

## A Re-analysis of Assimilation in Igbo: Distinctive Feature Approach

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### Abstract

*This study re-investigates assimilation in Igbo with a view to identifying features of the types of assimilation. It also seeks to provide distinctive feature matrices of the types of assimilation in the language. It anchors on the Distinctive Features Theory. The data for analysis were obtained from both the primary and secondary sources. The secondary data were from existing texts, while the primary data were from Omambala Igbo speech varieties of the Inland West Igbo Dialects Cluster (IWIDC). Descriptive method and Binariness principle were adopted for analysis of the data. Five types of assimilation are established in Igbo by this study: vowel-vowel assimilation, vowel-syllable assimilation, syllabic nasal-consonant assimilation, vowel-consonant assimilation, and consonant-vowel assimilation. Features of these types of assimilation were identified and their distinctive feature matrices established. Besides, feature theory has conveniently accounted for assimilation in Igbo.*

**Keywords:** Igbo, language, Omambala Igbo, phonology, assimilation, distinctive features.

### Introduction

Assimilation is a common phonological process in human language. During speech production, one of the contiguous sounds influences the other such that the sound so influenced drops its features partially or completely and partially or completely takes features of the sound that influences it (Eme, 2008). Schane (1973), Napoli (1996) and Dirven and Verspoor (2004) respectively earlier considered assimilation as a phonological process where ‘a segment takes on features of a neighbouring segment’ (Schane, 1973:49); a process that arises when a sound changes to become similar to the nearby sound (Napoli, 1996); or a phonological process involving a sound causing an adjacent sound to be “more similar” to itself (Dirven and Verspoor, 2004). No wonder Eme (2008:87-119) avers that assimilation is a feature of connected speech. The types of assimilation existing in all languages differ. In Igbo, many types of assimilation have been identified although there are varied opinions among scholars. Eme (2008), for example, presents partial assimilation, complete assimilation, progressive assimilation, regressive assimilation and coalescent assimilation. Emenanjo (2015), in addition to these types, identifies conditional assimilation, but discusses regressive and progressive assimilation under complete and partial assimilation. Despite several studies on the phonological process of assimilation in Igbo, none considers a distinctive feature analysis of assimilation in Igbo, which would engender easy descriptions of the assimilation types.

This study presents a distinctive feature analysis of assimilation in Igbo using data obtained from previous literature and Omambala Igbo varieties. Omambala Igbo varieties are

parts of the *Inland West Igbo Dialects Cluster* of Ikekeonwu (1987), as modified by Uwaezuoke (2017). The distinctive features of five major types of assimilation established in Igbo are identified. The distinctive feature matrices of the types of assimilation are also established. Section two discusses assimilation in Igbo; section three is a re-analysis of assimilation in Igbo; section four is theoretical framework; binary analysis of assimilation in Igbo is done in section five; and finally, section six is the summary and conclusion.

For tone marking of the data, the Green and Igwe's (1963) tone-marking convention is adopted whereby high tone is left unmarked, low tone marked with grave accent [ ` ] and down step tone is orthographically marked with a macron [ ¯ ]; in line with IPA, down step tone is phonemically and phonetically marked with acute accent on the tone bearing unit and down pointing arrow before the syllable that bears the tone [ ↓ ].

### Assimilation in Igbo

The richness of the Igbo language in the phonological process of assimilation is attested to by the numerous types of assimilation identified in the language in literature. The various types of assimilation are presented in table 1.

S/N	Scholar	Type of Assimilation	The Structures and their Gloss
1.	Emenanjo (1978)	Complete assimilation	ùde + isi → ùdiisĩ 'cream' 'head' 'hair cream'
		Conditional assimilation	okwu + egō → okweegō or okwuegō 'talk' 'money' 'talk about money'
		Coalescent assimilation	a. isi + ewu → isyewū 'head' 'goat' 'goat head' b. imi + ya → imiyē 'nose' 'his/her' 'his/her nose' c. aka + ya → akiyā 'hand' 'his/her/its' 'his/her/its hand'
2.	Eme (2008)	Complete assimilation	ụlò + ụkà → ụlù ụkà 'house' 'church'
		Partial assimilation	/m + gà/ → [ŋ gà] Ist pers SING FUT. 'I will'
		Progressive assimilation	ego + a → ago ò 'money' DEM. 'this money'
		Regressive assimilation	ŋwèrè + ike → ŋwèrì ike 'has' 'strength' 'ability to/can'
		Coalescent assimilation	kwete yā → /kweti ↓é/ 'agree' 'him/her/it' 'consent'
3.	Emenanjo (2015)	Complete assimilation	ùde + isi → ùdiisĩ 'cream' 'head' 'hair cream'
		Conditional assimilation	okwu + egō → okweegō or okwuegō 'talk' 'money' 'talk about money'
		Coalescent assimilation	a. isi + ewu → isjewū 'head' 'goat' 'goat head'

