JOURNAL OF ENGLISH STUDIES
ISSN : 3122-0479
DOI – https://doi.org/10.5281/zenodo. 23590678
Volume 2 No 1 February (2026): Journal of English Studies

AUTOSEGMENTAL ANALYSIS OF IGALA LEXICAL TONE

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Abstract

This work examines Igala lexical tone adopting Autosegmental Theory (a non-linear approach to phonological analysis). Previous studies on Igala tone have mainly adopted linear analysis, a gap this study seeks to fill. Data were gathered through interviews. A good number of Igala native speakers were purposively selected and interviewed. In addition, the researcher's intuitive knowledge, as a native speaker, played a significant role in data collection. Also, an appraisal tool was used to determine the reliability and validity of the data. The data were analyzed descriptively and non-linearly with the aid of the autosegmental framework. Findings showed that meaning change resulting from pitch variation can be determined at the lexical level in Igala using an autosegmental representation of features. It is equally discovered that a non-linear analysis of tonal features is possible in determining derivation of word-class in Igala: from verb to noun; noun to verb; noun to adverb; adjective to noun was also discovered that a non-linear analysis of tonal features is possible in determining the derivation of word-class in Igala: from verb to noun; noun to verb; noun to adverb; adjective to noun, etc.

Keywords: Lexical tone, Autosemental theory, Igala language, Word-class

Introduction

Tone is a pitch variation or change that can create meaning contrast in a word or expression. Tonal languages are common worldwide, especially in Africa. Most languages of sub-Saharan Africa are tonal, excluding Swahili in the East, and Fulani and Wolof in the West. The vast number of Niger-Congo languages, like Igbo, Yoruba, Igala, Tiv, Ijaw, Ibibio, Zulu, etc have register tone systems.

There are also many tonal languages in East Asia, including all Chinese languages, Vietnamese, Thai and Lao. Some of the East Asian languages such as Korean, Burmese, and Japanese have simpler tone systems, which are sometimes called 'register' or 'pitch accent' systems. However, some languages in this part of the world are not tonal at all; they include Mongolian, Khmer, and Mala (Yip, 2002).

In North and South America, some native languages are tonal, especially many Athabaskan languages of Alaska and the American Southwest, and most Oto-Manguean languages of Mexico. In Europe, Norwegian, Swedish, Latvian, Lithuanian, Serbo-Croatian, some dialects of Slovene, and Limburgish have tonal systems generally referred to as 'pitch accent'. Other Indo-European languages which are tonal, spoken in the Indian subcontinent, are Punjabi, Rabinian, Lahnda and Western Pahari. About 60-70 percent of languages of the world make use of pitch to distinguish words' meanings; hence, they are tonal (Gussenhoven 2004).

The earliest difference among the group of tone languages, according to Gussenhoven (2004), is between those which have level tones (register tone languages) which require the syllable to acquire a certain pitch height, and those that have contour tones (contour tone languages) which require the syllable to be pronounced with a pitch movement. Gussenhoven (2004) also adds that tone contrasts can be studied from two dimensions: a paradigmatic dimension (the number of tonal contrasts possible on a particular syllable) and a syntagmatic dimension (the number of positions in a word where these contrasts are noticed).

Most African languages have register or level tone systems. The tones of register tone languages are: High tone (H), Low tone (L), Mid tone (M), and Downstep (DS). Examples of such languages are: Igala, Igbo, Yoruba, Zulu, Tiv, Maninka etc. The contour type of tonal system, on the other hand, involves a glide in pitch from one syllable to the next during production. As a result, Robins (1989) says that contour tone languages have the following gliding tones: rising, falling, falling-rising, rising-falling and falling-rising-falling. Such languages include Cantonese, Thai, Burmese, and Mandarin. Tone is typically lexical in East Asia. This is characteristic of most tonal languages, such as Chinese, Vietnamese, Thai, and Hmong. In many African languages, especially in the Niger-Congo family, tone has both grammatical and lexical functions.

However, this work focuses on the lexical function rather than the grammatical function of tone in Igala. The work examines Igala lexical tone with the aid of Autosegmental Framework (a non-linear analysis). This is because previous studies on Igala tone mainly adopted linear analysis which is the gap this present study seeks to fill.

Igala people live on the east bank of the River Niger, above the Igbo, and as far north as the confluence of the River Benue. The Igala nation is roughly shaped like an irregular triangle with the Niger/Benue confluence forming the apex, and the base projecting irregularly into Idoma and Iboland. The Igala capital, Idah, is situated about 130 kilometers above Onitsha on the Niger. The Igala occupy a fertile transition belt between the rainforest in the south and grassland and parkland in the North. The area has adequate, well-distributed rainfall and deep red sandy soil suitable for agricultural activities (Okoro, 2005).

