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Notes to Contributors

***JAPPIN* is the Journal of the Association of Phoneticians and Phonologists in Nigeria.** It is an outlet for reports of empirical studies and theoretical expositions within the purviews of the spoken language, phonetics and phonology, elocution and related areas.

Submissions should comply with the style adopted by the journal. Manuscripts should be original and must not have been previously submitted for publication in any other journal. Manuscript word length **must** not exceed **6000** words (including the Abstract, and References).

Manuscript should be typed in Times New Roman, Font 12; the transcriptions may appear in Lucida Sans Unicode and the British spelling is preferred.

There should be an abstract of not more than **200** words. The manuscript title should be written in title case and in bold fonts. The major subheadings should appear also in title case and in bold fonts while other subheadings may be in title case but not in bold fonts. The cover page should include the Paper Title, Names of Author(s) with surname(s) appearing last, address of institution and the email address.
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Introduction, review of literature, aim and objectives, methodology, analysis, findings and conclusion should be succinctly explained and clear.

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Findings and Discussion Charts and Tables should be carefully labelled and discussions of findings should be clear to readers that are not Phoneticians and /or Phonologists.

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Contents

EDITORIAL

Journal of the Association of Phoneticians and Phonologists in Nigeria (JAPPIN) is a blind peer-reviewed international journal. It is the official journal of the Association of Phoneticians and Phonologists in Nigeria. This is its maiden volume. All the thirteen papers that appear in this volume were carefully selected for quality and impact. They attempt to do justice to evolving developments in the areas of phonetics and phonology from diverse perspectives.

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Editor-in-Chief

Journal of the Association of Phoneticians & Phonologists in Nigeria

A Corpus-Based Morphophonemic Study of the 'S' Morph in Yoruba-English Newscasters' Speech

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Abstract

This paper attempts a morphophonemic study of the 's' morph in Yoruba-English newscasters' (YENs) speech. The study seeks to ascertain YENs' mastery of the realisations of the allomorphs, having been exposed to training in pronunciation. The data were extracted from the spoken part of the International Corpus of English (ICE)-Nigeria using AntConc analysis toolkit version 3.4.4.0. Twenty-two newscasts of six notable YENs were selected from the Nigeria Television Authority (NTA). The newscasts were listened to and different realisations of morpheme s by each newscaster were analysed quantitatively by counting their tokens of occurrence and converting them to percentages. Findings show that out of 1,207 occurrences of 's' morph, 840 (69.60%) were realised as [s], [z] and [ɪz] following the native speakers' patterns. In contrast, 306 (25.35%) distinctive Nigerian English variants were articulated, while 61 (5.05%) were instances of deletion. The study presents YENs as sophisticated English users and identifies with the suggestion of NTA News English as a model for standard NigE variety.

morphophonemic, ICE-Nig., allomorph, newscasters, Nigerian English.

1. Introduction

The spread of the English language globally has given a remarkable rise to new varieties referred to as 'New Englishes' (Fuchs, 2012). Kachru's (1996) concentric circles capture these varieties, where English is used as a second language, like Indian English, Singaporean English, Ghanaian English, and Nigerian English, as Outer Circle members. As a British legacy in Nigeria, English serves as the language of business, religion, administration, law, politics and media. In addition, it is the language of news broadcast on both radio and television channels with national and international coverage and audience (Melefa, 2019). The contact of English with over 500 existing indigenous languages (Eberhard, Simons & Fennig, 2019) has hitherto birthed the domesticated and nativised variety known as "Nigerian English" (Dadzie, 2004). This also explains the evolution of ethnic (Hausa, Igbo and Yoruba) and educated (non-

standard, standard and sophisticated) sub-varieties of NigE (Banjo, 1971; Udofot, 2003).

These sub-varieties inform the variations observed in NigE at the phonological level (Jowitt, 1991; Banjo, 2004; Adegbite & Akindele, 2005). Therefore, to provide solid bases for its standardisation, scholars (e.g., Adetugbo, 2004; Awonusi, 2004; Oladipupo, 2014; Akinola & Oladipupo, 2021) have consistently invested commendable efforts into describing NigE at segmental, suprasegmental and sub-suprasegmental levels. Specifically, studies have established variations in the number of phonemes of Hausa, Igbo and Yoruba English sub-varieties (Jowitt, 2019). For example, unlike the other two, the Yoruba language sound systems typically lack the voiced alveolar fricative /z/ (Malah & Rashid, 2015; Eme & Uba, 2016). This implies that a Yoruba English speaker may not be accustomed to following the native patterns in articulating 's' as /z/ in *firms* (Awonusi, 2009).

Nevertheless, a few Nigerians, particularly the radio and television presenters, who are constantly exposed to pronunciation training (Jowitt, 1991, 2019; Adetugbo, 1993), have shown a varied degree of conformity to the RP (sophisticated) variety (Jowitt, 2019). It is also noted that British Broadcasting Corporation (BBC) and Cable Network News (CNN) influences on the pronunciation of few NigE speakers may have informed some changes in the sound structure of NigE in recent times (Melefa, 2019). This implies that the influence of newsreaders on spoken English of the larger society cannot be wished away (Bjelakovic, 2016). This possibly informs Okoro's (2004) call to adopt Nigerian broadcasters' accents as standard spoken Nigerian English. However, very few studies (e.g., Soneye, 2007; Melefa, 2019) have investigated the accents used by the Nigerian Television Authority (NTA) Yoruba English newscasters. This paper, therefore, from a corpus-based approach, attempts a morphophonemic study of the 's' morph in the speech of Yoruba English newscasters who have been exposed to pronunciation training and influences of BBC and CNN, in a bid to ascertain their expertise, though their phonemic system typically lacks voiced alveolar fricative /z/. The objectives of the study are:

i. identify the total number of allomorphs [s], [z], and [ɪz] in the selected speech of YENs;
ii. determine the most prevalent allomorph in the selected speech of YENs;

iii. establish whether YENs are among the sophisticated Nigerians who follow the native speakers' pattern in the realisations of 's' morph; and
iv. discuss possible reasons for YENs' realisations of the allomorphs [s], [z], and [ɪz].

2. Morphophonemic alternations in NigE

The term 'morphophonemics' or 'morphophonology' is between morphology and phonology. Morphology concerns itself with the word formation of a language, while phonology deals with its sound system. Morph, morpheme, phoneme and allomorph are the primary concepts of morphophonemics. The morph is a string of the smallest unit of sound (phoneme) in a language that cannot be broken down into smaller constituents. Allomorph is a variant phonological form of a morpheme or a unit of meaning that differs in sound and spelling without changing the meaning. The morpheme is the minutest meaningful unit in a language. Thus, morphophonemics is simply put as the phonemic realisation of allomorphs of a morpheme in a given language. It implies the linguistic statements that describe the phonemic structure of phonemes.

The concept also indicates variations in phoneme due to merging one morpheme with another (Ampa, Mohammad & Ramdayani, 2019). Primarily, it deals with the analysis and classification of the phonological factors that influence morphemes, or correspondingly, the morphological factors that affect the appearance of phonemes (Crystal, 2008). As a process, morphophonemics aims to present formalised rules that predict the allomorphic variations in the morphemes of a given language. For example, the English *s* morph, which can serve as a plural, possessive, or third person singular morpheme marker, is phonologically conditioned (Eka, 1994; Roach, 1997). It alternates between three distinct allomorphs, depending on the preceding sound segment. The allomorphs in plurals, possessives, or third person singular marker involve voicing assimilation and dissimilation as phonological processes (Genon-Sieras, 2020). For instance, if it is adjoined to a noun with a preceding voiceless consonant, it marks the plural as in *bat* ~ *bats* and produced as [s} as in [bæts]. It marks the possession if it follows a noun phrase, as in *the forces' guns* and pronounced as [ɪz] as in [fɔːsɪz]. It identifies the third person singular of the verb if it adjoins to present tense verb with a preceding voiced consonant as in *beg* ~ *begs* and produced as [z] as in [begz].

Several researchers, as mentioned earlier, have described the characteristics of the segmental aspect of NigE. Prominent among these characteristics are deletion and devoicing. For example, Tiffen (1974) observes that obstruents such as /t, d, k/ are often deleted when they precede morpheme *s* ({s} henceforth). Bobda (2007) also reports deletion in NigE when postvocalic /l/ is preceded by an alveolar plosive /t, d/. Adetugbo (2004) attests that voiceless alveolar fricative /s/ is the more prevalent allomorph of English morpheme. This infers that suffixes preceded by consonants and vowels tend to be devoiced in NigE. Awonusi (2009) states that the Yoruba English speakers have difficulty articulating /s/ when it has the morphemic status as a plural, third person singular, or possessive marker. Josiah and Udoudom (2012) report that the different positions at which the accompanying morphophonemic alternations occur in the word base or root of Ibibio words can create difficulties for Ibibio English learners in the application of progressive assimilation voicing rule. Soneye and Faleye (2015) establish the case of the deletion of /p, t, k, l/ and devoicing of {s} in educated Nigerian spoken English. According to the study, consonant cluster deletion is prominent in both double and triple clustered words, such as *symptoms* /sɪmtoms/, *registration* /redʒɪsreʃɒn/, *next* /nest/, *culprit* /kɒprɪt/, while cases of devoicing were recorded in *examples* /ezaːmpus/, *restrictions* /rɪsrɪkʃɒns/ and *symptoms* /sɪmtoms/. Uba (2015) posits that while NigE applies the *post-nasal b and g deletion rule* at a word-final position in the *bomb*, it rarely does when followed by inflectional or derivational suffix as in *bomber*, *plumber*.

Although the foci of these studies differ, it is clear that morphophonemics has been receiving considerable attention in NigE. Therefore, in furtherance to, particularly, Adetugbo and Awonusi's observations and its contribution to the existing knowledge, this study investigates the pronunciation of allomorphic variants of {s} in the speech of Yoruba English Newscasters.

3. Theoretical Framework

The study adopts Chomsky and Halle's (1968) Generative phonology theory. The theory primarily attempts to assign, as correctly as possible, phonetic representation to utterances using 'generated' rules in such a way as to reflect the ideal speaker's internalised grammar. It implies that the concept advocates applying a set of phonological rules that convert underlying theoretical forms of a language into a surface representation

that is heard (Oladipupo, 2014). Harrington (2004) emphasises the importance of these rules:

> There are phonological rules that link these often highly abstract underlying forms to the phonetic forms...because otherwise we cannot explain how underlying forms are related. Base Syntactic rules, Transformational Syntactic rules, Phonological rules, Semantic component to pronunciation (this is exactly parallel to our earlier phonemic/phonetic distinction: once we represent words phonemically, we have to have rules that fill in the redundant or predictable aspects of pronunciation like aspiration; the difference in the Generative Phonology model is that the underlying forms that are being proposed are more abstract than phonemic forms – resulting in many more rules to explain the predictable and redundant aspects of pronunciation – and they lay much greater emphasis on the claim that these underlying forms are in some sense 'psychologically real' i.e. part of the talker's linguistic competence).

The phenomenon of voicing assimilation tends to bring a close relationship between morphophonemic and purely phonological principles. Hence, these rules cover morphophonemic alternations by which interaction between morphological and phonological processes can be analysed (Simo Bobda, 1994). However, only progressive assimilation, out of many of such rules, is relevant to the present study. Progressive voicing assimilation rule projects that, at the morpheme boundary, suffixes for plural nouns, the third person singular of regular verbs in the present simple tense and possessives either become voiced or voiceless, depending on the preceding sound segment. This is illustrated as follows:

(1) {s} becomes [s] after a voiceless consonant:

$$\begin{bmatrix} +\text{ant} \\ +\text{cor} \\ +\text{str} \\ -\text{voice} \end{bmatrix} \rightarrow \begin{bmatrix} +\text{ant} \\ +\text{cor} \\ +\text{str} \\ -\text{voice} \end{bmatrix} / \begin{bmatrix} +\text{ consonant} \\ -\text{voice} \end{bmatrix}$$

$$\text{as in: } \begin{Bmatrix} \text{trait} + \text{s} \\ \text{pat} + \text{s} \\ \text{unit} + \text{'s} \end{Bmatrix} \sim \begin{Bmatrix} \text{traits} \\ \text{pats} \\ \text{unit's} \end{Bmatrix} = \begin{Bmatrix} [\text{treɪts}] \\ [\text{pæts}] \\ [\text{ju: nɪts}] \end{Bmatrix}$$

For example, the morphophonemic rule for *trait<u>s</u>* is expressed as:

$$\begin{bmatrix} +\text{ant} \\ +\text{cor} \\ +\text{str} \\ -\text{voice} \end{bmatrix} \rightarrow \begin{bmatrix} +\text{ant} \\ +\text{cor} \\ +\text{str} \\ -\text{voice} \end{bmatrix} / \begin{bmatrix} +\text{ant} \\ +\text{cor} \\ -\text{str} \\ -\text{voice} \end{bmatrix} \#$$

(2) {s} becomes [z] after a voiced consonant:

$$\begin{bmatrix} +\text{ant} \\ +\text{cor} \\ +\text{str} \\ -\text{voice} \end{bmatrix} \rightarrow \begin{bmatrix} +\text{ant} \\ +\text{ant} \\ +\text{sib} \\ +\text{voice} \end{bmatrix} / \begin{bmatrix} +\text{consonant} \\ +\text{voice} \end{bmatrix}$$

$$\text{as in: } \begin{Bmatrix} \text{breed} + \text{s} \\ \text{beg} + \text{s} \\ \text{school} + \text{s}' \end{Bmatrix} \sim \begin{Bmatrix} \text{breeds} \\ \text{begs} \\ \text{schools}' \end{Bmatrix} = \begin{Bmatrix} [\text{bri: dz}] \\ [\text{begz}] \\ [\text{sku: lz}] \end{Bmatrix}$$

e.g., breed<u>s</u> is expressed as:

$$\begin{bmatrix} +\text{ant} \\ +\text{ant} \\ +\text{str} \\ -\text{voice} \end{bmatrix} \rightarrow \begin{bmatrix} +\text{ant} \\ +\text{ant} \\ +\text{str} \\ -\text{voice} \end{bmatrix} / \begin{bmatrix} +\text{ant} \\ +\text{ant} \\ -\text{str} \\ -\text{voice} \end{bmatrix} \#$$

(3) {s} becomes [ɪz] after a vowel

$$\begin{bmatrix} +\text{ant} \\ +\text{cor} \\ +\text{str} \\ -\text{voice} \end{bmatrix} \rightarrow \begin{bmatrix} +\text{ant} \\ +\text{ant} \\ +\text{sib} \\ +\text{voice} \end{bmatrix} / \; [\text{vocalic}]$$

It is noteworthy that the third allomorph adds an extra syllable wherever it appears after a vocalic sound, either as a noun, a third person singular or a possessive marker. For example:

$$\text{as in: } \begin{Bmatrix} \text{horse} + \text{s} \\ \text{force} + \text{s} \\ \text{judge} + \text{s}' \end{Bmatrix} \sim \begin{Bmatrix} \text{horses} \\ \text{forces} \\ \text{judges}' \end{Bmatrix} = \begin{Bmatrix} [\text{hɔ:sɪz}] \\ [\text{fɔ:sɪz}] \\ [\text{dʒʌdʒɪz}] \end{Bmatrix}$$

4. Research Methods

The study gathered its data from the broadcast news (bnew) file of the International Corpus of English (ICE) – Nigeria. The corpus, which contains 1,010,382 words comprising 609, 586 and 400,796 of spoken and written NigE usage, respectively, was compiled between 2007 and 2014 at the Universities of Augsburg and Münster (Gut, 2014) as part of the International Corpus of English project built in 1990 by Greenbaum and associates (Unuabonah & Gut, 2018). Table 1 shows the selected broadcast news file of the spoken part of the corpus and the informants' distribution for this study. The text samples were supplied by six Yoruba English newscasters, comprising three males and three females, from Nigeria Television Authority (NTA) International News, NTA Ibadan and News on 39. The choice of this category of informants as the population sample for this study is based on the advocacy for recognizing NTA accent as a suitable model for standard spoken Nigerian English (Okoro, 2004; Soneye & Faleye, 2015; Jowitt, 2019). The entire forty text files of the broadcast news in the spoken part of ICE-Nig were consciously listened to. Twenty-two text files containing newscasts of the selected Yoruba English newscasters were located, replayed several times and listened to by the researcher.

Table 1: Selected broadcast news file of the spoken part of the corpus and the distribution of informants

Extracted text file	No. of YENs Male	No. of YENs Female	Total
bnew_03, bnew_04, bnew_05, bnew_06, bnew_07, bnew_08, bnew_09, bnew_10, bnew_11, bnew_12, bnew_20, bnew_21, bnew_22, bnew_23, bnew_24, bnew_25, bnew_26, bnew_28, bnew_29, bnew_30, bnew_31 bnew_32	3	3	6
Percentage	**50**	**50**	**100**

Using AntConc analysis toolkit version 3.4.4.0., a total number of 310 English words with ending morpheme *s* found in the speech of the selected YENs were searched for and carefully listened to for appropriate distribution and analysis. The 's' morphs comprised 251, 16 and 43 instances of plural, possessive and third person singular markers, respectively (See Appendix). However, many of the words (e.g., *news, reports, views, details, challenges*) appeared more than once in the newscasts. Therefore, a total number of 1,207 allomorphs were analysed in the study.

The allomorphs were stratified into plural, possessive and third person singular markers and were analysed quantitatively by counting tokens of each allomorph produced by the YENs and converting them to percentages. The allomorphs analysed were determined through auditory means. Two levels of analysis were carried out. First, the realisation of each allomorphic variant was calculated as a percentage of the total sum of occurrences of the variant in the selected spoken part of the corpus. Second, to ascertain the mastery of YENs, the total sum of RP equivalent produced by them was calculated as a percentage of the total sum of occurrences of all the allomorphs in the selected news broadcasts. This is statistically represented, as shown in Figure 1.

$$\frac{\text{sum of each variant}}{\text{total sum of occurrences of the allomorph}} \text{ x } 100$$

$$\frac{\text{sum of all RP equivalent}}{\text{total sum of occurrences of all allomorphs}} \text{ x } 100$$

5. Findings

Tables 2, 3 and 4 show the findings of the study. A total number of three hundred and ten English words with inflectional {s} which occur as plural, possessive or third person singular marker were identified in the newscasts of the Yoruba English newscasters selected for the study. They comprise 251, 16 and 43 plural, possessive and third person singular markers, respectively. However, many of the words occur more than once in YENs speech (See Appendix).

Table 2 shows a total number of 1,207 allomorphs [s], [z], and [ɪz] found in the selected speech of YENs. These comprise tokens of 1,020, 120 and 67 allomorphs [s], [z], and [ɪz] respectively.

Table 2: Allomorphs in the selected Yoruba-English newscasters' speech

	Allomorph			
Marker	[s]	[z]	[ɪz]	Total
Plural	282	582	156	1,020
Tense/third person singular	62	55	3	120
Possessive	3	64	-	67
Total	**347**	**700**	**159**	**1,207**

Findings of the study (see Table 3) regarding {s} as a plural marker reveal that out of 282 instances of [s], 244 (86.52%) were realised by YENs following the native speakers' patterns, 1 case (0.36%) of overgeneralisation occurred where {s} was realised as [z] in *students*. In comparison, there were 37 (13.12%) instances of deletion. In 585 cases of [z], 367 (63.06%) were pronounced as obtained in native English, while 195 (33.50%) were realised as [s] with 20 (3.44%) occurrences of deletion. In 156 tokens of [ɪz], 98 (62.82%) instances were produced following the native speakers' patterns, while 58 (37.18%) were realised as [ɪs] for instance, in *controversies*/kɒntrəvɜ:sɪs/, *responsibilities* /rɪspɒntsəbɪlətɪs/. The result is in tandem with the existing studies (Tiffen, 1974; Bobda, 2005; Soneye & Faleye, 2015), which showed that varied cases of deletion and devoicing characterise NigE. For instance, the present study shows that YENs tend to delete {s}, particularly when it is preceded by alveolar plosive /t/ as in *student*[s] [stu:dənt] *candidate*[s] [kændɪdeɪt], *participant*[s] [pɑ:tɪsɪpænt], *report*[s] [rɪpɔ:t], among others.

The present study corroborates Soneye & Faleye's (2015) submission on devoicing of {s} in the NigE variety. For instance, the results reveal instances of devoicing of [z] to [s] when *s* follows voiced consonants /l/, /m/, /w/ and /v/ as in *pupils* [pju:pɪls] for [pju:pɪlz], *farms* [fɑ:ms] for [fɑ:mz], *news* [nju:s] for [nju:z], *views* [vju:s] for [vju:z], *representatives* [reprɪzenteɪtɪvs] for [reprɪzenteɪtɪfs]. Meanwhile, devoicing of /z/ in *representatives* might be due to the absence of the preceding voiced labio-dental /v/ in the substratum of YENs.

Reporting {s} as a third person singular marker in the selected newscasts, the realisations of all the 62 (100%) occurrences of [s] were in agreement with the native speakers patterns. However, out of 55 cases of [z], 28 (50.91%) align with the native English, while 27 (49.09%) cases of substitution of [z] with [s] were recorded. For example, *ends* was produced as [ends] instead of [endz], *winds* [waɪndz] as [waɪnds], *begins* [bɪgɪnz] as [bɪgɪns], *continues* [kəntɪnju:z] as [kəntɪnju:s], *commends* [kəmendz] as [kəmends], and so on. And in the 3 instances of [ɪz], 2 (66.67%) were pronounced in line with the native speakers' patterns, while the remaining 1(33.33%) instance was devoiced as {ɪs} in *closes* [cləʊsɪs].

Although, a slight difference was recorded between the native speakers' patterns and the alternative variant in the realisation of [z] as a third person singular marker, the findings, again, corroborate Soneye and Faleye's (2015) position on the prevalent case of devoicing in NigE.

Regarding *s* morph as a possessive marker, the results showed that the entire 3 (100%) cases of [s] in *tonight's* [tənaɪts] were deleted in the speech of YENs. Meanwhile, 39 (60.94%) out of 64 occurrences of [z] were realised following the native speakers' patterns, 24 (37.50%) instances were devoiced as [s], whereas 1 (1.56%) case of deletion occurred in *God's* as [gɒd]. These findings do not in any way differ from Soneye and Faleye's (2015) report of the occurrence of deletion and devoicing in educated NigE speakers' speech.

Table 3: Realisations of allomorphs in the selected Yoruba-English newscasters' speech

Allomorph in NSPs	Plural			Present tense/third person singular			Possessive		
	NSP-YENS	YENAV	DYENS	NSP-YENS	YENAV	DYENS	NSP-YENS	YENAV	DYENS
/s/	244	1	37	62	-	-	-	-	3
%	**86.52**	**0.36**	**13.12**	**100**	**-**	**-**	**-**	**-**	**100**
/z/	367	195	20	28	27	-	39	24	1
%	**63.06**	**33.50**	**3.44**	**50.91**	**49.09**	**-**	**60.94**	**37.50**	**1.56**
/ɪz/	98	58	-	2	1	-	-	-	-
%	**62.82**	**37.18**	**-**	**66.67**	**33.33**	**-**	**-**	**-**	**-**

Key: *NSPs – Native speakers' patterns; NSP-YENS –Native speakers' patterns in Yoruba English Newscasters' speech; YENAV – Yoruba English Newscasters' Alternative Variant;*
DYENS – Deletion in Yoruba English newscasters' speech.

Table 4 shows that a total number of 552 (45.73%) cases of [s] were realised by the Yoruba English newscasters, followed by 435 (36.04%) instances of [z], while 100 (8.28%) occurrences of [ɪz] were found. Also, a total number of 61 (5.05%) cases of deletion occurred in YENs' speech, while 59 (4.90%) tokens of the allomorphic variant [ɪs] were recorded. This is in tandem with Adetugbo (2004) that submits that voiceless alveolar fricative /s/ is the more prevalent allomorph of English {s} in NigE.

Table 4: Total realisations of Allomorphs in YENs

Total Allomorphs realised by YENs		%
/s/	552	45.73
/z/	435	36.04
/ɪz/	100	8.28
/is/	59	4.90
Deletions	61	5.05
Total	**1,207**	**100**

Table 5 shows that out of 1,207 instances of *s* morph investigated in the selected speech of six Yoruba English newscasters, a total number of 709 (69.60%) cases were realised following the native speakers' patterns. A total number of 306 (25.35%) instances of distinguished Nigerian English variants [s], [z] and [ɪs] were recorded, while 61 (5.05%) cases of deletions occurred. Considering Adetugbo's (2004) position, the overall outcome of the investigation reveals that Yoruba English newscasters are among the sophisticated NigE speakers who, to a large extent, can produce the *s* morph following the native speakers' patterns.

Table 5: Overall results of *s* morph realisations in YENs' speech

s Morph	Frequency of Allomorphs	YENs' realisations of Allomorphs		
		NSP-YENS	YENAV	DYENS
Plural marker	1,020	709	254	57
Third person singular	120	92	28	-
Possessive marker	67	39	24	4
Total	**1,207**	**840**	**306**	**61**
%	**100**	**69.60**	**25.35**	**5.05**

6. Summary

This corpus-based study has investigated the realisations of *s* morph in Yoruba English newscasters' speech. In actualising the first two objectives of the study, a total number of 310 words (see Appendix) containing {s} with 1,207 allomorphs [s], [z] and [ɪz] (see Table 2) were identified in the twenty-two newscasts (see Table 1) of the selected YENs, out of which the data analysis present allomorph [s] as the most prevalent allomorphic variant produced by YENs (Table 4). In line with the third objective, the results show that YENs averagely achieved a considerable level of consistency in the realisations of the RP pronunciation of [z] as there were few cases where {s} in: *news*, *views*, *seas*, *Nigeria's*, *year's* were realised as [s]. Generally, the replacement of [z] with [s] by YENs could be associated with the accent prevalent in the NigE sociolinguistic milieu and the absence of /z/ in the Yoruba sound system. Findings also reveal that while {s} was not pronounced in a few YENs' newscasts, for example, *results*, *students*, it was over-generalised in few cases, e.g., [s] produced as [z] in *students*.

The general performance of YENs in realising 's' morph tends to corroborate Awonusi's (2009) submission that Yoruba English speakers have difficulty articulating [s], [z] and [ɪz]. However, as evident in the overall results (see Table 6), the realisations of allomorphs [s], [z], and [ɪz] by the Yoruba English newscasters correspond to the RP (see Fig. 2).

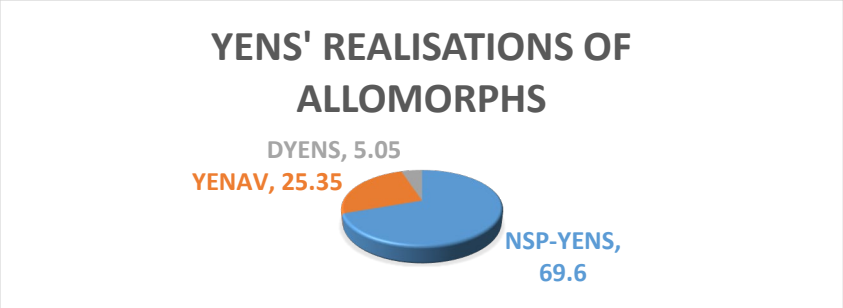

Fig. 2
**NSP-YENS – Native speakers' patterns in Yoruba English Newscasters' speech*
**YENAV – Yoruba English Newscasters' Alternative Variant*
**DYENS – Deletion in Yoruba English newscasters' speech*.

Perhaps, the varying degrees of success and consistency (Jowitt, 2019) by YENs may be attributed to some notable factors. One of them is Melefa's (2019) submission that the RP variety has remained the speech model that few Nigerians, particularly Nigerian newscasters, seek to attain. Again, Yoruba English newscasters' exposure to pronunciation training (Jowitt, 2019) may have contributed, in no small measure, to the influence on their articulation of {s}. Therefore, YENs can be considered among the few sophisticated Nigerian English speakers who align with the native speakers in the morph's articulations of *s* morph.

7. Conclusion and Recommendation

Going by previous studies (e.g., Melefa, 2019; Soneye & Faleye, 2015), the accent of broadcasters in NTA and private channels is considered the educated variety daily accessible to several English speakers. The accent is also said to be locally and internationally intelligible (Melefa, 2019). Therefore, having established that Yoruba English newscasters are sophisticated English users, the present study seeks to identify with

Adegbija's (2004) suggestion of NTA News English as a model for standard NigE variety. The observed inconsistency in the realisation of [z] allomorph can be considered an unavoidable internal influence that will mark the Nigerian English variety.

Towards the movement of NigE to the next phase, the study further echoes the call for its codification and standardisation (Gut, 2012). The study recommends the morphophonemic study of *s* morph in both Hausa and Igbo English newscasters' speech to harmonise their current phonological features.

References

Adegbija, E. (2004). The domestication of English in Nigeria. In V. Awonusi and Babalola, E. A. (Eds.). *The domestication of English in Nigeria.* (pp. 20-39). Lagos: University of Lagos Press.

Adetugbo, A. (2004). Problems of Standardisation and Nigerian English Phonology. In A. B. K. Dadzie and Segun Awonusi (Eds.). *Nigerian English: Influences and Characteristics,* (pp. 179-199). Lagos: Concept Publication.

Akindele, F., and Adegbite, W. (2005). *The Sociology and Politics of English in Nigeria: An Introduction* (3rd Ed.). Ile Ife: Obafemi Awolowo University Press.

Akinola, A. & Oladipupo, R. (2021). Word stress free variation in Nigerian English: A corpus-based study. *Journal of English Today*, (pp. 1-13). Cambridge University Press.

Awonusi, V. (2004). Some Characteristics of Nigerian English Phonology. In A. B. K. Dadzie and Segun Awonusi (Eds). *Nigerian English: Influences and Characteristics*, (pp. 203-225). Lagos: Concept Publications.

Awonusi, Segun (2009). *Coping with English pronunciation: A text for schools, colleges and universities.* (New Ed.) Sam Iroanusi Publications, Lagos.

Banjo, A. (1971). Towards a Definition of Standard Nigerian Spoken English. *Annales d'Université d'Abidjan*, 24–28.

Banjo, A. (2004). A note on Yoruba/English Bilinguals' phonological transfers. In V. Awonusi and Babalola, E. A. (Eds.). *The domestication of English in Nigeria*, (pp. 15-19. Lagos: University of Lagos Press.

Bjelakovic, A. (2016). The Vowels of Contemporary RP: Vowel Formant Measurement for BBC newsreaders. *English Language and Linguistics,* 21(3), 501–532.

Chomsky, N. and Halle M. (1968). *The sound pattern of English* (SPE). New York: Harper and Row.

Crystal, D. (2008). *A Dictionary of Linguistics and Phonetics*, (6th Ed.). USA: Blackwell Publishing.

Dadzie, A. B. K. (2004). The concept of Nigerian English. In A. B. K. Dadzie and Segun Awonusi (Eds.) *Nigerian English: Influences and Characteristics*, (pp. 85-99). Lagos: Concept Publications.

Ebenhard, D. M., Simons, G. F. & Fennig, C. D. (eds.) 2019. Ethnologue: Languages of the World (20th ed.) Dallas, Texas: SIL International. Retrieved from http://www. ethnologue.com

Eka, D. (1994). *Elements of Grammar and Mechanics of the English Language*. Uyo Samuf (Nigeria) Ltd.

Eme, C. A. & Uba, E. D. (2016). A contrastive study of the phonology of Igbo and Yoruba. *UJAH,* 17(4), 65-84.

Fuchs, R. (2012). Focus Marking and Semantic Transfer in Indian English: The Case of Also. *English World-Wide* 33(1):27–52.

Genon-Sieras, S. V. (2020). Affixations and Allomorphs in Verbs and Nouns in a Research Abstract: A Morphemic and Morphophonemic Analysis. *International Journal of English Language Studies (IJELS)*. 2(2), 14-22.

Gut, Ulrike (2012). Towards a codification of Nigerian English – the ICE Nigeria Project. *Journal of the Nigeria English Studies Association (JNESA)*, 15(1), 1-13.

Harrington, J. (2004). Generative phonology and underlying representations. Retrieved May7, 2009, http://www.linq.mq.edu.au/sspeech/phonetics/phonology/generative /index.html

Jowitt, D. (1991). *Nigerian English Usage: An Introduction*. Ibadan: Longman.

Jowitt, D. (2019). *Nigerian English*. Berlin: De Gruyter Mouton

Kachru, B. (1996). World Englishes: Agony and Ecstasy. *Journal of Aesthetic Education* 30(2), 135-155.

Melefa, O. M. (2019). Vocalic Sounds Articulation by Selected Nigerian Television Newscasters: A Nigerian RP? *C-JEL* 1:97-118.

Okoro, O. (2004). The identification of standard Nigerian English usage. In A. B. K. Dadzie and Segun Awonusi (Eds.) *Nigerian English:*

Influences and Characteristics, (pp. 158-178). Lagos: Concept Publications.

Oladipupo, O. R. (2014). Social and linguistic correlates of r-liaison in educated Yoruba English. *ISEL* 11(1), 1-13.

Roach, P. (1997). English Phonetics and Phonology (2nd ed). United Kingdom: Cambridge University Press.

Simo Bobda, A. (1994). *Aspects of Cameroon English phonology*. Bern: Peter Lang.

Simo Bobda, A. (2007). Some segmental rules of Nigeria English phonology. *English Worldwide*. 28(3), 279-310.

Soneye, T. (2007). Phonological sensibility of selected NTA newscasters to polyphonic and polygraphic phenomena in English. Ph.D thesis. University of Ibadan.

Soneye, T. & Faleye, J. O. (2015). Syllable phonotactics in educated Nigerian spoken English. *Konin Language Studies*. 3(3), 255-269.

Tiffen, Brian (1974). The intelligibility of Nigerian English. Ph.D dissertation. University of London.

Uba, E. (2015). A morphophonemic classification of Nigerian English. *Papers in English and Linguistics (PEL)*. 16: 228-247.

Ubong Ekerete Josiah, U. E. & Udoudom J. C. (2012). Morphophonemic analysis of inflectional morphemes in English and Ibibio Nouns: Implications for Linguistic Studies. *Journal of Education and Learning.* 1(2), 72-81.

Udofot, I. (2003). Stress and rhythm in the Nigerian accent of English: A preliminary investigation. *English Worldwide*, 24(2), 201–220.

Udofot, I. (2004). Varieties of spoken Nigerian English. In V. Awonusi and Babalola, E. A. (Eds.) *The domestication of English in Nigeria*. (pp. 93-113). Lagos: University of Lagos Press.

Unuabonah, F. & Gut, U. (2018). Commentary pragmatic markers in Nigerian English. *English Worldwide*, 39(2), 190–213.

An Optimality Approach to Word Stress Analysis in Yoruba -English

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Abstract

This study is an optimality-theoretical approach to the analysis of word stress in the Yoruba English sub-accent of Nigerian English. The aim was to determine how stress-related constraints are're-ranked' in Yoruba English to produce the optimal candidates, using educated Yoruba L2 speakers of English as a model. Ninety (90) participants were purposively sampled for the study. They were made to read a prepared text containing some predetermined polysyllabic words into an IC recorder. The outcome was subjected to OT analysis using constraints relevant to educated Yoruba English bilinguals' (EYEB) word stress patterning. One of the findings of the study demonstrates that word stress among EYEB is usually realised rightward. It was also observed that the most prominent constraint in YE polysyllabic English words is UNEVEN-IAMB. Compared to British native speakers' accents, the result of the analysis showed that the majority of the participants exhibited a reordering of the word stress-related constraints. The study concluded that speakers of other English accents can better understand the YE accent by studying its word stress constraints ranking system.

Constraints, Nigerian English, Optimality Theory, Word Stress, Yoruba English

1. Introduction

Among the league of international languages such as French, Spanish and Mandarin, English has consolidated its status as a global language over the past recent decades. There is hardly any country on the globe where it is not spoken today, and with a considerable number of speakers too. A number of these countries such as the UK, the USA and Australia are native speakers of English. Many countries which were colonialized by Britain, such as Ghana, India, Nigeria and Singapore, adopted English as their official language and consequently became English-as-a-second-language speaking countries. However, there is a third group of countries which uses the language as a means of global integration and diplomatic exchanges. These include Brazil, China, Germany, and Mexico.

Kachru (1985) referred to the second and third categories of speakers of English as Outer Circle and Expanding Circle respectively. The term 'Expanding' reflected the status of English in the 1980s. Based on the current status of English in the global context, Crystal (2008) suggested the term 'expanded circle'. Crystal posited that this captured contemporary realities more appropriately. Both the Outer Circle and Expanded Circle are far more in number than the Inner Circle.

A close observation reveals that the inner the concentric circle, the lesser the number of speakers and vice vasa. Crystal (2008) reported that the Inner Circle had between 320 and 380 million speakers; the Outer Circle had between 300 and 500 million; while the Expanding Circle had between 500 and 1,000 million. Moreover, the Outer Circle and the Expanding Circle are the primary agents of the further spread of the language around the globe.

More importantly, as English continues to spread, it also gets domesticated in different parts of the globe. This results in what we may call the globalisation of English, accompanied by variations in the language. This brought about 'New Englishes', a term which was introduced by Kachru and Smith (1985). The term 'New Englishes' has become widely accepted for describing the varieties of English spoken in Outer Circle countries, where they have also acquired peculiar descriptive features similar to what can be called dialects of the language. One of such New Englishes is Nigerian English. We can thus refer to Nigerian English (hereafter referred to as NE) as a dialect of English today, and within this dialect there are accents, such as Yoruba English, Igbo English, Hausa English etc. (Jibril, 1986). This is because there are observable, distinct phonological features that distinguish the varieties of English spoken in different parts of the country from one another. These accentual variations in NE are quite observable from the point of view of indigenous language influences (Jowitt, 1991).

The situation has been extensively described by a number of scholars. In recent times, scholars like Igboanusi (2006), Akinjobi (2004, 2006) and Anyagwa (2013) have suggested that the accents of NE could be identified from a geo-ethnic perspective. This largely explains the basis of such terms as Northern Nigerian English, Southern Nigerian English, etc. Moreover, one of the distinguishing features of the English language is stress, which also distinguishes it from the Nigerian indigenous

languages. However, the spoken English of the majority of Nigerians is largely influenced by the phonology of their first language. Consequently, stress placement also becomes a distinguishing factor between the typical native speaker's accent and that of Nigerian English.