			b. imi + ya → imijē ‘nose’ ‘his/her’ ‘his/her nose’ c. aka + ya → akijā ‘hand’ ‘his/her/its’ ‘his/her/its hand’
4.	Maduagwu (2012)	Complete assimilation	a. /ɔ wò/ → [ɔ ò] ‘it’ ‘be’ ‘it is’ b. /ɔnɔ itè/ → [ɔni itè] ‘mouth’ ‘pot’ ‘mouth of pot’
		Partial assimilation	a. /ozu/ ‘copse’, /itɔ/ ‘three’ (Vowel Harmony) b. /Nvɔ/ → [mvɔ] ‘nail (finger or toe)’ c. /ɔ <sup>l</sup> nó/ → [ɔ <sup>l</sup> nó̃] ‘mouth’ (Nasalization)
		Progressive assimilation	/ɔ wò/ → [ɔ ò] ‘it’ ‘be’ ‘it is’
		Regressive assimilation	/ɔnɔ itè/ → [ɔnĩ itè] ‘mouth’ ‘pot’ ‘mouth of pot’

Table 1: Identified Types of Assimilation in Igbo in Literature

### A Re-analysis of Assimilation in Igbo

Assimilation in Igbo is re-analysed in terms of the segments that are involved in assimilation. Looking closely at the data above, the types of assimilation based on segments involved are: Vowel-Vowel assimilation, Vowel-Consonant assimilation, Consonant-Vowel assimilation, Vowel-Syllable assimilation, and Syllabic Nasal-Consonant assimilation. This claim is supported by Oyebade (2018) who also uses these terms for the types of assimilation in Yoruba. They will be discussed one after another and in the order of presentation.

#### Vowel-Vowel assimilation

The vowel-vowel assimilation involves two contiguous vowels, where one of the vowels influences the other. It could be complete in nature, regressive or progressive in nature, conditional in nature and in terms of the vowel harmony group of the vowels in a word.

For complete vowel-vowel assimilation, the segment that is influenced drops all its features and completely takes all the features of the segment that influences it, such that they become alike. Complete vowel-vowel assimilation is prevalent in Igbo (see also Eme, 2008:106-107; Emenanjo, 2015:81-82). Below are some instances of vowel-vowel assimilation culled from Emenanjo (2015):

1. Emenanjo (2015):
  - (i) ùde + isi → ùdi isī  
‘cream’ ‘head’ ‘hair cream’
  - (ii) ahà + ihe → ahi ihē  
‘name’ ‘thing’ ‘name of a thing’
  - (iii) egō + ewu → ege ewū  
‘money’ ‘goat’ ‘money for goat’

It is seen in (1) that the segments that have been affected completely drop their features to completely take all the features of the segments that have influenced them. That is why it is said to be complete assimilation, but the argument of this study is that complete is better used as a feature. This type of assimilation is also prevalent in Omambala Igbo varieties. Example are:

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2.
  - i. Ntèjè man’s speech: ābōūdo [ˈábuˈúdo] ‘peace makers’
  - ii. Ìkèṃ man’s speech: eleàvụ [elaàvɔ] ‘like that’
  - iii. Ìkèṃ man’s speech, e.g. *būrọ ịve* [bóˈri ıve] ‘is not what’, *sụba oyibo* [sobo ojibo] ‘speak English’
  - iv. Awkuzu youth’s speech, e.g. jèbèè agū [dʒèbàà aˈgú] ‘went to the farm’
  - v. Ntèjè man speech, e.g. nwèè ike [ɲwīi ike] ‘could’
  - vi. Umùòluṃ man’s speech, e.g. kà ị laa ụlā [kì ɪ lɔv ɔˈlá] ‘to sleep’
  - vii. Ifite Ogwari man’s speech, e.g. apānātòò ozū [aˈpáˈnátòò ɔˈzú] ‘have brought the corpse’
  - viii. Nsugbè man’s speech, e.g. àchọọ òbòdò [àtʃoo òbòdò] ‘search community’
  - ix. Anàkù youth’s speech, e.g. *gbaa egbè* [gbee egbè] ‘shoot gun’
  - x. Ànàm (Ụmùdọrà) man’s speech, e.g. jèè ànabà [dʒàà ànābà] ‘go and sleep’
  - xi. Ụmùzịàm man’s speech, e.g. jèvèè avia [dʒèvāà avia] ‘went to the market’
  - xii. Ìkèṃ man’s speech, e.g. sàchaa evele [sàtʃee evele] ‘wash plate’

The analysis in (1) is sufficed for (2). 2(iv-xii) reveal that where two vowels end the first word involved in regressive assimilation, both vowels are assimilated. This, however, occurs in fast speech.

