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## On Issue of Suprasegmental Assimilation in Igbo: A Review

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### Abstract

*This paper, which is a review of Uwaezuoke's previous study, re-investigates assimilation in Igbo with the aim of not only establishing that tone assimilation exists in the language, but that it occurs both within a word and across word boundary. Primary data from Ogbunike Igbo variety and secondary data from existing literatures are analysed using descriptive method. From the results, tone assimilation exists in Igbo, and occurs both within a word and across word boundary in connected speech. For example, where the first noun ends in a down-stepped tone and the second noun begins with a high tone, the down-stepped tone of the final vowel of the first word assimilates the high pitch of the initial vowel of the second word, e.g. **elū** 'top' + **ulò** 'house' → **elu ulò** 'house top'. Where the first word has a  $H \downarrow H$  tone sequence and the second word has a  $L L$  tone sequence, the down-stepped tone of the final vowel of the first word assimilates to the high tone of the initial vowel of the first word, e.g. **egō** 'money' + **itè** 'pot' → **ego itè** 'money for pot'. Also, where the first word is in its infinitive form with a  $H \downarrow H$  tone sequence and the second word has a  $H H$  tone sequence, the high tone of the initial vowel of the second word drops its high pitch and completely assimilates the reduced high pitch of the final vowel of the first word, **ibē** 'to cry' + **akwa** 'cry' → **ibē ākwa** 'crying'. Tone assimilation could be regressive or progressive.*

**Keywords:** Igbo phonology; tone assimilation; supra-segment; phonological processes

## **1) Introduction**

Assimilation, a phonological process that belongs to the connected speech features parameter of intersegmental phonology (Eme 2008 p. 81-119), has variously been described as involving the segmental phonemes only. In assimilation, one of the two segments at contiguous position is influenced by the other segment making the influenced segment to drop part or all its features to take part or all the features of the influencer. Scholars have discussed assimilation a lot, trying to find out the types of assimilation in language, the driving force for assimilation as well as the segments that are involved in assimilation.

Prior to Uwaezuoke (2021b), types of assimilation in Igbo were viewed as regressive assimilation, progressive assimilation, partial assimilation, complete assimilation, coalescent assimilation, and conditional assimilation (e.g. Emenanjo 1978 p. 22-25; 2015 p. 81-84). But Uwaezuoke (2021b) has reclassified the types of assimilation in Igbo using the distinctive feature approach, and he has argued that the terms earlier used to classify assimilation types in the language are better analysed as features of the types of assimilation; which he has identified as vowel – vowel assimilation, vowel – consonant assimilation, consonant – vowel assimilation, syllabic nasal – consonant assimilation, and vowel – syllable assimilation (p. 103). On the basis of this argument, the scholar classifies the features of the types of assimilation in terms of: 1.) Degree (i.e. the extent of the influence, where you have complete, partial, coalescence and conditional); 2.) Direction (i.e. the direction of the influence, where you have regressive and progressive); 3.) Nasality (whether nasal quality is asserted on a segment); and 4.) Vowel Harmony (whether the vowels involved are from the same

vowel group). He goes further, using the binarity principle, to present the features as:

- i. Complete/Partial: [ $\pm$ compl], e.g. **nwèrè** + **ike** → **ɲwèrì ike** ‘can’, and **m** + **gà** → [**ɲ gà**] ‘I will’ respectively.
- ii. Regressive/Progressive: [ $\pm$ regr], e.g. **ùde** + **isi** → **ùdiist** ‘hair cream’ and **nli** **ìgbàgwù** [**nli ìgbàgwò**] ‘corn food’ respectively.
- iii. Coalescence/Non-coalescence: [ $\pm$ coal], e.g. **nne yā** [**nnĩ ʲé**] ‘his/her mother’ and **imi** + **yā** → [**imijē**] ‘his/her nose’ respectively.
- iv. Conditional/Non-conditional: [ $\pm$ condi], e.g. **ɔnu** + **egō** → **ɔneegō** or **ɔnu egō** ‘amount of money’; but for non-conditional, an influence is asserted without any condition.
- v. Nasal/non-nasal: [ $\pm$ nasal], e.g. /ɔ<sup>↓</sup>**nó** / → [**ɔ<sup>↓</sup>nó**] ‘mouth’ and **ɔku** → /ɔ<sup>↓</sup>**kɔ**/ → [**ɔkɔ**] ‘fire’ respectively.
- vi. Harmonious/non-harmonious: [ $\pm$ harm], e.g. /**ozu**/ ‘corpse’; while in non-harmonious, there is no such harmony.