A number of works have been done in the aspect of stress in Nigerian English in recent times. These include: Omachonu (2008) - primary stress assignment in Nigerian (Igala) English; Akindele (2008) – Stress in Edo English; Sunday (2008) - Phrasal stress in Educated Yoruba English; Sunday (2011) - Compound stress in Nigerian English; Oyatokun (2013) - Constraint-based assessment of tone-driven stress in Educated Yoruba English; Edema (2015) - Stress assignment in Itsekiri English; Akinkuolie (2016) - Stress Assignment in Ikwere English; Essien (2018) - Stress and Rhythm in the Educated Nigerian Accent of English; and Sunday and Babayemi (2021) -Variation in Nigerian English Polysyllabic Nominal Stress; among others. The summary of their various findings is that stress in NE varies significantly from that of SBE. This current study is premised on the significant variations observable in the Nigerian English accent and the consequent regional sub-accents. The study specifically focuses on patterns of word stress in Yoruba English.

1.1 Review of Literature

1.1.1 Variation of Englishes around the Globe

Variation is a major characteristic of languages and English appears to exhibit this characteristic the most presently. Linguistic variation tends to result from geographical distance among speakers of the same language (Holmes, 2008). In the case of English, which is spoken across different continents of the globe, this has resulted in the emergence of regional dialects of the language.

The foregoing suggests the acquired status of English language today as a global language. It is spoken in practically every country on the globe, although with varying degree of competence, intelligibility and accentual patterning. Consequently, Kachru (1985, p. 3-7) noted that the language has now acquired 'multicultural identities'. Kachru's three concentric circles classification of varieties of spoken English was based on its varying roles in the global context. The argument was that these circles

represented "the type of spread, the patterns of acquisition and the functional domains in which English is used across cultures and languages". This suggested the progressive evolution of the language from one stage (concentric circle) to the other. Inner Circle describes countries like England and Australia where English is used as a native language; they are otherwise referred to as 'norm providing'. The Outer Circle refers to countries where English serves as a second language, such as Singapore and Nigeria; these are also known as 'norm-developing'. The English used in the Expanding Circle is regarded as 'norm dependent'. Some scholars also referred to this category as speakers of English-as-a-Lingual-Franca (ELF) (Jenkins, 2003; Bohara, 2018).

1.1.2 Accent Variation in Spoken Nigerian English

Jibril (1979) identified two broad accents of Nigerian English on the basis of Northern and Southern dichotomy. Jowitt (1991) took it a step further as he broadly categorised spoken Nigerian English into three based on the phonemic systems of the three major ethnic groups in the country, using the term Popular Nigerian English (PNE). Hence, he employed the acronyms PNE(H), PNE(I) and PNE(Y), corresponding to the Hausa, Igbo and Yoruba pronunciation systems respectively. Okoro (2004) also claimed that one could easily tell what part of the country a Nigerian comes from by simply listening to his spoken English. He referred to this phenomenon as the speaker's accent. In the same vein, Bobda (2007) noted that NE as a variety of English had a range of variation in the spoken form.

In recent times, scholars of Nigerian English have extended their studies on NE sub-regional accents beyond the three main sub-accents of Hausa, Igbo and Yoruba English. For example, Omachonu (2008), Ikima (2012) and Akinjobi & Ilolo (2013) worked on Igala, Tiv and Isoko sub-accents of NE respectively. However, it might not be out of place to reason that English, as spoken by most L2 speakers of the over four hundred indigenous languages in Nigeria share similar characteristics with one or another of the three main English sub-accents in the country, depending on the geographical/linguistic proximity of those languages to them. Going by the foregoing assertion, we might reasonably conclude that the variations among the various sub-accents of Nigerian English are a continuum.

1.1.3 Stress Variation in Non-Native English

A number of scholars have identified stress as a key element of intelligibility in English communication whether at the local or global level (Field, 2005). Some researchers have also recognised stress as an important factor in the teaching of pronunciation to non-native learners of the language.

Ying-Ying (2015) conducted a study on 'native' and 'non-native' perception of stress in Singapore English using two groups of participants. The first group was made up of speakers of Singapore English (Group 1), while the second comprised speakers of British, American and Australian Englishes (Group 2). His findings showed that stress is perceived differently between speakers of different varieties of English. In his conclusion Ying-Ying queried the traditional labels of 'native' and 'non-native' speakers of English, asserting that 'nativeness' is no longer the exclusive reserve of Inner Circle English speakers.

Roach (2000, p. 188) also observed that "The idea of a 'Standard Received Pronunciation' is a convenient fiction, not a scientific fact". From Roach's observation, one can draw the conclusion that there is no single, unified standard variety of spoken English. This idea was also suggested by Yang and Dai (2011) in their description of the features of spoken China English. They acknowledged the existence of accentual variations, based on suprasegmental features such as stress, tone and intonation, among various varieties of English across the world. They argued against the use of British accent as the sole standard and advocated for 'multi-standards' of English pronunciation for other native varieties, as well as other emerging varieties in countries like China.

1.1.4 Word Stress in the Nigerian English Accents Continuum

Kujore (1985, p. xiv) stated that Nigerian English in the spoken form is characterised by "delayed primary stress". He identified some of the features of NE stress pattern as follows:

1. The tendency for forward stress in disyllabic nouns;
2. Recurrence of forward stress in words whose final syllable contain [n] and/or [i];
3. The recurrence of final stress in verbs with final obstruents;

4. Recurrence of forward stress in compounds with final obstruents.

Atoye (1999) also studied the Nigerian English word stress system. One of the findings was that the average Nigerian speaker of English usually engaged in progressive stress shifting of English words. This, according to him, did not necessarily imply that all English words were stressed in deviant manner by Nigerian speakers. He however believed that those that were rightly stressed (in the context of SBE) were so done based on certain factors. He observed further that the deviant progressive stress shifting pattern of NE is traceable to the tone pattern of the Yoruba language. To him, one of the factors responsible for the entrenchment of this "is the major role of Yoruba-speaking bilinguals in the dissemination of spoken English both in the Nigerian education industry as well as in the electronic media." (Atoye 2005, p. 43).

Akinjobi (2006) investigated educated Yoruba English speakers from the perspective of vowel duration. The study focused on how the participants articulated vowels in typically unstressed syllables of English words whose suffixes required a stress shift and a consequent vowel reduction. The result showed that most of the participants articulated full strong vowels in the syllables that would normally lose their stress in SBE as a result of adding suffixes. Consequently, the subjects did not make the required contrasts in duration between stressed and unstressed syllables.

Sunday (2008) also did a study on Educated Yoruba English (EYE), focusing on its pattern of compound stress realisation. The study demonstrated that two-base compound nouns, adverbs and adjectives in EYE usually had their primary stress on the first element; similar to SBE's pattern. However, stress on compound verbs varied significantly from that of compound nouns, as the former was determined by either the Compound Prominence Rule (CPR) or the Phrasal Prominence Rule (PPR), while the latter was determined by the CPR. He concluded that EYE compounds usually have their primary stress word-initially, thereby obeying CPR; whereas, SBE compounds behave like phrases, as they observe PPR.

Akindele (2008) worked on stress in Edo English (EE). The result showed that word stress pattern of EE varied considerably from that of SBE.
Omachonu (2008) examined NE word stress using Optimality Theory (OT). He attempted a comparative optimality account of primary stress assignment in SBE and NE, using participants from Igala speakers of English. He characterised NE as having a tendency to reverse the SBE contour 1-2 (where 1 represented primary stress, and 2, secondary stress) to 2-1 in disyllabic words. For some trisyllabic words, he stated that NE preferred the contour 2-3-1 (where 3 represented tertiary stress) to SBE's 1-3-2. Moreover, for trisyllabic words with the contour 3-1-2 in SBE, NE went for 3-2-1. He analysed his data using two prominent constraints: NONFINALITY and UNEVEN-IAMB. The result of his analysis showed UNEVEN-IAMB>> NONFINALITY.

Bobda (2010) observed that Nigerian and Cameroon Englishes were quite similar in their word stress patterning. He noted that in a bid to cope with the complexity of English word stress, NE speakers had revolutionalised the stress pattern of English, resulting into a radical redistribution of NE's stress patterning. He used a somewhat eclectic approach from both Generative Phonology and OT and he noted that Nigerian learners of English employed the law of 'minimal effort'. He noted that word stress in NE was largely determined by syllable weight. Some other characteristics of Nigerian (and Cameroon) English he identified include: final stressing of some words ending with segments like /i/ and /n/ and verbs ending with obstruents; a reassignment of stress properties to some affixes, and a well-entrenched tendency to move stress to a later syllable. Additionally, he identified a number of phonological constraints governing Cameroon and Nigerian English to include: backward stress (BWS); antepenultimate stress (APS); heavy-syllable stress (HSS); etc. These phonological constraints he identified, however, seemed not to be among established constraints in linguistic literature.

Sunday (2010) investigated NE's stress patterns on phrases. He noted that the fact that there was no absolute rule of stress in English without any exceptions created some difficulty in stress realisation for L2 speakers of English, including Nigerians. The following are some of the distinguishing stress patterns of NE he identified in his findings:

i. Two-base noun phrases obey Compound Prominence Rule (CPR) when the nominal is pre-modified by adjectives and Phrasal Prominence Rule (PPR) when the nominal is pre-modified by articles and possessives.
ii. In three-base noun phrases, NE usually assigns primary stress to the second lexical item.
iii. In two-base verb phrases, the primary stress resides on the second base which is the main verb.

Sunday and Oyatokun (2016) analysed word-stress in educated Nigerian English using OT approach. The sample was taken from the three major ethnic groups (Hausa, Igbo and Yoruba). They attested that there was a natural reordering of the universal constraints which resulted in a largely uniform stress pattern in NE among the three major ethnic sub-varieties which significantly varied from that of SBE. The participants exhibited a preference for a more rightward syllable in their realization of primary stress. Hence, the constraint ranking was: ROOT>> TROCH>> *CSR>> NON-INI>> WTS, P SYLL>> ALIGN L, FT BIN, albeit in slightly varying forms. Finally, their data revealed the following four observations about word stress patterning in NE:

(i) no syllable is obscure;
(ii) no significant instance of syncope;
(iii) no significant occurrence of syllabic nasals; and
(iv) high pitch is the most important correlate of stress.

Essien (2018) examined stress and rhythmic patterns of Nigerian English. The analysis revealed that the speech of Educated Nigerian English (ENE) speakers exhibited more stressed syllables, which were also longer, than those of the native speaker. She used syllable duration as a determinant of stressed and unstressed syllables and how they correlated with High (H) and low (L) tones, ostensibly due to the influence of first languages on the NE speakers. The findings showed that strong syllables did not necessarily correlate with high tones, while weak syllables did not consistently correspond with low tones in the participants' utterances. ENE speakers sometimes stressed the wrong syllables as tone was used instead of stress on each syllable due to the

influence of their indigenous tone languages. Moreover, ENE did not use stress to mark prominence; rather, it used tone.

Osifeso (2020b) investigated stress patterning of polysyllabic words as used by educated Yoruba speakers of English in Lagos (EYSEL). The result yielded seven findings. One of the findings showed that EYSEL usually realise the main stress on disyllabic common nouns, personal names, verbs and compounds on the final syllable. Another finding was that EYSEL realise the main stress of tetrasyllabic words on the final syllable. The study concluded that EYSEL had a propensity for shifting the main stress in English polysyllabic words rightwards.

Sunday and Babayemi (2021) did a study on variation in NE polysyllabic nominal stress using the three major ethnic groups- Hausa, Igbo and Yoruba. Their findings showed that the three NE varieties ranked Ft-BIN and TROCH highly. The study further revealed that Hausa and Igbo varieties shared greater similarities than Yoruba's. Hausa and Igbo English speakers rate left alignment of feet higher, while EYE ranked NON-INI above the alignment constraints.

The various studies reviewed showed the current state of research on word stress in the NE Accents Continuum. The majority of the studies focused on the combination of the three dominant NE varieties: HE, IE and IE, while some others investigated minority varieties such as Edo English, Itsekiri English and Ikwere English. One of the studies specifically investigated Yoruba speakers of English in Lagos. This current study, however, extended the scope of YE polysyllabic word stress patterning across the entire Southwestern part of the country, applying OT for the analysis.

1.1.5 Optimality Theory

OT is a constraint-based theory of language. Its main proposition is that the surface forms of language are a product of the interaction between conflicting constraints. OT's conception of grammar is that well-formedness is defined as optimality with respect to a ranked set of universal constraints. A constraint can be described as any underlying linguistic condition which prohibits the application of a certain rule so

as to prevent an ill-formed structure from emerging as the surface structure (Osifeso, 2020c).

OT has three basic components which are universal. These are: GEN (i.e. generator), which generates the list of potential outputs or possible candidates; CON (constraint) which provides the criteria, violable constraints, used to decide between candidates; and EVAL (evaluator), which chooses the optimal candidate based on the constraints. All languages have the same number of constraints but languages rank them differently. This difference in constraints ranking is responsible for the differences in grammar among languages, as well as variation in accents among varieties of the same language. A language's ranking of constraints determines which of the infinite candidates will be ranked the optimal output. For a candidate to be optimal, it must have incurred the smallest number of violations of the highest ranking constraint. Constraints are grouped into two main categories - Faithfulness constraints and Markedness constraints (Ashley et al., 2010). OT captures all this information in a representative device called a *tableau* (McCarthy, 2008).

Word stress analysis in OT is based on the concept of metrical relations between syllables (from Metrical Phonology, Tesar 1996; Frid 2001). Metrical Phonology sees stress as a function of relative prominence between a syllable and another syllable close to it. According to Kager (1999, p. 142), the central assumption of Metrical Phonology "is that stress is a rhythmic phenomenon, encoded by strong–weak relations between syllables." He added that the reranking approach of OT to linguistic typology made it an ideal basis to capture cross-linguistic variation between metrical systems.

1.2 Purpose of the Study

This study investigated word stress patterns in NE from the perspective of ethnic sub-varieties, focusing on Yoruba English; the theoretical approach was Optimality Theory. This was aimed at determining the ranking architecture of word stress constraints in YE and thereby contributing to the standardisation process of YE phonology.

2. **Methodology**

Ninety (90) participants who were Yoruba L1 speakers of English purposively selected through stratified random sampling technique from six tertiary institutions across the six states in the Southwestern part of Nigeria constituted the sample for this study. Their academic qualification varied from Nigerian Certificate in Education (NCE) to PhD across three broad faculties of Arts/Humanities, Sciences and Business/Management. Their spoken English could be presumably categorised under Banjo's (1995) Variety III. Each of the states represented had fifteen participants, who were given a prepared text of ten sentences to read into an audio recorder. Twenty pre-selected polysyllabic (disyllabic, trisyllabic, tetrasyllabic and pentasyllabic) words - nouns, verbs and adjectives - were extracted from the recording and subjected to OT analysis. The analysis focused on the word stress patterns with the highest frequency. Ten of the words were analysed here.

The table below shows the demographic/linguistic information of the participants:

Table 2.1: Demographic/Linguistic Information of the Participants

VARIABLE	SUB-GROUP	FREQUENCY (over 90)	PERCENTAGE (%)
GENDER	Male	48	53.3
	Female	42	46.7
		Total=90	**Total=100%**
ACADEMIC QUALIFICATION	NCE	22	24.4
	Bachelors	38	42.2
	Masters	18	20
	PhD	12	13.3
		Total=90	**Total=100%**
AGE	16-20	28	31.1
	21-30	38	42.2
	31-40	13	14.4
	41 and above	11	12.2
		Total=100%	**Total=100%**
DISCIPLINE	Arts/Humanities	30	33.3
	Sciences	30	33.3
	Bus. &Mgt	30	33.3
		Total=90	**Total=100%**
STATE OF ORIGIN	Lagos	15	16. 7
	Ogun	15	16. 7
	Oyo	15	16. 7
	Osun	15	16. 7
	Ondo	15	16. 7
	Ekiti	15	16. 7
		Total=90	**Total=100%**

(a) **Optimality Analysis**

The polysyllabic words analysed included personal names and words with suffixes '-ism', '-ise', '-ate', '-ive', '-or' and prefix '-un'. Personal names in YE have been observed to have a different stress pattern from that of SBE. Similarly, YE speakers have exhibited stress shift on the majority of the word categories tested.

There are numerous stress-related constraints across languages. The following are relevant to this study:

i. ALL-FT-R: align each foot with the word on the right edge of the PrWd. The reverse of this is ALL-FT-LEFT (Kager 1999, p. 157, 163);
ii. FTBIN: A foot must be two syllables or moras (Kager 1999, p. 156);
iii. LX=PR – every lexical word must be a prosodic word. This constraint is referred to as ROOTING in Hammond (1999);
iv. NON-FINALITY: No foot is final in PrWd (Kager, 1999, p. 151);
v. NUC: Syllables must have nuclei (Prince & Smolensky, 1993; McCarthy, 2003, p. 84);
vi. PARSE-SYLL: syllables must be parsed into feet (Kager, 1999, p. 153);
vii. PK-PROM: Light syllables must not be stressed (McCarthy, 2003, p. 83);
viii. UNEVEN-IAMB: Light-Heavy is a better iamb than Light-Light/Heavy (Kager, 1999, p. 151);
ix. WSP: Heavy syllables must be stressed (Kager, 1999, p. 155).
x. MAX_{Lex} – output segments of lexical words must be the same as in the input (Kager, 1999).
xi. FAITH V – The vowels in the input must be the same as those in the output (de Lacy, 2002).
xii. IDENT $_{(central)}$ - Output have a central vowel identical to that of the input (McCarthy, 2007).

xiii. *IDENT$_{(Syllable)}$ – Output syllable must not be identical with that of the input (McCarthy, 2007).

3. Findings and Discussion

This section presents the data analysis and discusses the outcome. Table 3.1 shows the items tested and the percentage of the participants' realization of their stress pattern:

Table 3.1: Participants' Realization of Polysyllabic Words' Stress Pattern (in %)

Syllable count/Lexical Category	**Word**	**Position of Stressed Syllable**				
		1st Syllable	**2nd Syllable**	**3rd Syllable**	**4th Syllable**	**5th Syllable**
Disyllabic Noun	Dorcas	12 (13.3%)	78 (86.7%)			
	Hellen	10 (11.1%)	80 (88.9%)			
Disyllabic Verb	Highlights	8 (8.9%)	82 (91.1%)			
	Challenge	6 (6.7%)	84 (93.3%)			
Disyllabic Adj	Happy	90 (100%)	0 (0%)			
	Wicked	90 (100%)	0 (0%)			
Trisyllabic Noun	workmanship	5 (5.5%)	85 (94.5%)	0 (0%)		
	adversary	3 (3.3%)	87 (96.7%)	0 (0%)		
Trisyllabic Verb	Navigate	6 (6.7%)	0 (0%)	84 (93.3%)		
	Organize	6 (6.7%)	0 (0%)	84 (93.3%)		
Trisyllabic Adj	guaranteed	6 (6.7%)	0 (0%)	84 (93.3%)		
	Unaware	84 (93.3%)	0 (0%)	6 (6.7%)		
Tetrasyllabic Noun	Calculator	0 (0%)	0 (0%)	90 (100%)	0 (0%)	
	Information	0 (0%)	0 (0%)	90 (100%)	0 (0%)	
Tetrasyllabic Verb	Collaborate	0 (0%)	0 (0%)	0 (0%)	90 (100%)	
	Evangelise	0 (0%)	0 (0%)	0 (0%)	90 (100%)	
Tetrasyllabic Adj	Energetic	5 (5.5%)	0 (0%)	85 (94.5%)	0 (0%)	
	Vegetative	6 (6.7%)	0 (0%)	84 (93.3%)	0 (0%)	
Pentasyllabic Noun	Capitalism	0 (0%)	0 (0%)	100 (100%)	0 (0%)	0 (0%)
	administrator	0 (0%)	10 (11.1%)	0 (0%)	80 (88.9%)	0 (0%)
Pentasyllabic Verb	Recapitulate	0 (0%)	0 (0%)	0 (0%)	90 (100%)	0 (0%)
	anathematize	0 (0%)	0 (0%)	0 (0%)	90 (100%)	0 (0%)
Pentasyllabic Adj	polysyllabic	0 (0%)	0 (0%)	0 (0%)	90 (100%)	0 (0%)

3.1 YE's Stress Pattern of Disyllabic Words

The analysis showed that personal names were usually stressed on the second syllable in YE. *Dorcas* and *Hellen* were stressed on the first syllable by 13.3% and 11.1% of the participants respectively, while 86.7% and 88.9% stressed the second syllables respectively. The verbs *highlights* and *challenge* were also stressed in a similar pattern. However, adjectives (*happy, wicked*) were stressed inversely, as all the participants stressed the initial syllable. This is consistent with SBE's pattern.

Tableau 1: Emergence of 'dorCAS'

Input: /'dɔ:.kəs/

	UNEVEN-IAMB	WSP	ALL-FT-LEFT	NON-FINALITY
a. (dɔ:).kəs	*!			
☞ b. dɒ.(kæs)			*	*

Constraint ranking: UNEVEN-IAMB >> WSP >> ALL-FT-LEFT >> NON-FINALITY

☞ = Optimal Candidate

From the tableau, candidate (a) violated only one constraint, UNEVEN-IAMB, which happened to be the highest ranked constraint, and this attracted a fatal penalty. This is shown by the asterisk and the exclamation mark. Candidate (b) committed a violation of two lower ranking constraints on the hierarchy (ALL-FT-LEFT and NON-FINALITY). This, however, did not constitute a fatal violation. Consequently, (b) emerged as the optimal candidate; thus, it became the winner. This is shown by the pointing finger. The constraints ranking here is: UNEVEN-IAMB>> WSP>> ALL-FT-LEFT>> NON-FINALITY. This means that UNEVEN-IAMB dominates WSP, which dominates ALL-FT-LEFT, which also dominates NON-FINALITY.

Tableau 2: Emergence of 'highLIGHTS'

Input: /'haɪ.laɪts/

	UNEVEN-IAMB	WSP	ALL-FT-LEFT	NON-FINALITY
a. (haɪ).laɪts	*!			
☞ b. haɪ.(laɪts)			*	*

Constraint ranking: UNEVEN-IAMB>> WSP>> ALL-FT-LEFT>> NON-FINALITY

☞ = Optimal Candidate

Two candidates competed in the tableau for the output. While candidate (a) violated only one constraint out of the four constraints in the ranking, candidate (b) violated two constraints: ALL-FT-LEFT and NON-FINALITY. However, candidate (a), HIGHlights, lost out because it committed a fatal violation, UNEVEN-IAMB, the highest ranked constraint. Candidate (b), highLIGHTS, therefore emerged the winner. The constraints ranking is: UNEVEN-IAMB>> WSP>> ALL-FT-LEFT>> NON-FINALITY.

3.2 YE's Stress Pattern of Trisyllabic Words

In trisyllabic nouns both *workmanship* and *adversary* were stressed medially by the majority of the subjects (94.5% and 96.7% respectively). This contrasts with SBE's pattern in which the words are stressed initially. The verbs (*navigate*, *organise*), however, exhibited a different tendency as their stress shifted to the final syllable. This seems to be the pattern of '-ate' and -ise' suffixed words in YE. Other examples are aggreGATE, jubiLATE, eleVATE and reaLISE, moderNISE, theoRISE. The adjectives *guaranTEED* and *UNaware* exhibited different stress patterns as they were stressed on the final and the initial syllables respectively. In the case of *guaranTEED,* the stressed syllable is a heavy one. This

shows that syllable weight is very important to YE. In the case of *UNaware,* the stress was on the first syllable. This is because the prefixes '-un' and '-in' usually attract stress among YE speakers (Osifeso, 2020c, p. 87).

Tableau 3: Emergence of 'workMANship'

Input: /'wɜːk.mən.ʃɪp/

	UNEVEN-IAMB	WSP	ALL-FT-LEFT	NON-FINALITY
a. (wɔːk).mæn.ʃɪp	*!			
☞ b. wɔk.(mæn).ʃɪp			*	
c. wɔːk.mən.(ʃɪp)	*!	*	**	*

Constraint ranking: UNEVEN-IAMB>> WSP>> ALL-FT-LEFT>> NON-FINALITY

☞ = Optimal Candidate

From the tableau, candidate (a) did not violate the lower ranking constraints on the hierarchy as well as WSP which is a higher ranked constraint, but it violated UNEVEN-IAMB, the highest ranked constraint, which attracted a fatal penalty. Likewise, candidate (c) committed a fatal violation of UNEVEN-IAMB along with the violation of all the lower ranking constraints on the hierarchy. Consequently, both candidates ('a' and 'c') are disqualified from the competition, leaving candidate (b) as the optimal candidate. The constraints ranking here is: UNEVEN-IAMB>> WSP>> ALL-FT-LEFT>> NON-FINALITY.

Tableau 4: Emergence of 'naviGATE'

Input: /'næ.vi.geɪt/

	UNEVEN-IAMB	WSP	ALL-FT-LEFT	NON-FINALITY
a. (næ).vi.geɪt	*!	*		
☞ b. næ.vi.(geɪt)			*	*
c. næ.(vi).geɪt		*!	*	

Constraint ranking: UNEVEN-IAMB>> WSP>> ALL-FT-LEFT>> NON-FINALITY

☞ = Optimal Candidate

The tableau reveals that all the three candidates competing for optimality in 'navigate' committed two violations each; albeit on different constraints lots. Candidate (a) violated UNEVEN-IAMB, the highest ranked constraint on the hierarchy, as well as WSP, and thus committed a fatal violation. Similarly, candidate (c) lost out having violated WSP, the next higher constraint after UNEVEN-IAMB. It also violated ALL-FT-LEFT. Candidate (b) emerged the optimal candidate because the two violations it committed were the lowest ranked constraints. Hence, the optimal candidate was naviGATE**.**

Tableau 5: Competition for the emergence of 'orgaNISE'

Input: /'ɔ:.gᵊn.aɪz/

	ALL-FT-R	FT-BN	UNEVEN- IAMB	NON-FINALITY
a. (ɔ:).gᵊn.aɪz	*!	*	*	
b. ɔ:.(gᵊn).aɪz	*!	*	*	
c. ɔ:.gᵊ.(naɪz)				*
d. ɔ:.gə.(naɪz)				*

Constraint ranking: ALL-FT-R>> FT-BN>> UNEVEN-IAMB>> NON-FINALITY

In this tableau, candidates (a) and (b) both violated the highest ranked constraints. The two surviving candidates ('c' and 'd') were, however, tied on the violation rating, having both violated NON-FINALITY. The constraints ranking here is: ALL-FT-R>> FT-BN>> UNEVEN-IAMB>> NON-FINALITY. To resolve the conflict, two other constraints were brought into the hierarchy. These were *IDENT$_{(Syllable)}$ and MAX$_{Lex.}$ This is expressed in Tableau 6.

Tableau 6: Emergence of 'orgaNISE'

Input: /'ɔ:.gᵊn.aɪz/

	ALL-FT-R	FT-BN	UNEVEN-IAMB	*IDENT(Syllable)	MAX Lex
c. ɔ:.gᵊ.(naɪz)				*!	
☞ d. ɔ:.gæ.(naɪz)					*

Constraint ranking: ALL-FT-R>> FT-BN>> UNEVEN-IAMB>>*IDENT$_{(Syllable)}$>> MAX$_{Lex}$.

☞ = Optimal Candidate

To establish the constraints ranking of the optimal candidate for *organise*, one of the observations considered was that all vowels are usually fully realized in Yoruba English (Akinjobi, 2006). This implies that the shwa is rarely accommodated in the speeches of educated YE speakers. We can presume that a shwa becomes a full low vowel as exhibited in *organise* which was realised as [ɔ:.gæ'naɪz]. *IDENT$_{(Syllable)}$ permits the peak of the syllable (i.e. the vowel) to be fully realized, not allowing weakening, while MAX$_{Lex}$ prevents deletion of same vowel. Since deletion is prevented, then *IDENT$_{(Syllable)}$ must dominate MAX$_{Lex}$. Candidate (c) violated *IDENT (Syllable), which was ranked higher than MAX$_{Lex.}$ Consequently, it was a fatal violation. Hence, candidate (d), emerged the optimal. The constraints ranking is: ALL-FT-R>> FT-BN>> UNEVEN-IAMB>>*IDENT$_{(Syllable)}$>> MAX$_{Lex}$.

Tableau 7: The emergence of 'gaurantTEED'

Input: /'gærᵊn.ti:d/

	UNEVEN-IAMB	WSP	ALL-FT-LEFT	NON-FINALITY
a. (gæ).ræn.tɪd	*!			
b. gæ.(rᵊn).ti:d		*	*	
☞ c. gæ.ræn.(ti:d)			*	*

Candidates (a) and (b) were the loser candidates. While (a) committed a fatal violation of the highest ranked constraint (UNEVEN-IAMB), (b) violated two of the next higher ranked constraints. Although candidate (c) also committed two violations, the constraints were on the lowest rung of the hierarchy. Candidate (c) emerged the winner. The constraints ranking was: UNEVEN-IAMB>> WSP>> ALL-FT-LEFT>> NON-FINALITY.

Tableau 8: Emergence of 'UNaware'

Input: /ʌn.ə.'weə/

	ALL-FT-LEFT	WSP	TROCHEE	NON-FINALITY
a. ʌn.ə.(weə)	*!		*	*
b. ʌn.(ə).weə	*!			
☞ c. (ɔn).ə.weə		*		

Constraints ranking: ALL-FT-LEFT>> WSP>> TROCHEE>> NON-FINALITY

☞ = Optimal Candidate

The relevant constraints and the ranking in tableau 8 are slightly different from those in earlier ones. TROCHEE replaced UNEVEN-IAMB, while ALL-FT-LEFT which is normally a lower rank constraint in YE switched position to a higher lot on the hierarchy. This was because the prefixes *-un* and *-in* usually attract stress among YE speakers, hence, aligning stress to the left edge of the word. Candidate (a) had its stress on the final syllable, thus violating ALL-FT-LEFT and so committed a fatal violation. Its stressed syllable also violated TROCHEE which disallows iambic feet; and NON-FINALITY as its stress was on the final syllable. Candidate (b) also violated ALL-FT-LEFT, and that constituted a fatal violation. Consequently, candidate (c) emerged the optimal candidate.

3.3 YE's Stress Pattern of Tetrasyllabic Words

As table 3.1 shows, tetrasyllabic nouns displayed a similar pattern as their trisyllabic counterparts: the stress was on the penultimate syllable. Nouns ending in *-or* such as *calculator, numerator* and *alligator* usually attract initial stress in SBE but this is not the case in YE. However, there was a congruence between YE and SBE in their realization of *-ion* suffixed nouns as the stress is usually on the penultimate syllable. Tetrasyllabic verbs also stressed the final syllable just like the trisyllabic counterparts. The adjectives *energetic* and *vegetative* were also stressed on the penultimate syllable, just like the nouns. This was observed to be the stress pattern of adjectives suffixed by *-ic* and *-ive* in YE; the suffixes seem to shift stress in YE. Note that in SBE the words are stressed initially.

Tableau 9: The emergence of 'enerGEtic'

Input: /enə'ʤetik/

	UNEVEN-IAMB	WSP	ALL-FT-LEFT	NON-FINALITY
a. (e)nædʒetik	*!	*		
b. e(nə)ʤetik	*!	*	*	
☞ c. enæ(ʤɛ)tik			*	
d. enəʤe(tik)	*!	*	*	*

Constraints ranking: UNEVEN-IAMB>> WSP>> ALL-FT-LEFT>> NON-FINALITY.

☞ = Optimal Candidate

This is similar to the constraints ranking for *organise*. Candidates (a), (b) and (d) violated the highest ranked constraint -UNEVEN-IAMB, while they also varyingly violated the other lower ranked constraints; hence, they were all ruled out of the competition. Consequently, candidate (c) emerged the winner. The constraints ranking is: UNEVEN-IAMB>> WSP>> ALL-FT-LEFT>> NON-FINALITY.

3.4 YE's Stress Pattern of Pentasyllabic Words

The analysis in the table suggests a similarity in stress placement between pentasyllabic and tetrasyllabic words in YE, albeit with very slight variations. Pentasyllabic nouns did not attract stress on initial, post-initial or final syllables but on either the penultimate or the antepenultimate. For example: vocaBUlary, capiTAlism (antepenultimate stress) and adminisTRAtor, refrigeRAtor (penultimate stress). However, the SBE correspondences attract stress on either the initial or post-initial syllables: CApitalism, voCAbulary, adMInistrator reFRIgerator.

YE pentasyllabic verbs have a high degree of stress placement correlation, as the stress usually tilts towards the final syllable. This is evident in the tested items – recapituLATE, anathemaTIZE (SBE: recaPItulate, aNAthematize).

Tableau 10: The emergence of 'kapıTAlızım'

Input: /'kæpɪtəlɪzəm/

	WSP	TROCHEE	ALL-FT-LEFT	NON-FINALITY
a. (kə)pɪtəlɪzəm	*!	*		
b. kə(pɪ)tælɪzɪm	*!	*	*	
c. kæpɪ(tə)lɪzəm	*!	*	*	
d. kæpɪtælɪ(zɪm)	*!		*	*
☞ e. kæpɪ(tæ)lɪzɪm			*	

Constraints ranking: WSP>> TROCHEE>> ALL-FT-LEFT>> NON-FINALITY

☞ = Optimal Candidate

The constraints ranking left out UNEVEN-IAMB and brought in TROCHEE, while WSP became highest ranked in the hierarchy. This is because heavy syllables usually attract stress in YE. Candidates (a), (b), (c) and (d) violated WSP, the highest ranked constraint, and so committed a fatal violation. (a), (b) and (c) also violated TROCHEE which disallows iambic feet. However, candidate (e) violated only one constraint, i.e. ALL-FT-LEFT, which was lowly ranked. Consequently, candidate (e) emerged the optimal candidate.

11. Conclusion

The study is an application of OT to a regional variant of NE. It observed that UNEVEN-IAMB and WSP were higher constraints than NONFINALITY in educated YE word stress patterning. UNEVEN-IAMB prefers the assignment of stress on Light-Heavy syllables to Light-Light or Heavy syllables. Trisyllabic nouns were usually stressed finally or penultimately by the majority of YE speakers; hence, NON-FINALITY ranked low among them. In the same vein, ALL-FT-LEFT ranked low because of the speakers' tendency for rightward stress placement. However, both WSP and UNEVEN-IAMB ranked higher because heavy syllables usually attracted stress among YE speakers (hence, WSP); and since Yoruba NE speakers' words were not usually stressed along the left edge of the word, UNEVEN-IAMB was preferred to both ALL-FT-LEFT and NON-FINALITY. Hence the constraints ranking for *workmanship*, for example, was UNEVEN-IAMB, WSP >> ALL-FT-LEFT >> NON-FINALITY.

The study further observed that the constraints ranking of educated Yoruba NE speakers' word stress patterning varied considerably with those of many native speakers' accents. Consequently, we can conclude that NE is iambic in nature; unlike SBE (Tremblay, 2008). We recommend that speakers of other English accents can better understand YE accent, especially in terms of international intelligibility, by studying its word stress constraints ranking system.

References

Akindele, J. A. (2008). Stress in Edo English. PhD Thesis. Department of English. University of Ibadan.

Akinkuolie, V. (2016). Stress Assignment in Ikwere English. M.A. Project, Department of English, University of Ibadan, Ibadan.

Akinjobi, A. (2004) A phonological investigation of vowel weakening and unstressed syllable obscuration in educated Yoruba English. Unpublished PhD Thesis, University of Ibadan.

Akinjobi, A. (2006). Vowel reduction and suffixation in Nigeria: An analysis of the educated usage of speakers of Yoruba English. *English Today 85, vol.22* (1), 10-17.

Akinjobi, A., & Ilolo, A. (2013). Syllabic Consonants as Peaks of Unstressed Syllables in Isoko English: A Perceptual Approach.

Open Science Repository Language and Linguistics, e70081925. doi:10.7392/Research.70081925.

Anyagwa, C. (2013) Word stress in Nigerian (Igbo) English. Unpublished PhD Thesis, University of Lagos.

Ashley, K. C., et al. (2010). How many constraints are there? A preliminary inventory of OT phonological constraints. Graduate Institute of Applied Linguistics, Dallas. Retrieved from http://academia.edu>how_many_constraints_

Atoye, R. (1999). Word stress in Nigerian English. *World Englishes 10*, 1-6.

Banjo, A. (1995). Introduction. In Bamgbose, A., Banjo, A. & Thomas A. (Eds.), *The New Englishes: A West African Perspective.* (pp. 1-5). Ibadan: Mosuro.

Bobda, A. (2007). Some segmental rules of Nigerian English phonology. *English world wide.* 28 (3) 279-310.

Bohara, L. (2018). Global language: status, scope and challenges. *Journal of NELTA Surkhet 5*, 89-96.

Crystal, D. (2008). *A dictionary of linguistics and phonetics*. Blackwell Publishing.

de Lacy, P (2010). Markedness and Faithfulness Constraints. *Companion to Phonology.* Blackwell Publishing.

Edema S. (2015). Stress assignment in Itsekiri English. M.A. Project, Department of English, University of Ibadan, Ibadan.

Essien (2018) - Stress and Rhythm in the Educated Nigerian Accent of English. *Research on Humanities and Social Sciences 8*(10). 30-42.

Field, J. (2005). Intelligibility and the listener: the role of lexical stress. *TESOL Quarterly 39* (3). 399-423.

Hammond, M. (1999). *The Phonology of English: A Prosodic Optimality-Theoretic Approach*. Oxford: Oxford University Press.

Holmes, J. (2008). An introduction to sociolinguistics (3rd ed.). Harlow: Longman.

Igboanusi, H. (2006). *Igbo English in the Nigerian novel*. Ibadan: Enicrownfit.

Ikima, M.N. (2012). A markedness approach to syllable errors of Tiv speakers of English as L2. *Journal of Igbo Language & Linguistics. 5*, 95-103.