Vowel to vowel assimilation in Igbo could be regressive or progressive in nature though regressive assimilation is prevalent. For regressive assimilation, Emenanjo (2015) asserts that the first vowel, V<sub>1</sub>, shares the same quality as the V<sub>2</sub> following it. The Igbo data in (2) above exhibit this characteristics. This is also illustrated with data from Eme (2008) in (3).

- (3) Eme (2008) - Akpo:
- |      |            |   |                |   |                   |       |
|------|------------|---|----------------|---|-------------------|-------|
| (i)  | n̄ke       | + | òbòdò          | → | n̄ko              | òbòdò |
|      | Possession |   | ‘community’    |   | ‘community’s own’ |       |
| (ii) | nwèrè      | + | ike            | → | nwèri             | ike   |
|      | has rV     |   | power/strength |   | ‘can’             |       |

(3) shows that the first vowel of the second word moves backwards to influence the final vowel of the first word. With this kind of influence, it is better reanalysed as the feature [regressive]. Emenanjo (2015:81) presents a formal representation of regressive assimilation thus: V<sub>1</sub> + V<sub>2</sub> → V<sub>2</sub>V<sub>2</sub> if V<sub>1</sub> is /a, e, o, ɔ/.

In vowel to vowel assimilation which are progressive in nature, the first vowel moves forward to influence the second vowel following it. Complete progressive assimilation is perceived in the speeches of some of the Ọmambala varieties although it is not a frequent occurrence. Examples are seen in Ìkèṃ and Ogbunike speech varieties as illustrated below:

4.
  - i. Ìkèṃ man’s speech e.g. nli ìgbàgwù [nli igràgwù] ‘corn food’
  - ii. Ogbunike man’s speech e.g. nnekwu ūba [nnēkˀu ˈúba] ‘very plenty’

The examples in 4(i & ii) show that the final vowel of the first word moves forward to influence the first vowel of the second word so that it drops all its features to completely take the features of the sound that influences it.

Vowel to vowel progressive assimilation can occur between a word and demonstrative adjective whereby the final vowel of the first word influences the demonstrative adjective ‘a’. Examples are taken from Eme (2008) as presented in (5).

5. Eme (2008) - Adazi Nnukwu:
- |      |          |   |     |   |                |   |
|------|----------|---|-----|---|----------------|---|
| (i)  | ndị      | + | à   | → | ndị            | ì |
|      | ‘people’ |   | DEM |   | ‘these people’ |   |
| (ii) | ebe      | + | à   | → | ebe            | è |
|      | ‘place’  |   | DEM |   | ‘here’         |   |

Other examples are found in Ọmambala varieties in Awkuzu woman’s speech: ebe à [ebe è] ‘here’; Àgùleri woman’s speech: òke à [òke è] ‘this one’; Ñtèjè girl’s speech, e.g. òkè a [òkè e] ‘this one’; Ànàm (Ụmùdiòrà) and Ànàm (Ụmùziàm) men’s speech respectively: n’ebè à [nè e<sup>1</sup>bé è] ‘this place’.

After eliding the consonant of a syllable at medial or final position, its vowel is influenced by the preceding vowel to take-up its features as found in Awkuzu woman’s speech, e.g. ètìnye [ètii], Anàkù woman’s speech e.g. àkpòbagwòlù [àkpɔɔg<sup>w</sup>ɔlɔ]; Anàkù man’s speech e.g. tìnye [tii]; Ànàm men’s speech e.g. *ozu nwenwà* [ozu ŋ<sup>w</sup>èè] ‘this corpse; osisi [oosi] ‘tree’, Ụmùmboò woman’s speech e.g. gòtèlù [gòtèè] and ìmadù [ìmmà] respectively. All of these are within a word and are also examples of complete assimilation.