Their geographical position in central Nigeria has therefore brought them into contact with a number of peoples of Nigeria, namely Igbo, Edo, Yoruba, Kakanda, Bassa, Igbira, Gwari, Idoma, Tiv, and Jukun. The Igala have been influenced and have influenced, directly or indirectly, the cultures of all these peoples.

The Igala had a relatively powerful kingdom in the pre-colonial period and formed the Kabba Province with other ethnic groups, such as the Benue, during the colonial and postcolonial eras. The Province was part of the Northern Region until 1967, when it formed part of Kwara State, and thereafter became part of Benue State and finally the present Kogi State, which was created in 1991.

The Igala language belongs to the Niger-Congo language family. It is a full-fledged native language of about nine (9) Local Government Area Councils of Kogi State. The following dialects exist in Igala: Ibaji, Idah, Akpanya, Dekina/Anyigba, Ankpa, Egwume and Ogwugwu dialects. The Egwume dialect is closely related to the variety studied in schools and colleges (Omachonu, 2000). This variety is adopted in this research.

Tone Contrast in Igala

Description	Abbreviation	Diacritic	Example	Gloss
High	H	ˊ	Má	to peel
Mid	M		Ma	to hang
Low	L	`	Mà	to know
"Low High"	LH	ˇ	Mǎ	to embrace

Adapted from: (Omachonu, 2000)

Methodology

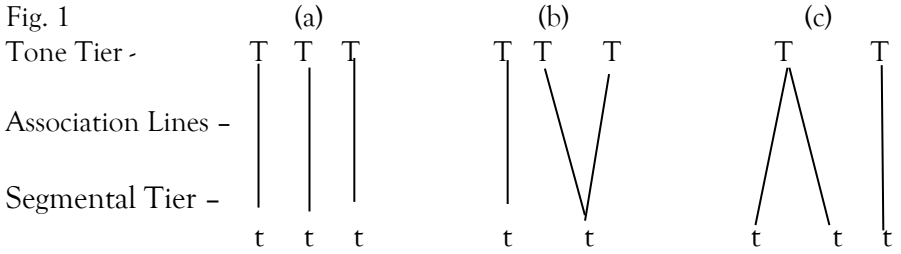
This research adopts a descriptive qualitative design; hence quantitative analysis is ruled out. Data are gathered through the use of interview and appraisal tool. A good number of Igala native speakers were purposively selected and interviewed. In addition, the researcher's intuitive knowledge of Igala played a significant role in data collection. The appraisal tool was used to determine the reliability and validity of the study. The data were analyzed descriptively with the aid of autosegmental theory.

Review of Related Literature

Classical generative phonologists have found it more convenient to regard tone as a segmental feature, but evidence shows this is not always appropriate, as tones can be attached to larger units. On this note, John Goldsmith propounded a new framework for the analysis of tone called Autosegmental Phonology in 1976. Here, phonological phenomena are no longer seen as operating on one linear sequence of segments called phonemes or feature combinations, but rather as involving some parallel sequences of features that reside on multiple tiers. "The representation thus takes the form of two parallel tiers, the segmental tier and the tonal tier, linked by 'association lines'..., where T = 'tone', and t = 'tone bearing unit' (TBU) i.e. vowel" (Fox, 2000:219).

The above information is represented thus:

Fig. 1



In the above representation, there is a relatively simple relationship between tones (Ts) and their syllables (ts), where each vowel has its tone separately, but in (b) and (c), there are more complex relationships between the tones and their vowels.

Lstein and Mcgary (1992) argue that non-linear phonological representation developed as a result of weaknesses of generative phonology, whose approach is basically linear. They say that the autosegmental framework is an adequate theory for tone. Lstein and Mcgary (1992:2) further maintain that:

> Its immediate source of inspiration was the works of Williams (1971) and Leben (1973); they were the first to introduce

> non-linear structure into generative phonology in their treatments of tone systems in West African languages such as Margi, Igbo, and Mende. These writers, they observe, proposed a model where underlying tones are represented on separate tiers from the feature matrices representing vowels and consonants, and are subsequently merged with these matrices by Tone Mapping Rules that applied in the course of derivation, creating single-tiered representations in surface structure.

Elstein and McGary (1992) posit that the principal innovation of autosegmental as presented in Goldsmith (1976) was the idea that tone mapping rules do not merge tonal and segmental representations, but associate their elements by means of formal entities known as 'association lines'.