Jenkins, J. (2009). Who Speaks English Today? *World Englishes: A Resource Book for Students*, 2nd ed. London: Routledge, pp. 15-24

Jibril, M. (1979). Regional variation in Nigerian spoken English. *In Ubahakwe, E. (Ed.) Varieties and functions of English in Nigeria. (pp.* 43-53). A. U. P.

Jowitt, D. (1991). *Nigerian English Usage: An introduction.* Lagos: Longman.

Kachru, B. (1985). Standards, codification, and sociolinguistic realism: The English language in the outer circle. In Quirk, R. and Widdowson, H. (eds.). English in the World: Teaching and learning the language and the literature. Cambridge: Cambridge University Press.

Kager, R. (1999). *Optimality theory*. Cambridge: Cambridge University Press.

Kujore, O. (1985). *English usage: Some notable Nigerian variations.* Ibadan: Evans.

McCarthy, J. (2003). OT constraints are categorical. *Phonology 20*, 75-138. Cambridge

McCarthy, J. (2007). *Hidden generalizations: phonological opacity in Optimality theory.* London: Equinox Publishing.

McCarthy, J. (2008). *Doing Optimality Theory: Applying theory to data*. Blackwell Publishing.

Okoro, O. (2004). The identification of Standard Nigerian English usage. In Dadzie, A.B.K. & Awonusi, V.O. (Eds.) *Nigerian English: Influences and Characteristics.* (pp. 158-178). Lagos: UNILAG Press.

Omachonu, G. (2008). Comparative Optimality Theory: Analysis of primary stress assignment in Standard British and Nigerian English. *Journal of Language & Translation,* 9 (1), 91-112.

Osifeso, E. (2020). A non-taxonomic study of word stress among Yoruba-English bilinguals in tertiary institutions within the Lagos metropolis, Nigeria. PhD thesis. University of Lagos.

Osifeso, E. (2020b). Stress patterning in polysyllabic words among educated Yoruba speakers of English in Lagos. In *Lagos Notes and Records,* 26 (1), 121 -137.

Osifeso, E. (2020c). Optimality Theory. In Adepoju, B. (ed.) Linguistic and Literary Theories: An Empirical Exploration. Ile-Ife, Nigeria: OAU Press. Pp. 273-304.

Oyatokun, O. (2013). Constraint-based assessment of tone-driven stress in Educated Yoruba English. *Ibadan Journal of Humanistic Studies*, *23(1)*, 143-164.

Roach, P. (2009). *English Phonetics and Phonology.* Cambridge: Cambridge University Press.

Sunday, A. B. (2008). Phrasal stress in Educated Yoruba English. *Papers in English and Linguistics,* 9(1), 40-58.

Sunday, Adesina B. 2010. Phrasal stress in Nigerian English. *Papers in English and linguistics* (*PEL*) 11. 234–253.

Sunday, A. B. (2011). Compound stress in Nigerian English. *English Today*, 27(3), 43-51.

Sunday, A. & Oyatokun, O. (2016). Optimality Theoretical analysis of word-stress in Educated Nigerian English. *SKASE Journal of Theoretical Linguistics,* 13(1), 87-106.

Sunday and Babayemi (2021). Variation in Nigerian English Polysyllabic Nominal Stress. retrieved November 11, 2021 from https://www.researchgate.net/publication/354331622

Yang, W. & Dai, W. (2011). China English: Its distinctive features. *Higher Education Studies* 1 (2) Retrieved July 31, 2019 from http://dx.doi.org/10.5539/hes.v1n2p8.

Ying-Ying, T. (2015). 'Native' and 'Native perception in Singapore English. *World Englishes 34* (3): n/a-n/a.

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Bokyi Syllables: A Comparison of Two Dialects

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Abstract

Bokyi is a multi-dialect language spoken in Southern Nigeria. The present research investigates the syllable patterns of Bokyi language in a comparative study of the corpus of data drawn from the Eastern and the Western dialects. The data are elicited from ten respondents, five from each region of the divide, using the SIL wordlist. There are also recordings of traditional festivals, marriage and naming ceremonies. 1600 tokens of spoken words are analysed, using the Optimality theoretic framework. The results of the analysis indicate the following tendencies namely, that the Western Bokyi dialect shows preference for coda elements (CODA) while the Eastern Bokyi dialect prefers codaless (*CODA) syllables. Also, the latter permits branching (COMPLEX) onsets while the former does not, (*COMPLEX). In general, the study provides one more justification for dialect variation in Bokyi based on syllable patterning and for the elegance of Optimality Theory in dealing with structural variation.

Bokyi syllables, Bokyi vowel system, Bokyi consonant system, Optimality theory, Bokyi syllable structure

1. Introduction

In this critical era of documentation and preservation of endangered languages, the need to study the Bokyi syllable cannot be overemphasised. Its minoritised status calls for 'a stitch in time' for its preservation. Hence, this study investigates the Bokyi syllable structure looking at their types and patterns of occurrence.

More than six decades ago, the *Bokyi Dictionary* and some introductory works in Bokyi were developed by native speakers who were mostly language enthusiasts, not practicing linguists. They had a novel start in the history of orthography development in Bokyi. They were supported by missionaries who visited Bokyi for religious evangelism. However, six decades down the reign of these 'once upon' invaluable resources, no fresh efforts have been geared towards a linguistic revalidation and documentation. Hence, this study aims at gathering copious data for the

explication of the syllable in Bokyi for purposes of classification and documentation.

Bokyi is a multy-dialect group of people whose name, language, tribe and Local Government Area are the same. They are referred to as, Bokyi, Boki, and sometimes: Nfua, Nki, Okii, Osikom, Osokom, Osukam, Uki and Vaaneroki by the various dialects speaking it. Bokyi is ranked amongst the first fifteen languages of the about 520 living languages in Nigeria, with a few thousand speakers in Cameroon (Etnologue, 2016).

The major dialects of Bokyi include Osokom (herein referred to as Western Bokyi (WB)), Wula (herein referred to as Eastern Bokyi (EB), Boje, Abo and Irruan. Currently, Bokyi has 24900 native speakers (2021 projection).

Due to the existence of various dialects, Bokyi has different syllable patterns arising from dialects permitting initial clusters and those permitting coda elements. Table 1 below shows some of the dialects of Bokyi and their syllable patterns.

Table1. Distribution of phonemes and syllable patterns in different dialects of Bokyi.

Osokom (Western Boki)	**Erwe/Irruan**	**Abo**	**Wula** (Eastern Boki)	**Gloss**
[rám]	[lá]	[lám]	[lá]	cook
[dʒʷáp]	[dʒʷá]	[dʒʷáp]	[dʒʷá]	drink
[ɛ̀ɲàmbɪ́kʰɔ̀]	[ɪ̀ɲàbɪ̀kʰɪ̂]	[ɛ̀ɲàmbɪ́kʰɔ̀]	[ɪ̀ɲɛ̌kʰô]	body
[kʰɛ̀ntʰɛ̀ɲàmbɪ́kʰɔ̀]	[kʰɛ̄tʰɪɲàbɪ̀kʰɪ̂]		[kʰɪ̄tʰɪɲɛ̌kʰô]	skin (of man)
[dɪ̀ʃɪ]	[ɲɪʃɪ]	[dɪ̀ʃɪ]	[dɛ̀ʃɪ]	head
[m̀bárɛ̀]	[m̀brà]	[m̀bálɛ̀]	[m̀brà]	backyard

The data set in Table1 above shows the distribution of phonemes and syllable patterns in different dialects of Bokyi. The table presents in a nutshell what syllable patterns are permitted in each dialect and which are not. See section 3 for further details.

The current data also shows a wide distribution of the labio-dental fricative /v/ in most of the EB dialects (e.g. Wula, Bamba, Olum, Bokalum) including the Boje dialect which is very close to the Osokom territory. However, Osokom which was adopted and used for the development of the Bokyi orthography lacks the phoneme /v/. Table 2. below illustrates some dialects with /v/.

Table 2. Bokyi Dialects with the labio-dental fricative /v/

	Wula	**Bokalum/Ukalo**	**Bamba/Amba**	**Boje/Uje**	**Gloss**
1	**ɔ̀vé**	**ǹvé**	**ǹvé**	**Vé**	**child**
2	**wò**	**wò**	**wò**	**vò**	**you**
3	**vê**	**vê**	**vê**	**vê/je**	**who**

The lexical items above show the presence of the labio-dental fricative /v/ in some of the dialects of Bokyi. As mentioned above, **/v/** is not in the Osokom dialect but it will be appropriate to represent it in the phonology of Bokyi for purposes of inclusivity and linguistic tolerance. And the discussion on the Bokyi syllable pattern will draw on the relevant inclusions.

Despite being an expansive phonological domain needing painstaking explication, the Bokyi syllable is rarely discussed in the *Bendi* linguistic literature. Where literature exist, the linguistic resources from Bokyi are scanty or not accessible. This paper specifically investigates the syllable patterns of Bokyi in a comparative study of the corpus of data drawn from the Eastern and the Western dialects. It also investigates syllable typology and syllabification strategies of the two dialects.

For the purpose of a comprehensive analysis and transcription of data, the study presents an overview of the sound system of Bokyi. This is necessary since we have no access to detailed linguistic works on Bokyi Phonology. The study compares the Eastern Bokyi (EB) and Western Bokyi (WB) dialects with the desire for dialect levelling.

Several linguists working on Bantu languages have dismissed the status of Bokyi as a Bantoid due to inaccessibility of data or written texts. For example Crab (1967) argues that Bokyi (Bendi languages) does not have nasal prefixes, a key feature, which would have confirmed its status as a Bantoid. However, its close neighbour Ejagham and other surrounding languages, based on a dynamic noun class system with nasal prefixes are classified as Bantoid. This research among other findings, has once more discovered features of the Bokyi language that confirm its place as a Bantoid. Its nasal prefixes are discussed in section 4.

Many linguists have presented insightful views of the syllable. Among them are Ugorji (2002 and 2010b), Fischer-Jorgensen (1952), Pulgram (1970), Fudge (1969), Goldsmith (1990), Blevins (1995), Van der Hulst (1999), etc. They have discussed the syllable extensively comparing typologies and syllabification processes in different languages.

As a prelude, the study reviews a few approaches to the discussion of syllable structure proposed over the past decades by some of the linguists mentioned above. This is to help the reader to have at least a basic familiarity with the role and relevance of the syllable in phonological analysis and language study in general.

Discussions on the syllable at a glance seem like a cliché and often considered an over flogged concept. But a deeper consideration of the syllable in relation to typologies and conditioning principles in various languages reveals the syllable as the heart of phonological representation (Katamba, 1989) because it holds the general principles which determine the distribution of sounds and prosodic elements in all human languages.

Therefore, this study compares the syllable patterns of WB and EB to justify the assumption that WB permits codas while EB does not, and that there is the existence of branching onsets in EB which are completely banned in WB. Uniquely occurring at both dialects is the nasal prefix with both dialects use exhaustively to form nouns from verbs. Recall that Crabb (1967) was uncertain about the inclusion of Bokyi to the Bantoid languages due to his assumed absence of nasal prefixes. The following data show the presence of nasal prefixes in the Western and Eastern sides of Bokyi.

Nasal Prefixes

Nasal prefixes behave in a similar way in both EB and WB dialects. However, out of the four nasal sounds attested in Bokyi, only the voiced alveolar nasal /n/ and the voiced bilabial nasal, /m/ have been observed as nasal prefixes. The following evidence prove the existence of nasal prefixes in Bokyi which confirms that Bokyi is a Bantoid based on its attestation of the presence of nasal prefixes and full noun class system (see Etta 2019)

Table 3. Nasal Prefixes in Bokyi

WB Words			**EB Words**		
Verb	**Gloss**	**Noun**	**Gloss**	**Verb**	**Noun**
[t^háŋɛ̌]	teach	[ǹt^{h}aŋɛ̌]	teacher	[t^{h}ǎ]	[ǹtǎ]
[r^{j}ù]	hunt	[ǹr^{j}ùdȉkán]	hunter	[rȉ]	[ǹrȉdèk^{h}é]
[sɔ̀]	soothsay	[ǹsɔ̀-ɛpɛ́]	soothsayer	[só]	[ǹso-ȉp^{j}é]
[bám]	guard	[m̀bâm]	guard	[bá]	[m̀bâ]

Table 3. shows a nominalisation process involving the affixation of a nasal prefix to a verbal root to derive a noun. Bokyi has four nasals: /ŋ/, /n/, / m/ and /ɲ/. While /n/, and / m/ can occur at the initial position of a word or syllable, and form a nasal prefix, /ɲ/ and /ŋ/, cannot stand alone as nasal prefixes. They can only occur as onsets of a word but never form a nasal prefix.

1.2.1 The Phonemic System of Bokyi

Phonemes are distinctive sounds in a language. A phonemic system is thus defined by Trask (1996:266), as "…the complete set of phonemes set up for a particular language." Basically, the phoneme is "…the smallest contrastive unit which brings about a change in meaning." It is an important concept in all phonological studies. Although this paper does not seek to exhaustively establish the sound system of Bokyi, effort is made to capture as much as possible, the perceptible sounds inherent in Bokyi as a background and for reference purposes.

Bokyi is a tone language. It has a mixture of level and contour tones. The level tones include: High (H) represented by the acute accent (˝) and Low (L) represented by the grave accent (ˋ). Tawo-Asu (1977) identified four tones in Bokyi namely: High tone, Low tone, Ralling tone and Risind tone. He used the diacritics (˝ˋ^ˇ) for High, Low, Rise and Fall respectively. In the present study, we adopt the tone marking convention established by Tawo-Asu (1977).

1.2.2 The Sound System of Bokyi

The Bokyi sound system consists of sounds similar to those of Bantu languages. The vowel system of Bokyi, for instance, attests to an eight vowel system. Unlike the Proto Bantu vowel system which was reduced to 7 or 5 vowels, Bokyi has not been deeply influenced by contact with many neighbouring languages except a few lexical adaptations from English, Efik and Ibibio that got into the Bokyi lexicon. The seven vowels of the Proto Bantu vowel system have similarly been observed in the vowel system of Bokyi, shown in 2.1.1 below with the addition of the mid front unrounded oral vowel /ɛ/ which is not in the proto Bantu vowel system.

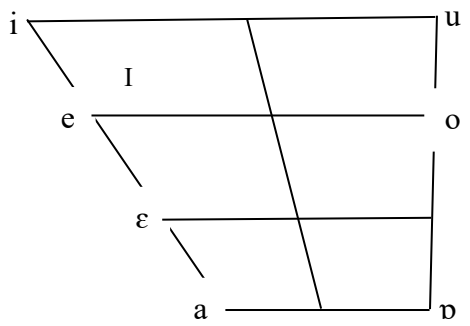
Many Bantu languages have a reduced five-vowel system. Swahili for example operates five vowels: i e a o u. The five-vowel systems are diachronically, the result of a merger of the two highest front and back vowels, respectively; i.e., the result of a merger of i: and ɪ, and of ʊ and u, dropping the vowels from 7 to 5.

The eight vowels of Bokyi have lexical entries that attest to their occurrence as will be seen in section 1.2.2.1 below. The vowels of Bokyi can best be described by the three parameters of height of tongue, backness of tongue and lip rounding.

1.2.2.1. A Phonemic Description of the Bokyi Vowels

The vowel description below is intended to show the contrastive vowels (phonemes) in Bokyi.

Figure1. The Bokyi Vowel Chart



	WB Words	Gloss	
/i/	/bukí/	Bokyi	close front unrounded oral vowel
/ɪ/	/kɪkɛ̀t/	place	near-close front unrounded oral vowel
/e/	/èbù /	goat	close-mid front unrounded oral vowel
/ɛ /	/nɛ́/	reject	open-mid front unrounded oral vowel
/a/	/àbwɒ /	hands	open front unrounded oral vowel
/u	/bunam/	thigh	high back rounded oral vowel
/o/	/otu/	chief	closed-mid back rounded oral vowel
/ɒ/	/batɒ /	wine	low back rounded oral vowel

	EB Words	Gloss	
/i/	/ukí/	Bokyi	high front unrounded oral vowel (slightly longer than /ɪ/)
/ɪ/	/kɪkɛ/	place	front unrounded oral vowel
/e/	/ènê/	persons	mid front unrounded oral vowel
/ɛ/	/nɛ́/	reject	mid front unrounded oral vowel
/a/	/àbû/	hands	low front unrounded oral vowel
/u/	/unâ/	thigh	high back rounded oral vowel
/o/	/akô/	velvet bean	mid high back rounded oral vowel
/ɒ /	/ɒtù /	chief	low back rounded oral voweFigure1 above presents the Bokyi vowels.

Both WB and EB have the same number of vowels. However, they vary in the slots they occupy in a syllable. For instance, /ɒ / appears in word initial position in EB but it can only occur at word final in WB. E.g. EB: /ɒ̲tu/ chief. WB: /batɒ̲ /. However, WB prefers /o̲tu/ to the EB /ɒ̲tu/ at the initial position.

1.2.2.2.1 The WB Consonants

/p/ as in	pám	/pám/	boast
/b/ as in	bam	/bám/	guide
/t/ as in	tî	/tî/	keep
/ts/ as in	cit	/tsít/	cover
/d/ as in	dim	/dɪm/	leave
/k/ as in	kɛt	/kɛ́t/	cut
/ k͡p/ as in	kpa	/ kpá/	prepare
/g/ as in	ga	/ga/	surpass
/g͡b/ as in	gbat	/gbat/	all
/tʃ / as in	chie	/ tʃʲɛ́/	shoot
/dʒ/ as in	jange	/dʒâŋè/	cross
/f/ as in	fam	/ fám /	vomit
/s/ as in	sam	/sâm/	chew
/z/ as in	zim	/zim/	sew
/ʃ/ as in	shwom	/ʃʷɒ m /	pass

/m/ as in	me	/mɛ̀/	me (pro)
/n/ as in	ne	/nɛ́/	reject
/ɲ/ as is	nya	/ɲɪa/	where
/ŋ/ as in	bushang	/buʃaŋ/	tooth
/l/ as in	leme	/lɛmɛ̀/	imitate
/r/ as in	rem	/rɛ̀m/	hide
/j/ as in	ye	/jɛ̂/	who
/w/ as in	wo	/wɒ /	you

Table 4. The Bokyi Consonant Chart

	Bilabial	Labio-dental	Alveolar	Palato-alveolar	Palatal	Velar	Labial-Velar
Plosive	p b		t d			k g	k͡p g͡b
Affricate			ts	tʃ dʒ			
Fricative		f v	s z	ʃ			
Nasal	M		n		ɲ	ŋ	
Approximant	w		r		j		
Lateral			ɪ				

Table 4 above displays the Bokyi consonants. This is a phonemic inventory that captures all the consonant phonemes in Bokyi. From the data collected, the WB dialect has all the sounds in the chart except the labio dental fricative /v/. So when pronouncing foreign words with /v/ the tendency is to substitute /v/ with /b/ as in David /debɪd/. On the other hand, the EB dialect has /v/. So when EB has entries with /v/, the WB substitutes them with either /b/ or /w/. Consider the following tokens:

EB	**WB**		**Gloss**
ovo /ɔ̀vɔ́/	ebong	/èbɔ́ŋ/	what
ove /ɔ̀vé/	wan	/wán/	child
ve /vê/	ye	/jɛ̂/	who?

Note: more research is required to find out what determines whether it is b, w, or j in the substitution process.

1.2.2.2.2 The EB Consonants

/p/ as in	pa	pá/	to praise
/b/ as in	ba	/bá/	to guide
/t/ as in	te	/tɛ̂/	to keep
/ts/ as in	ce	/tsɛ̂/	to cover
/d/ as in	do	/dɔ̀/	to leave
/k/ as in	ke	/kɛ̂/	to cut
/k͡p/ as in	kpa	/ kpá /	to prepare
/g/ as in	go	/gò/	to belch
/g͡b/ as in	gbo	/gbô/	to bark
/tʃ / as in	chie	/ tʃʲe´/	to shoot
/dʒ/ as in	ja	/dʒâ/	to cross
/f/ as in	fa	/fá /	to vomit
/v/ as in	ve	/vê/	who?
/s/ as in	sa	/sâ/	to chew
/z/ as in	zo	/zɔ́/	to sew
/ʃ/ as in	shwo	/ ʃʷɔ́/	to pass
/m/ as in	me	/mɛ/	me (pro)
/n/ as in	ne	/né/	to deny
/ɲ/ as is	nya	/ ɲá/	where
/l/ as in	lre	/lrɛ̀/	to tie a knot
/r/ as in	ri	/rí/	to eat
/j/ as in	ya	/jâ/	come
/w/ as in	wo	/wò/	you

1.3 Literature Review

1.3.1 The Syllable

The syllable has been discussed by various linguists working on different aspects of segments and their organisation into syllables. For instance, Haugen (1956), Fudge (1969), Hocket (1955), Kahn (1976), Selkirk (1982) and (2007) posited that the syllable, as an organising principle for grouping segments in any given language, is highly constrained. The set of occurring sequences presents only a fraction of the much larger set that would have resulted if there were no restrictions on concatenation of members of its segment inventory. A number of

propositions have been proffered to account for these restrictions, but the most acceptable is the syllable.

Kahn (1976) defines the syllable simply as a prosodic unit 'larger than the segment and smaller than the word". Phonetically, syllables "are usually described as consisting of a centre which has little or no obstruction to airflow and which sounds comparatively loud; before and after that centre. There will be greater obstruction to airflow and/or less loud sound" (Roach, 2000: 70). For example, in the Bokyi monosyllable (one-syllable) word *bam* /bám/, the vowel /a/ is the "centre" in which little or no obstruction takes place, whereas we have complete obstruction to the airflow for the surrounding /b/ and /m/

According to Zee (2007), words and sometimes longer sequences are exhaustively parsed into syllables so that the sequencing principles that characterise the syllable naturally extend to larger constituents. He maintains that the syllable is a representational device that encompasses the principles of segment sequencing. "Once the principles of syllable organisation are properly stated, they subsume most of the generalizations about segment sequencing" (Zee, 2007).

Similarly, Clark, Yallop and Fletcher (2007), Zee (2007) and Ashby and Maidment (2005) agree that languages differ in how the universal principles of segment sequencing are manifested but that they do so in constrained and predictable ways. The simplest syllable structures would consist of a nucleus which is nearly always a vowel (or the most sonorant part) and the two margins, the onset and the coda which are usually consonants. Below is the representation of the most basic types of syllables:

CVC - a syllable with all the principal parts; i.e. onset, nucleus and coda
CV - a syllable that contains only the onset and the nucleus
VC - a syllable that contains only the nucleus and the coda
V - a syllable that contains only the nucleus.

These patterns are common in Bokyi. However, our OT analysis will show which dialect permits a particular structure from the samples above.

Some generalizations could be made with regard to universal syllable structure. The nucleus is the most basic and stable across languages. According to Zee (2007), onsets are highly desirable and codas are less preferred in languages. Onset desirability is portrayed by the fact that every language allows syllables with onsets and no language allows only onsetless syllables. On the other hand, codas are avoided in many languages and they are never required in all environments, Furthermore, the onset as well as the coda may include more than one consonant according to the structure of the particular language.

1.3.1.1 Onset

Onset is a term used in the analysis of syllable structure (and occasionally in other areas); generally it refers to the first part of a syllable. In Bokyi this may be zero (when no consonant precedes the vowel in a syllable), e.g. achi /a-tʃɪ/ *eyes.* There could be one consonant, or two at the onset position. This is however predominant in EB and scarcely or never found in WB.

Examples for EB:	**Gloss**
lre /Irɛ̀/	tie a knot
sre /srɛ̀/	rest
bre /brɛ̂/	turn from one container into another
cre /tsrɛ̂/	to block
gre /grɛ̀/	to slice
gb /g͡brɛ̀/	to grate or rob

The examples above explain some of the plausible clusters in EB where /r/ combines with almost all the consonants to form clusters. However, there are some restrictions on what clusters of consonants may occur in onsets and no clusters are attested as codas at all. Hence, no evidence has been found in the current research for the palatal-alveolar affricates /tʃ/ and /dʒ/; palatal-alveolar fricative /ʃ/ and the palatal-nasal /ɲ/ to combine with /r/ to form clusters.

On the other hand, Tawo-Asu (1977) argues that /w/ and /j/ can combine to form clusters in the WB dialect. Nevertheless, the data have not revealed clear-cut cluster evidence for WB. The examples below suggest consonant clusters at the phonetic level but in-depth analysis shows that they are instances of labialisation and palatalisation. Hence,

more evidences are required at the phonemic level to confirm this observation.
The examples include;

shwom	/ʃʷɒ m/	pass
jware	/dʒʷarɛ/	bless
fwo	/fʷǒ/	taste
pwo	/pʷɔ̀/	forgive
bwop	/bʷɒ́p/	pick
byem	/bʲɛ́m/	things
tyem	/tʲɛ̀m/	clear

1.3.1.2 Nucleus
Nucleus is the peak of a syllable. It is usually a vowel. The nucleus can be identified by the vowel, as the most prominent element of the syllable. However, there are some syllables whose nuclei are not outrightly vowels but they possess syllabic values and are regarded as syllables. They are referred to as syllabic consonants in English. In Bokyi, only nasals can play this role. Hence, we refer to them as syllabic nasals. The data set below show lexical items with vowels at the nucleic slots. Each lexical item is also preceded by a nominalising nasal prefix. Each nasal prefix forms a single syllable due to its sonorous feature and thus possesses the features of a nucleus which is its high sonority scale.

EB Words		**WB Words**		**Gloss**
mpe	/'m-pè/	mpan	/'m-pân/	judgment
mba	/'m-bâ/	mbam	/'m-bâm/	guard
nke	/'ŋ-kè/	nkan	/'ŋ-kân/	temptation
ntebe	/'n-tɛbɛ/	nturung	/'n-turuŋ/	pestle
ntie	/'n-tjè/	ntan	/'n-tán/	horn

1.3.1.3 Coda
Coda refers to the consonant that follows the nucleus of a syllable. The central part of a syllable is almost always a vowel as discussed above, and if the syllable contains nothing after the vowel it is said to have no coda ("zero coda"). This is common with the EB phonotactics where no coda is permitted at all. The examples below show the closed syllables of WB and their open equivalents in EB:

W/Bokyi		**E/Bokyi**		**Gloss**
onet	/ònɛ̀t/	ònè	/ɒnè/	person
bunam	/bùnàm/	ùnà	/unâ/	thigh
burang	/bùrâŋ/	ùlâ	/ulâ/	fufu
batbat	/bàtbàt/	bèbè	/bèbè /	flat
kibam	/kìbâm/	kìbá	/kɪba/	compound
ram	/rám/	lá	/lâ/	cook
wan	/wán/	òvé	/ɔ̀vé/	child
ket	/kɛ́t/	ké	/kɛ́/	cut
ekap	/èkàp/	ìkiba	/ìkìbà/	signs
ekpang	/èkpàŋ/	ikpa	/ìkpà/	tiger
nwet	/ŋ̀wɛ̀t/	nwe	/ŋ̀wɛ̀/	school
nkop	/ŋ̀kɔ̂p/	nkọ	/ŋ̀kɔ̂/	cup
nkan	/ŋ̀kàn/	nke	/ŋ̀kê/	test
mpan	/m̀pàn/	mpe	/m̀pè/	court case

2.1. Methods

The data for this study are elicited from ten respondents, five from each region of the divide, using the SIL wordlist. The respondents include three adult male speakers and two adult female speakers from Eastern Bokyi (EB) and Western Bokyi (WB) respectively. There are also recordings of traditional festivals, marriage and naming ceremonies. 1600 tokens of spoken words are analysed, using the Optimality theoretical framework.

2.2. Theoretical Framework

Optimality Theory (OT) is the framework adopted for this research. OT was introduced by Prince and Smolensky in 1993 as a framework for linguistic analysis. Since then, various linguists have discussed its relevance in linguistic analysis at different levels. OT has proved useful in addressing phonological problems, and it is still relevant and popular in phonological analyses, syntax and other areas of linguistics. McCarthy (2007) gives an in-depth survey of OT, while Kager (1999) presents a succinct introduction to OT, and many others have churned out copious papers examining the theoretical impulse of OT and its relevance.

Zuraw (2009) posits that OT represents a shift from the rule-based frameworks in phonology. Rule-based frameworks account for linguistic patterns through derivation. However, generation of utterances in OT

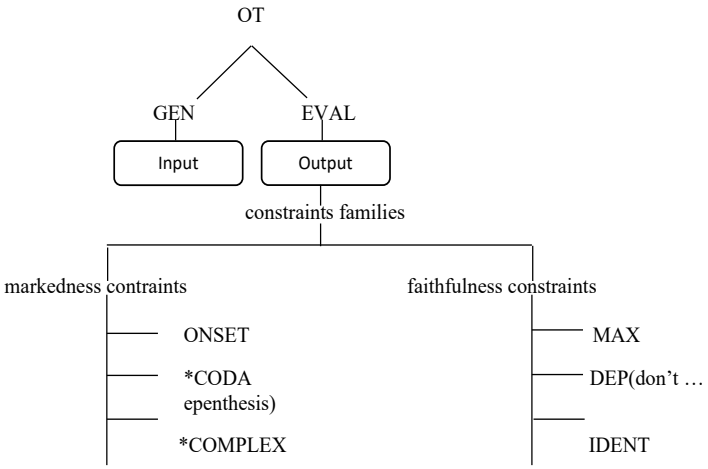
involves two functions, generation herein referred to as Gen and evaluation herein shortened to Eval. Gen takes an input and returns a (possibly infinite) set of output candidates for selection. Some candidates might be identical to the input, others modified somewhat, others unrecognisable. Eval chooses the candidate that best satisfies a set of ranked constraints; this optimal candidate becomes the wining output.

In Eval, we have two types of constraints: Markedness and faithfulness constraints. Markedness constraints enforce well-formedness of the output itself, prohibiting structures that are difficult to produce or comprehend. Faithfulness constraints enforce similarity between input and output, for example requiring all input consonants to appear in the output, or all the features in the input to be overtly realised in the output. Markedness and faithfulness constraints can conflict. So the constraints' ranking—which differs from language to language—determines the outcome. One language might eliminate consonant clusters by deleting consonants, despite the resulting faithfulness violations; another might retain all input consonants, violating the markedness constraint.

Not being overly pedantic, constraints in OT are strictly ranked and violable. Strict ranking means that a candidate violating a high-ranking constraint cannot redeem itself by satisfying lower-ranked constraints (constraints are not numerically weighted, and lower-ranked constraints cannot gang up on a higher-ranked constraint). Violability means that the optimal candidate need not satisfy all constraints. Eval can be viewed as choosing the subset of candidates that best satisfy the top-ranked constraint; then, of this subset, selecting the sub-subset that best satisfy the second-ranked constraint, and so on. Another way of describing Eval is that a candidate ts (in the Bokyi word **cit 'cover'**) is optimal if and only if, for any constraint that prefers another candidate ***tʃ*** to ***ts***, there is a higher-ranked constraint that prefers ***ts*** to ***tʃ***

2.2.1. A Succinct Architecture of Optimality Theory

The constraints presented below capture the central tension that constraints are ranked and violable in OT; what rule based accounts could not capture.



2.2.2. Interpretation of the Constraints

2.2.2. 1 Faithfulness Constraints

Faithfulness constraints make sure that output forms are similar to input representations and all segments in the output are present in the input. These constraints include: MAX (maximum, representation of the input structure), DEP(V), DEP (C) (don't epenthesise vowel or consonant respectively), IDENT(input structures must be identical with output structure) etc.

2.2.2. 2 Markedness Constraints

On the other hand, McCarthy (2007) posits that Markedness constraints are similar to the surface-structure constraints or filters of the 1970's centring on well-formedness. It includes:

*COMPLEX (i.e. no consonant clusters are allowed), NO CODA (no codas are permitted in the language), ONSET (onsets are present or optional) and so on. There are some essentials of a valid ranking which include the fact that constraints to be ranked must conflict, the constraint that favours the winner must dominate the constraint that favours the loser.

The most important or central part of any OT analysis is a collection of constraints rankings. Generally, an input receives a set of output candidates. These candidates are evaluated against the constraint hierarchy. The output candidate that is best evaluated is the one which least violates the hierarchy of constraints. The winning candidate is usually the actual output for that input. The other candidate or candidates are losers; that is, though they are generated by GEN from this same input, according to EVAL, they are not the most harmonic candidates.

The language particular ranking of constraints and the way in which optimal candidates are selected is usually shown using tableaux. Below are abbreviated tableaux for selected tokens from both WB and EB**.** Constraints are ranked left to right. The input form appears in the top left cell; candidates are listed below. The notational conventions used are: winning candidate (☞), constraint violation (*), fatal constraint violation (*!). Cells are shaded when their status is no longer relevant. When the constraint ranking is not significant, dotted, rather than solid lines divide columns. Consider the following analyses.

3. Analyses and Discussion

3.1 Comparing Preference for Complex Onsets and Coda Elements

As mentioned in the introduction, Bokyi has many dialects but we are comparing the EB and WB dialects. Tableau 1 (standard expositional devices in OT) illustrates the requirements for syllable structure for EB and WB.

Tableau1. EB and WB Resolution of Complex Onsets

EB: /brɛ̂/ 'turn'	DEP-IO	*COMPLEX
☞ a. brɛ̂		*
b. bìrî	*!	
WB: /brɛ̂/	*COMPLEX	DEP-IO
a. brɛ̂	*!	
☞ b. bìrî		*

Tableau 1 above shows a key syllable requirement for EB and WB. The main constraints are the markedness constraint *COMPLEX and faithfulness constraint DEP-IO. From the winning candidate (☞ a. brɛ̂) it shows that EB ranks the faithfulness constraint DEP-IO higher than *COMPLEX meaning that the EB permits consonant clusters at the onset of syllables but does not allow insertions or epenthesis to alter the clustering elements. On the other hand, the WB shows a preference for insertion as a way of resolving complex onsets since it does not permit consonant clusters. Therefore, in EB, DEP-IO ranks higher than *COMPLEX. While in WB, *COMPLEX ranks higher than DEP-IO.

The following tableaux present more examples to buttress this point.

Tableau 2. EB and WB Resolution of Complex Onsets

EB: /akpra/ 'harlot'	DEP-IO	*COMPLEX
☞ a. akpra		*
b. akpara	*!	
WB: /akpara/	*COMPLEX	DEP-IO
a. akpra	*!	
☞ b. akpara		*

Tableau 2 presents similar data to tableau 1 above but with a labial velar stop /kp/. Although the WB dialect does not permit clusters, it does attest to both the voiceless and voiced labial velar stops /kp/ and /gb/ respectively. So while EB ranks DEP-IO higher than *COMPLEX the WB does the opposite. This is quite different from the case of English. In English both single onsets and clustered onsets are tolerated in general but in Bokyi **±COMPLEX** marks a huge difference between speakers in the EB and WB divides.

The tableaux illustrate output selection for the inputs /brɛ̂/biri/ and /akpra/akpara in the EB and WB dialects respectively. Each of the output candidates is flawed to confirm violability of constraints in their ranking unlike rules that are inviolable. Hence, this shows that both terms are possible in Bokyi but speakers who use them could easily be identified based on their preferred choices.

Tableau 3. EB and WB Resolution of Complex Onsets

EB: / ɒfrɛ̌/ 'wealth'	*COMPLEX	DEP-IO
☞ a. ɔ̀frɛ̌	*	
b. ɔ̀ɛ̌ɛ́rɛ́/		*!
WB: / ɔ̀ɛ̌ɛ́rɛ́/	DEP-IO	*COMPLEX
☞ a. ɔ̀frɛ̌	*	
b. ɔ̀ɛ̌ɛ́rɛ́/		*!

Tableau 4. EB and WB Resolution of Complex Onsets

EB: / frǎ/ 'near'	DEP-IO	*COMPLEX
☞ a. frǎ		*
b. fáráŋ	*!	
WB: / frǎ/	*COMPLEX	DEP-IO
a. frǎ	*!	
☞ b. fáráŋ		*

Tableaux 3 and 4 present more instances where EB retains its complex structure but WB violates the DEP-IO ranking due to its insertion of /ɛ́/ and /á/ respectively. The duplicating vowels are inserted to simplify the complex onsets occasioned by the clustering elements at the onset. In general, both instances are common in Bokyi and they help the listener to identify the region of the speaker.

Tableau 5. EB and WB Resolution of Complex Onsets

EB: / prɛ̀/ 'untie'	IDENT-IO	*COMPLEX
☞ a. prɛ		*
b. pî	*!	
WB: / prɛ/	*COMPLEX	DEP-IO
a. prɛ	*!	
☞ b. pî		*

Tableau 5 above introduces another strategy that the WB uses to resolve complex onsets. Hence, we introduced a new ranking with the faithfulness constraint IDENT-IO meaning the input and output must be identical.

EB and WB Resolution of Phonotactic constraints on Codas

From our analysis so far, we have observed that the EW dialect is an open syllable dialect. But the WB permits both nasals and stops at the coda slots. In the case of nasal codas, the EB chooses the strategy of nasalisation to accommodate counterpart nasal entries from WB. However, when WB presents stops at coda positions, the EB either deletes them or replaces the lexical items with other mutually intelligible items. The following tableau illustrates.

Tableau 6 EB and WB Resolution of Phonotactic constraints on Codas

WB: kangkang / káŋkáŋ/ 'all'	IDENT-IO	*CODA
☞ a. káŋkáŋ		*
b. kãkã	*!	
EB: kangkang / káŋkáŋ/	*CODA	IDENT-IO
a. káŋkáŋ	*!	
☞ b. kãkã		*

From the data in tableau 6 above, EB deletes the voiced velar nasal /ŋ/ at the coda position of the first syllable of / káŋkáŋ/ but to repair the deletion, the preceding open front unrounded vowel /a/ retains the assimilatory influence of the deleted velar nasal. This is often common with voiced velar nasals occurring at coda slots. Tableau 7 buttresses this claim.