Complete vowel-vowel progressive assimilation also occurs after the elision of consonant of the pronoun ‘ya’ and the left over vowel is influenced by the final vowel of the first word to completely drop its features and take up the features of the final vowel of the first word. This is found in Ìfite Ọgwari man’s speech e.g. akwùkwò yà [akwɔ<sup>1</sup>ɔ] ‘his/her book’. Complete vowel – vowel progressive assimilation within a word involves coalescent assimilation as perceived in Awkuzu woman’s speech, e.g. gbànye [gbìr] ‘pour in’. Here the vowel of the first syllable and consonant of the second syllable coalesce to [ɪ], which further influences the vowel of the second syllable to completely take up its features.

Vowel-vowel progressive assimilation could be conditional in nature. Emenanjo (1978; 2015) are the only literatures that capture conditional assimilation in Igbo. According to Emenanjo, in conditional vowel assimilation, if the final vowel of the first word is u or ụ and the speed of the utterance is rapid, the u or ụ assimilates to the first vowel of the second word; otherwise, there is no assimilation. He exemplifies with data in (6).

- 6 i. okwu + egò → okweegò or okwuegò  
‘talk’ ‘money’ ‘talk about money’
- ii. ọnū + anụ → ọnaanū or ọnụanū  
‘mouth’ ‘animal’ ‘mouth of animal’  
(cf. Emenanjo, 1978:23)
- iii. ọnụ + egò → ọneegò or ọnụ egò  
‘amount’ ‘money’ ‘amount of money’
- iv. ozu + anụ → ozaanū or ozu anū  
‘carcass’ ‘meat’ ‘carcass of meat’  
(cf. Emenanjo, 2015:83)

Another feature of vowel-vowel assimilation is vowel harmony where all the vowels in a word must be members of the same vowel group in Igbo. This is captured by Maduagwu (2012) in Oghe dialect.

7. Maduagwu (2012) - Oghe: (i) /ozu/ ‘copse’,  
(ii) /itɔ/ ‘three’  
(iii) /ɔ<sup>1</sup>nó/ → [ɔ<sup>1</sup>nó̃] ‘mouth’

All the vowels in each of the words in (7i-iii) are from the same vowel group. They are instances of partial assimilation since the vowels in each word are not exactly the same. Ọmambala speech varieties also show instances of vowel-vowel assimilation which has to do with vowel harmony, as witnessed in Ànàm (Ụmùdiòrà) and Ànàm (Ụmùziàm) men’s speech, e.g.

ebūnātago [e<sup>↓</sup>bū<sup>↓</sup>ótago] “they have brought”. Here, after the consonant of the third syllable of the word is elided, its vowel is partially influenced by the preceding vowel to harmonize with it. After the elision of consonant of the pronoun ‘ya’, the left-over vowel is influenced by the vowel of the first word to harmonize with it, as exemplified below:

8. i. Ntèjè girl’s speech e.g. di yā [di<sup>↓</sup>é] ‘her husband’; duru yā [duru<sup>↓</sup>é] ‘take him/her’
- ii. Ogbunikē man’s speech e.g. imi yā [imī<sup>↓</sup>é] ‘his/her nose’

Vowel harmony sometimes involves coalescence. Examples,

9. i. Awkuzu woman’s speech; èvè ya [èvi e] ‘his/her clothe’
- ii. Ntèjè girl’s speech; sị ème yā [sì<sup>↓</sup>è mī<sup>↓</sup>é] ‘does it’
- iii. Ogbunikē man’s speech e.g. nne yā [nnī<sup>↓</sup>é] ‘his/her mother’
- iv. Anàkù man’s speech e.g. bù ñgi nè ya [bù ñgi ñè e] ‘are the owners’
- v. Anàkù woman’s speech e.g. wète yā [wèti<sup>↓</sup>é] ‘bring it’
- vi. Ìfite Ògwarì man’s speech; wète yā [weti<sup>↓</sup>é] ‘bring it’
- vii. Ìkem man 1’s speech e.g. èle yā [èli<sup>↓</sup>é] ‘sell it’
- viii. Nsugbè man 2’s speech e.g. àvè ya [àvi e] ‘his/her clothe’

The data in (9) show that sometimes before vowel harmony occurs, coalescent assimilation would have taken place. In this case, the final vowel of the first word and the consonant of the pronoun would coalesce to *i/ì* (depending on the vowel harmony group of the final vowel of the first word) and the coalesced segment influences the remaining vowel of the pronoun adjacent to it thereby making it to harmonise with it.

The foregoing clearly show that the features of vowel – vowel assimilation are [+compl, +progr, +regr, +cond, +VH].