The reclassification, however, is based on the segmental phonemes that are involved in the assimilatory process. There is no mention of suprasegments (e.g. tone). In this paper, discussion of assimilation in Igbo is taken beyond the segmental phonemes to suprasegments (tone). The paper has discussed the phonological process of assimilation in Igbo in order to establish that assimilation also involves tone. It is a review of Uwaezuoke (2021a). In section two is a review of related literatures. The methodology is discussed in section three. Chapter four is data presentation and analysis. Finally, there is a summary and conclusion in section five.

## 2) Literature Review

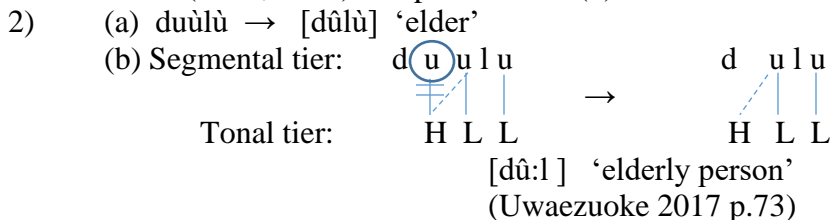
Assimilation, in the opinion of Schane (1973 p. 49), refers to a situation where ‘a segment takes on features of a neighbouring segment’. Napoli (1996) sees assimilation as a consequence of a sound changing to become similar to a nearby sound. Dirven and Verspoor (2004) do not differ from Schane and Napoli on what is assimilation. To them, assimilation is a phonological process that involves a sound causing an adjacent sound to be “more similar” to itself. In all these definitions, it is clear that in assimilation, both sounds are at contiguous position and there are an influencer segment and the segment influenced. It is also clear that emphasis in these definitions is on the segmental phonemes, as there has not been any mention of the suprasegments; thus leaving one to wonder whether assimilation involves only the segmental phonemes.

The previous studies (e.g. Eme, 2008; Emenanjo, 2015; Maduagwu, 2012) have identified progressive/perseverative assimilation, regressive/retrogressive assimilation, complete assimilation, partial assimilation, conditional assimilation and coalescent assimilation as the types of assimilation in Igbo. However, Uwaezuoke (2021b) has argued that they are rather as features of the types of assimilation in the language. Emenanjo (2015) submits that during what he has described as complete regressive assimilation in Igbo, each of the vowels retains its duration and expected tone. With examples represented in (1), he discloses that vowel assimilation occurs in Igbo without vowel elision and/ or tone assimilation.

- 1) i. ùde + isi → ùdi isī  
     ‘pomade’      ‘head’      ‘hair  
    cream/pomade’

- ii. ozu + anu → ozaanū or ozu anū  
 ‘carcass’ ‘meat’ ‘carcass of meat’  
 (Emenanjo 2015 p.81-84; Uwaezuoke 2019 p. 8)

Uwaezuoke observes a manifestation of the phonological process of lenition (or weakening) in (1) whereby *isi* ‘head’ and *anu* ‘meat’ have a H-H tone sequence each when they stand alone, but when combined with *ude* ‘pomade’ and *ozu* ‘carcass’ in associative construction respectively, their second-high tone becomes weakened to a downstep tone. Tone performs the same function of distinguishing meaning in tone languages as the segmental phonemes (Uwaezuoke, 2019 p. 6), but studies on tone abound with a discovery that all tone languages do not operate the same system. That is why tone languages are grouped into two: the register tone languages, and the contour tone languages. Igbo is a register tone language (Anagbogu, Mbah and Eme, 2010). For the basic tones in Igbo and their combination, see Mbah & Mbah (2010) and Uwaezuoke (2019). Recent studies on tone (e.g. Emenanjo 2015; Igwe 1975; Uwaezuoke 2017) have led to a lot of discoveries, one of which is that despite Igbo being a register-tone language, tone gliding sometimes occurs in the language. Uwaezuoke’s illustration of tone gliding in Igbo using the Autosegmental phonology model of Goldsmith (1976; 1979) is represented in (2).



In 2(a & b), the tones of the two identical adjacent vowels are not of the same pitch. In speech, the two adjacent identical vowels are realised as one sound, but maintaining different pitches. This kind of tone gliding is what Mbah and Mbah (2010 p. 119) had described as being a result of orthographic convention that involves graphological elision, while Emenanjo's (2015 p. 111) submits that it should be considered as two different pitch levels on two identical vowels.

In the AP model, tone is represented on a separate tier different from the tier for the segmental phonemes, such that a segment may be affected in connected speech without its tone being affected. With AP, Clark (1990) studies the tonal systems of Igbo, where she identifies different phrase levels of analysis of tone and submits that spreading in Igbo is assigned to Phrase Level II on grounds of ordering.