Tableau 7 EB and WB Resolution of Phonotactic constraints on Codas

WB: kinkwa: /kĭŋkʷâ/ plantain	IDENT-IO	*CODA
☞ a. kĭŋkʷâ		*
b. kĬkʷâ	*!	b. kĬkʷâ
EB: kinkwa: /kĭŋkʷâ/	*CODA	IDENT-IO
a. kĭŋkʷâ	*!	
☞ b. kĬkʷâ		*

Tableau 8 EB and WB Resolution of Phonotactic constraints on Codas

WB: bam: /bam/ to guard	IDENT-IO	*CODA
☞ a. bám		*
b. bá	*!	
EB: bam: /bam/ to guard	*CODA	IDENT-IO
a. bám	*!	
☞ b. bá		*

Tableau 9 EB and WB Resolution of Phonotactic constraints on Codas

WB: fam: / fám/ to vomit	IDENT-IO	*CODA
☞ a. fám		*
b. fá	*!	
EB: fám: /fám/ to vomit	*CODA	IDENT-IO
a. fám	*!	
☞ b. fá		*

Unlike the case in Tableau 8 above, the voiced bilabial nasals in the coda positions in /bám/ and /fám/ are completely deleted without nasalising the preceding open front unrounded vowel /a/. Other stops that get deleted by EB are shown in tableaux 10 and 11 below.

Tableau 10 EB and WB Resolution of Phonotactic constraints on Codas

WB: ket: /kɛ́t / cut	IDENT-IO	*CODA
☞ a. kɛ́t		*
b. kɛ́	*!	
EB: ket: /kɛ́t / cut	*CODA	IDENT-IO
a. kɛ́t	*!	
☞ b. kɛ́		*

Tableau 11 EB and WB Resolution of Phonotactic constraints on Codas

WB: jwap: /dʒʷáp/ blow	IDENT-IO	*CODA
☞ a. dʒʷáp		*
b. dʒʷá	*!	
EB: jwap: /dʒʷáp/ blow	*CODA	IDENT-IO
a. dʒʷáp	*!	
☞ b. dʒʷá		*

In tableaux 10 and 11 above, the voiceless alveolar plosive /t/ and the voiceless bilabial plosive /p/ were deleted by the EB to fit in its syllable mould. But both of them were retained by the WB to show its tolerance of coda elements in its syllable structure.

4. Conclusion

Discussing the Bokyi syllables naturally triggers numerous linguistic issues. Hence, we have carefully traced the syllable patterning and interactions within the two dialects compared.

Also, the sound system of Bokyi which should be a distinct issue for specific analysis has been considered superficially so that we can be sure of the sounds available in the language under discussion.

The phonotactics of the language has informed the codaless structures and or the existence of complex onsets in one dialect and not the other. The review of the various approaches or discussions on the syllable shed more light on the concept _ syllable.

Similarly, the brief reviews of OT pointed out the central tension captured by OT in linguistics analysis namely, that all forces influencing the use and standard of a language can be modelled into a constraint based evaluation whose optimal candidate wins as the correct output form.

The findings reveal that based on the phonotactics of the two dialects compared, the WB does not permit complex onsets (*Complex) while EB allows complex onsets but no codas (*Coda) are permitted. However, where there seems to be a coda in EB, it ends up as nasalisation of the preceding vowel as seen in Tableau 6 and 7 above. The WB codas observed would be any of the nasals: m n ŋ, and stops, p t k etc. On the other hand, the EB complex onsets must be a combination of any of d, ts, l, m, with r to form a complex onset.

Finally, due to inadequate materials on Bokyi, this study has provoked a lot of interesting research areas. It would be worthwhile for further work on the Bokyi syllable to determine why the variations in the syllable structures. Where two dialects of the same language could differ markedly on the permission and otherwise banning of complex onsets and why one dialect could be an open syllable dialect while the other closes with numerous segments as exemplified above.

REFERENCES

Blevins, J. (1995). The Syllable in Phonological Theory. *In: The Handbook of Phonological Theory.* Basil Blackwell.

Blevins, J. (2003). The independent nature of phonotactic constraints. Bloomfield, L. (1933). *Language.* New York: H. Holt and company.

Clements G. N., and Keyser S. J (1983). *CV Phonology: a Generative Theory of the Syllable.* Cambridge Mass.: MIT Press.

Etta D. U. (2019) *Bokyi Noun Class System. CLAREP Journal of English and Linguistics (C-JEL)*

Fischer J. E. (1952). On the definition of phoneme categories on a distributional basis. *Acta Linguistica, 7,*8-39.

Fudge, E. C. (1969). *Syllables. Journal of Linguistics,* 3, 253-286. Goldsmith, J. A., and Riggle J.

(2007). Information Theoretic Approaches to Phonology: the Case of Finnish Vowel Harmony.

Hammond, M. (1997). Vowel quality and syllabification in English. *Language,* 73, Hankamer, J, and Aissen J. 1974. The sonority hierarchy, vol. Ps from the Meeting of the Chicago Linguistic Society. Chicago:CLS.

Harris, J. (1983). *Syllable Structure and Stress in Spanish: A Nonlinear Analysis.* Cambridge, MA: MIT Press.

Harris, J. and Guzman, E, (1998). Final codas: Why the West was wrong. *In: Structure and interpretation: Studies in phonology.* Folium.

Kager, R. (1999). Optimality Theory. Cambridge: Cambridge University Press

Katamba F. (1989) London and New York: Longman

McCarthy, J. (2001). A Thematic Guide to Optimality Theory, Cambridge: Cambridge University Press.

McCarthy, J. (2007). "What is Optimality Theory?". *Language and Linguistics Compass*. 93.

Michael A, ed., Handbook of Brain Theory and Neural Networks, 2nd edition. MIT Press.

Omozuwa, V. E. (2010) Edo Phonetics and Phonology. Benin, Nigeria: Ambik Press.

Prince, A. and P. Smolensky (1993). Optimality Theory: Constraint interaction in Generative Grammar

Tawo-Asu, R. (1977) *Bokyi: An Introduction to the Study of Bokyi Language*. Banwet-Bokyi.

Tawo-Asu, R. (1975) Byipang Byiraa Mbyi Bokyi. Bokyi: Bokyi Books.

Trask, R. L. (1996). *A dictionary of phonetics and phonology*. London, New York:Routledge.

Pulgram, E. (1970) Syllable, Word, Nexus, Cursus. The Hague. Mouton.

Ugorji, C.U.C. (2002b). The Structure of Syllables in Mbieri: A Multilinear Approach in Kiabara 8,2:89-99

Ugorji, C.U.C. (2010). Nigerian English Phonology. Frankfurt, Germany: Peter Lang

Van der Hulst, H.G and Smyth, N. (1981). The Structure of Phonological Representations.(partl)

Watters, John R. (1981) *A phonology and morphology of Ejagham, with notes on dialect variation*. Ph.D. thesis. University of California at Los Angeles. xviii, 549 p.

Zuraw, K. 2000. Patterned exceptions in phonology, Dissertation, University of California, Los Angeles

Zee, E. (1978). The interaction of tone and vowel quality. UCLA Working Papers in Phonetics, 41 53-67.

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Grammatical Intonation Tune Assignment by English Language Teachers-in-Training in Some Public Universities in Southwestern Nigeria

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Abstract

One of the methods by which intonation encodes meaning in English is through grammatical functions. Previous studies on models of pronunciation of Nigerian English focused on teachers and media practitioners. However, much attention has not been given to intonation modelling of English Language Teachers-in-Training (ELTT), who are assumed to be equipped in English pronunciation skills. Thus, this study sets out to examine selected ELTT's level of competence in the assignment of grammatical intonation tunes to the appropriate tonic syllables, so as to determine whether or not they could serve as models for their prospective students and general users of English. The frameworks adopted for this study were Prince and Liberman's metrical and Bandura and Walters' Modelling theories. Two hundred participants were randomly selected from 400 level students of four universities in the southwestern states of Nigeria. Five intonation tune assignment test (ITAT) items for grammatical functions were uttered into Speech Filing System (SFS WASP 1.51), a computerised speech laboratory, by the participants, while Wells' (2014) electronic exercises on grammatical functions served as the native baseline. Data were subjected to statistical analyses, using simple percentages, complemented with metrical and acoustic analyses. Among the 1000 productions by ELTT, 24.1% were assigned correctly to the tonic syllables while 75.9% were not. The acoustic analysis displayed the dominant tune patterns of ELTT in contrast to the tune patterns of the native baseline. Thus, ELTT did not approximate to SBE intonation tune assignment for grammatical functions and may not necessarily serve as models for their prospective students.

English intonation modelling, English Language Teachers-in-Training, Nigerian English, Standard British English

Introduction

It is already established that English is a global language that is being spoken in more than fifty countries of the world, and each of these has its peculiarities termed 'varieties of the Standard English'. Out of all these varieties, there are only two, British and American English, that are recognised as models for the teaching of English in Nigerian schools. However, in the pursuit of attainment of international intelligibility, Ubahakwe (1979) and Mgbemena (2011) conducted studies on the teaching method of Nigerian English teachers, while Ayodele (1981) did an evaluation of the level of oral English performance of Grade Two teacher trainers. Another set of researchers such as Akinjobi (2004); Akindele (2010, 2015); Ilolo (2013) worked on the English suprasegmental features. There are also studies that have confirmed that intonation is difficult for Nigerian users of English. For instance, Akinjobi and Oladipupo (2005, 2008), Aina (2018), Aina and Akinjobi (2020) investigated the intonational structure of Nigerian English and agreed that there is a Nigerian pattern of intonational structure.

On modelling by teachers, Aina (2014) and Akinjobi and Aina (2014) looked at Nigerian English language teachers as models for stress assignment and word stress, respectively, while Adesanya (2014) studied Yoruba English language teachers as models for phrasal stress assignment. In addition, Aina (2018), Aina and Akinjobi (2020) explored NELT as models for intonation tune assessment. Findings from these studies revealed that Nigerian English language teachers could not model stress and intonation assignments appropriately.

Moreover, not many studies have been carried out from the perspective of the English language teachers-in-training as models for Standard English grammatical intonation tune assignment. It is on this premise that this study investigated the extent to which selected English Language Teachers-in-Training (ELTT) are able to assign appropriate grammatical intonation tunes to different English utterances with a view to verifying the student-teachers' ability to serve as models for their prospective students.

Statement of the Problem

The importance of intonation to mutual intelligibility in language-use is indisputable and the way it poses limitations to users of English as a second language has been established by various researchers. For instance, Tiffen (1974) claims that the appropriate use of stress and

intonation is the final hurdle that users of English as a second language must cross. Though, some of the previous works on modelling had focused on certain professionals like media practitioners and teachers of English in the areas of stress assignment, phonemic realisation and phonological rules applications, not much literature has been found in the area of grammatical intonation modelling of English language by teachers-in-training, who have been assumed to be well equipped in the English pronunciation skills. Thus, the issue of modelling has been a major problem in the second language context. This, therefore, has brought up a lot of proposals on how to get models for second language learners of English, especially now that "RP, which has been used for EFL teaching for decades, is considered in recent times as obsolete, even in England" (Akinjobi, 2012).

Therefore, this study fills the gap in the existing literature by investigating the extent to which selected English Language Teachers-in-Training (ELTT) in some public universities in southwestern Nigeria can serve as models for their prospective students in the assignment of appropriate grammatical intonation tunes.

Aim and Objectives

The aim of this study is to find out whether or not English Language Teachers-in-Training (ELTT) in southwestern Nigerian universities can serve as models for Standard British English grammatical intonation tune assignment. Thus, the specific objectives of the study are:

1. to determine whether English Language Teachers-in-Training assign grammatical intonation tunes appropriately to different utterances;
2. to find out whether English Language Teachers-in-Training in selected public universities in south western Nigeria can serve as models for Standard English grammatical intonation tune assignment.

Research Questions

The following research questions will guide the study:

1. Do English Language Teachers-in-Training assign grammatical intonation tunes appropriately to different utterances?

2. Can English Language Teachers-in-Training in selected public universities in south western Nigeria serve as models for Standard English grammatical intonation tune assignment?

Purpose of the Study

The insights got from this study will be significant in determining if English Language Teachers-in-Training (ELTT) could serve as models for their students. Also, this study is significant because it will help teachers to identify their problem areas, concentrate on them and make attempt to teach the RP model, assuming there is still one. Since the study will provide insights into ELTT's proficiency in the spoken aspect of SBE, it will definitely serve as an eye opener for the teachers and language curriculum specialists.

Scope of the Study

In Nigeria, English is widely recognised as the official and administrative language, besides being the medium of instruction right from the upper primary to the university level. Its importance in the educational sector is seen in the mandatory credit pass in WASSCE and NECO, which serves as a prerequisite for any course of study in any higher institution in the country. Thus, two hundred participants were randomly selected from 400 level English/Education students of four universities in the south western states of Nigeria. The choice of the participants was based on the conviction that these undergraduate teachers had been exposed to spoken English, and courses in phonetics and phonology. They had the academic competence to teach the rudiments in the use of English intonation tunes. The study investigated the extent to which the selected English Language Teachers-in-Training (ELTT) were able to assign different grammatical intonation tunes.

Literature Review and Theoretical Framework

Suprasegmental Features of English

The term 'suprasegmental' which is synonymous with prosody, refers to those features of speech such as pitch, intonation, stress, rhythm, voice quality, loudness and tempo that can be added to speech. It was invented to refer to aspects of sound, such as intonation that did not seem to be properties of individual segments (Roach, 2009). Thus, suprasegmental phonology is about features operating above the level of segments. It

studies sound contrasts that extend over several segments or phonemes to bring about distinctive meanings in utterances. These prosodic features are stress, rhythm and intonation which operate above segments, and they are used on syllables, phrases, clauses and sentences (Akinjobi, 2009; Aina and Akinjobi, 2020).

Intonation

It is observed that every language has melody in it and that there is no language that is spoken on the same musical note, all the time, as the voice goes up and down and the different notes of the voice combine to make tunes (O'Connor, 2004; and Wells, 2014). In English, tune belongs not to a word, but, to a word group, as in the word 'No' with different tunes is still the same word. This clearly reveals that tune plays an important role in English. Thus, English makes use of tone 'intonationally, but not lexically' (Wells, 2014:5). That is the reason a word group could be said definitely, hesitantly, angrily or kindly, with interest or without interest. These differences can be largely attributed to tunes used, as the meanings of the words do not change. However, tune adds some things to words, which reflects speaker's feelings at the moment of speaking; this way of using tunes is referred to as intonation (Wells, 2014).

However, many linguists (O'Connor, 2004; Crystal, Ladefoged, 2006; Awonusi, 2009; Wells, 2014) have attempted giving a working definition of intonation, which they see as a melodic or musical feature of speech. Thus, intonation is one of the prosodic features and a melodic feature of connected speech as it operates at the domain of the phrase, the clause and the sentence. Jowitt (1991:99) states that intonation could be 'loosely defined as fluctuation in pitch over passages of connected speech' while Roach (2010:3) describes intonation as 'the use of the pitch of the voice to convey meaning'. It has been obviously stated that intonation overlaps with the accentual or emphatic function of stress as there is no way both can be divorced from each other.

Importance of English Intonation to Modelling

English is the most widely spoken language which is gaining more importance due to technological developments and diplomatic reasons. While intonation is one of the important prosodic features effecting the pronunciation of learners of English as a second language, there is always a tendency for most learners to transfer the melody of speech of

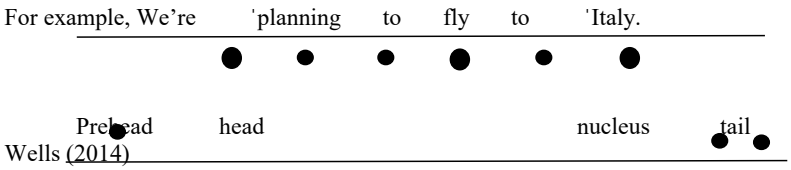
their native language, and then, retain them after they have improved in other aspects. This can therefore cause a breakdown in communication when a native speaker is interacting with a non-native speaker, thus, awareness of intonation patterns and the semantic implications aids communication. Livbjerg and Mees (2002) state that intonation is closely interrelated with other factors such as grammar and vocabulary, including non-linguistic factors, like the roles of the speaker and hearer. Therefore, this means that a given sentence can have different intonation patterns in different situations. It is essential for both teachers and learners to realise that, familiarity with intonation and its usage, facilitates mutual comprehension between native speakers and non-native speakers of English. There could be an assumption that a message that has not been fully understood, has not been well comprehended, as a result of the native speaker's unawareness of his normal use of intonation, and that of the non-native speaker's failure to pick up on it. However, incorrect intonation can result to misunderstandings, in which case, speakers may lose interest or even take offence. Wells (2014:1) opines that the linguistic study of any language is academically valuated in itself. Wells also points out that since intonation is the melody of speech, and how the pitch of voice rises and falls, it is therefore, how the variation in pitch is used to convey linguistic and pragmatic meaning. Intonation also involves the study of the rhythm of speech, because, without it, speech will be literally monotonous and flat. The speech could either be on one pitch, throughout, or the case where utterances employ exactly the same stereotyped tune, at all time. In order to avoid monotony and boredom among learners of English as a second language, there is the need to master intonation patterns.

Components/anatomy of the intonation phrase/group

The tone group consists of the pre-head, head and tonic syllable, which is discussed below:

1. **The Pre-head:** This is before the onset. It has all the unstressed syllables in a tone unit preceding the first stressed syllable. These occur in two main environments:
   - **i.** When there is no stressed syllable preceding the tonic syllable that is, no head. For example, in a **minute**.
   - **ii.** When there is a head as in: In a 'little' less than a **minute**.

2. **The Head:** This is the first stressed syllable but not including the nucleus or tonic syllable.
3. **The Tonic Syllable:** The tonic syllable is the last stressed and prominent syllable in a tone unit. It is the syllable that receives the highest prominence, and also obligatory. Bradford (1988:14) and Wells (2014) describe it as a prominent syllable on which a pitch movement begins.
4. **The Tail:** These are syllables which occur after the tonic syllable to the end of the tone-unit and these contain no accented syllables.



Wells (2014)

Here, the nucleus is *It-* and the tail is *–aly*. The onset is *plan-*, and the head is *planning to fly to*. The prehead is *We're*.

Types of Tunes and Semantic Implications

Basically, there are two different tunes: falling tune and rising tune. However, many linguists have proposed different numbers of tunes, which are combinations of the principal ones mentioned earlier:

1. Tune 1/ Falling Tune ↘

This contains a fall in the voice from a high pitch to a very low one. The fall could be on the stressed syllable or from the stressed syllable to the following one. The direction of the arrow usually points downward indicating a fall in the pitch of the voice. In other words, the pitch of the voice starts relatively high and then moves downwards. The starting point may be anywhere from mid to high while the end point is low. The falling tune is used for declarative sentences, wh-Questions, imperatives and exclamations. The falling tune can also be described as one of the three primary tones with a range of tone meanings. This implies that falling tone has a range of meanings such as definitive, complete (independent), insistent (yes-no question) and reinforcing (as in an adverbial) (Wells 2014:218; Aina, 2018).

2. Tune II/rising tune 

The direction of the arrow usually points upward indicating a rise in the pitch of the voice. It is used for polar questions, polite requests, enumerations and statements that are used as questions.

Others are; fall-rise tune (Tune III) (↘↗) which is used in case of a tag question, and rise-fall tune (Tune IV) which is used in enumerations, and as a pause between a subordinate clause and a main clause (↗↘).

The Functions of Intonation

Gimson (1970: 266 & 267) identifies two main functions of intonation as accentual function and non-accentual function, while Brazil (1994:46) opines that intonation is significant in relation to the "function of utterance as an existentially appropriate contribution to an interactive discourse". Generally, awareness of intonation enhances effective communication, while incorrect usage may cause mutual unintelligibility.

Intonation, according to Wells, is used to identify grammatical structures in speech, the way punctuation does in writing. It is used to mark the beginning and end of grammatical units such as clause and sentence, which can also be termed the democratic function through tonality. Intonation can also be used to distinguish clause types, such as questions as opposed to statements. Through tone, intonation helps to remove ambiguity that could emanate from grammatical ambiguous structures, which can be referred to as syntactic function.

However, linguists such as Roach (2010) and Awonusi (2012) identify four functions performed by intonation, while Wells (2014:11) rightly points out that, native speakers of English explore intonation patterns in many subtle ways, which are not obvious at first sight. Hence, there is need for learners to understand different intonation patterns and their functions, which native speakers apply unconsciously. Meanwhile, the focus of this study is on the grammatical or differential function of intonation. This is about using intonation tunes to distinguish sentence types, such as declarative statement, order, question, and so on. It also connects parts of sentences together, thereby demarcating a pause with a rising tune, and using a falling tune to show the end of an utterance.

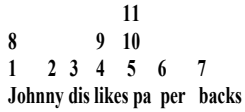
Theoretical Framework

The two theories adopted in this study are Liberman and Prince's (1977) Metrical Theory and Bandura and Walter's (1973) Modelling Theory.

Metrical Theory (MT)

Metrical Phonology was propounded in 1977 by Liberman and Prince and it was to take care of the gap discovered in Generative Phonology (GP). The latter lays emphasis on segments and it assumes that stress assignment is done, linearly. Though Davenport and Hannahs (2010) state that the basic aim of generative theory is to represent in a formal way the tacit knowledge that native speakers have of their language, which makes them recognise those things that are allowable in the language and those things that are not, MT does not support the assertion. Metrical phonologists observe that phonological representations of segments are not solely about linear arrangement of segments like strings of beads (Giegerich 1992). The principal characteristic of MT is the alternation between strong and weak syllables, which is governed by a Lexical Category Prominence Rule (LCPR), which covers words and compounds, and a Nuclear Stress Rule (NSR) which covers phrases and clauses. The problem, here, is that, tree structures do not represent the timing and rhythm of utterances. (Kager, 1995:382) avers that 'metrical grid represents stress as a hierarchical, rather than a relational property'. Sunday (2005) observes that, the height of a grid mark represents prominence levels in metrical grid, while, it is the rhythmic structure that stands for the horizontal distance between grid marks.

Thus, metrical grids are used to show the temporal reality of metrical trees. The rule for the construction of grids is termed the Relative Prominence Projection Rule (RPPR): Liberman and Prince (1977) state that "in any constituent on which the strong-weak relation is defined, the Designated Terminal Element (DTE) of its strong sub-constituent is metrically stronger than the Designated Terminal Element (DTE) of its weak sub-constituent. Cruttenden's grid below illustrates how to locate the Designated Terminal Element (DTE) in *Johnny dislikes paperback*:



For the root node (R) at the top of the diagram above, the DTE of the w branch leads to *John* and that of the s branch leads to *pap-;* hence *pap-* is metrically stronger than *John.* Thus, metrical theory is adopted for this study because it shows more relevance to intonation than the SPE method of approach to stress, since intonation groups are represented in hierarchy, and the nucleus of an intonation pattern corresponds with the Designated Terminal Element of an intonation group or phonological phrase (Cruttenden, 1997:32; Aina, 2018; Aina and Akinjobi, 2020).

Cognitive Social Learning Theory

Cognive Social Learning Theory, which is known as Modelling Theory, has Bandura (1963) and Bandura and Walters (1973) as its proponents. They claim that learning takes place through observation and modelling, as an environment causes behaviour and behaviour causes environment, as well. Morgan and King (1975:483) define modelling as "copying or imitating another person's behaviour". It is also about imitating another individual, or modelling one's own behaviour after another member of the same species. This is seen in the way a person watches or hears someone else say or do something, then attempts to imitate it. This theory is adopted because learners imitate what they see their teachers do. For proper imitation to take place, teachers are to ensure learners pay proper attention to them. This claim is substantiated with Jibril (1979)'s finding that, the divergence between

Northerners' and Southerners' pronunciation in Nigeria seems to be the fact that Irish and German missionaries, who among others, first taught English to Southern Nigerians (or those Sierra Leonians who later taught Southern Nigerians) might have passed on their own tendency to their students, while the RP-speaking teachers who must have first taught English to Northerners in Government Schools, such as Katsina College might have influenced the Hausa pronunciation. In addition, Awonusi (1986) asserts that, differences in the English pronunciation in Nigeria are as a result of the diverse linguistic and social backgrounds brought by the British who came to teach in Nigeria. He contends that Igbo

English [ɛ] or [ɛ:] in words like *learn*, *modern* as opposed to Yoruba [a] in such words, is a legacy of the Scottish accent of the early teachers. Thus, teachers' way of oral delivery is reflected in the way and manner students pronounce words.

Research Methods

There were two hundred English Language-teachers-in-training from public universities selected as participants for this research. They were randomly and purposively selected universities in southwestern Nigeria. These four universities were two federal and two state schools, chosen to represent the population of the southwestern Nigerian universities. The participants were 400 level undergraduate teachers of Education/English, who had Yoruba, Efik or Igbo as their mother tongues and had never resided in any country where English is used as the first language. They had supposedly got the academic competence, having been in a university studying English and had undergone courses in phonetics and phonology. The participants were chosen because they are prospective professional English language teachers, who are to serve as models for their prospective students. The research instruments for this study were Grammatical Intonation Tune Assignment Test (GITAT) items comprising five (5) utterances to test yes/no question, tag question, wh-question, alternative question, compound nouns and noun phrases. These were read into Huckvale's (2011) *Speech Filing System (SFS WASP 1.51)*, a computerised speech analyser. The audio version of the GITAT electronic exercises of the items from Wells' (2014) *English Intonation: An Introduction* (10th edition) served as the native baseline. Data were subjected to both statistical and instrumental analyses.

Data analysis and discussion of findings

There were two (2) research questions formulated in order to investigate how English Language Teachers-in-Training (ELTT) in some selected southwestern Nigerian universities could serve as models for grammatical intonation tune assignment (GITA). To provide answers to these questions, quantitative data collected through GITAT items were analysed using Statistical Package, while qualitative data were done through metrical and acoustic analyses.

Analysis and discussion of the data from intonation tune assignment test (GITAT)

Research question 1: Do English Language Teachers-in-Training assign grammatical intonation tunes appropriately to different utterances?

In response to the above research question, five GITAT items were examined and were also analysed for grammatical functions. In order to determine the performance of the ELTT in the assignment of grammatical intonation tunes to the right Designated Terminal Elements, five GITAT items for grammatical functions were made use of. The GITAT items comprised the assignment of intonation tunes for 'yes-no' questions; tag questions; wh-questions; alternative questions and compound nouns and noun phrases (NP). Each of the 5 GITAT items was analysed statistically before the overall assessment of the ELTT's performance. In all, there were 1000 productions and each is presented in the tables below with graphical illustrations.

ELTT's performance in grammatical functions

This aspect looked at the way ELTT assigned appropriate intonation tunes for grammatical functions. The table below displays the statistical data of the ELTT in all the five (5) GITAT items, while the graphical illustration is seen in Figure 1:

Table 1: Performance of ELTT in the five GITAT items

Grammatical functions	Potential score	Actual score	% of correctly assigned tunes for grammatical functions	% of incorrectly assigned tunes for grammatical functions
Yes-no questions	200	62	31%	69%
Tag questions	200	92	46%	54%
Wh-questions	200	25	12.5%	87.5%
Alternative questions	200	49	24.5%	75.5%
Compound nouns and noun phrases	200	13	6.5%	93.5%
Total	1000	241	24.1%	75.9%

In Table 1 above, from the five different utterances used to test the assignment of various intonation tunes for grammatical functions, 31% of the ELTT were able to correctly assign grammatical intonation tune for 'yes-no' questions, 46% for tag questions, 12.5% for wh-questions, 24.5% for alternative questions and 6.5% of the ELTT were able to distinguish between compound nouns and noun phrases. This is graphically illustrated in Figure 1 below:

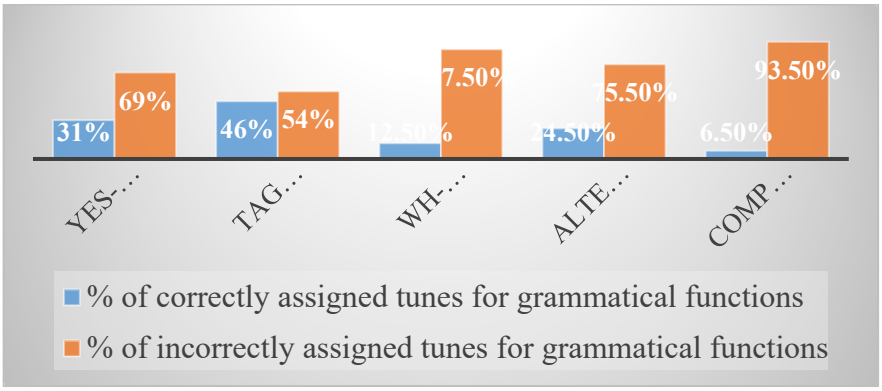


Figure 1: Performance of ELTT in the five GITAT items

Research Question 2: Could English Language Teachers-in-Training in selected public universities in southwestern Nigeria serve as models for Standard English grammatical intonation tune assignment?

Figure 2 below reveals the overall performance of the ELTT in the assignment of grammatical intonation tunes in all the GITAT items. The expected score for all the GITAT items for grammatical functions was 1000, but only 241 intonation tunes were assigned appropriately to the right Designated Terminal Element by the ELTT. Thus, this showed that 24.1% of the English Language Teachers-in-Training could appropriately assign intonation tunes to the DTE, while 75.9% inappropriately assigned intonation tunes for grammatical functions. This is explicated graphically in Figure 2 below:

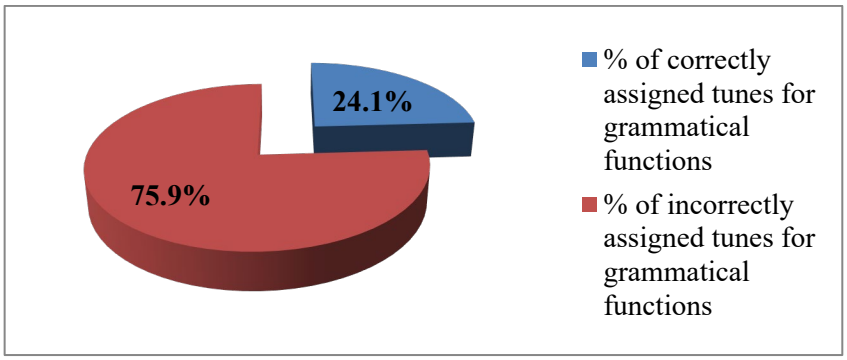


Figure 2: Overall performance of ELTT in the assignment of intonation tunes for grammatical functions

Metrical Grid Analysis

The metrical grid employed looked at the juxtaposition of strong-weak syllables, avoidance of adjacent clashes, and the display of regular patterns with the most prominent syllables that served as the DTE, which had the highest layers in the hierarchical grids.

Metrical Grid for Grammatical Functions

The five different utterances considered for metrical analysis under grammatical functions, are displayed below:

Yes-no question

The metrical grid of the control revealed that the penultimate syllable had the highest number of grid that indicate a rising tune for a 'yes-no question' with no adjacent clash. In contrast, the ELTT's rendition did not display any juxtaposition of strong-weak syllables, as theirs revealed adjacent clashes with prominence placed on every syllable.

Native Baseline's Pattern **ELTT's Dominant Pattern**

		x				x		x	x	
						x	x	x	x	
x		x				x	x	x	x	
x	x	x	x			Are	you	rea	dy	
Are	you	rea	dy?							

Tag-question

The metrical grid of the control revealed that there was no adjacent clash and the relevant syllables were assigned the appropriate number of metrical grids, thereby reflecting their prominence at the nuclear tone. However, the regular patterns of the metrical grids of the ELTT showed no juxtaposition of the strong and weak syllables because the syllables were rendered with almost equal prominence.

Native Baseline's Pattern

						x	
				x		x	
	x		x	x		x	
x	x	x	x	x	x	x	x
The	an	swer	is	twen	ty,	isn't	it ?

ELTT's Dominant Pattern

	x	x	x	x	x	x	x
	x	x	x	x	x	x	x
	x	x	x	x	x	x	x
x	x	x	x	x	x	x	x
The	an	swer	is	twen	ty,	isn't	it ?

Wh-question

The metrical grid of the control revealed that 'shift', the penultimate syllable, which was also the first element of the compound noun 'shift key', had the highest number of grids. This was followed by a falling tune on the last syllable, which happened to be the second element of the compound noun, 'key'. Meanwhile, the ELTT's renditions contrasted with the control's production, as every syllable was rendered with prominence with no consideration for adjacent clashes.

Native Baseline Pattern

			x	
x			x	x
x	x	x	x	x
Which	is	the	shift	key?

ELTT's Dominant Pattern

x	x		x	x
x	x		x	x
x	x	x	x	x
Which	is	the	shift	key?

Alternative questions

The rendition of the native baseline had prominence placed on the two contrasted words 'now' and 'end', with a falling tune on the last syllable. There were also no adjacent clashes. Meanwhile, the renditions of the ELTT had every syllable being given strong attribute, with no consideration given to the avoidance of adjacent clashes. It was also observed that the ELTT's renditions did not show vividly the contrast between 'now' and 'end' as evidenced in that of the control.

Compound Nouns and Noun Phrases

There were three syllables, 'out-', 'bath-' and 'wa-' which had the highest number of grids, thereby displaying the contrast in the articulation of compound nouns and noun phrases. Thus, these three IPs were produced with juxtaposition between strong and weak syllables as should be found in the SBE rendition of compound nouns and noun phrases. In addition, there were no adjacent clashes in the native baseline's renditions as opposed to what the ELTT had in their renditions, which showed an absence of contrast between strong and weak syllables. Every utterance of the ELTT had almost the same pattern. Consequently, in the renditions of the ELTT, all the syllables had the same number of grids and there were adjacent clashes as all the syllables were assigned stress.

Acoustic Analysis of Tunes

The automatic labelling vector known as acoustic was used to corroborate the statistical findings and the metrical analysis, which have been earlier discussed. The four tunes used for this research are the ones being taught in the Nigerian secondary schools, which are: Falling Tune-Tune I, Rising Tune-Tune II, Fall-Rise Tunes-Tune III and Rise-Fall Tunes-Tune IV.

Below are the dominant patterns of the native baseline and the ELTT:

Dominant Pitch Patterns of ELTT

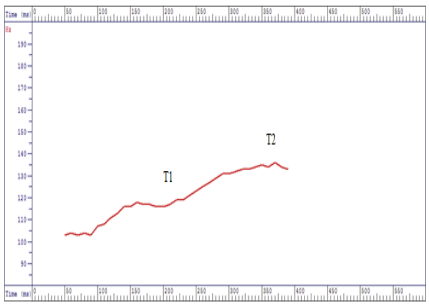
The pitch of the control showed a higher contour than those rendered by the ELTT on the Designated Terminal Element (DTE), which is the point of pitch change. The ELTT's renditions as displayed below, failed to show the pitch contrast at the Designated Terminated Element, and there was no display of modulation pitch contrast that could match that of the native baseline.

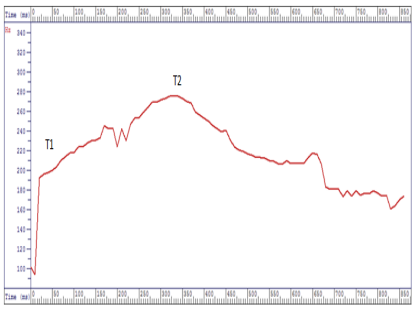
Pitch Patterns for Grammatical Functions

Yes-no question: Are you ready?

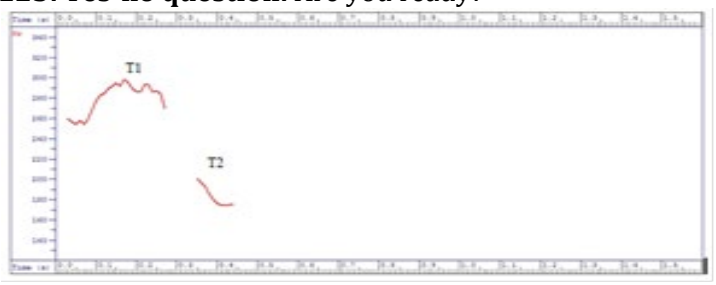
The pitch pattern of the control revealed a rising tune at the Tonic syllable 1(T1), which is the penultimate syllable, 'rea-'. It showed a modulating pitch movement as against the downward slope in the acoustic displays of the ELTT.

Native Baseline: Are you ready? **ELTT 7: Are you ready**





LTT 123: Yes-no question: Are you ready?

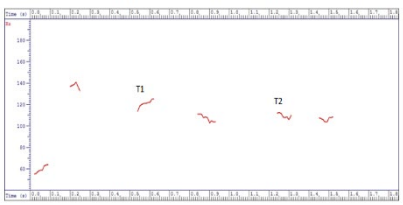


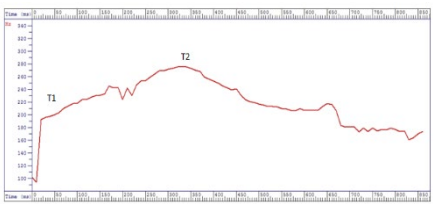
Pitch Patterns for tag Questions

There were two points of the pitch movement, T1 andT2. The control's rendition displayed a falling tune at point T1 for the statement, and a rising tune at point T2 for the tag question, which, however, revealed an undulating pitch movement. The ELTT's renditions displayed flatness at both points T1 and T2 which were meant for statement and the tag question.

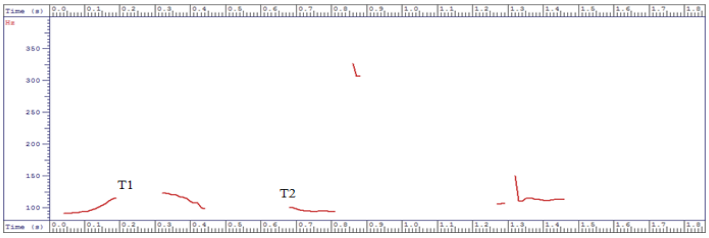
Native baseline:

The answer is twenty, isn't it? **ELTT 55: The answer is twenty, isn't it?**





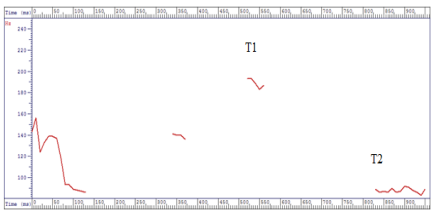
ELTT 68: The answer is twenty, isn't it?