### Vowel-Consonant assimilation

Vowel-Consonant assimilation is the type of assimilation in Igbo involving a vowel and a consonant. One main feature of vowel-consonant assimilation is coalescence. Coalescence is a feature of connected speech as noted by Eme (2008) which occurs when two contiguous segments coalesce to another sound (see also Oyebade, 2018). Emenanjo (1978:24; 2015:82) point out that coalescence can occur in two forms in Igbo. For the first form, he states that;  $V_1 + V_2 \rightarrow j V_2$  if  $V_1$  is either *i* or *ì* and  $V_2$  is any vowel of the harmony set as *i* or *ì* and is on the same tone level. He illustrates with the following examples:

- |    |     |        |   |         |   |                 |
|----|-----|--------|---|---------|---|-----------------|
| 10 | i.  | isi    | + | ewu     | → | isjewū          |
|    |     | ‘head’ |   | ‘goat’  |   | ‘goat head’     |
|    | ii. | ùdirì  | + | ulò     | → | ùdirjulò        |
|    |     | ‘type’ |   | ‘house’ |   | ‘type of house’ |

Emenanjo also states that for the second form,  $V_1 + ya \rightarrow (i) je$  if  $V_1$  is a wide vowel, or (ii) *ja* if  $V_1$  is a narrow vowel. Below are some examples from Emenanjo (2015:82-83):

- |    |      |            |   |       |   |                |
|----|------|------------|---|-------|---|----------------|
| 11 | i.   | imi        | + | ya    | → | imijē          |
|    |      | ‘nose’     |   | ‘his’ |   | ‘his nose’     |
|    | ii.  | ntì        | + | ya    | → | ntìja          |
|    |      | ‘ear’      |   | ‘his’ |   | ‘his ear’      |
|    | iii. | ike        | + | ya    | → | ikijē          |
|    |      | ‘strength’ |   | ‘his’ |   | ‘his strength’ |

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iv.	aka	+	ya	→	akijā
	‘hand’		‘his’		‘his hand’
v.	afọ	+	ya	→	afijā
	‘belly’		‘his’		‘his belly’

Emenanjo’s (2015) data in (10) and (11) do not qualify as instances of coalescent assimilation in Igbo since no two contiguous segments are involved. Eme (2008:115) aptly presents good examples in (12).

12.	Akpo:	(i)	/kwete ↓já/	→	[kweti ↓é]	‘consent’
		(ii)	/ogò ja/	→	[ɔgì a]	‘his/ her in-law’
	Adazi Nnukwu:	(iii)	/be ↓já/	→	[bi ↓é]	‘his/ her home’
		(iv)	/gwa ↓já/	→	[g <sup>w</sup> i ↓á]	‘tell her/ him’
	Ezza:	(vi)	/kpata ↓já/	→	[kpatɪ ↓á]	‘the right/ correct one’
		(vii)	/ufè ja/	→	[ufi e]	‘everything to his satisfaction’

It is noticed in (12i-vii) that the final vowel of the first word and the consonant of the pronoun coalesce to *i/ì* depending on the vowel harmony group of the final vowel of the first word. Instances of vowel – consonant assimilation are also observed in Ọmambala speech varieties as exemplified in (13).

- (13) i. Awkuzu woman’s speech; wèta yā [wèɪ ↓á] ‘bring it’  
 ii. Ntèjè man’s speech; nà ya [nǎ a] ‘that s/he’  
 iii. Ntèjè girl’s speech; ème yā [èmi ↓é] ‘does it’  
 iv. Ogbunikè man’s speech; wèta yā [wèɪ ↓á] ‘bring it’ & àfè ya [àfi e] ‘her/his clothe’  
 v. Anàkù man’s speech e.g. dīkwà ya [dīk<sup>w</sup>i a] ‘is available’  
 vi. Anàkù woman’s speech e.g. wète yā [wèti ↓é] ‘bring it’  
 vii. Ìfite Ọgwari man’s speech e.g. èmefuta yā [èmēfotɪ ↓á] ‘does it’  
 viii. Umùmboō woman e.g. nà yā [nǎ ↓á] ‘his/her child’  
 ix. Àgùlerì woman’s speech e.g. àvè ya [àvi e] ‘her/his clothe’  
 x. Àgùlerì girl’s speech e.g. akwà ya [akwì a] ‘her/his clothe’  
 xi. Ìkem man 1’s speech e.g. èle yā [èli ↓é] ‘sell it’  
 xii. Nsugbè man 2’s speech jide yā [dʒidi ↓é] ‘hold it’  
 xiii. Ànam man’s speech e.g. wèli yā [wèli ↓é]; akwùkwọ yā [aak<sup>w</sup>i ↓á] ‘her/his book’

The data in (13) are examples of vowel-consonant assimilation across word boundaries. They resemble Eme’s (2008) data in (12) and have the same explanation. In Ọmambala varieties, vowel – consonant assimilation also occurs within a word as illustrated in (14).