In her own words, Yip (2002:72-73) observes that:

> In underlying representation, tones may not necessarily be associated with specific syllables, because the tones are simply a property of the morpheme and not of any particular segment or syllable in that morpheme. In other languages, particularly accentual languages, the associations must be underlying, because they are lexically distinctive. If tones are not associated underlyingly, associations must be supplied by the grammar for them to surface.

The uniqueness of autosegmental phonology according to Ikekeonwu (1996) is that phonological representations consist of more than one linear sequence of segments. Furthermore, each linear sequence forms a separate tier. By adopting a multi-tiered approach to phonological theory and analysis, autosegmental phonology represents several representations on different tiers, with association lines linking them.

According to Napoli (1996), autosegmental or non-linear phonology analyzes speech sounds across several autonomous levels or dimensions, called tiers, rather than as a single string of phonemes. One

tier holds, for instance, articulatory features, another holds syllables and another, in tone languages, holds tones. He also maintains that these tiers may be further separated out. Therefore, if a language has vowel harmony it is necessary to treat its vowel features as one tier and its consonants as another. He goes further, saying that these tiers are linked to each other with association lines. This approach allows many phonological processes to be explained in terms of linking, dissociation, or spread of associations.

Just like The Sound Pattern of English (SPE), autosegmental phonology has two levels of representation, but the difference lies in how they apply their rules respectively. Bird and Ellison (1994) have said that apart from 'Well-formedness Conditions', other principles like 'Obligatory Contour Principle' (OCP), 'Tone Spreading', and 'Tone Bearing Unit (TBU), were used by Goldsmith in his autosegmental analysis.

Omachonu (2000) posits that tone can be used to distinguish words (i.e. its lexical function), and sentences (i.e. its grammatical function) in Igala. He gives the following examples:

1. (a) bí"to give birth"
   (b) bi̱ "to beg"
   (c) bì "to open".

However, he does not explain whether tone in Igala can derive two or more word-classes from a single word or lexeme. He also does not give a detailed account of the grammatical functions of tone in the language, where tone can be used to distinguish questions from statements; tenses from aspects. Furthermore, he does not tell us about tone groups and tone classes, gliding tones and floating tones in the Igala language.

Ayegba (2010) posits that, in Igala, we can use tone to derive different word classes from one word as one of its lexical functions. Let us examine the following examples given by him:

2. (a) nyọ́ (verb) "to lay egg"
   (b) nyọ̀ (adjective) "good"

(c) ló (verb) "to go"
(d) lo (adjective) "strong"
(e) lò (verb) "to calculate".

Following from example 2, it is evident that a word can be realized as both a verb and an adjective in Igala through tone. In what follows, Ayegba (2010) also avers that, in Igala, tone can distinguish statements from questions, as well as differentiate verb forms (tenses). However, he does not, just like Omachonu (2000), as we earlier observed, indicate if gliding tone and floating tone operate in Igala.

Attah (1990) says that the Central Igala dialect and Ibaji dialect of Igala have the same consonant system, the same vowel system, and the same syllabic structure, but differ in their tonal systems. In his judgment, the so called Central Igala dialect gives more credence to high tone than the Ibaji dialect. We argue, therefore, that Attah's (1990) viewpoint is not reliable because there is no systematic evidence to buttress such a claim.

Ayegba (2021) examines a non-linear representation of Igala phonemes. It was discovered that Igala phonemes can be analysed adopting a non-linear approach. But Ayegba (2021) focuses on Igala segmental phonology. This present work focuses on Igala suprasegmental phonology (tone).

It is important to note that previous studies on Igala tone, like those of Attah (1990), Omachonu (2000), and Ayegba (2010), did not focus on non-linear analysis of tone. However, their studies provide some significant insights for the present study.

1. Lexical Tone in Igala

Pitch variation can distinguish the meanings of similar lexical items in Igala; that is, words with the same form and/or spelling can assume different semantic import as a result of pitch contrast. In Igala, a lexical form can be tone-marked in several ways to have up to five or six meanings. This is evident in the following examples:

1. (a) áwó – guinea fowl

   Áwo – comb
   Áwò – hole
   Àwó – slap

b. Ágbá – (noun) a kind of tree (verb) thanks
   àgbà – jaw
   ágbà – basket
   àgbá – chain
   ágba – reader

c. álá – sheep
   àlá – name of a town
   ála – the rope of a lining net
   álà – buyer

d. ákpá – killer
   ákpa – cloud
   àkpá – a kind of bird or termite
   ákpà – a kind of tree
   àkpà – muslim
   ǎkpà – maize

e. ẹ́gbá – a word used to describe something that is strong
   ẹ̀gbá – a kind of trap set for animals
   ẹ̀gbà – time

f. ìgbẹ̀lẹ́ – young girl
   ìgbẹ́lẹ̀ – a species of snail

g. ámónẹ́ – one who knows people
   àmònẹ̀ – people

h. ọ́kọ́chẹ́ – hoe
   ọ̀kọ̀chẹ́ – name of person

i. ọ̀dúmù – potato
   ọ̀dùmú – a kind of animal

(j) ákójí – name of person
   ákójì – someone who confesses

j. úlókó – mat
ùlòkò – weaver bird
ùlókò – iroko.