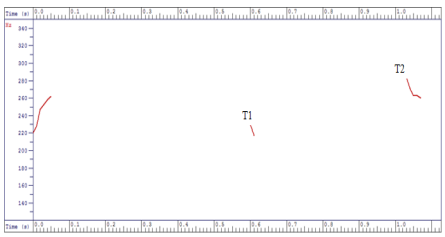
Pitch Patterns for wh-questions

There were two points of T1 and T2 that showed a compound noun that has a higher pitch at T1, which was the first element; and a falling tune at T2, which is the second element. The last syllable had a falling tune, as it is in the SBE for wh-questions. The acoustic display of the native baseline revealed this, whereas the displays of the ELTT contrasted with that of the NB, as most of their renditions showed strong syllables without any juxtaposition and avoidance of adjacent clashes. Both the penultimate and the last syllables were produced on the same plane.

Native Baseline: Which is the shift key?



ELTT 171: Which is the shift key?

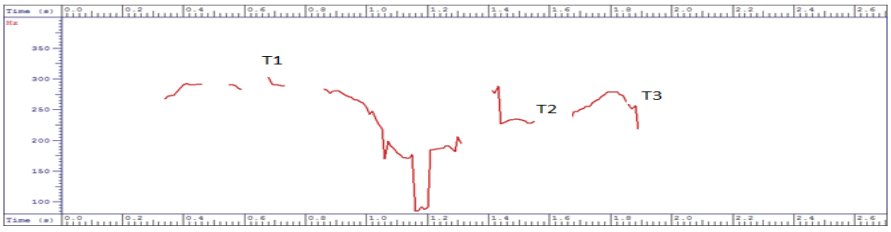


ELTT 7: Which is the shift key?

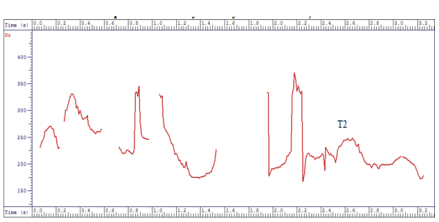
Pitch patterns for alternative questions

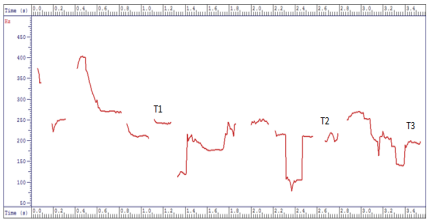
The acoustic display of the control revealed a rising tune at T1, which indicated emphasis on 'now', and, which contrasted with 'end', at T2. The latter served as the take-off point for the falling tune that landed at T3, which was 'meal'. However, the ELTT's acoustic displays revealed that every syllable was emphasised, without any consideration for adjacent clashes.

Alternative Question-Would you like your coffee now, or at the end of the meal?



Native BaselineELTT 2: Would you like your coffee now, or at the end of the meal? ELTT 56



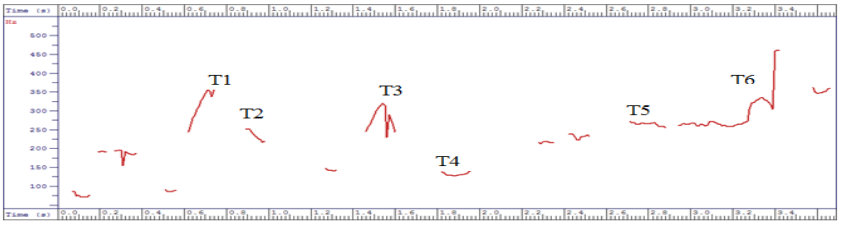


Pitch Patterns for Compound Nouns and Noun Phrases

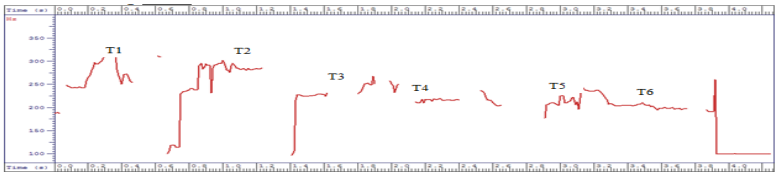
The control's acoustic display showed six points for the pitch movements- T1, T2, T3, T4, T5 and T6. There were two compound nouns and one noun phrase. The compound nouns revealed a higher pitch that indicated rising tunes (Tune I) at T1 and T3, while, there was falling tunes at T2 and T4. The NB had a higher pitch at T6 and not at T5, which was the point of taking off. This indicated that it was a noun phrase. The NB's rendition had a modulating pitch movement which contrasted with what the ELTT had, since all the T1, T2, T3, T4, T5 and T6 fell on the same level without any pitch modulation.

T1

Native Baseline: They made the outhouse into a bathroom and installed running water.



ELTT 41: They made the outhouse into a bathroom and installed running water.



ELTT 55: They made the outhouse into a bathroom and installed running water.

Findings and Conclusion

The findings confirmed that English Language Teachers-in-Training in the south western universities in Nigeria could not serve as models for grammatical intonation tune assignment for their prospective students. The research is a further proof of Oladipupo's (2008 and 2010) observations that many Nigerian speakers of English have difficulty in producing complex intonation tunes, due to the unavailability of this tune type in their linguistic repertoire. It is also an affirmation of Tiffen's (1974) claim that the appropriate use of stress and intonation is the final

hurdle that users of English as a second language must cross. Cruz Ferreira (1989:24) also avers that intonation, among the suprasegmental features, is the "last stronghold of a foreign accent in speaking any L2".

In conclusion, English Language Teachers-in-Training in selected southwestern universities in Nigeria displayed lack of competence in grammatical intonation tune assignment to the right Designated Terminal Elements. This, therefore, confirms Akinjobi's (2011) finding that academic competence may not be a yardstick for measuring linguistic performance in relation to the use of the English intonation. According to Bandura (1963) and Bandura and Walters's (1973) Observational or Modelling Theory, learning takes place through observation and modelling. This was also corroborated by Morgan and King's (1975) assertion that "Modelling is copying or imitating another person's behaviour", which Bandura labelled as "reciprocal determinism". He believes that learners imitate exactly what they see their teachers do. He opines that whatever teachers model to their students, there will be a retention and a reproduction of it.

Recommendations

It has been observed that most secondary schools teach spoken English in an ESL context without a standard language laboratory, and this makes students learn only the theoretical aspects of what is seen in their textbooks. Hence, the Ministry of Education, in collaboration with the federal and state governments, should ensure that there are well equipped language laboratories and internet facilities in all schools. There should also be provisions of internship or workshops for English language teachers for the enhancement of their skills in Standard British English pronunciation.

Akinjobi (2013) recommends certain tools and sources that she coined as 'non-enculturation sources of contact with natives'. She rightly avers that these could assist the ELTT and Nigerian English language teachers (NELT) to be better models for their students. The English Language Teachers-in-Training should endeavour to watch televisions, and listen to educative programmes on radio stations, such as British Broadcasting Corporation (BBC), Cable Network News (CNN), Sky News and other stations where English is easily accessed, without necessarily being within the native English language setting. Furthermore, ELTT can

develop their use of grammatical intonation, by watching videos of native speakers of English.

References

Abercrombie, D. (1967). *Element of general phonetics.* Edinburgh: Edinburgh. University Press.

Adesanya, A.F. (2014). Yoruba English language teachers as models for phrasal stressed assignment. M.A. Project. Dept. of English. University of Ibadan. Pp. 30-90.

Aina, M.O. (2014). Nigerian English teachers as models for Standard English stress assignment in Lagos and Ogun states. Dissertation submitted to the Dept. of English. University of Ibadan.

Aina, M.O. (2018): **"**Intonation Tune Assignment by English Language Teachers-in-Training in Selected Public Universities in South western Nigeria." Unpublished PhD Thesis in the English Department, Faculty of Arts, University of Ibadan, Ibadan.

Aina, M.O. and Akinjobi, A. (2020): "Nigerian English Language Teachers-in-Training in selected South-Western Universities as models for attitudinal tune assignment in Nigeria." In Rotimi Oladipupo, Julianah Akindele and Ayo Osisanwo (Eds.) *Phonetics, Phonology and Sociolinguistics in the Nigerian Context. A Festschrift for Adenike Akinjobi.* Ibadan: Stirling-Horden Publishers Limited.

Aina, M.O., Bodunde, H.A and Sotiloye, B. (2016): "Pronunciation competence of selected second language speakers of English." In Akin Odebunmi, Ayo Osisanwo, Helen Bodunde and Stella Ekpe (Eds.) *Grammmar Applied Linguistics and Society. A Festschrift for Wale Osisanwo*. Ile-Ife: Obafemi Awolowo University Press. Pp. 163-176.

Akinjobi, A.A. (2000). An introduction to English phonetics and phonology. Studies in English language. A.O. Babajide. Ed. Ibadan: Enicrownfit Publishers. 5-24.

_____ (2002). Nigerian English or Standard English Suprasegmentals: the question of which variety to teach. Language meaning and society. S.T. Babatunde and D.S. Adeyanju. Eds. Ilorin: Haytee Press and Publishing Co. Nigeria Limited.

_____ (2004b): A phonological investigation of vowel weakening and

unstressed syllable obscuration in educated Yoruba English. PhD. Thesis. Dept. of Linguistics and African Languages. University of Ibadan. xxiv+300.

_____ (2012a). Academic competence and linguistic performance: English intonation tune assignment by some Nigerian English language postgraduate students. JNESA. 15.2: 1atoye-12.

Akinjobi, A. and Aina, M.O. & (2014): "Nigerian English language teachers as supposed models for English word stress assignment" in *Alore, Ilorin Journal of the Humanities, Vol. 23.* Pp. 33 – 64. Ilorin. Faculty of Arts, University of Ilorin.

_____ (2013). Non-enculturation sources of standard spoken English for non-native speakers: the Nigerian example.

Akinjobi, A (2011). Academic competence and linguistic performance: a study of English intonation tune assignment by some Nigerian English language postgraduate students. *African nebula. Issue.*

Awonusi, V.O. (1986). 'Regional accents and internal variability in Nigerian English: a historical analysis.' English Studies 6, pp.555-560.

_____. (2009). Cycles of linguistic history: the development of English in Nigeria. *Nigerian English influences and characteristics.* A. Awonusi and A. Dadzie. Eds. Lagos: Concepts Publications.

Bandura, A. (1963). *Social learning theory*. Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. & Walters, R. (1973). *Social learning and personality development*. New York: Holt, Rinehart & Winston.

Chomsky, N and Halle. M. (1968). *The sound patterns of English*. London: Harper and Row.

Cruttenden, A. (1986). *Intonation*. Cambridge: Cambridge University Press.

Cruz-Ferreira, M. (1989). A test for non-native comprehension of intonation in English. *International Review of Applied Linguistics* 17.1: 23–39.

Crystal, D. (1988). *English language.* London: Penguin.

_____ (1991). *A dictionary of linguistic and phonetics* 3rd ed. Oxford: Blackwell

Gimson, A.C. (1989). *An introduction to the pronunciation of English*. London: The English language book society and Edward Arnold Publishers.

_____ (1995). *A practical course of English pronunciation: a perceptual approach*. London: Edward Arnold.

Jibril, M. (1985). *English usage: some notable Nigerian variations*. Ibadan: Evans Brothers.

____ (1986). Sociolinguistic variation in Nigerian English. *English World-wide* 7: 147-174.

Jowitt, D. (1991). *Nigerian English usage:* an introduction. Ibadan: Longman

_____ (2000). Patterns of Nigerian English intonation. *English Worldwide* 21.1: 63–80.

_____ (2006). *Oral English for senior secondary schools*. Ibadan: Spectrum Books Ltd.

Kager, R. (1995). The metrical theory of word stress. *The handbook of phonological theory*. J. A. Goldsmith, Ed. Oxford and Cambridge: Basil Blackwell. 367-402.

Kujore, O. (1985). *English usage: some notable Nigerian variations*. Ibadan: Evans Brothers Ltd.

Liberman, M. and Prince, A. (1977). On stress and linguistic rhythm. *Linguistic inquiry* 8: 249-336.

Livbjerg, I. and Mees, I. M. (2002). Practical English Phonetics. Denmark: Schonberg.

Morgan, C. T. and King R. A. (1975). *Introduction to psychology*: New York: McGraw-Hill.

O' Connor (2004). Better English pronunciation. 2nd ed. Cambridge: Cambridge University Press.

Oladipupo, R. 2008. English intonation patterns of television reporters in Lagos state. MA. Project. Dept. of English. University of Ibadan. xiv +118 pp.

_____2010. The intonation of noun phrase subjects and clause-modifying adverbials in Nigerian English. *African Journals Online: www.ajol.info: An International Multi-Disciplinary Journal*. Ethiopia. Vol. 4 (3b) July, 2010. Pp. 167-178).

Roach, P. (2010). *English phonetics and phonology: A practical course*. 3rd ed. Cambridge: Cambridge University Press.

Sunday, A. (2008). Comspound stress in educated Yoruba English. *Papers in English and Linguistics* (PEL). R.O. Atoye. Ed. Ile Ife: Obafemi Awolowo University.

Tiffen, B.W. (1974). The intelligibility of Nigerian English. PhD. Thesis. University of London.

Ubahakwe, E. (1979). *Varieties and functions of English in Nigeria.* Ibadan: African University Press.

Influence of Technology-based Non-enculturation Sources of Native English on Vowel Reduction in Educated Yoruba (Nigerian) Teenage English

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Abstract

This study investigated the influence of technological facilities on Nigerian (Yoruba) teenagers' vowel reduction abilities, to determine if such facilities can alternatively model Standard English pronunciation in Nigeria. Labov's Variability theory and Liberman and Prince's Metrical phonology served as theoretical framework. Causal-comparative design was used. Three hundred teenagers were selected, using criterion sampling. A native speaker served as the baseline. A questionnaire was administered to establish participants' technology contact (TC) level. Respondents were grouped into High TC (HTC), Middle TC (MTC) and Low TC (LTC). Unstressed syllables of content words and grammatical words in weak contexts, produced by respondents into Speech Filing System (SFS/WASP), were analysed using one-way analysis of variance at <0.05, metrical grid and complemented with acoustic analysis. Differences in respondent's reduction of vowels in content words [$F_{(2, 297)}$=100.47;p< .05] and grammatical words [$F_{(2, 297)}$=71.47;p<.05] was statistically significant. Vowels strengthening in metrically weak positions reduced as TC level, increased. Duration readings of vowels reduced as TC exposure, increased. The 21st-century technology-based non-enculturation sources of native English that are available to teenage Nigerians their approximation to Standard English and can model Standard English pronunciation.

Standard British English, Technology-based non-enculturation sources, Vowel reduction, Nigerian English vowel reduction, Yoruba (Nigerian) teenagers, Technology-Enhanced Learning of English vowel reduction

1. Introduction

Vowel reduction, one of the speech processes by which the English language achieves its isochronicity, has been at the centre stage of academic discourse on spoken Nigerian English (henceforth NE) in the past years. Studies have established its variation from Standard (British) English as NE vowels are generally strengthened (Ufomata, 1990; Eka, 1993; Udofot, 1993, 2003; Akinjobi, 2004, 2006, 2009a, 2009b, Akindele, 2018, 2019, 2020; Ilolo, 2013; Emmanuel-Ogbe and Akinjobi, 2020).

Being mostly tonal and predominated by strong vowels, Nigerian indigenous languages have been said to influence NE rhythm such that a syllable-timed description is considered more appropriate than the stress-timed rhythm description of SBE (Adetugbo, 1977; Bamgbose, 1982; Jowitt, 1991). However, Eka (1993) and Udofot (2000) questioned the description of NE as syllable-timed, though they also attest to a proliferation of strong syllables.

Having also observed a preponderance of strong syllables and vowels in Educated Yoruba English, Akinjobi (2004) concludes that Eka's and Udofot's submissions appear more like a terminology switch than a totally new description. To her, given their admittance of a proliferation of strong syllables in NE, Eka's and Udofot's studies cyclically return to the age-long distinction between stress and syllable-timed languages. However, one may conveniently say also that studies like Udofot's, highlighting the specific properties of Nigerian English rhythm (which inclines it towards syllable-timed description), do so in order to avoid a categorical distinction of rhythmic typology, as the relationship between stress-timed languages and syllable-timed languages is more scalar than relative. English language is neither absolutely stress-timed nor are languages which have been labelled syllable-timed absolutely so (Schluter, 2005). This accounts for Schluter's (2005) proposition of a scalar rhythmic typology with stress-timed and syllable-timed rhythms at extreme ends of the continuum rather than a categorical distinction. In this sense, it is fairer to describe NE as tilting more towards syllable-timed than a categorical syllable-timed description.

In recent time, vowel reduction in the rhythm of some sub-varieties of NE has received scholarly attention. The studies also provide acoustic evidence for the description of NE rhythm. Examining the Edo (Nigerian) variety of English, Akindele (2018) reveals that the English speeches of educated Edo speakers lack expected alternation between stressed and unstressed syllables. Her acoustic investigation into the rhythm ratio of duration in Educated Edo English (EEE) also establishes EEE speakers' preference for vowel insertion into Standard English syllabic consonants (Akindele, 2019). In the same vein, focusing on anacrusis in EEE connected speech, Akindele (2020) established a remarkable difference in its duration from SBE. Emmauel-Ogbe and Akinjobi (2020), using the Pairwise Variability Index (PVI), examine Isoko English rhythm. They computed the PVI measures of successive vocalic segments of ten declarative sentences produced by five Educated

Isoko English speakers and five SBE speakers. Their comparison showed that the durational variability between full and reduced vowels is absent in Isoko NE contrary to what obtains in SBE.

Overall, scholarship regarding vowel reduction in NE rhythm has proved that NE is preponderated by strong vowels, insertion of a vowel between a syllabic consonant and the preceding sound and, in some cases, substitution of a (strong) vowel for syllabic consonant. The studies mostly, however, adopt geo-tribal (ethnic) approach and educational background/attainment to the study of this speech phenomenon. Other factors of sociolinguistic variation including age, sex, exposure to technology and social class seem to have received inadequate attention. This leaves a dearth of literature on vowel reduction in the English speeches of Nigerian teenagers who have direct exposure to the native variety of the English language through technology.

Technological innovations and evolvement of digital cultures have become highly influential on various facets of human lives. With regards to language use, the 21st century advancement in information and communication technology (ICT) has drawn native and non-native speakers of the English language closer than could have been imagined, years ago (Akinjobi, 2015). However, scholarly submissions relating to its impact on English language in Nigeria have devoted attention to its impact on written forms, its availability, extent of utilisation and prospects for (spoken) English language teaching and learning (Akindele, 2013; Aremu, 2014; Udoh and Egwuchukwu, 2014; Akintunde and Angulu, 2015; Chitulu and Njemanze 2015). This study, therefore, empirically examines the extent to which technology-based non-enculturation sources of native English influence the approximation of educated Yoruba teenagers to Standard English vowel reduction in content and grammatical words. Findings of this study will not only extend the frontiers of vowel reduction studies in Nigerian English, but, also determine if such facilities can serve as alternative model of Standard English pronunciation in Nigeria.

1.2 Literature Review

1.2.1 Vowel Reduction in Standard British English and Nigerian English

Vowel reduction brings to the fore, the fact that words are often pronounced with varying degrees of emphasis resulting in phonetically strong or weak rendition of vowels. English language identifies

lexical/content words in which stress is usually retained on deserving syllable as in citation forms, and grammatical/function words which often assume two forms- the strong and the weak forms (Roach, 2000; Hewings, 2004; Skandera and Burleigh, 2005; Wells, 2006; Gimson, 2008; Dadzie and Awonusi, 2009; Davenport and Hannahs, 2010; Ladefoged and Johnson, 2011; Awonusi, Ademola-Adeoye and Adedeji, 2015). Vowels in unstressed syllables become the mid central lax vowel (schwa /ə/) or are totally elided (where the vowel is replaced by a syllabic consonant) (Roach, 2000; Jones, 2003; Skandera and Burleigh, 2005; Crystal, 2008). The nucleus of a weak syllable is, therefore, one of a small number of possible peaks: the mid central lax vowel (schwa) /ə/; a close front unrounded vowel which is neither /ɪ/ nor /i:/ symbolised as /i/; a close back rounded vowel which is neither /ʊ/ nor /u:/ symbolised as /u/ and syllabic consonants /l̩/, /r̩/ and any of the nasals /m̩ n̩ ŋ̩ / in weak syllables in which no vowel is found (Roach, 2000).

Vowel reduction is a major point of variation between NE and SBE. Ufomata (1990) asserts that the schwa /ə/, which is the most frequent vowel sound in English, is the rarest sound in NE. Eka (1993) observes the use of more prominent syllables in NE than are used by native speakers of English. Akinjobi (2004) establishes a preponderance of strong syllables in different categories of words; insertion of a vowel between a syllabic consonant and a preceding sound and, in some cases, substitution of a (strong) vowel for syllabic consonant in spoken Educated Yoruba English (Akinjobi 2006, 2009a, 2009b). In recent time, scholars have extended the study of reduced vowels in NE to some sub-varieties of NE, particularly those of minority languages. Such studies, with acoustic evidence, have also attested to minimal use of weak vowels in NE; non-alternation of stressed and unstressed syllables; insignificant differences between rhythmic ratios of strong and weak vowels and lack of durational variability between full and reduced vowels (Ilolo, 2013; Akindele, 2018, 2019, 2020; Emmanuel-Ogbe and Akinjobi, 2020).

1.2.2. Technology-based Non-enculturation Sources of Native English

The term *non-enculturation sources of standard spoken English* was coined by Akinjobi (2015) to refer to technological facilities that could assist non-native speakers to access and approximate native English outside the native setting of the language. Studies on spoken NE have not only confirmed its variation from SBE, they have also established that the Received Pronunciation (RP), which is supposed to be the target for

L_2 speakers, is unattainable even by Nigerian teachers of English language who are supposedly models of standard pronunciation owing to the non-native setting where the language is learnt, non-availability of native speaker teachers, complexity of the English suprasegmentals, etc.

However, Roach (2000) asserts that young children have the ability to acquire rapid casual pronunciation of a language if provided with necessary social contact with native speakers and meaningful communication situations. There are also claims, according to him, that adults can 'pick up' spoken English with such communication provisions. To Akinjobi (2015), such approximation to Standard English would have been an illusion for a non-native speaker who is miles away from the native setting of English, but for the 21st century advancement in information and communication technology which has 'shrunk' the world and collapsed all the physical boundaries separating native and non-native speakers. Native English is, therefore, brought closer to non-native speakers through non-enculturation sources as electronic media sources (radio and television stations), such as British Broadcasting Corporation (BBC), Cable Network News (CNN), Cartoon Network (CN), Mnet Series, Mnet Action, Mnet Premier, BBC Entertainment; internet sites and links with speech drills, telephony hardware and software for live conversation with native speaker and web-based video conferencing; social network sites such as Facebook, Twitter, Google plus and more; dictionaries with audio aids; computerised speech laboratory as well as British and American films. These sources do not only have the capabilities of improving spoken English learning and use in non-native contexts such as Nigeria (Iyere, 2007; Akindele, 2012), they can also make Nigerian English as well as other Englishes remain in contact with standard forms and enhance world intelligibility.

2. Methodology

The sampling technique is criterion sampling. The target population is Educated Yoruba teenagers from Southwestern part of Nigeria. Three hundred Yoruba teenagers selected for the study were all undergraduates of the University of Ibadan (UIYTUs) and L_1 speakers of English language who have not lived in countries where English is a native language. Hence, with regard to such variables as ethnicity, education, first language and age, they constitute a homogenous sociolinguistic group. A native British speaker born, nurtured and

currently living in London served as baseline. A questionnaire was administered on the participants to ascertain their eligibility for the study and determine their level of exposure to electronic media sources, interactive computer games, telephony hardware and software for live conversation with native speaker, social network sites, dictionaries with audio aids; as well as British and American films. Based on their responses to the questionnaire, participants were grouped into three categories: High Technology Contact (HTC), Middle Technology Contact (MTC) and Low Technology Contact (LTC). A text designed to with reduced vowels in ten content and ten grammatical words was read by participants into Speech Filing System (SFS/WASP version 1.54). Data were analysed using one-way analysis of variance at 0.05 significance level. Metrical grid was used to complement spectrographic analysis.

3. Data Analysis, Findings and Discussion

3.1 Statistical Analysis of UIYTUs' Vowel Reduction

The teenagers' ability to reduce vowels in unstressed positions was examined in content and grammatical words. The analyses are presented below:

Table 1: Frequency and percentage of UIYTUs' vowel reduction content words

Words	Expected Change	Vowel Red.	Vowel Str.	Vowel Red.	Vowel Str.	Vowel Red.	Vowel Str.
Char**a**cter	/æ→ə/	31 (18.9)	133 (81.1)	39 (54.9)	32 (45.1)	48 (73.8)	17 (26.2)
P**a**rticular	/a:→ə/	40 (24.4)	124 (75.6)	34 (47.9)	37 (52.1)	59 (90.8)	6 (9.2)
Accur**a**t**e**	/eɪ→ə/	50 (30.5)	114 (69.5)	43 (60.6)	28 (39.4)	55 (84.6)	10 (15.4)
T**o**morrow	/ʊ→ə/	62 (37.8)	102 (62.2)	43 (60.6)	28 (39.4)	57 (87.7)	8 (12.3)
Magg**o**t	/ɒ→ə/	33 (20.1)	131 (79.9)	31 (43.7)	40 (56.3)	59 (90.8)	6 (9.2)
P**o**tatoes	/əʊ→ə/	18 (11)	146 (89)	17 (23.9)	54 (76.1)	39 (60)	26 (40)
F**o**rget	/ɔ→ə/	57 (34.8)	107 (65.2)	53 (74.6)	18 (25.4)	55 (84.6)	10 (15.4)
Probl**e**m	/e→ə/	34 (20.7)	130 (79.3)	32 (45.1)	39 (54.9)	44 (67.7)	21 (32.3)
P**er**haps	/ɜ:→ə/	37 (22.6)	127 (77.4)	23 (32.4)	48 (67.6)	47 (72.3)	18 (27.7)
S**u**pport	/ʌ→ə/	22 (13.4)	142 (86.6)	27 (62)	44 (38)	48 (73.8)	17 (26.2)

Red.- reduction Str.- strengthening
*Percentages are written in parenthesis.

Generally, the teenagers' performance shows that exposure to the technological facilities is immensely advantageous to vowel reduction as

percentages realised increased with progression of TC level. Of the 164 LTC, only 18.9% reduced /æ/ in *char**a**cter* to /ə/. The percentage reduction realised for the MTC is 81.1% while 73.8% of the HTC reduced the vowel. The respective percentage reduction of /a:/ in *p**ar**ticular* to /ə/ for the LTC, the MTC and the HTC participants are 24.4%, 47.9% and 90.8%. For *accur**a**te*, 30.5% of the LTC, 60.6% of the MTC and 84.6% of the HTC reduced the vowel appropriately. Only 37.8% of the LTC produced /ə/ in the first syllable of *tomorrow*. The percentage reduction for the MTC and the HTC are 60.6% and 87.7% respectively. The /ɒ/ in *maggot* was reduced to /ə/ by 20.1% of the LTC, 43.7% of the MTC and 90.8% of the HTC. For *potatoes*, 11% of the LTC produced the schwa for the initial syllable while 23.9% of the MTC and 60% of the HTC reduced the vowels appropriately. Of the 164 LTC, 34.8% appropriately reduced the nucleus of the first syllable of *forget* while the MTC and the HTC had 74.6% and 84.6% reduction respectively. The second vowel in *problem* was expectedly reduced by only 20.7% of the LTC, 45.1% of the MTC and 67.7% of the HTC. In *perhaps*, 22.6% of the LTC reduced the vowel of the first syllable while 32.4% and 72.3% appropriate reduction were recorded for the MTC and the HTC, respectively. The percentage of appropriate reduction realised for *s**u**pport* in the production of the LTC, the MTC and the HTC are 13.4%, 62% and 73.8%, respectively. Figure 1 graphically illustrates the teenagers' performance in the production of the unstressed syllables of content words.

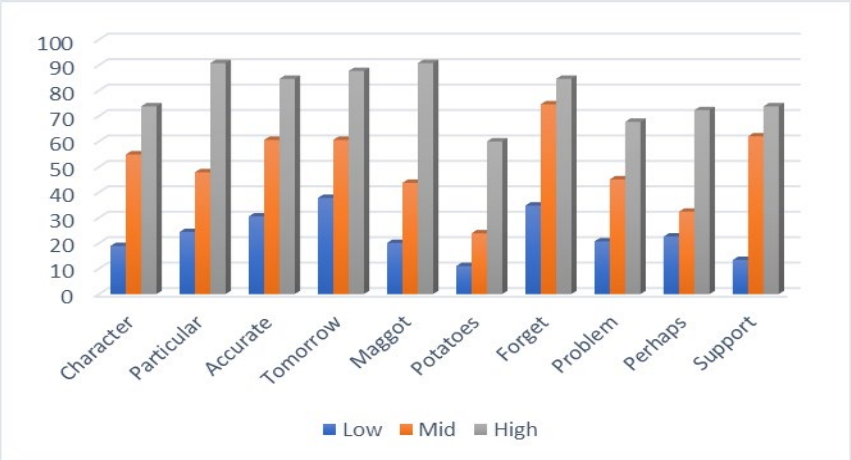


Figure 1: Percentage of reduced vowels in content words

Figure 1 shows the percentage of reduced vowels in the unstressed syllables of content words produced by the respondents. The graph shows that erroneous strengthening of vowels in content words decreases as TC level increases.

Table 2: Analysis of variance for vowel reduction in content words

Level of technology contact	N	Mean	Std. deviation		
Low	164	2.35	2.69		
Mid	71	4.90	2.51		
High	65	7.83	2.85		
Total	300	4.14	3.47		
	Sum of squares	**Df**	**Mean square**	**F**	**Sig.**
Between Groups	1449.901	2	724.950	100.47	.000
Within Groups	2142.936	297	7.215		
Total	3592.837	299			

*significant at 0.05 level; df = 2, 297; critical F. =3.00

As displayed in Table 2, the mean vowel reduction in the productions of the LTC was 2.35. The MTC had a mean reduction of 4.90 and the mean reduction in the speeches of HTC was 7.83. Total mean value realised for all the participants was 4.14. The result shows that there is statistical significant influence of technology contact on vowel reduction in the unstressed syllable of content words as produced by University of Ibadan Yoruba Teenage Undergraduates (UIYTUs) of the various TC levels [$F_{(2, 297)}$=100.47;p< .05].

3.1.2 Statistical Analysis of Vowel Reduction in Grammatical Words

Below is a presentation of results from the statistical analysis of the teenagers' reduction of vowels in unstressed grammatical words.

Table 3: Frequency and percentage of UIYTUs' vowel reduction in grammatical words

		Low		Mid		High	
Words	**Expected Change**	**Vowel Red.**	**Vowel Str.**	**Vowel Red.**	**Vowel Str.**	**Vowel Red.**	**Vowel Str.**
was	/ɒ→ə/	83 (50.6)	81 (49.4)	59 (83.1)	12 (16.9)	60 (92.3)	5 (7.7)
must	/ʌ→ə/	88 (53.7)	76 (46.3)	61 (85.9)	10 (14.1)	63 (96.9)	2 (3.1)
and (potatoes)	/æ→m̩/	50 (30.5)	114 (69.5)	42 (59.2)	29 (40.8)	49 (75.4)	16 (24.6)
and (listen)	/æ→ə/	54 (32.9)	110 (67.1)	44 (62)	27 (38)	46 (70.8)	19 (29.2)
(as) a (present	/eɪ→ə/	78 (47.3)	86 (52.7)	60 (84.5)	11 15.5	63 (96.9)	2 (3.1)
the (concert)	/ɪː→ə/	36 (22)	128 (78)	30 (42.3)	41 (57.7)	55 (84.6)	10 (15.4)
(wanted) to	ʊ→ə	55 (33.5)	109 (66.5)	49 (69)	22 (31)	55 (84.6)	10 (15.4)
of (the week)	/ɑ→ə/	112 (68.3)	52 (31.7)	60 (84.5)	11 (15.5)	61 (93.8)	4 (6.2)
my (pleasure)	/aɪ→ə/	79 (48.2)	85 (51.8)	54 (76.1)	17 (23.9)	59 (86.2)	6 (13.8)
her (honesty)	/ɜ→ə/	40 (24.4)	124 (75.6)	38 (53.5)	33 (46.5)	48 (73.8)	17 (26.2)

Red.- reduction Str.- strengthening
*Percentages are written in parenthesis.

Table 3 shows the frequency and percentage reduction or strengthening in UIYTUs' production of grammatical words. Among the LTC, 50.6% reduced /ɒ/ in *was* to /ə/. The respective percentage reduction of /ʌ/ in *must* to /ə/ for the LTC, the MTC and the HTC are 53.7%, 85.9% and 96.9%. *And* was assessed in two contexts before a bilabial and a lateral sound. In the case of the former, 30.5% of the LTC, 59.2% of the MTC and 75.4% of the HTC reduced the conjunction to /m̩/ as expected. Before a lateral, the expected reduction in *and* was achieved by 32.9% of the LTC, 62% of the MTC and 70.8% of the HTC. The percentage reduction of the article *a* for the LTC, the MTC and the HTC are 47.3%, 60.6% and 87.7%, respectively. For the article *the,* used before a consonant, the expected /ɪː→ə/ reduction was realised in 22% of the LTC, 42.3% of the MTC and 84.6% of the HTC. /ʊ/ in *to* was produced as /ə/ by 33.5% of the LTC, 69% of the MTC and 84.6% of the HTC. In o*f,* the appropriate /ɑ→ə/ reduction was produced by 68.3% of the LTC, 84.5% of the MTC and 93.8% of the HTC. For *my (pleasure),* 48.2% of the LTC reduced /aɪ/ in *my* to /ə/ while 76.1% and 86.2% reduction were obtained for the MTC

and the HTC, respectively. The /ɜ→ə/ reduction in *her* was rendered by 24.4%, 53.5% and 73.8% of the LTC, the MTC and the HTC, respectively. Percentage of appropriate vowel reduction in grammatical words as produced by the UIYTUs is presented graphically in Figure 2 below:

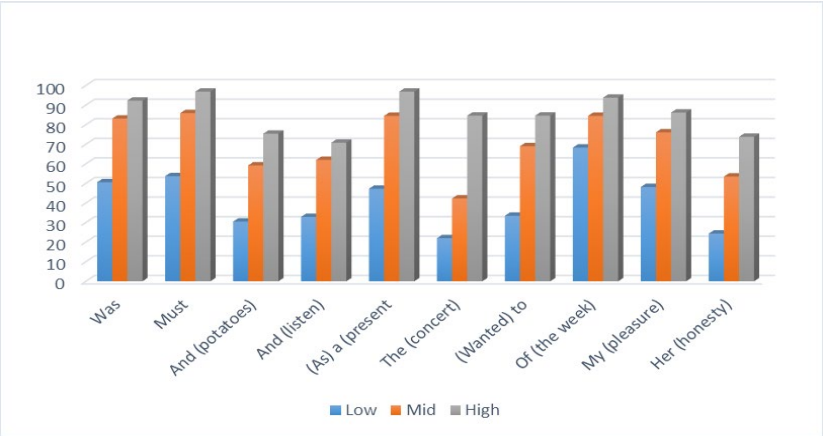


Figure 2: Percentage of reduced vowels in grammatical words

A look at the graphical representation of the percentage of reduced vowels realised in the grammatical words produced by UIYTUs, presented in Figure 2, testifies to a direct relationship between exposure to technology and ability to reduce vowels of grammatical words in weak positions. The tallest bars (grey) are realised for UIYTUs with high technology contact while the shortest (blue) are realised for UIYTUs with low technology contact.

Table 4: Analysis of variance for vowel reduction in grammatical words

Level of technology contact	N	Mean	Std. deviation		
Low	164	4.03	2.90		
Mid	71	7.00	2.40		
High	65	8.46	2.67		
Total	300	5.69	3.32		
	Sum of squares	**Df**	**Mean square**	**F**	**Sig.**
Between Groups	1072.785	2	536.393	71.47	.000
Within Groups	2229.001	297	7.505		
Total	3301.787	299			

*significant at 0.05 level; df = 2, 297; critical F. =3.00

Table 4 shows the result of ANOVA for the establishment of the significant difference in UIYTUs' vowel reduction in grammatical words. The respective mean reduction in the productions of UIYTUs with low technology contact (LTC), mid technology contact (MTC) and high technology contact (HTC) are 4.03, 7.00 and 8.46. Total mean of all participants' productions is 5.69. Given $F_{(2,\ 297)}=71.47;p< .05$, the difference in UIYTUs' reduction of vowels in grammatical words, based on their exposure to technology-based non-enculturation sources of contact with native English, is statistically significant.

3.1.3 Statistical Analysis for overall vowel reduction

Table 5: Analysis of variance for overall performance in vowel reduction

Level of technology contact	**N**	**Mean**	**Std. deviation**		
Low	164	7.95	6.42		
Mid	71	14.87	5.60		
High	65	20.51	6.51		
Total	300	12.31	8.09		
	Sum of squares	**Df**	**Mean square**	**F**	**Sig.**
Between Groups	7959.175	2	3979.588	101.71	.000
Within Groups	11620.611	297	39.127		
Total	19579.787	299			

*significant at 0.05 level; df = 2, 297; critical F. =3.00

Table 5 shows the result of the one-way analysis of variance (ANOVA) for the overall performance of UIYTUs in vowel reduction. While there was 7.95 mean vowel reduction in the productions of participants with low technology contact (LTC), the MTC had a mean reduction of 14.87 and the mean reduction in the speeches of the HTC was 20.51. Total mean value obtained for the 300 research participants was 12.31. The result shows that the influence of technology contact on vowel reduction is statistically significant [$F_{(2, 297)} = 101.71$; $p < .05$]. Based on this result, the null hypothesis which states that vowel reduction in appropriate contexts do not differ significantly in the English speeches of University of Ibadan Yoruba Teenage Undergraduates (UIYTUs) with high technology contact (HTC), mid technology contact (MTC) and low technology contact (LTC) is rejected. Multiple comparison test was performed to identify where the difference(s) is/are among the LTC, the MTC, and the HTC. The result is presented in Table 6 below.