- 14 i. Awkuzu woman’s speech: gbànye [gbɪɪ] ‘pour in’  
 ii. Awkuzu and Ogbunikè men’s speeches: kùnye m̄ [kii ↓m̄] ‘fetch for me’  
 iii. Umùmboō woman’s speech: m̀nye [m̄ɪ] ‘ignite’  
 iv. Anàkù and Umùmboō women, and Ìfite Ọgwari man’s speeches: m̀manya [m̄m̄ɪa]  
 ‘wine’  
 v. Umùòluṃ and Ìkem men, and Àgùlerì woman and girl’s speeches: m̀manya [m̄m̄ɪa]  
 ‘wine’

In 14(i-iii), the vowel of the first syllable or the second syllable (as the case may be) and the palatal nasal of the next syllable coalesce to *i/ì* depending on the vowel harmony group of the vowel, while the vowel of the syllable containing the palatal nasal completely harmonizes with

the coalesced segment. For 14(iv & v), the vowel of the syllable containing the palatal nasal involved in coalescent assimilation is not affected because it is already in harmony with the coalesced segment. The feature of vowel – consonant assimilation is [+coal].

### Consonant-vowel assimilation

Consonant – vowel assimilation is the type of assimilation involving a consonant and a vowel. The feature of this type of assimilation is nasalization and it is captured by Maduagwu (2012).

15. Maduagwu (2012) - Oghe: (i) /ɔ<sup>1</sup>nó/ → [ɔ<sup>1</sup>nó̃] ‘mouth’

(15) shows that the final vowel takes only the nasality feature of the preceding consonant. It is partial as well as progressive in nature. This is also found in Ọmambala speech varieties as illustrated below:

- 16
- i. Ogbunikē man’s speech e.g. imi yā [imĩ<sup>1</sup>é] ‘his/her nose’
  - ii. Ñsugbè man’s speech e.g. nà di yā [nã di<sup>1</sup>é] ‘that her husband’
  - iii. Ñtèjè girl’s speech; sị ème yā [s<sup>1</sup>è èmĩ<sup>1</sup>é] ‘does it’
  - iv. Anàkù man’s speech e.g. ñgị ñè ya [bò ñgị ñ<sup>1</sup>è] ‘you are the owner’
  - v. Ụmùmboō woman’s speech e.g. m̀madù [m̀mãà] ‘person’

Just as Maduagwu (2012) discovers in Oghe in (15), examples (16i – vi) present consonant – vowel partial progressive assimilation whereby a vowel takes only the nasality feature of the preceding consonant. The foregoing indicates that consonant – vowel assimilation has the features [+nasality, +partial, +progr].

### Vowel-Syllable Assimilation

This type of assimilation involves a vowel and a syllable. It is complete and progressive in nature. This is an instance where the third person singular pronoun influences the verb *bù* ‘be’ such that the verb takes all the features of the pronoun. This is witnessed by Eme (2008) in Ezza dialect, and Emenanjo (2015).

- 17 a. Eme (2008) - Ezza:
- |      |   |    |   |           |
|------|---|----|---|-----------|
| ya   | + | bù | → | ya à      |
| that |   | be |   | ‘that is’ |
- b. Emenanjo (2015)
- |      |             |      |      |   |         |   |               |
|------|-------------|------|------|---|---------|---|---------------|
| (i)  | ọ           | +    | bù   | → | ọ ọ     |   |               |
|      | ‘he/she/it’ |      | ‘be’ |   | ‘it is’ |   |               |
| (ii) | mà          | +    | ọ    | + | bù      | → | mò ọ ọ        |
|      | ‘or’        | ‘it’ | ‘be’ |   |         |   | ‘it could be’ |

This is analysed by Emenanjo as an instance of progressive assimilation involving a consonant where the consonant is first deleted followed by progressive assimilation. In this study, it is rather re-analysed as an instance of vowel – syllable assimilation where a syllable is influenced by the preceding vowel. Some examples are witnessed in Ñtèjè, Ñsugbè and Ogbunikē men’s speech, e.g. ọ bù [ɔ ɔ̃] ‘it is’; and Ìfite Ọgwari, Ìkem men and Ụmùmboō woman’s speech, e.g. ọ bù [ɔ ɔ̃] ‘is it?’. Vowel – syllable assimilation clearly has the features [+compl, +progr].