Some studies (e.g. Uwaezuoke 2019; Uwaezuoke and Onwudiwe, 2022) have demonstrated some phonological processes involving tone. For instance, Uwaezuoke (2019) re-investigates the Igbo tonal system in order to establish that the phonological processes of strengthening (fortition) and weakening (lenition) also involve suprasegments (tone in particular) during connected speech. On the basis of descriptive method, he analyses the data obtained from Igbo texts and Ọmambala speech varieties of the Igbo language. From the results, it is revealed that in Igbo speech production, the phonological processes of weakening and strengthening involve both the segmental phonemes and suprasegment (tone), e.g. *imi* 'nose' + *ya* 'his' → *imi jē* 'his nose' with the vowel of "ya" being weakened to a downstep tone; *okwu* 'speech' + *àyi* 'us' → [okwa ↓ájí] 'our speech' where the low of "a" vowel in *àyi* is strengthened to a downstep tone (Uwaezuoke 2019 p. 8-9). In a phonological study of tone metathesis in Igbo

Uwaezuoke and Onwudiwe (2022) set out to establish that metathesis involves both the segmental phonemes and the suprasegments (tone). They descriptively and acoustically analysed their data obtained from Igbo texts and Ogbunike Igbo variety, and the results reveal that tone metathesis sometimes occurs in Igbo during connected speech, particularly across word boundary where the first word must have a High Downstep (H <sup>↓</sup>H) tone sequence and the second word has a High High (H H) tone sequence, e.g. *egō* ‘money’ + *ewu* ‘goat’ → *ego ewū* ‘money for goat’, where the down step tone of the final vowel of *egō* now moves to the final vowel of *ewu*, while the high tone of the final vowel of *ewu* now moves to the final vowel of *ego* (p. 72). They note that notwithstanding the application of the correct tone sequences, tone metathesis can never occur if the first word is in its infinitive form, e.g. *ikū* ‘to clap’ + *aka* ‘hand’ → *ikū āka* ‘clapping’, where instead of tone metathesis, there is weakening of the tone of the first vowel of *aka* from high pitch to down stepped pitch (p. 72-73). Their findings led to them to conclude that the phonological process of metathesis involves both the segmental phonemes and suprasegments (tone) in the Igbo language.

There are lots of reflections on many other issues concerning tone in Igbo in *Igbo Language Studies* Vol. 2 (2017), such as: *Tones, dialects and mutual intelligibility in Igbo* (Emenanjo, 2017); *Underscoring the cross dialectal uniformity of tone in Igbo* (Chukwuogor, 2017); *Igbo semiscriptalism – Igwe bu ike n’itinye akara uḍaolu* (Manfredi, 2017); *Vowel height, consonant type and the realization of H tone in Igbo* (Nkamigbo, 2017).

The foregoing has not disclosed any evidence of a study that has discussed tone assimilation in Igbo or any of its dialects. This paper, therefore, discusses assimilation in Igbo in relation to tone.

Its aim is to establish that tone assimilation exists in Igbo in addition to sounds assimilation.

### **3) Methodology**

This paper is designed to be qualitative in nature. The design has enabled a description and interpretation of the Igbo language data obtained from Ogbunike speech variety (for the primary data) and past Igbo literatures (for secondary data), e.g. Emenanjo (2015) used earlier by Uwaezuoke (2021) to analyse tone assimilation in Igbo. This is followed by presentation and analysis of secondary data from Eme (2008). These data are analysed descriptively. The data are tone-marked with Green and Igwe's (1963) tone-marking convention serving as a guide; the convention suggests leaving high tone unmarked, marking low tone with a grave accent [ ` ], and marking the down-stepped tone with a macron [ ¯ ] orthographically or by first placing a down-pointing arrow before the syllable, followed by an acute accent on the tone-bearing unit [ ↓´ ] phonemically and phonetically.

### **4) Uwaezuoke's (2021) Data Presentation and Analysis**

Secondary data from Emenanjo (2015) and Eme (2008) are first presented and analysed, followed by the presentation and analysis of primary data from Ogbunike Igbo variety.

3) Emenanjo (2015 p.116–118):

	<b>Word 1</b>		<b>Word 2</b>		<b>Connected Speech</b>
(i)	elū	+	ụlò	→	elu ụlò
	'top'		'house'		'house top'
(ii)	nkịtā	+	ụlò	→	nkịtā ụlò
	'dog'		'house'		'domestic dog'



Emenanjo describes what happens in (3) as a case of a downstep tone being raised to a high tone when the first noun ends in a downstep tone and the second noun begins with any tone. This is considered in this paper as rather a case of tone assimilation where, at juncture in connected speech, a downstep tone of the final vowel of the first word assimilates the high tone of the initial vowel of the second word. Tone assimilation here is regressive in nature. In (4) are data from Ogbunike Igbo variety.