Table 6: Multiple (between-group) comparison for UIYTUs' vowel reduction

Dependent variable	(I) Technology contact	(J) Technology Contact	Mean difference (I-J)	Std. error	Sig.	95% confidence interval	
						Lower bound	Upper bound
Vowel reduction (content words)	Low	Mid	-2.55*	.38	.000	-3.49	-1.61
		High	-5.48*	.39	.000	-6.45	-4.51
	Mid	Low	2.55*	.38	.000	1.61	3.49
		High	-2.93*	.46	.000	-4.06	-1.80
	High	Low	5.48*	.39	.000	4.51	6.45
		Mid	2.93*	.46	.000	1.80	4.06
Vowel reduction (grammatical words)	Low	Mid	-2.97*	.39	.000	-3.93	-2.01
		High	-4.43*	.40	.000	-5.42	-3.44
	Mid	Low	2.97*	.39	.000	2.01	3.93
		High	-1.46*	.47	.009	-2.62	-.31
	High	Low	4.43*	.40	.000	3.44	5.42
		Mid	1.46*	.47	.009	.305	2.67

* The mean difference is significant at the 0.05 level.

Table 6 shows that vowel reduction in the speeches of UIYTUs exhibit statistically significant differences in the appropriate syllables of content words, grammatical words and use of syllabic consonant as peak of weak syllables. The differences are also established among the three levels of technology contact. The HTC reduced, significantly, more vowels in content words than the MTC (MD = 2.93; $p < .05$) who, in turn, performed significantly better than the LTC (MD = 2.55; $p < .05$). Mean difference between the HTC and the MTC for grammatical words is significant (MD = 1.46; $p < .05$). Also, given MD = 2.97; $p < .05$ between the MTC and the LTC mean difference is significant. Figure 3 below shows the graphical representation of UIYTUs' overall performance in vowel reduction.

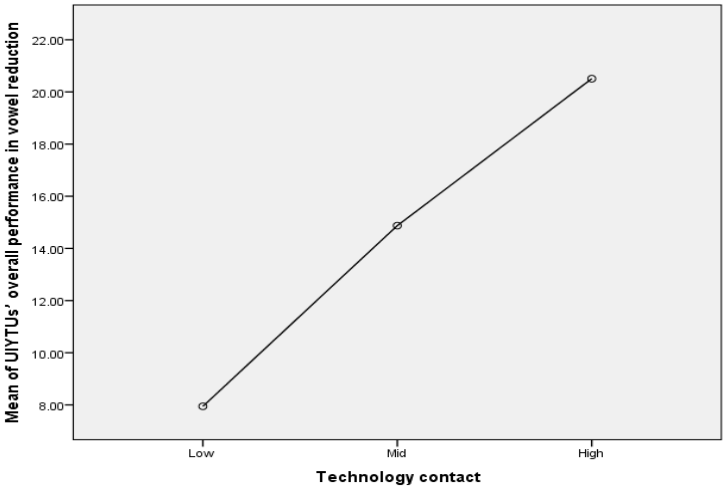


Figure 3: Mean of UIYTUs' overall performance in vowel reduction

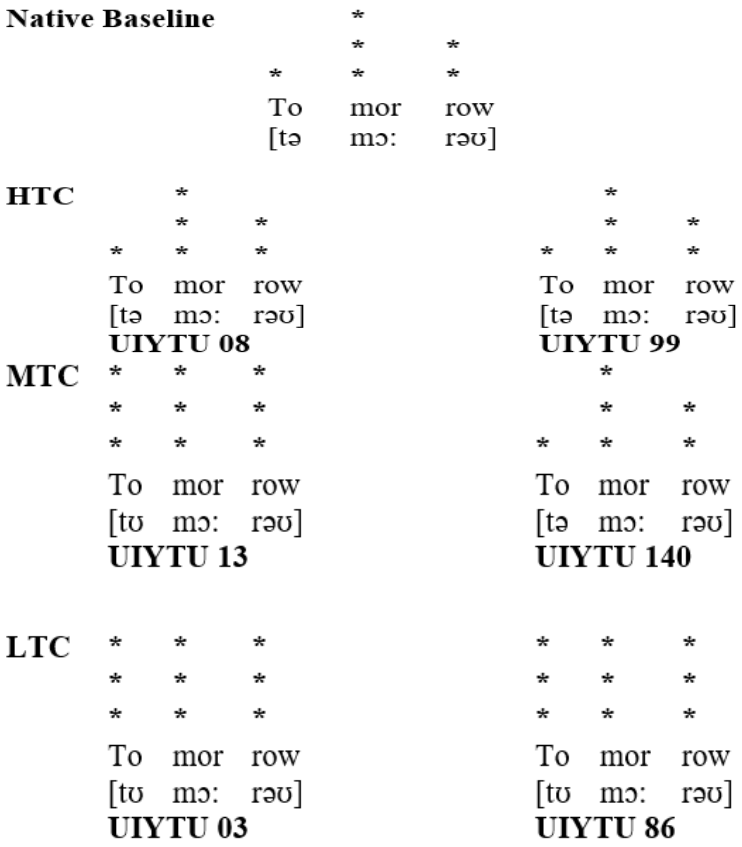
The graph in Figure 3 shows a clear upward trend for UIYTUs' overall performance in vowel reduction as the level of technology contact increases. This implies the technological facilities through which they access native English positively influence their ability to reduce vowels in appropriate contexts.

3.2 Metrical Analysis of UIYTUs' Vowel Reduction

Vowels in metrically weak positions of English content words and grammatical words were examined in the speeches of University of Ibadan Yoruba teenage undergraduates. The predominant metrical (grid) patterns found in the productions of the UIYTUs are juxtaposed with the native baseline below:

3.2.1 Metrical Analysis for Content Words

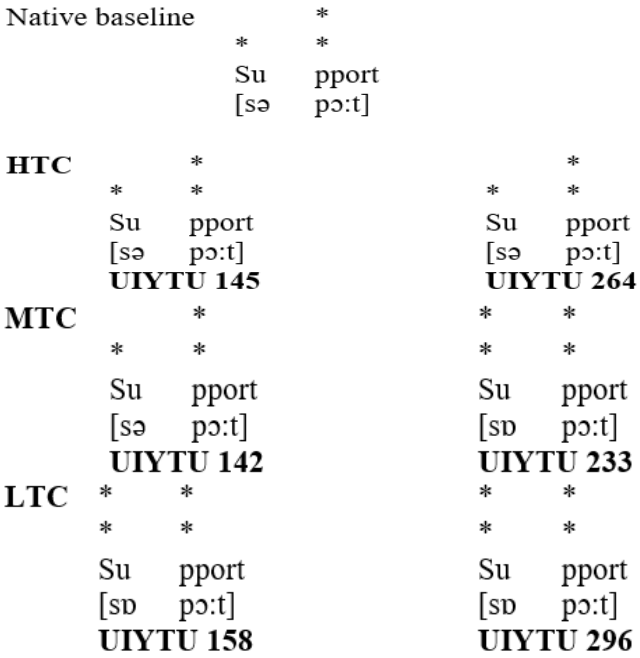
Native baseline and representative UIYTUs' metrical grid for *tomorrow*



The native baseline and its approximate HTC productions exhibited only one maximally prominent peak *-mor-.* They also showed a preference for rhythmic patterns where strong and weak syllables are alternated and displayed syllabic strength relativity and hierarchy to achieve the WSW metrical pattern of the word. Thus the vowel /ʊ/ in the unstressed syllable *to-* is reduced to /ə/. The productions of the LTC and the MTC, however, predominantly violated the culminativity feature. Their speech also manifested a tolerance for adjacent stressed syllables resulting in stress clash as the strong foot-level beats were not separated by weak ones. Syllabic strength relativity and hierarchy was also not obeyed as

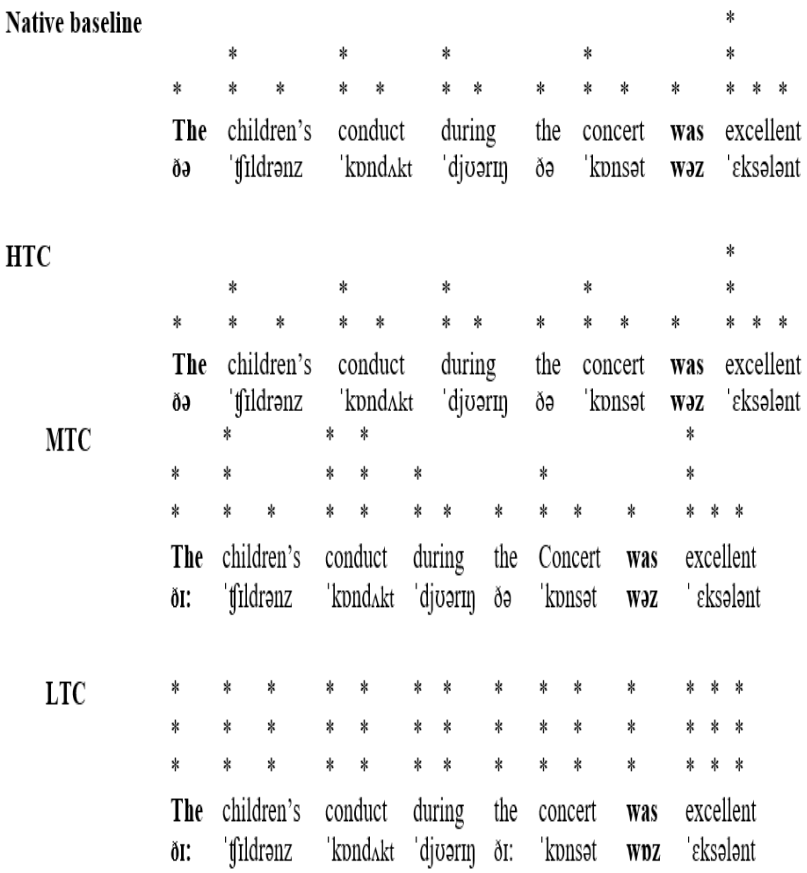
all syllables (vowels) were produced strong, thereby making their productions devoid of the expected strong/weak vowel distinction.

Native baseline and representative UIYTUs' metrical grid for *support*



The metrical grid of *support* as produced by the representative participants of the various categories of technology contact featured both similarities with and departure from the native baseline production such that the expected /ʌ/ to /ə/ vowel reduction in the first syllable is realised in some cases, whereas, in others, the vowel is mostly substituted with /ɒ/, a strong vowel. While the HTC largely produced WS stress pattern similar to the native baseline, the MTC produced either WS (where the vowel was reduced) or SS pattern (where reduction did not occur). Again the SS pattern was predominantly found in the productions of the LTC represented by UIYTU 158 and UIYTU 296.

3.2.2 Metrical Analysis for Grammatical words Native baseline and representative UIYTUs' metrical grid for *The children's conduct during the concert was excellent*



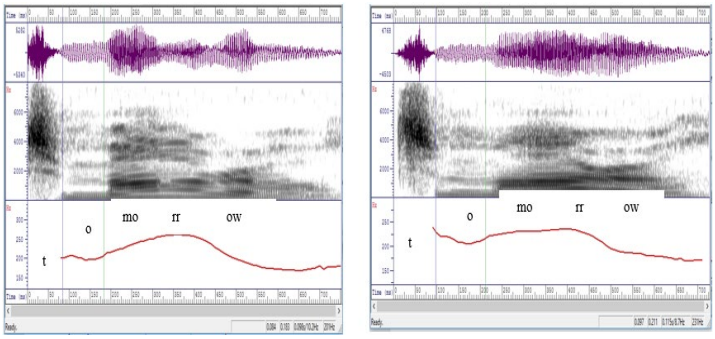
From the grid representation and the stress pattern of *The children's conduct during the concert was excellent* with focus on *the* and *was* above, The HTC predominantly unstressed the determiner *the* /ðə/ and auxiliary verb *was /wəz/* thereby, approximating to the native baseline where stressed syllables were spaced apart at regular intervals resulting in rhythmic alternation. The MTC predominantly reduced vowel /ɒ/ in the auxiliary verb *was* to the schwa, /ə/ while the expected reduction in the determiner mostly did not occur. Weak forms of both grammatical words were minimally realised in the speeches of the LTC. Since stress

was predominantly assigned to grammatical words, the productions of the LTC and the MTC exhibit varying degrees of non-conformity to SBE rhythm.

3.3 Dominant spectrographic patterns for UIYTUs' vowel reduction

For the acoustic analysis of reduced vowels, spectrograms of *tomorrow* and *the* as produced by a representative participant of each of the technology contact levels, showing the duration of the weak vowels, are compared with those of the baseline.

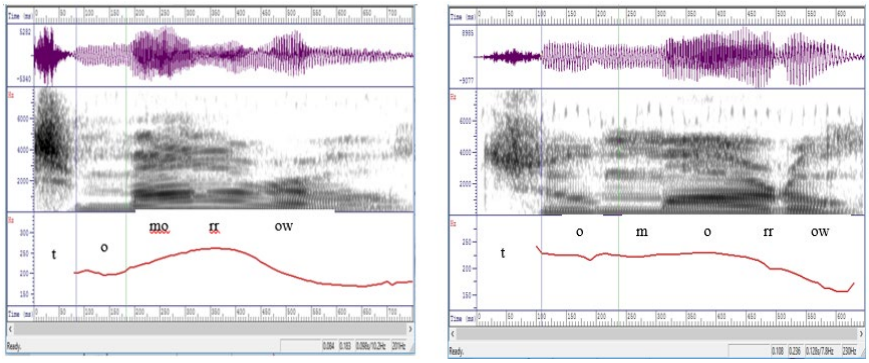
Dominant spectrographic patterns of *tomorrow* as produced by the native baseline and the UIYTUs



Native baseline HTC

Figure 4: Native baseline spectrogram of *tomorrow* compared with sample HTC spectrogram of *tomorrow* as produced by UIYTU 03

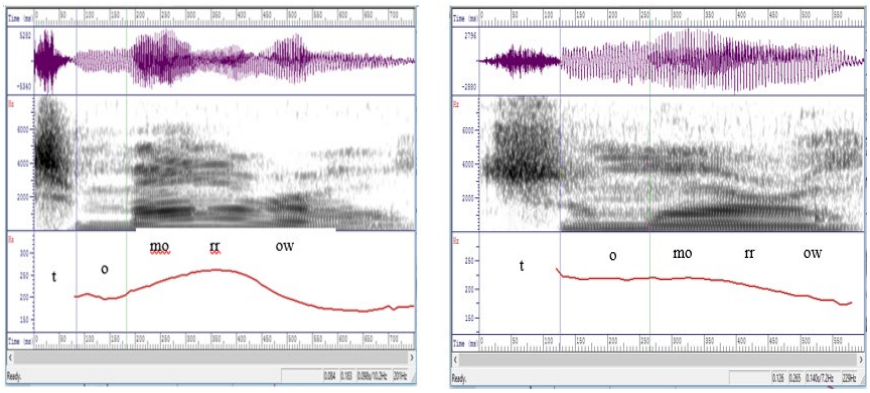
Figure 4 shows the native baseline spectrogram of *tomorrow* compared with a sample HTC spectrogram of the word as produced by UIYTU 03. The NB had a duration reading of 183ms on *to-* against the 408ms value of *-mor-*. The difference in the duration of the two syllables is 225ms. This shows that the NB produced the strong syllable with much longer duration than the weak one. The HTC produced *to-* in 211ms and *-mor-* in 288ms. The reading of the duration of the two syllables shows a difference of 77ms.



Native baseline MTC

Figure 5: Native baseline spectrogram of *tomorrow* compared with sample MTC spectrogram of *tomorrow* as produced by UIYTU 13

The native baseline spectrogram of *tomorrow* is compared with a sample MTC's in Figure 5. While the difference in the duration of *-mor-,* produced at 408ms, and the duration of *to-*, produced at 183ms, is 225ms in the NB rendition, thereby showing that the NB produced the strong syllable with much longer duration than the weak one, the MTC, having produced *-mor-* and *to-* in 259ms and 236ms respectively, had a duration difference of 23ms.



Native baseline LTC

Figure 6: Native baseline spectrogram of *tomorrow* compared with sample LTC spectrogram of *tomorrow* as produced by UIYTU 08

The native baseline waveform of *tomorrow* is compared with a sample LTC waveform in Figure 6. While the difference in the duration of *-mor-,* produced at 408ms, and the duration of *to-*, produced at 183ms, is 225ms in the NB rendition, thereby showing that the NB produced the strong syllable with much longer duration than the weak one, the LTC produced *-mor-* in 265ms and *to-* in 259ms. The difference in the duration of both syllables is 6ms, showing that the LTC produced both strong and weak syllables at equivalent duration.

Dominant spectrographic patterns of *the children* as produced by the native baseline and the UIYTUs

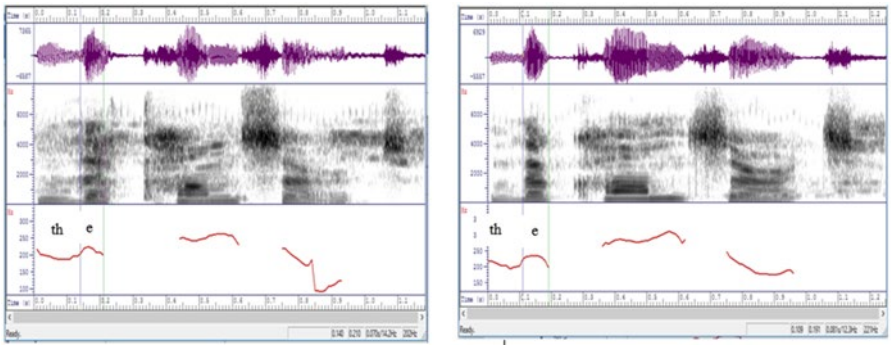
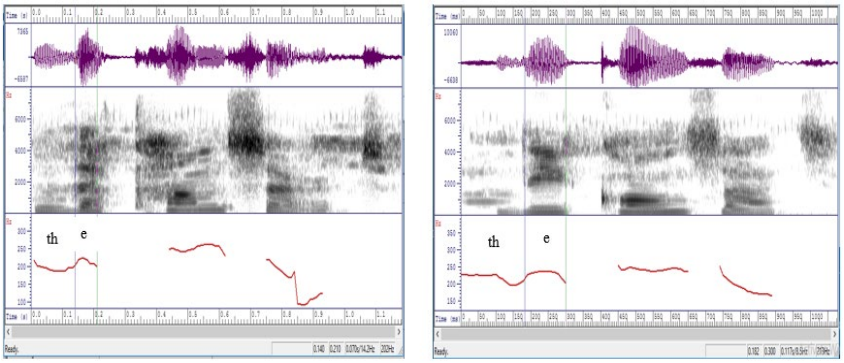


Figure 7: Native baseline spectrogram of *the children's* compared with HTC spectrogram of *the children's* as produced by UIYTU 104 with focus on *the*

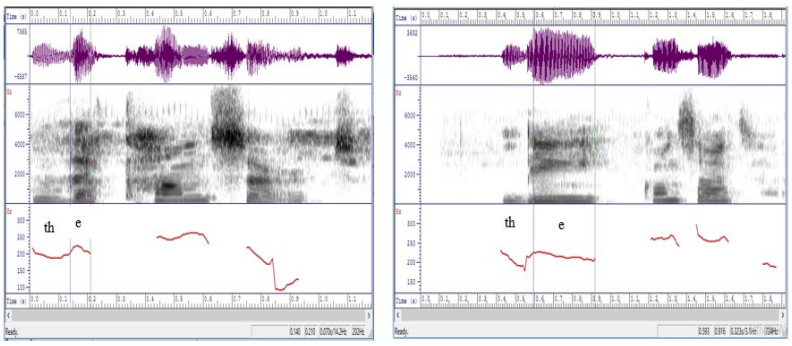
The duration of *the* in relation to other syllables in *the children's* as produced by the NB is compared with a sample HTC rendition in Figure 7. The duration value obtained for *the* in the NB rendition is 129ms while the values for *child* and *ren's* are 518ms and 265ms respectively. The differences between the duration values of *child* and *the* and the duration values of *ren's* and *the* are 389ms and 136ms respectively. This makes *the* the weakest syllable in the expression. In the HTC rendition, *the* is produced in 191ms while the values for *child* and *ren's* are 501ms and 322ms respectively. The differences between the duration values of *child* and *the* and the duration values of *ren's* and *the* are 112ms and 131ms, respectively. This marks *the* as the weakest syllable in the expression.



Native baseline MTC

Figure 8: Native baseline spectrogram of *the children's* compared with MTC spectrogram of *the children's* as produced by UIYTU 113 with focus on *the*

The duration of *the* in relation to other syllables in *the children's* as produced by the NB is compared with a sample MTC rendition as produced by UIYTU 113 in Figure 8. As already established in Figure 8, *the,* is distinctively the weakest syllable, with the least duration value, in *the children's*. In the MTC rendition, *the,* is produced in 300ms while the values for *child* and *ren's* are 426ms and 312ms, respectively. The differences between the duration values of *child* and *the,* and the duration values of *ren's* and *the,* are 126ms and 12ms, respectively. This marks *the* as the weakest syllable in the expression. However, the difference between the duration of *ren's* and *the* is negligible compared to the differences obtained in the NB and the HTC renditions.



Native baseline LTC

Figure 9: Native baseline spectrogram of *the children's* compared with sample LTC spectrogram of *the children's* as produced by UIYTU 86 with focus on *the*

Figure 9 shows the native baseline spectrogram of *the children's* compared with a sample LTC spectrogram of *the children's* as produced by UIYTU 86. In the LTC spectrogram, *the,* is produced in 323ms, much longer than the NB duration, while the values for *child-* and *-ren's* are 359ms and 533ms, respectively. The differences between the duration values of *child-* and *the,* and the duration values of *-ren's* and *the,* are 36ms and 210ms, respectively. Contrary to the native baseline production, *-ren's* is produced with the longest duration. Although *the* is marked as the weakest syllable in the expression, its duration is only 36ms less than the duration of *child-*. This is in contrast with the NB rendition where the difference between the two syllables is 389ms.

3.4 Findings

Appropriate reduction of vowels in content words and grammatical words, increased, in the speeches of educated Yoruba teenagers as technology contact level, increased. The HTC reduced vowels more significantly than the MTC. The technology exposure of the MTC and the LTC also matched their ability to reduce vowels in all the contexts examined. While the performance of the LTC confirms the findings of Akinjobi (2004, 2009a and 2009b), Akindele (2018 and 2019), Ilolo (2013), and Emmanuel-Ogbe and Akinjobi (2020), the performance of the HTC revealed a positive impact of technology on vowel reduction in the speeches of the teenagers. The MTC fluctuated between reduction and erroneous strengthening. Metrical grids of the HTC predominantly displayed alternation of strong and weak syllables, while the LTC, more than the MTC, produced adjacent stressed syllables which resulted in stress clashes and non-conformity to SBE rhythm. Strengthening of vowels in metrically weak positions significantly reduced as technology contact level increased. Spectrographic readings revealed a progression in durational variation between strong and weak vowels as technology contact level increased.

4. Conclusion

This study examined vowel reduction in the English speeches of Educated Yoruba teenagers based on their levels of exposure to technology-based non-enculturation sources of native English. The findings of the study revealed differences in the ability of the teenagers to reduce vowels in weak context, thereby establishing that exposure to such facilities enhances vowel reduction abilities. This incidence attests to Roach's (2000) assertion that necessary social contact with native

speakers of a language can assist non-native speakers/learners of that language to acquire the near-native spoken form. It also validates Akinjobi's (2015) recommendation of non-enculturation sources of contact with native English as means through which Nigerians as well as other non-native speakers of English language can improve their spoken English. This further confirms the prospects of Information and Communication Technology (ICT) for (spoken) English language teaching and learning as suggested by Akindele, 2013; Aremu, 2014; Udoh and Egwuchukwu, 2014; Akintunde and Angulu, 2015; Chitulu and Njemanze 2015.

References

Adetugbo, A. (1977). Nigerian English: fact or fiction? *Lagos Notes and Records* 6: 128-141.

Akindele, J.A. (2018). The rhythm ration of educated Edo (Nigerian) English speakers' duration: An acoustic investigation. *University of Uyo Journal of Humanities.* 22 (1): 27-41.

_____. (2019). Weight sensitive factor in the English syllabic consonants of educated Edo (Nigerian) Englishas a reflection of non-native English. *World Scientific News (WSN): An International Scientific Journal, Poland*. 124 (2): 292-303

_____. (2020). Anacrusis and the rhythm of Educated Edo (Nigerian) English speakers: Acoustic evidence. *Phonetics, phonology and sociolinguistics in the Nigerian context: festschrift for Adenike Akinjobi.* Ibadan: Stirling-Horden Publishers. 157-170

Akinjobi, A. (2004). Phonological investigation of vowel weakening and unstressed syllable obscuration in educated Yoruba English. Thesis. English, Arts. University of Ibadan.

_____. (2006). Vowel reduction and suffixation in Nigeria. *English today.* 22 (1): 10-17.

_____. (2009)a. A study of the use of weak forms of English grammatical words by Educated Yoruba (Nigerian) English speakers. *African Research review.* 3 (3): 81-94.

_____. (2009)b. English syllabic consonants and quantity factor in educated Yoruba Nigerian English. *African Research Review.* 3 (2): 45-55.

_____. (2015). Non-enculturation sources of Standard spoken English for non-native speakers: The Nigerian example. *Lagos review of*

English studies: A Journal of language and literary studies. 17 (2): 31-41.

Akintunde, F.A. and Angulu, Y.D. (2015). The use of Information and Communication Technology (ICT) in the teaching and learning of English language in Nigeria. *Journal of Literature, Languages and Linguistics*. 15: 44-50.

Emmanuel-Ogbe, A. and Akinjobi, A. (2020). A pairwise variability index analysis of vocalic segments in the Isoko Variety of Nigerian English. *Phonetics, phonology and sociolinguistics in the Nigerian context: festschrift for Adenike Akinjobi.* Ibadan: Stirling-Horden Publishers. 387-394.

Aremu, M.A. (2014). Impacts of the use of ICT in English language pedagogy on Nigerian's national development. *International Journal of English Language and Linguistics Research*. 2 (1): 56-68.

Awonusi, S., Ademola-Adeoye, F. and Adedeji, K. (2015). *Essentials of phonetics and phonology*. Lagos: Concept Publications Limited.

Bamgbose, A. (1982). Standard Nigerian English: Issue of identification. *The other tongue: English across*

Chitulu, O. M. and Njemanze, Q. U. (2015). Poor English pronunciation among Nigerian ESL students: The ICT solution. *International Journal of Language and Literature*. 3 (1):169-179.

Dadzie, A.B.K. and Awonusi, S. (2009). *Nigerian English influences and characteristics.* Lagos: Sam Iroanusi.

Davenport, M. and Hannahs, S. J. (2010). *Introducing phonetics and phonology*. 3rd Ed. London: Hodder Education.

Eka, D. (1993). Timing in educated spoken Nigerian English. *Journal of Humanities.* 3: 1-11.

Gimson, A.C. (2008). *An Introduction to the pronunciation of English. 7th Ed*. London: Edward Arnold.

Hewings, M. (2004). *Pronunciation practice activities.* Cambridge: Cambridge University Press.

Ilolo, A. (2013). Vowel reduction in Isoko English. Thesis. Linguistics and African Languages. Arts. University of Ibadan.

Iyere, T. (2007). *Teaching Spoken English in the* ODL *system in Nigeria: Challenges and strategies for improvement.* Lagos: National Open University of Nigeria.

Jowitt, D. (1991). *Nigerian English usage: An introduction.* Lagos: Longman Nigeria Plc.

Ladefoged, P. and Johnson, K. (2011). *A course in phonetics.* 6th Ed. Wadsworth: Cengage Learning.

Roach, P. (2000). *English phonetics and phonology.* 3rd Ed. Cambridge: Cambridge University Press.

Schluter, J. (2005). *Rhythmic grammar: the influence of rhythm on grammatical variation and change in English.* Germany: De Gruyter Mouton.

Skandera, P. and Burleigh, P. (2005). *A manual of English phonetics and phonology (twelve lessons with an integrated course in phonetic transcription)*. Germany: GNN

Udofot, I. (1993). Timing in educated spoken Nigerian English. *Journal of Humanities* 3: 1-11.

_____. (2003). Stress and rhythm in the Nigerian accent of English: A preliminary investigation. *English World-Wide*. 24 (2): 201-220.

Udoh, V. C. and Egwuchukwu, I. (2014). Integrating ICT in the teaching and learning of the English language in Nigeria Schools. *World Journal of Management and Behavioural Studies* 2 (3): 69-73.

Ufomata, T. (1990). Thoughts on spoken Nigerian English: *Journal of Nigerian English Association.* 10 (2): 13-20.

Wells, J. C. 2006. *English intonation: An introduction.* Cambridge: Cambridge University Press.

Internalisation of English Orthographic Structures and Its Effects on Hausa Speakers' Words

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Abstract

Research on word-recognition in English suggests that, because of the irregularity of English spelling, readers may make use of both a phonological route, and a direct visual route in matching words to their mental lexicon. This paper reports an experiment designed to investigate Hausa speakers' methods in recognizing English words. Twenty (20) English students who were Hausa speakers were used for the experiment, ten (10) students who are English speakers were used as a control group. The experiment involved subjects' reading of four types of words: regular words, regular pseudo words, exception words, and exception pseudo words. One way ANOVA was used to find out significant difference in performance of Hausa speakers in four types of the words, while t-test independent sample was used to examine the significant difference between Hausa speakers and their counterpart English speakers. The result shows that the Hausa speakers performed comparatively worse than predicted on all kinds of non-regular words. These results suggest that they might be relying on the phonological route, with a reliance on direct visual access for a few high-frequency items.

Keywords: Orthography, Hausa speakers, regular words, regular pseudo words, exception words, and exception pseudo words.

Introduction

A lot of research have shown that English spelling is a serious source of difficulty for non-native speakers of the language. Although the importance of the problem is widely acknowledged, there is surprisingly little research into just why orthography should be such a serious source of difficulty, and what psycholinguistic processes are brought into play when people read an orthography that they cannot process automatically. This paper is a preliminary attempt to look at how native speakers of Hausa internalize the orthographic structure of English, and how it affects their ability to read words in English.

Many models of word-recognition in English assume that there are two basic ways of identifying a word from a written stimulus. Coltheart (1998 and elsewhere) refers to these routes as the phonological route and the direct visual access route. Other terminology is used by other researchers, (e.g. Kavanagh and Mattingly, 1992; Humphreys and Evett, 1995) but the basic idea is very similar, and the arguments in favor of the dual route models are essentially the same, despite the superficial differences. Basically, the argument is that for many words, it is possible to access the mental lexicon by converting a written form into a phonological code by means of a set of grapheme-phoneme correspondence rules. Consider Hausa, for example. Hausa has an orthography which is almost entirely regular. There are, admittedly, a few irregularities. For example, there are no <p> and <v> letters in Hausa they are pronounced as <f> and <b> respectively. However, these irregularities cause few difficulties for spelling, and they do not affect the pronunciation of a word.

The term orthography is defined and a brief overview of the typology of writing systems is given. Then the terms orthographic depth, functional load, and underrepresentation are introduced (Nobuhiko, 2015**)**. Writing systems are systems that allow readers to reconstruct a linguistic message on the basis of written signs. Orthographies are writing systems that are standardized with respect to:

1. Set of graphic symbols (graphemes), such as signs, characters, letters, as well as diacritics, punctuation marks, etc.; and
2. Set of rules/conventions, such as orthographic rules and pronunciation rules, rules for writing word boundaries, punctuation rules, capitalization rules.

Importantly, then, an orthography is defined as the conjunction of a set of graphemes, such as an alphabet, and a set of accompanying rules regulating their use. The third defining feature is that both the symbols and their usage are standardized and codified. The actual visual shape of the graphemes that a writing system uses, e.g. the Latin or the Arabic letters, is called its script (Nobuhiko, 2015)**.**

2. Literature Review

Orthography is a set of conventions for writing a language. It includes rules of spelling, hyphenation, capitalization, word break, emphasis and punctuation (Andrés 2009). Most significant languages in the modern era are written down; and for most such languages, a standard orthography has been developed, often based on a standard variety of the language, and thus exhibiting less dialect variation than the spoken language (Ibrahim, 2016). Sometimes there may be variation in a language's orthography. In some cases orthography is regulated by bodies as language academies, although for many languages including Hausa. Moreover, students being trained and taught to master the skills of orthography are often confused or influenced by their poor knowledge of English writing system. Example; common mistakes in Hausa orthography: sometimes speech sound differs with the real Hausa writings (Ibrahim, 2016).

Several studies on bilingual word recognition reported the possible effects of L_1 on the basic processes of reading in L_2. Specifically, in processing the component letters of English words, L_2 readers with a non-alphabetic L_1 background (e.g., Chinese and Japanese) are less efficient than those with an alphabetic L_1 background. Brown and Haynes (1995), for example, investigated the word recognition processes of advanced ESL learners whose L_1 was Arabic, Spanish, or Japanese. They were given pairs of words, pseudo words, and non-words and asked to decide whether each pair was the same or different. Contrary to their hypothesis that the Spanish group would demonstrate the fastest performance because of their familiarity with the Roman alphabet, the Japanese readers were the fastest of all. Brown and Haynes (1995) suggested that, although the Japanese were more efficient in general visual processing than the Spanish and the Arabic, the Japanese readers had difficulty translating alphabetic symbols into spoken units.

According to Koda (1998) although all the L_1 groups (Arabic, Japanese, Spanish, and English) spent longer time in the phonological processing task than the orthographic processing task, the Japanese readers demonstrated greater decrements in speed between the two tasks than did the Arabic and the Spanish readers. She concluded that because the Japanese orthography is less phonologically recoverable (deeper) than the Arabic and the Spanish orthographies, the Japanese readers were

"seriously inhibited by unavailability of visual information, whereas blocking visual information had significantly less impact on the lexical decision-making of [the] Spanish and Arabic readers" (Koda, 1998 p.16). Koda also found a similar L_1 effect at a text-processing level (Koda, 1990).

Automatic word recognition has been considered as an indispensable component of fluent reading not only in a first language (L_1) (e.g., Koda, 1994; Stanovich, 1991), but also in an L_2 or a foreign language (FL) (e.g., Koda, 1996; Segalowitz, & Hebert, 1990). Reading is seen as the interactive activity of lower-level processing and higher-level processing (e.g., processing a stream of words for comprehension while preserving the semantic and syntactic information of previous sentences in working memory) (Aro, 2004). Because more complex multiple activities are involved in the higher-level processing, successful reading (i.e., fluent reading with good comprehension) requires one to allocate as many cognitive resources as possible in the higher-level processing. In other words, the reader needs to minimize cognitive resources necessary for the lower-level processing, so that the higher-level processing in reading can be successfully carried out within the rest of the limited cognitive resources. In order to do so, the reader needs to reach such a stage that the moment he or she fixes on a word, all the corresponding mental representations are automatically retrieved (Aro, 2004).

This paper is a preliminary attempt to look at how native speakers of Hausa internalize the orthographic structure of English, and how it affects their ability to read words in English.

3. Null Hypotheses

The hypotheses tested for the study are as follows:

1. There is no significant difference of performance in four types of the words by Hausa speakers under study.
2. There is no significant difference of performance in regular words (RW) between Hausa speakers and their counterpart English speakers under study.

3. There is no significant difference of performance in exception words (EW) between Hausa speakers and their counterpart English speakers under study.
4. There is no significant difference of performance in regular pseudo-words (RPW) between Hausa speakers and their counterpart English speakers under study.
5. There is no significant difference of performance in exception pseudo-words (EPW) between Hausa speakers and their counterpart English speakers under study.

4. Experiment

Twenty native Hausa speakers were used for the study. All of them were NCE 300 level English students of Isah Kaita College of Education, Dutsin-Ma, Katsina State. In addition, ten students from the same institution were selected which were non-Hausa native that speak English at their various homes; they were served as native English speakers and were used as a control group. All the subjects were volunteers.

5.Methodology

The participants were required to read aloud a series of lists of words which appeared one at a time on a computer screen. They were instructed to read the words clearly, as quickly as possible, and to avoid errors. Pressing the space bar caused the next word of the list to appear on the screen. This allowed an approximate measure of reading speed to be obtained. Four lists of words were prepared: regular words, irregular words, regular pseudo-words and irregular pseudo-words. Each list contained 20 words. The following are the words used for the study:

Regular Words (RW)	**Irregular Words (ER)**	**Regular Pseudo-Words (RPW)**	**Irregular Pseudo-Words (EPW)**
back from	are great some	bean fate mess	couch gear pear
most very	were	stain	sweat
both get much	could have their	bless gasp mist	deaf glue pearl
what	who	tray	sword
down just not	does high them	bug grape pinch	debt grind pint
where	with	weep	tomb
each long	find know there	crush grip rob	dumb knit sew
place which	would good said	wipe	worm
first make	they your	fade heel sore	fare lamb sigh
time while		yawn	wrist

The words used were a subset of the words used by Glushko, which are very tightly controlled for frequency of letters and overall shape. Participants were given a practice list of 10 mixed regular and irregular lists before they began to read the experimental lists. Each subject then read the regular words, the exception words, the regular pseudo-words and the exception pseudo-words, in that order. Within each list, the words were randomly ordered. The entire session was tape-recorded using A Uher 42000-L tape recorder with Telmar loudspeakers at Isah Kaita College of Education English laboratory, and phonetic transcripts were made from these recordings by an experienced phonetician and the words that were pronounced correctly by each participant were recorded accordingly. The stated hypotheses were tested at 0.05 level of significant. While the first hypothesis was tested using one way ANOVA because more than two groups of mean scores were compared, the remaining four hypotheses where tested using t- test independent sample because in each of the four, two groups of mean scores were compared.