### Syllabic Nasal – Consonant Assimilation

In this type of assimilation, a syllabic nasal and a consonant are involved. This is also referred to as homorganic nasal assimilation, where a syllabic nasal becomes homorganic with



the consonant sound that comes after it (Eme, 2008:113-114). This type of assimilation is partial and regressive in nature. Maduagwu (2012) presents Syllabic Nasal – Consonant assimilation occurring within single words, while Eme (2008) showcases the ones across boundary. Examples:

18 a. Maduagwu (2012) - Oghe: (i) /Nvɔ/ → [mvɔ] ‘nail (finger or toe)’

b. Eme (2008) – Ezza woman:	(i) /m	kòtʃaa/	→	[ŋ kòtʃaa]
		Ist pers. SING tell (completely)?		‘do I say everything?’
Ezza girl:	(ii) /m̩	lozòkwari/	→	[n̩ lozòkwari]
		Ist pers. SING forget		‘I forget’
Akpo woman:	(iii) /m	gà/	→	[ŋ gà]
		Ist pers. SING FUT		‘I will’
	(iv) /m	dʒɔkwanaa/	→	[n dʒɔkwanaa]
		Ist pers. SING disagree		‘what if I disagree’

Example (18a) indicates that the syllabic nasal partially takes the place of articulation feature of the following consonant. In (18b), the pronoun (represented by a syllabic nasal) partially takes the place of articulation feature of the following consonant.

Omambala Igbo varieties also show instances of syllabic nasal – consonant assimilation. In (19) are some examples:

19. i. Ogbunikē man’s speech e.g. nne [nnē] ‘mother’
- ii. Anàkù man’s speech e.g. ñgi [ñgi] ‘are the owners’
- iii. Àgùlerì woman’s speech: ñke [ñke] ‘the one’
- iv. Ụmùmboō woman’s speech e.g. m̩madù [m̩mãà] ‘person’

The same explanation in (18) goes for (19). The features of syllabic nasal – consonant are [+regr, +partial]. Having reanalysed assimilation in Igbo and identified features of the types of assimilation in the language, the theoretical framework that guides this study is discussed in the next section.

### Theoretical framework

This study adopts the Distinctive Feature Theory. The Distinctive Feature Theory is borne out of the belief by some phonologists that, unlike Bloomfield’s (1933) view of the phoneme as the most basic element of phonology, the articulatory gestures involved in pronouncing the phoneme are more elementary and relevant in phonology than the phoneme. These articulatory gestures (also known as features) are considered to be shared by certain natural classes of sounds.

The theory has its root from the work of Trubetzkoy (1939) of the Prague school of phonology. It is later expanded by Jacobson, Fant and Halle (1952) and Jacobson and Halle (1956), and further developed by Chomsky and Halle (1968). Since then, the theory has had some more modifications. Trubetzkoy (1939) emphasizes distinctive oppositions sounds enter into with one another using phonological typology approach; while Jacobson, Fant and Halle (1952) concentrate on the universally-occurring phonological oppositions of sounds. Some hypotheses put forward by Jacobson, Fant and Halle (1952) are that:

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- i. irrespective of an almost infinite number of phonetic variations among languages, the range of phonemically contrasting features is strictly restricted by universal principle;
- ii. the presence of certain oppositions in language precludes the existence of other oppositions.

Jacobson, Fant and Halle (1952) also introduced the principle of Binarism by which all features are interpreted in a binary manner (showing the presence or absence of a given feature by using '+' or '-' sign before the particular feature). For example, nasal segment /m/ will be specified [+nasal], while non-nasal segment /p/ is specified [-nasal]. The Distinctive Feature Theory of Jacobson, Fant and Halle (1952) and Jacobson and Halle (1956) had a lot of criticisms. Some of its faults as Katamba (1996) notes are that firstly, the theory is too economical thereby resulting in the insufficiency of the features in taking care of all phonological contrasts in all languages; and secondly, the same phonological feature are used by the theory to characterise phonological oppositions which in some cases were clearly displayed by different phonetic properties. Also questioned is the inability of the principle of Binarism to account for Trubetzkoy's gradual oppositions, where the vowels differ in degrees of vowel height.