4) Ogbunike Igbo variety:

	<b>Word 1</b>		<b>Word 2</b>		<b>Connected Speech</b>
(i)	ibē + 'to cry'		akwa → 'cry'		ibē ākwa 'crying'
(ii)	ijē + 'to go'		afīa → 'market'		ijē āfīa 'to go to the market'
(iii)	itā + 'to chew'		anụ → 'meat'		itā ānụ 'to chew meat'
(iv)	ilī + 'to eat'		nni → 'food'		ilī nni 'to eat food'
(v)	izō 'to struggle'		ife → 'something'		izō īfe 'to struggle for something'
(vi)	ijē + 'to go'		ozī → 'errand'		ijē ōzī 'to go for an errand'
(vii)	ikū + 'to clap'		aka → 'hand'		ikū āka 'clapping'
(viii)	igbā + 'to run'		osọ → 'race'		igbā ōsọ 'to run a race'
(ix)	ikpū + 'to cut'		isi → 'head'		ikpū īsi 'to cut hair'

(Earlier presented in Uwaezuoke and Onwudiwe 2022 p. 73)

The data in (4i-ix) reveal that the high tone of the initial vowels of the second words is influenced by the downstep tone of the final vowels of the first words thereby making it to drop its high pitch and to completely assimilate the reduced high pitch of the final vowels of the first words. Unlike the tone regressive assimilation witnessed in (3), what happens in (4) is tone progressive assimilation, where the first word must have a High Downstep (H ↓H) tone sequence, while the second word would have a High High (H H) tone sequence. It is seen that for this type of progressive assimilation to take place, the first words are in their infinitive forms, otherwise, no tone progressive assimilation would occur. This instance is also described by Uwaezuoke and Onwudiwe (2022 p. 73) as a case of tone weakening.

### 5) Additional Fact about Tone Assimilation in Igbo

This section presents data from Eme (2008), which has revealed additional fact about tone assimilation in Igbo. Consider the data in (5).

5. Eme (2008 p. 89):

	<b>Word 1</b>		<b>Word 2</b>		<b>Connected Speech</b>
(i)	egō	+	àyò	→	ego àyò
	money		cowrie		money (of cowrie)
(ii)	egō	+	ìtè	→	ego ìtè
	money		pot		money for pot

For (5), the first words *egō* ‘money’ have a H ↓H tone sequence; but when combined with the second words *àyò* ‘cowrie’ and *ìtè* ‘pot’ that have a L L tone sequence, the downstep tone of the second vowel of the first word assimilates the high tone of the first

vowel of the same first word. Uwaezuoke (2019) refers to this kind of issue as being an instance of tone strengthening whereby the tone of the second vowel of the first word, which usually is a down stepped tone, becomes strengthened to a high tone (p. 8-9). Both are correct; it could be described as a case of tone strengthening or a case of tone assimilation. On this point, it is right to conclude that tone assimilation in Igbo occurs within a word, as in *egō + àyò* → *ego àyò*, and across word boundary, as in *elū + ulò* → *elu ulò*. There are many instances of this kind of assimilation in Igbo.

## 6) Summary and Conclusion

This paper has reviewed Uwaezuoke's previous study of tone assimilation in Igbo with the aim of establishing that tone assimilation not only exists in the language, but occurs both within a word and across word boundary. The primary data from Ogbunike variety and the secondary data from Emenanjo (2015) and Eme (2008) were analysed descriptively. From the results, tone assimilation exists in Igbo. It is, however, contextual. In connected speech, where the first noun ends in a down stepped tone and the second noun begins with any tone, the down-stepped tone of the final vowel of the first word assimilates the high pitch of the initial vowel of the second word. Assimilation here is progressive. If the first word is in its infinitive form with a high down-stepped (H ↓H) tone sequence and the second word has a high high (H H) tone sequence, the high tone of the initial vowel of the second word drops its high pitch and completely assimilates the reduced high pitch of the final vowel of the first word. It is regressive assimilation. Where the first word has a H ↓H tone sequence and the second word has a L L tone sequence, the downstep tone of the final vowel of the first word assimilates to the high tone of the initial vowel of the first

word. Assimilation, therefore, can be said not to occur only among the segmental phonemes, but also among the supra-segments (tone in particular) in Igbo. It also occurs both within a word and across word boundary in connected speech.

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