6. Results

The basic data analyzed consist of the attempts each subject made at reading the written words aloud. For each participant an accuracy score was calculated, being the number of correct pronunciations produced in the course of each word list. The following are the frequencies of the scores for RW, EW, RPW and EPW respectively:

i. For Regular Words (RW)

Scores	Frequency	Percent
10	3	**3.8**
12	3	**3.8**
13	1	**1.3**
14	5	**6.3**
15	6	**7.5**
16	9	**11.3**
17	3	**3.8**
Total	30	**37.5**

ii. For Exceptional Words (ER)

Scores	Frequency	Percent
6	2	2.5
8	4	5.0
9	6	7.5
10	6	7.5
11	3	3.8
12	3	3.8
13	2	2.5
14	4	5.0
Total	30	37.5

iii. For Regular Pseudo-Words (RPW)

Scores	Frequency	Percent
10	3	3.8
12	6	7.5
13	6	7.5
14	5	6.3
15	7	8.8
16	3	3.8
Total	30	37.5

iv. For Regular Pseudo-Words (EPW)

Scores	Frequency	Percent
11	6	7.5
12	9	11.3
13	7	8.8
14	1	1.3
15	4	5.0
16	3	3.8
Total	30	37.5

To find out the differences in the mean scores, the scores of the Hausa English speakers for RW, EW, RPW and EPW were subjected to one way ANOVA. The result is presented below

Table 1: Analyses of Mean Standard deviation of words scores for Hausa speakers

	N	Mean	Std. Deviation
RW	20	14.40	2.062
EW	20	9.00	1.376
RPW	20	13.50	1.792
EPW	20	12.00	.795
Total	80	12.23	2.580

Table 1 shows that the mean scores of RW for Hausa native was 14.40 which implies that the participants spelled the average of 14.40 correctly out of 20 regular words. It also revealed that the mean scores of EW were 9.0. Which implies that the participants spelled the average of 9.0 correctly out of 20 exception words. On the other hand, the mean scores of RPW was 13.50. This implies that the participants spelled the average of 13.50 correctly out of 20 regular pseudo-words, while mean scores was 12.0. This implies that the participants spelled the average of 12.0 correctly out of 20 exception pseudo-words.
The result of one way ANOVA is shown below:

Table 2: one way ANOVA analyses for four different words: Regular Words (RW), Exceptional Words (EW), Regular Pseudo-Words (RPW) and Exceptional Pseudo-Words (EPW)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	336.150	3	112.050	44.867	.000
Within Groups	189.800	76	2.497		
Total	525.950	79			

Table 2 shows that F value of 44.867 was observed and the p- value of 0.00 which is less than alpha value of 0.05. This implies that the hypothesis that says there is no significant difference of performance in four types of the words by Hausa speakers under study was rejected. Which means that there is a significant difference between the scores of Hausa speakers under study for four different types of words namely: regular words, exception words, pseudo-words, and exception pseudo-words. To find out where the difference occur the post hoc test was carried out and the result is shown below:

Table 3: Post hoc analyses for four different words (RW, EW, RPW and EPW)

(I) WORDS	(J) WORDS	Sig.	Decision
RW	EW	.000	Sig.
	RPW	.076	Not sig.
	EPW	.000	Sig.
EW	RW	.000	Sig.
	RPW	.000	Sig.
	EPW	.000	Sig.
RPW	RW	.076	Not sig.
	EW	.000	Sig.
	EPW	.004	Sig.
EPW	RW	.000	Sig.
	EW	.000	Sig.
	RPW	.004	Sig.

Table 3 shows how scores of each of the two forms of words are compared. The result indicated that only when RW is compared with RPW that there was significant difference.

To compare the performance of the Hausa speakers and their counterpart English speakers under study, the scores of both the two groups for each of the form of words under study were subjected to both descriptive, in the form of mean and standard deviation, and t- test independent sample. The result is presented below:

Table 4: analyses of mean and standard deviation of both Hausa speakers and English speakers for four different forms of words (RW, EW, RPW and EPW)

	GROUP	N	Mean	Std. Deviation
RW	ENGLISH NATIVES	10	14.60	2.171
	HAUSA NATIVES	20	14.40	2.062
EW	ENGLISH NATIVES	10	12.90	1.101
	HAUSA NATIVES	20	9.00	1.376
RPW	ENGLISH NATIVES	10	13.60	1.841
	HAUSA NATIVES	20	13.50	1.792
EPW	ENGLISH NATIVES	10	14.70	1.337
	HAUSA NATIVES	20	12.00	.795

Table 4 shows that for RW scores, the mean scores of English speakers were 14.60 and that of Hausa speakers was 14.40 with mean difference of 0.2. While that of EW the mean scores of English speakers was 12.90 and that of Hausa speakers was 9.0 with mean difference of 3.9. Whereas for RPW scores, the mean scores of English speakers was 13.60 and that of Hausa speakers was 13.50 with mean difference of 0.1. While for EPW scores, the mean scores of English speakers was 14.70 and that of Hausa speakers was 12.0 with mean difference of 2.7. To find out where the differences are significant, the t-test independent sample was carried out and result is shown below:

Table 5: Analyses t- test independent sample of both Hausa speakers and English speakers for four different forms of words (RW, EW, RPW and EPW)

Words	Df	t- value	Sig	Decision
RW	28	.246	.807	Not sig.
EW	28	7.781	.000	Sig.
RPW	28	.146	.885	Not sig
EPW	28	6.959	.000	Sig.

Table 5 shows that for RW, t-value of .246 was observed and the p-value of .807 which is greater than the alpha value of 0.05, hence the hypothesis that says there is no significant difference of performance in regular words (RW) between Hausa speakers and their counterpart English speakers under study was retained. This implies that there no significant between the English speakers and the Hausa speakers under study for regular words. While for EW, t-value of 7.781 was observed and the p-value of .000 which is less than the alpha value of 0.05, hence the hypothesis that says there is no significant difference of performance in exception words (EW) between Hausa speakers and their counterpart English speakers under study was rejected. This implies that there is significant difference in the performance of the two groups in favor of English speakers' participant. In other words, for RPW, t-value of .146 was observed and the p-value of .885 which is greater than the alpha value of 0.05, hence the hypothesis that says there is no significant difference of performance in regular pseudo-words (RPW) between Hausa speakers and their counterpart English speakers under study was retained. This implies that there no significant between the English speakers and the Hausa speakers under study for regular pseudo-words. While for EPW, t-value of 6.959 was observed and the p-value of .000 which is less than the alpha value of 0.05, hence the hypothesis that says there is no significant difference of performance in exception pseudo-words (EPW) between Hausa speakers and their counterpart English speakers under study was rejected. This implies that there is a significant difference in the performance of the two groups in favor of the Native Speakers

7. Discussion

The main finding to be discussed here is that the Hausa speakers that were tested seem to perform very badly on exception forms relative to regular forms, while still performing at quite a high level overall. If the Hausa speakers had consistently got exception words wrong, and if their errors had all been regularization errors, then it would clearly be possible to claim that they were relying entirely on a phonological strategy for handling these words. Performance levels for exception words shows that more than two thirds of these items are read correctly. This finding rules out the possibility that the subjects were relying on a phonological strategy, since the majority of these words were read correctly on regular words. On the other hand, the data shows very clearly that the subjects do not have a highly developed direct lexical access route: if they did, we would expect the irregular exception words to be much more accurately read than the irregular pseudo-words, since by definition the latter cannot have representations in the mental lexicon. In fact, all exception items were relatively badly handled, irrespective of whether they were real words or pseudo-words. Two thirds of the exception pseudo-words were read as if they were regular pseudo-words. This finding agrees with that of Andrés & Paul (2009) who conducted similar study with Spanish speakers the result of their finding shows that Spanish speakers perfumed badly on both exception words and exception pseudo-words but perfumed better on regular and regular pseudo-words.

The Hausa speakers perform worse than the English speakers in both exception words and exception pseudo-words mean while their performance deficit is much greater where the items to be read are irregular. It is possible that the relatively poor performance found with irregular real words may be partly due to the subjects not knowing these words, and in effect treating them as pseudo-words. Considering Glushko's irregular words are in fact considerably more frequent than his regular words (mean frequencies according to the Kucera- Francis norms were 52 and 20 respectively). These two considerations seem to allow us to rule out explanations of our findings based on familiarity.

However, if we compare our results to the results obtained with native speakers of English in earlier experiments, a slightly different picture

emerges. Most published studies of this type show that native speakers of English are more likely to make errors on exception words than on regular words. The proportion varies from one study to another; Baron and Strawson (1996) report a ratio of 1 regular error to 9 exception ones; Glushko (1991) reports a ratio of 1 regular error to 7 exception ones; Masterson (1995) reports a ratio of 1 regular error to 6 exception ones. Result of this finding does not fit this pattern. The Hausa speaking subjects make 1 regular word error for every 2 exception word errors. This ratio is quite close to the sort of figures which have been quoted for severely abnormal native speakers of English. Masterson (1995) for instance, quotes three cases of surface dyslexics, whose performance on a task similar to ours produced ratios of errors in regular words to errors in exceptions words of 1 to 2.7, 1 to 3, and 1 to 4.25 respectively. This data neatly brackets our data, and suggests that Hausa speakers are performing more like English-speaking speakers.

7. Conclusion

In conclusion, it was possible for Hausa speakers to perform adequately in their native language with a word recognition system that was very different from the word recognition system we believe to be operating in native English speakers. We suggested that native Hausa speakers learning English might have to develop new ways of recognizing words if they are to perform adequately in English. The data reported here suggests that Hausa learners of English may continue to rely on a phonological access route and that a direct visual access route operates only for a few highly frequent words.

Reference

Andrés, S., & Paul, M. (2009). The Effects of Irregular Orthography on the Processing of Words in a Foreign Language, *Reading in a Foreign Language* 1 (6)

Aro, M. (2004). Effect of orthography, *Studies in education and social Research (p 4-7)*

Baron, J., & Strawson, C. (1996). Use of orthography and word specific knowledge in reading words aloud. *Journal of Experimental Psychology: Human Perception and Performance*, 2, 386-393

Brown, T., & Haynes, M. (1995). Literacy background and reading development in a second language. In H. Carr (Ed.), *The development of reading skills* (pp. 19-34). San Francisco: Jossey-Bass.

Coltheart, M. (1998). Lexical access in simple reading tasks. In: G. Underwood (ed.) Strategies of Information Processing. London: *Academic Press.*

Glushko, R. (1991). Principles for pronouncing print: the psychology of phonography. In: A. Lesgold and C. Perfetti (Eds.) *Interactive Processes in Reading.* Hillsdale, NY: Erlbaum.

Humphreys, G .& Evett, L. (1995) Are there independent lexical and non-lexical routes in word processing? An evaluation of the dual-route theory of reading. *The Behavioral and Brain Sciences,* 8, 689-740.

Ibrahim, M. (2016). Determining the Standard of Education in Nigeria: The Case of Hausa Orthography, *Journal of Educational Policy and Entrepreneurial Research (JEPER,* 3(7) 128-134

Kavanagh, J., & Mattingley, I. (1992). Language by Eye and Ear, *Cambridge, Ma MIT Press*.

Koda, K. (1988). Cognitive process in second language reading: Transfer of L_1 reading skills and strategies. Second *Language Research, 4,* 133-156.

Koda, K. (1990). The use of L_1 reading strategies in L_2 reading: Effects of L_1 orthographic structures on L2 phonological recoding strategies. *Studies in Second Language Acquisition, 12,* 393-410.

Koda, K. (1994). Second language reading research: Problems and possibilities. *Applied Psycholinguistics,* 15, 1-28.

Koda, K. (1998). Cognitive process in second language reading: Transfer of L1 reading skills and strategies. *Second Language Research,* 4, 133-156.

Masterson, J. (1995). Surface dyslexia and the operation of the phonological route in reading, *Unpublished* PhD Thesis, University of London.

Nobuhiko, A. (2015). The Effects of First Language Orthographic Features on Word Recognition Processing in English as a Second Language, Running Head: L1 Effects on L2 Word Recognition, *Kochi University*

Segalowitz, N. (1991). Does advanced skill in a second language reduce automaticity in the first language? *Language Learning,* 41, 59-83.

Segalowitz, N., & Hebert, M. (1990). Phonological recoding in the first and second language reading of skilled bilinguals. *Language Learning, 40,* 503-538.

Stanovich, K. (1991). Word recognition: Changing perspectives. In R. Barr, M. Kamil, P. Mosenthal, & P. D. Pearson (Eds.), *Handbook of reading research* (pp. 418-452). New York: Longman

Nativising English Names: An Exploration of the Stress Patterns of Polysyllabic Female Forenames in Nigerian English

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Abstract

Personal names, being identity markers, sometimes cut across linguistic boundaries. In this study, we set out to investigate the sound patterns of English female forenames (FFns hereafter) within the ESL Nigerian context, using a hundred and twenty randomly-sampled names. Specifically, the stress patterns of the names in relation to what is obtained in native speakers' environments were explored. From the data analysis which involved a combination of the Generative and Metrical phonological theories, the study reveals the systematic and creative tendencies of stress assignment to polysyllabic FFns in the Nigerian accent of English. It further reveals that such factors as segmental composition, syllable structure, length and morphological structure of a name, among other things, determine the eventual stress pattern of English names in Nigerian English (NE hereafter). A further comparison of the data with some male forenames equally reveals that gender (of the target bearers of English forenames) could be a factor in name-stressing. Without in any way lending credence to the interference phenomenon, the study serves as an empirical confirmation of the claim that the stress pattern of non-native Englishes is systematic, predictable and representative of the accentual differences that make up the pluricentric language - English.

Stress, English Female Names, Nigerian English, Generative theory, Metrical theory

1.0: Introduction

Names and naming are primarily associated with nouns, and are essential to human existence. The names people bear do not only identify them, but, further distinguish them from others. Linguistically speaking, names are a part of phonetic, morphological, semantic and, sometimes, syntactic units. As phonetic units, names are characteristically composed of speech sounds arranged in a pronounceable order. Every name is primarily pronounced (spoken). From the morphological point of view,

names are words that are composed in a variety of ways. Thus, we may sometimes observe that the structure of a particular name is actually a compound, a blend or even an acronym. Semantically, most names are associated with some kinds of meaning. In many parts of the world, Nigeria inclusive, people are named in line with their origin or certain circumstances surrounding their birth. Consequently, certain pragmatic information about individuals can be inferred from the name they bear. It is not uncommon, too, for names to be constituted of identifiable words structured into one word (formally) but having sentential undertones. Ekeh (2005:159) claims that most African names are either complete sentences or phrases. This highlights the syntactic essence of names.

Bearing the above linguistic considerations in mind, we set out to investigate, in this study, the sound patterns of English FFns that were adapted for use within the Nigerian English sociolinguistic milieu. We specifically focus on the suprasegmental feature of stress, considering that this aspect has been identified as "the final hurdle, which a vast majority of speakers of English as a foreign language never manage to cross" (Banjo, 1979:12). The study is, thus, an in-depth examination of the nature of stress in NE in relation to the segmental, syllabic and morphological constitution of English FFns. Concepts from both generative and metrical phonological theories have been specially explored as the theoretical underpinning for the study's data analysis.

1.1: Review of Literature

In the subsequent sections, the extant views of scholars on the key terms are reviewed to form a background for the study and also to reveal existing gaps in knowledge, which the study sets out to fill.

1.1.1: The Concepts of Name and Naming

Naming culture has its roots in the different mythologies, which seek to explain human existence. From the Christian tradition, for instance, names were assigned to different creatures by Adam, the first man, in Genesis 2:19; so '…whatever Adam called each living creature that was its name'. Norman (2013:66) actually opines that 'because of the omnipresence of Christianity, the most widespread names in the world are those taken from the Bible'. Although these names are predominantly of Hebrew origin, they are adopted for children by their

Christian parents, in acknowledgment of the symbolic deeds of such Bible 'characters'. Consequently, such names as Isaac, Joseph, Moses, Joshua, Mary, Paul, John and Peter are very common across the world.

Correspondingly, in Muslim homes, such names as Mohammed, Yusuf, Musa and Maryam, from the Quran, are adopted for children by their parents. These, just like the Christian names mentioned earlier, often serve as forenames, given to people at birth. However, because the same forename may be shared by a number of persons in the same vicinity, there was the need for middle names and family names or surnames, which additionally distinguish individuals, one from another, by linking them to their family (roots). First names/forenames and surnames in many localities are created based on existing traditions and conventions. McKinley (1990) traces the history of hereditary surnames in Britain. For the purpose of this study, however, our focus is on English FFns.

1.1.2: Sound Patterns of English First Names

The phonetic structure of names has been the focus of a number of research efforts, resulting in somewhat amazing revelations. Reckoning that names are also nouns, Cutler et al. (1990) juxtapose 1667 names found in *The Oxford Minidictionary of First Names* (1986) with 19,334 head nouns in the *Longman's Dictionary of Contemporary English* with a view to comparing their phonological forms. They found that English names follow the typical stress position of nouns, meaning that, they are mostly stressed on the first syllable. To account for this preponderance of initially-stressed 'words', they explain that, "English names are in general quite like English nouns … they mostly begin with a strong rather than a weak syllable" (Cutler et al. 1990).

Considering the view that certain phonological patterns are specifically applicable to either male or female names, Feinman and Slater (1985) investigate potential sex-associated features in the structural characteristics of North American first names**.** It was discovered that, although "the vast majority of names started with a consonant", female names were more likely to end in a vowel or a sonorant than male names. Hough (1999: 6) affirms that female names are more likely to end in a vowel, especially the schwa. Some authors have also associated some specific vowels/consonants with either male or female names. Cutler et al. (1990), for instance, reveal:

> Female names have more stressed vowels with [i] while the male names have significantly fewer … Female names are … significantly less likely to contain stressed vowels with [ɔ]/[ʌ] and with [ʊ].

Pitcher et al (2013) corroborate this finding by adopting the large/small classification of vowels (Sapir, 1929). According to them, male names are more likely to contain large vowels (e.g., /ɔ/) while female names are more likely to contain small vowels (e.g., /i/). An earlier round/sharp-sounding classification by Nielsen and Rendall (2011) rated /b/, /l/, /m/ and /n/ as round-sounding, /k/, /p/ and /t/ as sharp-sounding; the vowels /u/, /o/ and /ɒ/ as round-sounding, /i/, /e/, /ɛ/ and /ʌ/ as sharp-sounding. Sidhu & Pexman (2015:10), based on this classification, found that round phonemes are associated with female names, whereas sharp phonemes are associated with male names in line with 'the relative sizes of male and female bodies.'

Cutler et al. (1990) further stress that there are significant differences between male and female names in terms of stress patterns and syllables. They demonstrate that, in polysyllabic words, 95% of the male names have a dactylic stress pattern compared to only 25% of female names with a similar pattern. They also note that male names are more likely to begin with a stressed syllable and are also likely to be monosyllabic. Wright et al. (2005), however, observe that both female and male disyllabic names primarily have a trochaic stress pattern. Since stress is usually a function of syllable structure, attempts have also been made to analyse these differences from the angle of syllable structure. Slater and Feinman (1985), for instance, found a higher ratio of open syllables in female names than in male names.

The length of male and female names has also been a topic for research. Hough (2000), Slater and Feinman (1985) both affirm that female names are usually longer than male names. This finding is corroborated by Cutler et al. (1990) who note the existence of semi-productive processes for forming female names from male names by the addition of a suffix. They are, however, quick to note that 'such derived names as Georgina and Thomasina form a very small subset of female names'. Apparently, the foregoing necessitates a consideration of salient morphological/etymological issues that are relevant to the study's discussion of the sound patterns of names, which is presented below.

1.1.3: English Female Forenames: Morphological and Etymological Impacts

Most English names, just like English words, are traceable to different roots. While some can be traced to Old/Middle English, others have their roots in languages such as Greek, Latin and French. In the table below, there is a presentation of some examples of English FFns and their etymological details. The British English pronunciation of each name in Table 1 is captured in the accompanying transcription.

Table 1: Etymology of Female English Names

S/No.	Name	Origin	Cognate Name(s)	Male Version	Meaning
1.	Henrietta /ˌhenriˈetə/	German	Henrike Henriette (French)	Heinrich Henry	Home ruler
2.	Michelle /mɪˈʃel/	French	Mechelle	Michel Michael (Hebrew)	Who is like God?
3.	Yvonne /ɪˈvɒn/	French	Evonne	Yves Yvon (German)	Yew
4.	Joanna /dʒəʊˈænə/	Latin	Joannes	John	God is gracious
5.	Nicole /nɪˈkəʊl/	French	Niccole	Nicolas	Victory of the people

Besides the etymological details of the English FFns presented in the table, morphological considerations are also relevant. Morphological processes through which English FFns are derived include affixation, borrowing and clipping. Affixation is applicable to the realisation of *Christiana* (or *Christina*) from *Christian*, *Clementina* (or *Clementine*) from *Clement*, *Josephine* from *Joseph* and *Eugenia* from *Eugene,* to mention a few. Borrowing occurs when names from other languages are directly adopted and used as English names, as in *Isabella*, the Spanish version of *Elizabeth*, which exists alongside the English version as a female forename. Clipping yields *Tricia* from *Patricia*, *Ella* from *Emmanuella*, etc. The possible impacts of the above morphological and etymological

details on the sound pattern of FFns will be considered in the analysis of the data available for this study.

1.1.4: The Concept of Nativisation

Nativisation is a process through which a language undergoes new changes and gains new native speakers in the virtual absence of native speakers. It is synonymous with the indigenization, acculturation or hybridisation of a language in a second language environment. Schneider (2007:56) identifies nativisation as the third of the five stages in the developmental cycle of post-colonial varieties of English (New Englishes). He explains that, it involves the emergence of local patterns, often associated with political independence or the striving for it. These patterns, though viewed as deviations from the native norms, encode the unique experience of the second language speech community.

Naturally, any language transported from its native environment undergoes several changes in direct proportion to the degree of its psychological and sociological separation from its native speakers. These structural changes mark its nativisation stage. With reference to the English language in Nigeria, the reality of the nativisation process is visible in the existence of an internal norm which produces structures, which, though, totally unintelligible to native speakers of English, are used officially at the highest level of government (Obilade, 1984). These forms are found at all levels of language analysis including phonology, syntax, semantics and pragmatics. Illustrating the phonological aspects of the nativisation of English in Nigeria, Obilade (op.cit.) notes the neutralisation of allophonic variations in English consonants, stress 'misplacement', 'stopping' of dental fricatives and the adoption of unsystematized intonation patterns. The focus of this paper, however, is stress (mis)placement in FFns.

1.1.5: Stress in Native and Non-Native Englishes

Stress, the relative strength of a syllable (Roach, 2000:2), is a feature of the suprasegmental phonology of English. Its importance in English words, in particular, and utterances, in general, can never be over-emphasised. Phonetically, the stressed syllable is usually described with regard to the peculiarities of its production and/or perception, and is generally more prominent than others. Fundamentally, the perception of stress is dependent on pitch prominence, loudness, duration, and vowel quality. Another important aspect is its placement among the

syllables in a word. Wells (1982:88) identifies stress and intonation as areas where native speaker-like patterns are only rarely achieved by speakers of English as a second or foreign language and, in particular, Africans and South Asians. In other words, it may be inferred that Non-Native Englishes (NNEs henceforth) exhibit stress and intonation patterns which identifiably deviate from the norms in native speakers accents.

According to Jolayemi (2006:6), 'as an element of lexical identification, stress in English is capable of changing the meaning of words, or making ambiguous some spoken or written utterances when applied, inappropriately.' Consequently, deviations of stress placement patterns from the traditional 'native' norms often create problems for intelligibility. These deviations constitute the distinguishing prosodic features of many non-native varieties of English. He further notes that stress deviation on a word or phrase in English may appear in two major manners: forward stress shift (in which stress moves towards the final position) or backward stress shift (where the users of English transfer the normal position for stress specification backward, by one or two syllables).

A number of studies carried out on NE stress confirm the direction of NE stress shifts. For Simo-Bobda (2010), it is forward stress (FWS); Kujore (1985) describes it as 'delayed primary stress' while Atoye (1991) simply calls it 'rightward stress shift'. Many attempts have also been made to account for the choice of this peculiar pattern; these include Final Obstruent Verbal Stress (FOVS); I-stress (IS) and N-stress (NS) - which refer to the many cases where the occurrence of /i/ and /n/ in the final rhyme tends to pull stress to the final syllable (Simo-Bobda, 2010). He further asserts that Cameroonian and Nigerian learners of English rely heavily on syllable weight for stress placement; a syllable weight is determined primarily by the nature of the vowel, complemented by the number of consonants in the coda.

While we admit that stress in NE has, to a reasonable extent, been analysed by scholars within and outside the country, we must not ignore the obvious dearth of studies on the stress pattern of English names as produced by Nigerians. This is the gap which this study seeks to fill by exploring the peculiarities of English FFns stress patterning in NE.

1.1.6: Theoretical Framework

Two theories of stress constitute the theoretical underpinning for our data analysis. While the generative theory (Chomsky and Halle, 1968) was explored in capturing the observed tendencies in possible phonological rules, Metrical theory (Liberman & Prince, 1977) was applied to the description of the metrical patterns of the analysed names, focusing on feet structures. Cumulatively, a combination of these theories provides a substantial description of the predictable stress patterns of English FFns in NE.

Two concepts from the generative theory were explored in this study - Phonological Rules and Distinctive Features – thus capturing predictable patterns through the use of segment feature matrices. On the other hand, the concept of metrical feet was adopted from the Metrical theory to describe the dominant combinatory patterns of light/weak (W) and heavy/strong (S) syllables in the analysed names. It is enough to state that, within the metrical tradition, S and W nodes are determined by branchingness: a terminology/concept referring to syllable quantity. A heavy syllable is said to have a branching rhyme and a light syllable, a non-branching rhyme; the rhyme of a syllable comprising the (obligatory) nuclear vowel and any consonant(s) following it (Hogg and McCully, 1987: 36). A branching rhyme can take any of the following shapes:

> (a). a long vowel, with or without a coda of any sort;
> (b). a short vowel, with a coda made up of two or more consonants (Laver, 1996: 518).

Correspondingly, therefore, a non-branching rhyme is made up of a nucleus, consisting of a short vowel that is followed by a maximum of one consonant; or a syllabic consonant nucleus. Since the data for the study are predominantly words and not syntactic structures, such terms as iamb, trochee and dactyl, which are originally employed in the study of poetic metrics, have been adopted in the metrical phonological analysis.

2.0: Methods

The data for this study were collected from twenty randomly-selected teachers (ten males and ten females) in three public secondary schools

in Lagos Mainland. These are: International School, Lagos (University of Lagos); Akoka High School and Eletu Odibo Senior High school. On the average, the teachers had a minimum of a first degree as their academic qualification; thus, they can be categorized as exponents of SNE (Udofot, 2004). The data were collected by recording, on three different occasions, each of the teachers' daily roll call sessions as they marked the class attendance register. The one hundred and twenty FFns eventually selected for the study were recurrent names in the class lists while the stress patterns analysed and considered as the norm in this study are also the dominant ones, repeatedly used by majority of the teachers, the sociolinguistic differences notwithstanding.

2.1: Data and Analysis

The data were presented and analysed according to the number of syllables contained in the names. It could be said that given the relative nature of stress, only names of two syllables and above were analysed, here. The data includes fifty disyllabic names, fifty trisyllabic names and twenty names of four syllables and above. Stressed syllables are identified using either the capitalisation convention or a superscript vertical line. The pattern adopted for the perceptual/statistical analysis for each item is the most recurrent for that item, the extent of the difference notwithstanding.

2.1.1: Disyllabic Female Forenames

Disyllabic female forenames analysed, include; *AGnes, aLICE, biBIAN*, *BEAtrice*, *BLESsing*, *BRIDGet, catheRINE*, *ceLINE*, *CLAra, COMfort*, *CYNthia, dorCAS, doRIS, Edith*, *ESther, euNICE*, *eveLYN*, *FAvour*, *FRANces, glaDYS*, *GLOria, HANnah, heLEN, HILda, jacqueLINE, jaNET, joANNE, JUdith, JUliet, liLIAN*, *LINda, loVETH, LUcy, LYdia, MAbel, marGARET, MARtha, MAry*, *mauREEN*, *miCHELLE*, *niCOLE*, *PAtience*, *pauLINE*, *roseLYN*, *SHAron*, *SYLvia*, *STELla*, *viVIAN, yVONNE* and *zoE* (the dominant observed stress patterns adopted).

Out of the fifty disyllabic names analysed, twenty-six (52%) attracted initial stress while twenty-four (48%) were stressed on the final/ultimate syllable. The preponderance of the trochaic (SW) patterns (albeit just a slight majority), thus, makes the penultimate syllable the place of predilection for disyllabic FFns stress in NE (compare RP *AGnes, Alice*, *BIbian, BEAtrice*, *BLESsing*, *BRIDGet, CATHErine*, *ceLINE*, *CLAra,*

COMfort, CYNthia, DORcas, DOris, *Edith*, *ESther, EUnice*, *EVElyn*, *FAvour*, *FRANces, GLADys*, *GLOria*, *HANnah*, *HELen*, *HILda*, *JACQUEline*, *JAnet, joANNE, JUdith, JUliet, LIlian*, *LINda, LOveth*, *LUcy*, *LYdia*, *MAbel,MARgaret,MARtha, MAry*, *MAUreen*, *miCHELLE*, *niCOLE*, *PAtience*, *PAULine*, *ROSElyn*, *SHAron*, *STELla*, *SYLvia,VIvian, yVONNE* and *ZOe*).

The observed preponderance of the trochaic (SW) patterns was enhanced by a number of features in the linguistic structure of these names. These include features associated with the syllable structure, vowel quality and morphology/etymology of the name. These are discussed, shortly.

- **Syllable structure**

The relevant distinction, here, is that made between open and closed syllables which affect stress placement in the following ways:

a. Closed syllables assume the status of S syllables when combined with open syllables in disyllabic names and, as such, attract stress, their position notwithstanding. In initial positions, they yield trochaic (SW) patterns as in *'Cynthia*, *'Esther, 'Hilda, 'Linda* and *'Sylvia*. In ultimate positions, on the other hand, they result in iambic (WS) patterns as in *Ja'net, Jo'anne, Lo'veth, Mar'garet, Mi'chelle, Ni'cole, Su'san* and*Y'vonne*. Exceptions were noted in '*Bridget* (explained in relation to I-stressing, i.e., the tendency for the high front vowel to attract stress in NE) and '*Sharon*. In generative terms, this can be summarized as:

(1) [+voc] → [+stress]/ (C)__C (Closed syllable stressing in disyllabic FFn)

b. In a disyllabic name composed of two closed syllables, initial stress (already noted as the default pattern) tends to be upheld, again yielding a trochaic (SW) pattern. This accounts for the stress pattern of *'Frances, 'Agnes* and *'Comfort*. In generative terms, this can be summarized as:

(2) [+voc] → [+stress]/ #(C)__C (C)VC#
(Initial closed syllable stressing in disyllabic FFn)

c. When both constituents of a disyllabic FFn are open syllables, the default pattern – trochaic (SW) – still suffices as in *'Mary, 'Clara, 'Favour, 'Gloria, 'Hannah, 'Lucy, 'Lydia, 'Martha* and *'Stella*. Exception: *Zo'e* (I-stressing). Again, in generative terms, this can be summarized as:

(3) [+voc] → [+stress]/ #(C)_ $ CV# (Open syllable stressing in disyllabic FFn) where $ stands for syllable boundary and # for word boundary.

- **Vowel Quality**

A number of vowels were noted to influence stress placement in disyllabic FFns. Worthy to mention, however, that in our data and, by implication, the accent of our focus (NE), vowels are hardly distinguished by length. The observed tendencies are as follow:

a. The high front vowel /i/ generally tends to attract stress to itself in disyllabic FFns in NE, the syllable position notwithstanding. In penultimate syllable position, it produces trochaic (SW) patterns as in *'Bridget, 'Hilda*, *'Cynthia*, *'Edith*, *'Linda*, *'Lydia* and *'Sylvia*. In ultimate/final syllable position, it produces iambic (WS) patterns as in *A'lice, Cathe'rine*, Ce*'line, Do'ris, Eu'nice*, *Eve'lyn*, *Gla'dys*, *He'len, Jacque'line, Mau'reen, Pau'line* and *Rose'lyn*. Our observation on I-stressing is reinforced by the tendency for stress to shift to another syllable at the substitution of another vowel sound for /i/ as was observed in a few (male) teachers. For instance, *Edith* and *Evelyn* were variously realized as:

/'idiθ/ ~ /e'diθ/
/'ivlin/ ~ /ɛv'lin/ (where initial stress suffices only in the presence of a high, front vowel).

I-stressing is noted as the major cause of deviation from the default trochaic (SW) pattern of disyllabic names in the analysed data. However, when both syllables contain the /i/ vowel, the default (initial stress) prevails as in *'Beatrice* and *'Edith.*

This tendency is captured in generative terms as:

(4) [+voc] → [+stress]/ { ----- / +high / -back } (I-Stressing in FFn)

b. A major limitation to I-stressing observed is the presence of the high back vowel in the initial syllable of a disyllabic word. This attracts penultimate stress as in: *'Lucy, 'Judith* and *'Juliet.* Thus, this can also be captured as:

(5) [+voc] → [+stress] /#C { ------- / +high / +back } $CV(C)# (initial high back vowel stressing in FFn)

c. When the vowel nuclei in a disyllabic English FFn are the same, the default (SW) pattern is upheld as in *'Beatrice, 'Clara, 'Edith, 'Hannah* and *'Martha.*

d. Diphthongs and their reaction to stress in disyllabic names represent a meeting point for syllable structure and vowel quality. The diphthong [ia] (an approximation of RP /ɪə/), in particular, was noted to attract final stress only in closed syllables. Thus, we observed SW in *'Gloria, 'Cynthia, 'Sylvia* as against WS in *Bi'bian*, *Li'lian, Vi'vian*. Also noted was the tendency for [e] (an approximation of RP /eɪ/, also very close to cardinal vowel (2)) to attract initial stress as in *'Mabel* and *'Patience.*

- **Morphology/Etymology**

The only obvious morphological process in the disyllabic names' category is affixation/derivation. The stress-neutral affix <-ing> is attached to the verb <bless> to realise *'Blessing*. As obtained in words so derived, the stress pattern of the root is retained; hence the SW pattern. The difference between the stress patterns of *'Blessing* and *He'len*, despite the similarity in the segmental composition of their vowel peaks

can thus be traced to the morphology/etymology of the former and syllable structure of the latter.

Etymological influences were also noted in names of French origin. Characteristically, French words (including names) are stressed on the ultimate/final syllables. This pattern was heavily retained by our sample even when the vowel nucleus in the initial syllable is a high front vowel as in *Mi'chelle, Ni'cole and Y'vonne.* It must be noted, however, that although the default stress pattern of disyllabic FFns in NE, as reflected above, aligns with RP's preference for backward stress (BWS), the relatively high frequency of forward stress (FWS) in the analysed names (24 out of 50) still represents a significant deviation from RP norms.

2.1.2: Trisyllabic Female Forenames

Trisyllabic FFns analysed include *Agatha*, *aMANda*, *ANgela*, *aNIta*, *anthoNIA*, *auGUSta*, *beNIta, bernaDINE*, *biANca*, *caLISta*, *caroLINE*, *ceCIlia*, *CHRIStabel*, *corDElia*, *deBOrah*, *diAna*, *doRAthy*, *euCHAria*, *euGEnia*, *fauSTIna*, *feLIcia*, *fiDElia*, *franCIsca*, *geneVIEVE*, *georGIna*, *geralDINE*, *jaCINta*, *JENnifer*, *josePHINE*, *juSTIna*, *louIsa*, *magdaLENE, marTIna, maryANN, maryROSE*, *MIrabel, moNIca, naOmi, oLIvia, paTRIcia*, *pauLIna, perPEtua*, *priSCILla, reBECca, reGIna*, *roseMAry*, *theoDOra*, *theREsa*, *virgiNIA* and *WInifred* (showing the dominant stress patterns). The analysis showed that out of the fifty names, six (12%) demonstrated a dactylic (SWW) pattern, thirty-four (68%) were ambibranch (WSW), while the remaining ten (20%) preferred the anapaestic (WWS) pattern.

Given this preponderance of the ambibranch (WSW) pattern, it can be concluded that the penultimate syllable is the place of predilection for trisyllabic FFns stressing in NE (compare RP *Agatha*, *aMANda*, *ANgela*, *aNIta*, *anTHOnia*, *auGUSta*, *beNIta*, *BERnadine*, *biANca, caLISta*, *CAroline*, *ceCIlia*, *CHRIstabel*, *corDElia*, *DEborah*, *diAna, DOrothy*, *euCHAria, euGEnia*, *fauSTIna*, *feLIcia*, *fiDElia*, *franCISca, GENevieve*, *georGIna*, *geralDINE*, *jaCINta*, *JENnifer*, *JOsephine*, *jusTIna*, *louIsa*, *MAGdalene*, *marTIna, maryJANE, maryROSE, MIrabel, MOnica*, *NAomi*, *oLIvia*, *paTRIcia*, *pauLIna, perPEtua*, *priSCILla*, *reBECca*, *reGIna*, *ROSEmary*, *theoDOra*, *theREsa*, *virGInia and WInifred).* The preponderance of ambibranch (WSW) patterns can be accounted for under syllable structure, vowel quality and morphology/etymology as follows:

- *Syllable structure*
  a. Closed syllables were, again, generally perceived as heavy by our sample. Consequently, they attracted stress as in *A'manda*, '*Angela*, *Au'gusta*, *Bi'anca*, *Ca'lista*, *Caro'line*, '*Christabel*, *Fran'cisca*, *Gene'vieve*, *Geral'dine*, *Ja'cinta*, *Jose'phine*, *Magda'lene*, *Mary'ann*, *Mary'rose*. This tendency was, however, limited by I-stressing which has already been acknowledged as a major determinant of stress in NE. This accounts for the stress pattern of '*Mirabel*, *Jus'tina* and '*Winifred* where stress falls on open syllables with /i/ peak, the absence of the coda element notwithstanding. The tendency for closed syllables to attract stress in FFns in NE is already captured in rule (1) above.
  b. Open final syllables cause stress to fall on the penultimate syllable, thus enhancing the predominance of ambibranch (WSW) metrical pattern – the default – as in *A'manda*, *Au'gusta*, *De'borah*, *Di'ana*, *Do'rathy*, *Eu'charia*, *Fi'delia*, *Na'omi*, *Per'petua*, *Re'becca* and *Theo'dora*. This tendency is captured in Rule (6) below:

(6) [+voc] → [+stress] / #(C)V(C)_(C)CV#
(open final syllable-induced penultimate stress in trisyllabic FFn).