3.1 Tone and Word-Classes in Igala

Again, tone change can bring about the realization of several word-classes from a single lexical form. This is evident in the following examples:

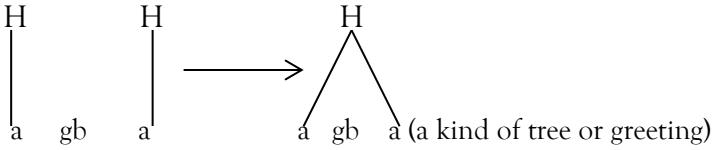
(a) ẹ̀fẹ́ – (adj.) fine or pure
ẹ́fẹ̀ – (noun) name of fishing pond
(b) ẹ́gọ́ – (noun) age mate
ẹ̀gọ̀ – (adv.) improper
(c) ọ́yá – (adv.) quickly
ọ̀yà – (noun) wife
(d) ọ́gbọ́ – (noun) fight
ọ̀gbọ̀ – (adj.) used to describe soup without fish or meat

Following from the above illustrations, it is explicitly factual to assert that tone differences in Igala not only bring about changes in the meanings of lexical items but also changes in word-classes. There is a change of word-class, from 'verb' to 'adjective', 'adjective' to 'verb', 'verb' to 'noun', 'adverb' to 'noun' etc.

3.1 Autosegmental Analysis of Igala Lexical Tone

Using autosegental framework, meaning deference at lexical level can be determined non-linearly. The words 'agba', 'akpa' and 'uloko', for instance, can be represented thus:

Fig .2 (a)



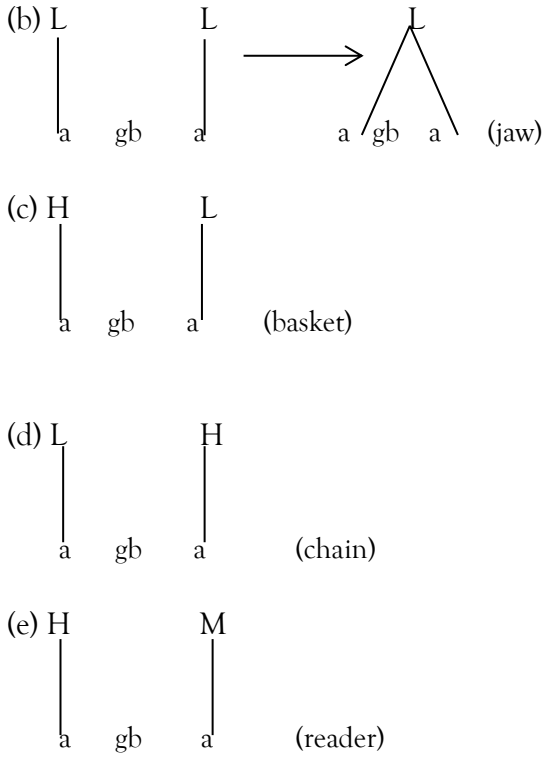
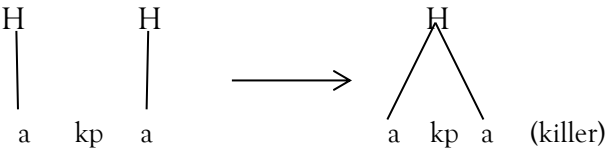
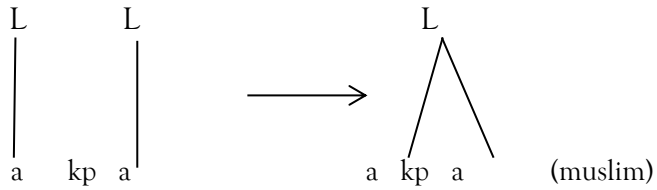
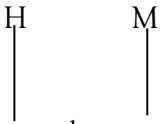

(b) L L L
a gb a a gb a (jaw)
(c) H L
a gb a (basket)
(d) L H
a gb a (chain)
(e) H M
a gb a (reader)

Fig. 3 (a)

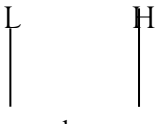

H H H
a kp a a kp a (killer)

