.
- Igwe, G.E. and Green, M. M. *A short Igbo grammar*. Ibadan: Oxford University Press, 1970.
- Katamba, E. *An introduction to phonology*. New York: Longman Inc, 1989.
- Leben, W. R. *Rethinking autosegmental phonology*. Selected proceedings of the 35th Annual conference on African Languages and Linguistics edited by John Mugane, John P. Hutchinson and Dee A. Worman. Cascadilla proceedings Project Somerville, MA 2006 (WWW. Lingnet.com)
- Matthews, P. H. *The concise Oxford dictionary of linguistics*. Oxford: Oxford University Press, 2007.
- Nwankwo, M. U. *Understanding the original history of Aba*. Barnacity Graphics Aba, 2009.
- Ogbalu, F. C. *Standard Igbo. Path to its development*. Onitsha: University Publishing Company, 1974.
- Okonkwo, M. N. O. *A complete course in Igbo grammar*. Lagos: Academy Press, 1980.
- Pike, K. L. *Tone languages: A technique for determining the number and type of pitch Contrasts in a language, with studies in tonemic substitution and fusion*. Ann Arbor: The University of Michigan Press, 1982.
- Silverman, D. *The phonology, phonetics and function of tone displacement in Zulu*. Uiuc dan@uiuc.edu. 2000.
- Williamson, K. *Practical orthography in Nigeria*. Ibadan: Heineman Educational Books, 1984.
- Williamson, K. Niger – Congo Overview. In: Bendor-Smanuel, J. (ed.). *The Niger-Congo Languages: a classification and description of Africa's largest language family*. Lanham MD, New York & London: University Press of America, pp. 21-27, 1989.