Chomsky and Halle's (1968) Distinctive Feature theory addresses some of the shortcomings of Jacobson, Fant and Halle. It differs from that of Jacobson, Fant and Halle (1952) and Jacobson and Halle (1956) by its description of the phonetic content of segments derived by phonological rule in addition to capturing the phonological contrast of languages, which is only what the latter emphasizes (Hyman, 1975:42). The description of the phonetic content of segments as well as capturing the phonological contrast of languages form basis for the two major criteria potential features must meet to be admitted as distinctive features; which Oyebade (2018:19-20) discloses to be: *phonetic specifiability* and *morphophonemic relevance*. Chomsky and Halle's (1968) Distinctive Feature theory also substantially increases the number of features, but maintains the principle of Binarism. The principle of Binarism is used in this study to interpret the features of the types of assimilation in Igbo.

### **Binary analysis of assimilation in Igbo**

From the foregoing discussion, the features of the types of assimilation can be classified 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).

Following from this, this study considers complete, partial, conditional, regressive, progressive and coalescence earlier used by scholars as types of assimilation to be features of assimilation. Other features are Nasality and Vowel harmony (VH). Based on the principle of binarism, a limited number of features would now be used from the pool of features of assimilation identified. The features can be, therefore, described in terms of:

- i. Complete/Partial: [ $\pm$ compl]  
Complete assimilation refers to those assimilation types where the level of the influence asserted on the influenced segment is total, e.g. nwèrè + ike  $\rightarrow$  nwèri ike 'can'. On the other hand, Non-complete assimilation is for those assimilation types where the level of influence is partial, e.g. /m + gà/  $\rightarrow$  [ŋ gà] 'I will'.

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- ii. **Regressive/Progressive: [ $\pm$ regr]**  
 Regressive assimilation occurs when a segment moves backwards to influence another segment preceding it, e.g.  $\grave{u}de + isi \rightarrow \grave{u}diis\grave{i}$  ‘hair cream’. Non-regressive assimilation takes care of the assimilation types where a segment moves forward to influence another segment following it, e.g.  $nli \grave{i}gb\grave{a}gw\grave{u} [nli \grave{i}gb\grave{a}gw\grave{o}]$  ‘corn food’.
- iii. **Coalescence/Non-coalescence: [ $\pm$ coal]**  
 For coalescent assimilation, two segments must coalesce into one different segment, e.g.  $nne\ y\grave{a} [nn\grave{i} \acute{e}]$  ‘his/her mother’; while in non-coalescence assimilation, no two segments coalesce into one different segment, e.g.  $imi + ya \rightarrow imij\grave{e}$  ‘his/her nose’ or  $isi + ewu \rightarrow isjew\grave{u}$  ‘goat head’.
- iv. **Conditional/Non-conditional: [ $\pm$ condi]**  
 Conditional assimilation is the assimilation type that it is conditional for assimilation to occur, e.g.  $\grave{o}n\grave{u} + eg\grave{o} \rightarrow \grave{o}neeg\grave{o}$  or  $\grave{o}n\grave{u} eg\grave{o}$  ‘amount of money’; but for non-conditional, an influence is asserted without any condition.
- v. **Nasal/non-nasal: [ $\pm$ nasal]**  
 Nasal is the feature of the assimilation type where there is the assertion of a nasal quality of a segment onto another segment, e.g.  $/\sigma^{\downarrow}n\acute{o}/ \rightarrow [\sigma^{\downarrow}n\acute{\sigma}]$  ‘mouth’; in Non-nasal assimilation, there is no such assertion, e.g.  $\acute{o}k\grave{u} \rightarrow /\acute{o}k\acute{o}/ \rightarrow [\acute{o}k\acute{o}]$  ‘fire’.
- vi. **Harmonious/non-harmonious: [ $\pm$ harm]**  
 In harmonious assimilation, there is harmony between the vowel segments involved, e.g.  $/ozu/$  ‘copse’; while in non-harmonious, there is no such harmony.

These features pass the criterion of ‘phonetic specificity’ because they are able to distinguish between the types of assimilation and are functional in language. They are also morpho-phonemically relevant since they are significant and exploited in the patterns of speech. Although consonant-consonant assimilation is one of the types of assimilation in language, it does not exist in Igbo since Igbo is a no-coda language and does not allow consonant cluster. The distinctive feature matrices of the types of assimilation in Igbo are determined as follow:

20. Distinctive Feature Matrices of the Types of Assimilation in Igbo

	V – V	V – Syll	Syll N – C	V – C	C – V
Compl	$\pm$	+	-	-	-
Partial	$\pm$	-	+	-	+
Condi	+	-	+	+	+
Regr	$\pm$	-	+	-	-
Progr	$\pm$	+	-	-	+
Coal	-	-	-	+	-
Nasal	-	-	-	-	+



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