(b)

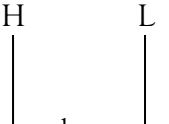

L L L
a kp a a kp a (muslim)

(c) 

(cloud)

(d) 

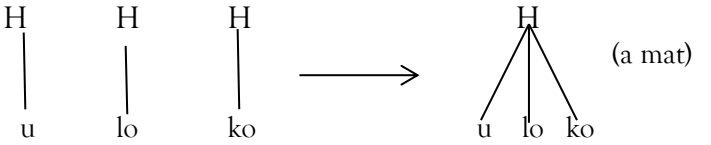
(a kind of bird or termite)

(e) 

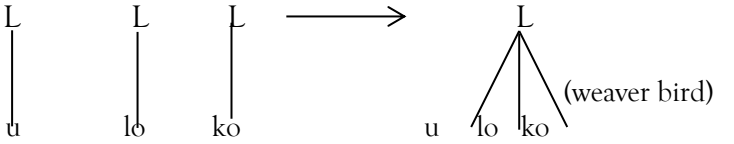
(a kind of tree)

(f) 

(maize)

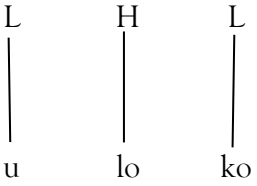
Fig. 4 (a) 

(a mat)

(b) 

(weaver bird)

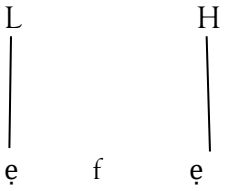
(c)



(iroko)

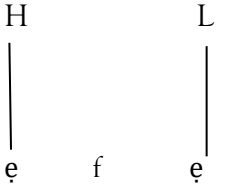
In Figures 2 (a and b), 3 (a and b), and 4 (a and b) above, identical tones are collapsed, obeying the Obligatory Contour Principle (OCP). OCP states that when there are two or more identical tones in a word, they can be collapsed as one for economy. However, OCP does not operate across word boundary so as to obey one of the Well-formedness Conditons of autosegmental phonology, which says that association lines do not cross. In Figure 3 (f), the first syllable of the word carries a double tone (low and high), indicating a glide.
Furthermore, autosegmental tree can be used to non-linearly illustrate change of word-class in Igala as evident below:

Fig. 5 (a)



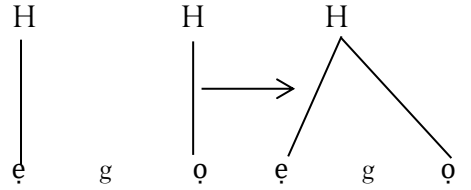
(adj.) fine or pure

(b)

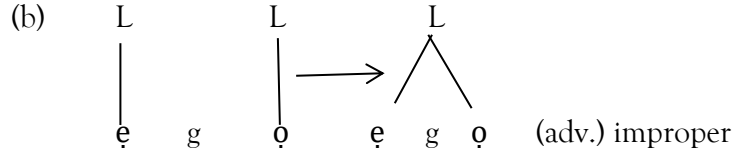


(noun) name of pond

Fig. 6 (a)



(noun) age mate



4. **Summary of Findings and Conclusion**

From the data gathered and analyzed non-linearly with the aid of autosegmental framework, the study found that in Igala, pitch variation can bring about change in meaning and word-class. Figs. 2, 3 and 4 show that autosegmental trees can be used to determine meaning change in a particular word. Hence, the tonal tier is separated from the segmental tier to avoid linear representation of classical phonology which argued for multiple phonological features. It was also found that a non-linear representation of features can be used to determine word-class in Igala. This is evident in figs. 5 and 6 where one word-class is derived from another.

4.1 **Conclusion**

The study of Igala tone has, over the years, received little attention, and this has generated a pedagogical gap. Many controversies still persist regarding the application of tone, especially full text tone marking and grammatical function of tone in the language. Therefore, this work has been able to examine lexical function of tone rather than grammatical function of tone in Igala. The work examines Igala lexical tone with the aid of Autosegmental Framework (a non-linear analysis). Data were gathered through the use of interview and appraisal tool, including the intuitive knowledge of the researcher. The findings showed that meaning change as a result of pitch variation can be determined at the lexical level in the language with the aid of autosegmental representation of features. Also, it was discovered that a non-linear analysis can be adopted to determine the derivation of word-classes in Igala. This is a clear shift from the tenets of classical phonology (linear approach) to modern phonology (non-linear or

constraint-based approach) of phonological analysis. It is important to note that the study of Igala tone, both lexical and grammatical tones, still needs further research expansion for pedagogy.

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