- **Vowel Quality**
  a. I-stressing constitutes a significant portion of the vowel quality-induced stress patterns observed in the trisyllabic FFns analysed. The high front vowel was noted to attract stress in antepenultimate position as in '*Christabel*, '*Mirabel* and '*Winifred*. It also attracted penultimate stress as in *A'nita*, *Be'nita*, *Ca'lista*, *Ce'cilia*, *Cor'delia*, *Eu'genia*, *Faus'tina*, *Fe'licia*, *Fran'cisca*, *Geor'gina*, *Ja'cinta*, *Jus'tina*, *Lou'isa*, *Mar'tina*, *Mo'nica*, *O'livia*, *Pa'tricia*, *Pau'lina*, *Pri'scilla*, *Re'gina* and *The'resa*. In *Jose'phine*, *Magda'lene*, *Gene'vieve*, and *Geral'dine,* stress placement on the final/ultimate syllable was also traceable to I-stressing. This phenomenon, which is not

sensitive to syllable structure, was already captured in rule (4) above.

- **Morphology/Etymology**

  Two main morphological processes were observed in the sampled names - compounding and affixation/derivation- and each process directly affected the stress pattern of the names.

  a. *Compounding/Compound Names*:

     In the three-syllable compound FFns sampled, it was observed that stress fell by default on the final constituent. Only three names fell within this category. It was noted, however, that when the second constituent is disyllabic, stress falls on its initial syllable as in *Rose'mary*. However, when it is monosyllabic, that only syllable in the second constituent attracts stress as in M*ary'Ann* and *Mary'Rose.*

  b. *Affixation/Derived Names*:

     A good number of names in this category were derived from identifiable male names. Interestingly, when a replacive morpheme is introduced, retaining the number of syllables in the original male name in the derived FFn, there is no significant change in stress pattern as in: *Au'gusta* (*Au'gustine)*, *Ca'lista* (*Ca'listus), Fi'delia* (*Fi'delis)* and *Pau'lina* (*Pau'linus*). However, when the affixation process involves an additive morpheme, increasing the number of syllables in the FFn, stressing is guided by the nature of the affix. Three dominant affix types were observed: stress-bearing, stress-moving and mixed affixes.

     (i) Notable stress-bearing affixes in the data are <–*ina*> and <–*ine*> as in Pau*'lina*, Geor*'gina;* and *Berna'dine, Jose'phine, Geral'dine* respectively (compare '*Paul*, *'George*, *'Bernard, 'Joseph and 'Gerald).*

     (ii) An observed stress-moving affix is <–*a*> which induced penultimate stress thereby causing stress to fall on the syllable before it, as in *Fran'cisca*, *Lou'isa*, *Mar'tina, Jus'tina* and *Theo'dora* (compare *'Francis, 'Louis,*

'Martin, 'Justin and *'Theodore*). Interestingly, the preferred patterns in this <-a> affix-based analysis of trisyllabic FFns conform to the native speaker patterns.

(iii) <–ia> exhibited three different stress properties (mixed affix) as follow:

- It is stress-moving in Ce*'cilia, Fe'licia and Pa'tricia* (compare *'Cecil, 'Felix and 'Patrick)*.
- It is stress neutral in *Eu'genia* thereby retaining the position of stress in *Eu'gene*.
- It is self-stressed in Antho*'nia* causing stress to fall on the final syllable of that name (compare *'Anthony*).

From the preceding analysis, it is possible to claim that, compared to male names, FFns entertain forward stress, particularly when they have their roots in the former. With the exception of Antho*'nia* where RP favours penultimate stress, all the FFns derived by suffixing <-ia> to a male realise native-speaker stress patterns.

2.1.3: Female forenames of four or more syllables

Out of the 120 forenames sampled, only twenty contained more than three syllables (this reveals the prevalence of shorter names in the English FFns inventory). They include: *anaSTAsia*, *angeLIna*, *apolLOnia*, *auguSTIna*, *beneDICta*, *christiAna*, *clemenTIna*, *daniELla*, *eLIzabeth*, *emmanuELla, immacuLAta, innoCENtia*, *isaBELla*, *juliAna*, *maria-goRETti, petroNILla*, *schoLAstica, stella-MAris*, *valentine* and *veROnica.*

The analysis revealed that the penultimate syllable is the place of predilection for stress in four and five-syllable FFns in NE as, out of the twenty names analysed, seventeen (85%) were stressed on the penultimate syllable. This is captured in Rule (7) below:

7) [+voc] → [+stress] / (CV)CVCVC_(C)VC_0# (Penultimate Syllable Stressing in FFns)

Three names - *E'lizabeth, Scho'lastica* and *Ve'ronica*– representing 15% of the data, were stressed on the antepenult while no final syllable stress was recorded. Unlike earlier analyses, stress in this category does not significantly depend on syllable weight, neither is I-stressing significantly potent here. The predominant determinant of stress in this category was morphology/etymology.

- **Morphology/Etymology**

A prominent feature of names in this category is the derivation of FFns from existing forenames/words through affixation e.g., *Apollonia*, *Augustina*, *Benedicta*, *Christiana*, *Clementina*, *Daniella*, *Emmanuella*, *Innocentia*, *Juliana*, *Petronilla* and *Valentina* (compare *Apollonius*, *Augustine*, *Benedict*, *Christian*, *Clement*, *Daniel*, *Emmanuel, Innocent*, *Julius*, *Peter* and *Valentine* respectively). The roots of some of these derived names can actually be traced to other languages (e.g., *Immaculata and Innocentia* of Latin origin).

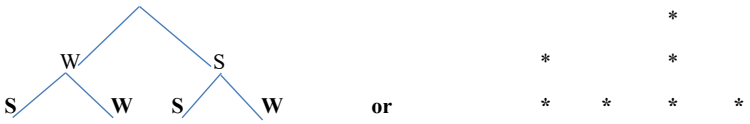
Interestingly, however, in the English-based names, we observed a convergence of the stress patterns of NE and RP. Although the prevalent pattern which is penultimate stress is reflective of forward stress (FWS), RP backward stress (BWS) seems to give way apparently to keep pace with the length of the names. The three deviant names, which attracted antepenultimate stress (*schoLAstica*, *veRONica* and *eLIZabeth*), were also in convergence with the RP stress patterns. We may, therefore, infer that the longer the name, the tendency for a convergence in stress pattern.

Further morphological analysis revealed that the affix properties earlier identified under trisyllabic names also apply to longer names.

- <–*ina*>retained its stress-bearing property in *angeLIna* and *clemenTIna* (compare '*Angel* and '*Clement* respectively).
- <–*a*>retained its stress-moving characteristics in *auguSTIna, beneDICta*, *christiAna*, *daniELla, emmanuELla, immacuLAta, juliAna, valentine* (compare *Au'gustine, 'Benedict*, '*Christian*, '*Daniel, Em'manuel, im'maculate, 'Julius* and *'Valentine* respectively).
- <–ia> sustained its stress-moving characteristics in *innoCENtia* (compare '*Innocent*) but was stress neutral in *apolLonia* (compare *Apol*'*lonius*).

Stella-'Maris and *Maria-Go'retti*, the only compound names in this group, confirm the claim that stress is assigned to the rightmost constituent in compound names. Stress was assigned to the initial syllable of the last constituent in *Stella-'Maris* and the medial syllable in the last constituent of *Maria-Go'retti,* thus sustaining the penultimate syllable as the place of predilection for stress in four and five-syllable names.

A major departure from the RP pattern in this category is the total absence of any suggestion of secondary stress in the perceived pronunciation of these names. A metrical analysis of long words of this nature would usually reveal the alternation of strong (S) and weak (W) syllables with the S syllables exhibiting different degrees of strength/stress. For instance, Anastasia, Augustina, and Valentina will metrically be analysed as:



This shows that while primary stress will fall on the penultimate syllable as a result of its being dominated by S nodes in the arboreal representation or having the highest column of grids in the metrical grid analysis, secondary/weak stress will also be recognised on the initial syllable which is relatively stronger than all the W-dominated nodes. Thus, the names will be naturally transcribed as: /ænə'steɪzɪə/, /ˌɔ:gə'stɪnə/, and /ˌvælən'tɪnə/. However, this alternation was not observed in our sample as every syllable other than the primarily-stressed was rendered with the same 'weight' yielding a WWSW pattern.

3.0: Findings and Discussion

An important revelation in the data available for this study is the fact that FFns were predominantly of three syllables or less. This submission arises from the realisation that out of the 120 names sampled, less than 17% were outside this category. Also revealed is the dominance of penultimate stress across the different sub-divisions: disyllabic (52%), trisyllabic (68%) and longer names (85%). This amounts to 64% of the names in the data.

In the disyllabic names' category, the dominance of the trochaic metrical pattern and consequent emergence of the penultimate syllable as the

place of predilection for disyllabic names stress contradicts the age-long position on the nature of NE stress which holds that stress occurs towards the end of a word (see Simo-Bobda (2010), Atoye (1991), Kujore (1985)). The finding was strengthened by the obvious preference for penultimate stress in combinations of free and checked syllables, two checked syllables, two open syllables and even two syllables with similar vowel peaks. A striking thing about the finding on disyllabic names is the absence of any significant difference in the choice of stressed syllables, with a 4% difference in favour of initial stress.

The absence of correlation with existing studies may also be attributed to the sensitive nature of names. People generally tend to assume ownership of their names and jealously guard against any attempt to 'murder' them. They consciously enforce their 'correct' pronunciation (even among their teachers). This applies to both English and indigenous names. The pronunciation of English names can easily be picked up from the broadcast media, movies and social media audio-visuals. On the other hand, teachers (particularly of English) also consciously try to pronounce their students' names 'correctly', as any obvious mispronunciation could affect the students' rating of their phonological competence. These may have accounted for the high frequency of disyllabic names of trochaic orientation. Another factor worthy of consideration is the formal nature of the context under which the data were collected. Despite this, the high frequency of divergent stress patterns resulting from delayed stresses still support the claim that stress remains a great hurdle for Nigerian speakers of English.

Considering the names of three or more syllables, the analysis revealed that name-stressing in NE is highly morphologically-conditioned. Of interest in this regard, are the roles of affixes in derived names. It was clearly established in the study that many English FFns are derived from existing male names through affixation thereby ascribing the stress pattern to the affix property. This is even more potent in names of four or more syllables. However, a closer look revealed that while additive morphemes often induce stress shifts, replacive morphemes do not have any significant impact. A conflicting result or twist was, however, noted in compound name-stressing. Unlike some other English compound nouns which are stressed on the first constituent, the compound names in the data were stressed on the rightmost constituent. This is a pointer

to the potency of forward, delayed or rightward stress in compound names.

In the area of segment-induced stress, although the study confirmed the impact of I-stressing on FFns, it demonstrated that its potency is inversely proportional to the length of the name in question. Thus, while in disyllabic and trisyllabic names I-stress outweighs syllable weight (in optimality terms), it was insignificant in longer and compound names. The cumulative effect of all these determinants of stress is what we interpret in this study as creativity.

4.0: Conclusion

This study investigated the peculiarity of FFns stress in the Nigerian accent of English using 120 names of varying phonological and morphological structures. The Generative and Metrical analyses revealed that FFns stressing in NE is systematic, creative and predictable. Notable factors in the determination of the position of the stressed syllable revealed in this study include phonological structure (syllable and segmental composition), morphological structure, and length of the names. The study demonstrates that the level of convergence between NE and RP stress patterns is directly proportional to the length of the names, with affix property playing a significant role. It equally reveals that derived names are susceptible to stress shifts only in the presence of a difference in length (often inspired by additive morphemes). Although many studies on the NE Accent consider the interference phenomenon a credible explanation to deviances, this study does not find any significant difference that could be attributed to the teachers' first language (L1) since the analysed patterns were observed in teachers whose L1 cuts across Igbo, Yoruba, Efik, Urhobo and Tiv. It, however, empirically demonstrates the beauty of rules in language and the inevitability of exceptions to every rule.

REFERENCES

Atoye, R. (1991). Word stress in Nigerian English. *World Englishes, 10, 1-6.*

Banjo, A. (1979). Beyond intelligibility: A presidential address. In Ubahakwe, E. (Ed.) *Varieties and functions of English in Nigeria* (Pp 7-13). Ibadan: AUP.

Chomsky, N. & Halle, M. (1968). *The sound pattern of English*. New York: Harper and Row.

Cutler, A. & McQueen, J. (1990). Elizabeth and John: Sound patterns of men's and women's names. *Journal of Linguistics,* 26, 471–482.

Ekeh, P.P. (ed.) (2005). *Studies in Urhobo culture*. Urhobo Historical Society. Monograph #2.

Fineman, S. & Slater, A. S. (1985). Gender and the phonology of North American first names. *Sex Roles,*13, 429-440.

Jolayemi, D. (2006). *Stress pattern of Nigerian English: An empirical phonology approach*. Gottingen, Germany: Cuvillier Verlag.

Hogg, R. and McCully, C. (1987). *Metrical phonology*: *A course book*. Cambridge: Cambridge University Press.

Hough, C. (2000). Towards an explanation of phonetic differentiation in masculine and feminine personal names. *Journal of Linguistics,* 36, 1-11.

Kujore, O. (1985). *English usage*: *Some notable Nigerian variations*. Ibadan: Evans Brothers.

Laver, J. (1996). *Principles of phonetics*. Cambridge: Cambridge University Press.

Liberman, M. & Prince, A. (1977). On stress and linguistic rhythm. *Linguistics Inquiry,* 8, 249–336.

McKinley, R.A. (1990). *A History of British surnames*. London: Taylor and Francis.

Nielsen, A.K.S. & Rendall, D. (2011). The sound of round: Evaluating the sound-symbolic role of consonants in the classic Takete-Maluma phenomenon. *Can J Psychol,* 65, 115–124.

Norman, T. (2013). *A world of baby names*. New York: Berkeley.

Obilade, T. (1984). On the nativisation of the English language in Nigeria. *Anthropological Linguistics,* 26(2), 170-185.

Pitcher, B.J., Mesoudi, A. & McElligott, A.G. (2013). Sex-biased sound symbolism in English language first names. *PLOS ONE* 8(6): e64825. Retrieved from https://doi.org/journal.pone.0064825

Roach, P. (2000). *English phonetics and phonology* (3rdEdn.). Cambridge: CUP.

Schneider, E.W. (2007). *Postcolonial English: Varieties around the World*. Cambridge: CUP.

Sidhu, D. & Pexman, P. M (2015). What's in a name? Sound symbolism and gender in first names. *Public Library of Science,* 10(5), 1-22.

SimoBobda, A. (2010). Word stress in Cameroon and Nigerian Englishes. *World Englishes,* 29(1), 59-74.

Udofot, I. (2004). Varieties of spoken Nigerian English. In S. Awonusi, & E. A. Babalola (Eds.). *The domestication of English in Nigeria: A festschrift in honour of Abiodun Adetugbo* (pp. 93-113). Lagos: University of Lagos Press.

Wells, J. (1982). *Accents of English (*vols. *1-3).* London: Arnold.

Wright, S. et al. (2005). Ladies first? Phonology, frequency, and the name ordering conspiracy. *Linguistics,* 43, 531-561.

Optimality Theoretical Analysis of the Plural Allomorphs Pronounced by Selected Nigerian English Language Teachers

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Abstract

This paper examined the pronunciation of the regular plural morpheme (-s) or (-es) by selected English Language teachers in southwestern Nigeria. Twenty-four randomly selected English Language teachers from public and private secondary schools in Ibadan North Local Government Area, Ibadan constituted the sample size. Fifteen regular plural words woven into isolated sentences and a reading passage served as the data for the study. The analysis of the data was done using Prince & Smolensky (1993) Optimality theory. The study revealed that the participants used faithfulness constraints more than markedness constraints in realising the regular plural marker '-s' or '-es' of the tested words. The regular plural marker -'s' or '-es' in words whose bases end with a voiceless or a voiced non-sibilant sound was realised as /s/, while it was realised as /ɪs/ in words whose bases end with a sibilant. The participants' realisations of the regular plural marker, except in words whose bases end with a voiceless non-sibilant sound, vary from what is obtainable in the Received Pronunciation. Some of the participants also omitted the regular plural morpheme completely in pronouncing the targeted words, which led to a case of no allomorph.

English Language teachers, Regular plural marker, Constraints, Sibilants

1. Introduction

The English language, although a non-native language in Nigeria is highly revered in many sectors of the Nigerian economy. The variety of the English spoken in Nigeria is referred to as Nigerian English (Tiffen, 1974; Banjo, 1996; Udofot, 2003; Akinjobi and Oladipupo, 2005; Sunday, 2021). It is a language variety resulting from the contact of the English language with the diverse indigenous languages existing alongside English in Nigeria (Josiah, Bodunde & Robert, 2012). In Nigeria, the use of the English language is largely pronounced in the education sector, where it is used as the language of instruction, and also taught as a

compulsory subject in primary and secondary schools. Its importance is also recognised in higher institutions, where the "Use of English" is offered as a compulsory course by all students.

In Nigerian secondary schools, the teaching of English Language is handled by qualified and skilled teachers, different from the practice in some primary schools where teachers, irrespective of their qualifications teach the subject. Therefore, these English Language teachers are seen as models by their students, and even colleagues in the use of the English language. In order for these English Language teachers to perform effectively their professional role, a good mastery of English phonological rules is germane. Notable among such English phonological rules are morphophonemic rules (Sunday, 2014).

Morphophonemic rules are formal rules that aid in the successful prediction of the regular sound change that occurs in the morphemes or words of a particular language (Uba, 2015). These rules guide in pronouncing the inflectional form of English plural nouns, which describe entities like persons, places, animals, things and ideas. In the Received Pronunciation (RP), the suffix (-s) or (-es) of the regular plural marker is realised as /s/ after voiceless non-sibilant sounds, is realised as /z/ after voiced non-sibilant sounds or vowels and is realised as /ɪz/ after sibilants (Lieber, 2009). Sibilants are sounds with hissing effect and they include /z/, /S/, /ʒ/ ʃ/, /dʒ/and /ts/.

Using Optimality theory as the theoretical basis for analysis, this study investigated the pronunciation of English plural allomorphs by selected Nigerian English Language teachers. This is with a view to describing the manner in which constraints are ranked in the realisation of these allomorphs, and to show the distinctiveness of the Nigerian variety of English.

1.1 Literature Review

Very few studies exist on the morphophonemics of the English language as they concern English regular plural words used by non-native speakers. Some of such studies related to this present study are Josiah and Udoudom (2012), Al-Janaideh and Mahadin (2015), Tamba (2016), and Adejare (2019).

Josiah and Udoudom (2012) did a morphophonemic analysis of the inflectional morphemes in English and Ibibio nouns. The study made use of multiple choice tests for data collection. The tests which were recognition tests were designed to evaluate informants' ability to identify patterns of inflection in English and Ibibio nouns. These tests were administered to 70 participants who were all secondary school students from junior secondary three (JS 3) to senior secondary three (SS 3). The findings of the study showed that while the participants had less difficulty identifying plural nouns and the suffixation process in English, they had more difficulty identifying case marking. However, the focus of this study was on the morphological aspect of morphophonemics, as the phonological aspect was not considered.

Al-Janaideh and Mahadin (2015) investigated the acquisition of the English plural morpheme by Arabic-speaking students in Jordan. Fifteen randomised lists of 15 nonsense nouns were used as the data for the study. The subjects in the study were 120 female Arabic-speaking students of the eighth and eleventh grades of Retaal International Academy and Islamic Educational College in Amman- Jordan. The study revealed a slight difference in the performance of the two sets of students as the eleventh grade students outperformed the eighth grade students in realising the plural allomorphs /s/, /z/ and /ɪz/of English.

However, the researchers gave preference to wrong usage over right usage without a cogent reason. According to Al-Janaideh and Mahadin (2015), "if the subject did not apply the plural form properly, she was asked to repeat the plural form to make sure that her pronunciation was clear enough" (p. 524). This act is unnecessary, and tends to affect the objectivity of the findings.

Furthermore, Tamba (2016) carried out a contrastive analysis of nouns inflectional process of English language and C'lela language with the aim of finding out the implication for teaching. A descriptive design was used in the study to describe the elements of contrast in English and C'lela, while fifty nouns constituted the data. The study which made use of stratified sampling technique revealed that there are more varieties of inflectional processes in C'lela language than in the English language, and that C'lela shared some similarities and dissimilarities with English. Just like Josiah and Udoudom (2012), only the inflectional aspect of

morphophonemics was considered in Tamba (2016) as the phonological aspect was not analysed nor discussed.

Finally, Adejare (2019) studied the acquisition and use of the -s plural morpheme by third-year English Education students of Lagos State University, Nigeria. The data comprised 1219 common nouns generated from essays written by 15 participants. The participants were instructed to write between 250-300 words on one of the following mutually agreed topics: "Our University Library", "INEC's Postponement of the Presidential Election", "Students and the IT World", and "My First Teaching Practice Experience". The findings of the study showed high deficiency on the part of the participants in using the -s plural morpheme appropriately, despite the various trainings they had received on English language usage. Evidence of poor learning, ignorance of rules, over-generalisation, and inconsistency abound. However, the study considered only the morphological aspect of morphophonemics like Josiah and Udoudom (2012), and Tamba (2016).

The above reviewed studies on the pronunciation of the regular plural marker -s by non-native users of the English language focused exclusively on learners without due recourse to the trained and qualified teachers of the English Language, who impact the knowledge. In the same vein, more efforts have been concentrated on the morphological aspect of the plural marker with a lesser attention on its phonological realisations. Based on the paucity of studies in these identified areas, this study investigated the morphological and the phonological uses of the regular plural marker '-s' or '-es' by selected Nigerian English Language teachers, with Optimality Theory serving as its theoretical underpinning. It is important to study this as these non-native English Language teachers exert great influence on the spoken English of their learners and are expected to speak and teach the English language, intelligibly.

1.2 Theoretical Framework

The analysis of the English plural allomorphs pronounced by selected Nigerian English Language teachers carried out in this study was hinged on Optimality theory (OT) propounded by Prince & Smolensky (1993). OT, one of the mostly used theories in phonology, caters for both segmental and suprasegmental analysis. Input (the underlying representation of the morpheme or word) and constraint (a limit on

what constitutes a possible pronunciation of a word) are the two mechanisms used in OT for determining the pronunciation of a word (Stemberger & Bernhardt, 1997). Constraints are divided into two - faithfulness and markedness. Faithfulness constraints ensure the exact preservation of the input in the output, while markedness constraints suppose that the input-output relation is governed by conditions on the well-formedness of the output (McCarthy, 2004).

GEN (Generator) and EVAL (Evaluator) are two important components used in OT. GEN generates a candidate set for possible analysis, while EVAL evaluates the relative harmony of the candidates, imposing an order on the entire set (Prince & Smolensky, 2004). Some constraints are more important than others in OT, and the less important constraints can be sometimes ignored or violated. The concept of violable constraints is a major characteristic of OT and constraints differ in their ranking in different languages. In OT, constraint violations are indicated with asterisks (*), and recurring violations of the same constraint will result in more asterisk. The violation of the most important constraint(s) is termed fatal violation, and is represented as (!). The candidate with the lesser violation of constraint(s) emerges as the optimal output and is indicated with a pointing finger (☞) (Archangeli, 1997).

In OT, the goal of a speaker is to pronounce a word using the optimal or best pronunciation of that word (Stemberger & Bernhardt, 1997). The optimal output does not violate the most important constraint(s), but, may violate the less important one(s). The elements of a ranking argument in OT are illustrated with a tableau (Kager, 1999). In prose form, ranking is indicated with ">".

The constraints relevant in the optimality analysis of the plural allomorphs realised by the selected Nigerian English language teachers are:

(1) MAX-IO(voice): Input segments must have output correspondents. It prevents deletion of segments (Kager, 1999).
(2) *DEP-IO: Output segments are not dependent on having an input correspondent and allows insertion or epenthetic sounds (McCarthy & Prince, 1995).
(3) FAITH C or FAITH(coda): Coda in the output must be faithful to the coda in the input (Kager,1999).

(4) *FAITH V- Vowel in the input must not correspond to the vowel in the output (Kager, 1999; Sunday, 2021).
(5) IDENT-IO(voice)- The voice of an input segment must be preserved in its output correspondent (McCarthy & Prince,1995).
(6) *IDENT-IO(voice): Does not agree in specification of voicing. That is, the voice of a segment in the input must not be preserved in the output (McCarthy & Prince, 1995; Kager, 1999).
(7) IDENT-IO(back): Allows the occurrence of back vowels (McCarthy & Prince, 1995).
(8) *IDENT-IO(place): Does not permit in the output a constraint that shares the same place of articulation with the input (McCarthy& Prince, 1995).
(9) IDENT-IO(front): Allows the occurrence of front vowels (McCarthy& Prince, 1995).
(10) *IDENT(long V): Prevents the occurrence of a long vowel in the output.
(11) *IDENT-IO(central): Prevents the occurrence of a central vowel in the output.
(12) IDENT-IO(half-close): Ensures that the half-close vowel in the input is present in the output.

2. Methodology

The Optimality theoretical analysis of the regular plural allomorphs pronounced by the selected Nigerian English Language teachers was done using descriptive method, while survey was used in getting the participants' demographic details. Two English Language teachers, each, from six public secondary schools, and two English language teachers each from six private secondary schools in Ibadan North LGA, constituted the 24 study participants. The public secondary schools whose English Language teachers participated in the study were Cheshire Secondary School, Ijokodo, St Louis Grammar School, Mokola, Anglican Commercial Grammar School, Orita- mefa, Methodist Grammar School, Ojurin, Immanuel Grammar School, Orita U.I. and Ikolaba High School, Agodi GRA. All Souls High School, Old Bodija, Starlite College, Ijokodo, Hillcrest High School, Agbowo, Walbrook College, Samonda,

Maverick College, Samonda and The Apostolic Church Model College, Ijokodo, were the private schools, whose English Language teachers served as the study participants. The rationale for the selection of the public schools was based on their popularity, and strategic locations within Ibadan North LGA, while that of the private schools was based on proximity.

The data for the study were got using three isolated sentences and a reading passage made up of 90 words. Each of the sentences consisted of a word with one of the three tested phonemes /s/, /z/ and /ɪz/ of the regular plural marker '-s' or '-es'. Also, twelve words were woven into the passage in order to describe the realisations of the regular plural marker by the selected English Language teachers. Four words each were used to check the phonemic realisations of /s/, /z/ and /ɪz/. The spontaneous speeches of the participants were also used to corroborate and juxtapose the findings from the other test materials. To use spontaneous speech, each of the participants was asked to speak for a maximum of five minutes on the topic "My experience as a secondary school English Language teacher". The renditions of each of the participants in the three test materials were audio recorded.

Lastly, twenty-four copies of a six-item questionnaire were used to obtain the demographic details of the participants on gender, ethnicity, academic qualification, course studied for the academic qualification, teaching experience and school type. Perceptual analysis of each of the tested words pronounced by the participants in the isolated sentences and the reading passage was done and presented using frequency and percentage. Optimality theory was used for the theoretical analysis.

3. Findings and Discussion

The socio-demographic details of the participants are presented in Table 1.

Table 1: Socio-demographic details of the participants

	Ethnicity			Academic qualification				Course studied for academic qualification				Teaching Experience				School type	
	I	Y	O	A	B	C	D	P	Q	R	S	0-5	6-10	11-15	16 & above	G	P
Male	-	7	-	2	3	1	1	01	02	-	4	1	-	2	04	04	03
Female	2	14	1	3	7	3	4	04	01	1	11	3	3	6	05	08	09
Total	2	21	1	5	10	4	5	05	03	1	15	4	3	8	09	12	12
Percentage (%)	8.3	87.5	4.2	20.8	41.7	16.7	20.8	20.8	12.5	4.2	62.5	16.7	12.5	33.3	37.5	50	50

Key: I- Igbo
Y- Yoruba
O- Others

A- Bachelor of Arts
B- Bachelor of Education
C- Master of Arts
D- Master of Education

P- English Language
Q- Linguistics
R- Communication and Language Arts
S- Education (Adult, Language Arts, Communication and Language Arts, English Language and Management)

G- Government-owned secondary school
P- Private-owned secondary school

3.1 Pronunciation of regular plural words whose bases end with a voiceless non-sibilant sound

In order to check the pronunciation of regular plural words whose bases end with a voiceless non-sibilant sound, *books*, *cups*, *pots*, *buckets* and *banks* were tested. The base of *cups* ends with /p/, a voiceless bilabial plosive, the bases of *pots* and *buckets* end with /t/, a voiceless alveolar plosive, while the bases of *books* and *banks* end with /k/, a voiceless velar plosive. The analysis is presented in Table 2.

Table 2: Pronunciation of regular plural words whose bases end with a voiceless non-sibilant sound

Regular plural words	Number of participants	R	
		/s/	NA
Books	24	24	-
Cups	24	20	04

Pots	24	24	-
Buckets	24	24	-
Banks	24	23	01
Total	120	115	05
Percentage	100	95.8	4.2

Key:
R- realisation of the allomorph
NA- no allomorph

Table 2 shows that the majority (95.8%) of the participants realised the allomorph of the regular plural marker (-s) in words whose bases end with a voiceless non-sibilant sound as /s/, while (7.5%) did not make use of any allomorph.

The optimality theoretical analysis of *buckets* and *banks* are presented sequentially in Tableau 1 and Tableau 2.

Tableau 1: Emergence of *buckets*

Input /bʌkɪts/ ⟶ Output [bɒkɪts]

	IDENT-IO (voice)	IDENT-IO (back)	IDENT-IO (half-close)	*IDENT-IO (voice)
☞ (i) [bɒkɪts]				*
(ii) [bʌkɪts]		*		*
(iii) [bɒkets]			*	*
(iv) [bɒkɪtz]	*!			
(v) [bɒketz]	*!		*	

Constraint ranking: IDENT-IO(voice) >> IDENT-IO(back) >> IDENT-IO(half-close)>> *IDENT-IO(voice)

Optimal candidate: [bɒkɪts]

In Tableau 1, there are five output candidates for the input /bʌkIts/. Candidates (i), (ii) and (iii) violate *IDENT-IO(voice), which disallows the output consonant from having identical voice with the input: the voiceless alveolar fricative /s/, which ends the input also ends (i), (ii) and (iii). Candidate (ii) further violates IDENT-IO(back) as it does not have the back vowel /ɒ/ present in Candidates (i), (iii), (iv) and (v). (iii) and (v) violate IDENT-IO(half-close) due to the absence of the half-close vowel /I/ (present in the input) in them. Both (iv) and (v) fatally violate IDENT-IO(voice), which allows output consonant to have identical voice with the input: the voiceless alveolar fricative /s/, which ends the input is absent in (iv) and (v). Although Candidate (iv) violates only one constraint like (i), the fatal violation of the higher ranked constraint IDENT-IO(voice) automatically eliminates it from being the optimal candidate. Candidate (i) thus emerges as the optimal candidate as it incurred a violation of the lower ranked constraint *IDENT-IO (voice).

Tableau 2: Emergence of *banks*

Input /bæŋks/ ⟶ Output [bænks]

	*IDENT-IO(place)	MAX-IO(voice)	IDENT-IO(voice)	*IDENT-IO(central)	*IDENT-IO(voice)
☞ (i) [bænks]					*
(ii) [bæŋks]	*!				*
(iii) [bænk]		*!			
(iv) [baːnks]				*	*
(v) [bænkz]			*!		

Constraint ranking: *IDENT-IO(place) >> MAX-IO(voice) >>IDENT-IO(voice) >> *IDENT-IO(central) >> *IDENT-IO (voice)

Optimal candidate: [bænks]

There are five constraints in Tableau 2; *IDENT-IO(place), MAX-IO(voice), IDENT-IO(voice), *IDENT-IO(central) and *IDENT-IO(voice). Candidate (i) violates *IDENT-IO (voice), which disallows the output consonant from having identical voice with the input. Candidate (ii), the

underlying RP output on the, other hand, fatally violates *IDENT-IO(place), a higher ranked constraint, which does not permit in the output a consonant that shares the same place of articulation with the input: the voiced velar nasal /N/ present in the input is also permitted in (ii). Candidate (ii) also violates *IDENT-IO(voice), the same way Candidate (i) violates it. Furthermore, Candidate (iii) fatally violates MAX-IO(voice), by deleting the voiceless alveolar fricative /s/ that ends the input. Candidate (iv) violates *IDENT-IO(central) which prevents the occurrence of a central vowel /ɑː/ in the output. It also violates *IDENT-IO(voice) like (i) and (ii). Candidate (v) records a fatal violation of IDENT-IO(voice), which is also a higher ranked constraint. Its coda ends with /z/, a voiced alveolar fricative, against the voiceless alveolar fricative /s/ present in the input. Although, each of Candidates (i) and (iii) and (v) has a violation, yet, the fatal violation of MAX-IO(voice) and IDENT-IO(voice), higher ranked constraints by candidate (iii) and (v) respectively, automatically eliminates them from being the optimal candidate. Candidate (i) which records only one violation of *IDENT-IO (voice), a lower ranked constraint thus emerges as the optimal candidate.

3.2 Pronunciation of Regular Plural Words whose Bases End with a Voiced Non-sibilant sound

Bags, *jugs*, *cans*, *items* and *rags* were used to test the pronunciation of regular plural words whose bases end with a voiced non-sibilant sound. The bases of *bags*, *jugs* and *rags* end with /ɡ/, a voiced velar plosive, the base of *cans* ends with /n/, a voiced alveolar nasal, while the base of *items* ends with /m/, a voiced bilabial nasal. The analysis is presented in Table 3

Table 3: Pronunciation of regular plural words whose bases end with a voiced non-sibilant sound

Regular plural words	Number of participants	R		
		/s/	/z/	NA
Bags	24	22	02	-
Jugs	24	21	-	03

Cans	24	22	02	-
Items	24	24	-	-
Rags	24	22	02	-
Total/Frequency	120	111	06	03
Percentage	100	92.5	5.0	2.5

As shown in Table 3, 92.5% of the participants pronounced the allomorph of the regular plural marker in words whose bases end with a voiced non-sibilant sound as /s/, 5.0% of them pronounced it as /z/, while 2.5% of them did not make use of any allomorph.

The optimality theoretical analysis of *bags*, *jugs* and *items* is shown in Tableau 3, Tableau 4 and Tableau 5.

Tableau 3: Emergence of *bags*

Input /bægz/ ⟶ Output [bægs]

	*IDENT-IO(voice)	*IDENT-IO(central)	FAITH (coda)
(i) [bægz]	*!		
☞ (ii) [bægs]			*
(iii) [baːgs]		*	*
(iv) [baːgz]	*!	*	

Constraint ranking: *IDENT-IO(voice) >> *IDENT-IO(central) >> FAITH (coda)
Optimal candidate: [bægs]

Tableau 3 shows the four output candidates for the input /bægz/ as well as the three constraints involved in this derivation. Candidate (i) fatally violates *IDENT-IO(voice) because it allows the output consonant to have an identical voice with the input: the voiced alveolar fricative /z/ which ends the input also ends it. Candidate (ii) violates FAITH (coda) as its coda /s/ (voiceless alveolar fricative)) is not faithful to the coda /z/ in the input. Candidate (iii) violates two constraints- *IDENT-IO(central) and FAITH(coda). It violates *IDENT-IO(central) due to its possession of

the central vowel /ɑː/, which is absent in the input. It also violates FAITH(coda) the same way (ii) violates it. The last candidate output (iv) records a fatal violation of *IDENT-IO(voice) just like (i), and further violates *IDENT-IO(central) just like (iii). Although (ii), the optimal output violates FAITH (coda), this is of no significance as it is a lower ranked constraint.

Tableau 4: Emergence of *jugs*

Input /dʒʌgz/ ⟶ Output [dʒɒgs]

	*IDENT-IO (voice)	*IDENT(long V)	MAX-IO(voice)	IDENT-IO(back)	FAITH C
☞ (i) [dʒɒgs]					*
(i) [dʒʌgz]	*!			*	
(iii) [dʒɔːgz]	*!	*!			
(iv) [dʒɒg]			*!		
(v) [dʒɔːgs]		*!			*

Constraint ranking: *IDENT-IO(voice) >> *IDENT(long V) >> MAX-IO(voice) >> IDENT-IO(back) >> FAITH C

Optimal candidate: [dʒɒgs]

As seen in Tableau 4 above, candidate (i) violates FAITH C, which ensures that the coda in the output is faithful to the coda in the input; the voiceless alveolar fricative /s/ that ends (i) is not the same with the voiced alveolar fricative /z/ that ends the input. However, since (i) does not violate the other four constraints higher in ranking than FAITH C, it therefore, emerges as the optimal output. Candidate (ii), the RP output fatally violates *IDENT-IO(voice), which disallows output consonant from having identical voice with the input. The voiced alveolar fricative /z/, which ends the input also ends (ii). Candidate (ii) further violates IDENT-IO(back), as it does not have the back vowel /ɒ/ which candidates (i) , (iii), (iv) and (v) have. Candidate (iii) records a fatal violation of *IDENT-IO(voice) like (ii). Candidates (iii) and (v) both have a fatal violation of *IDENT(long V), a higher ranked constraint that does

not permit a long vowel in the output. Candidate (iv) fatally violates MAX-IO(voice), which is also a higher ranked constraint by not ensuring input-output correspondence. (iv) deletes /s/, the voiceless alveolar fricative present in the input.

Tableau 5: Emergence of *items*

Input /ɑɪtməz/ ⟶ Output [ɑɪtems]

	*IDENT-IO(voice)	*FAITH V	FAITH C
☞ (i) [ɑɪtems]			*
(ii) [ɑɪtəmz]	*!	*!	
(iii) [aɪtemz]	*!		
(iv) [aɪtməs]		*!	

Constraint ranking: *IDENT-IO(voice) >> *FAITH V >> FAITH C
Optimal candidate: [ɑɪtems]

There are four candidates for the input /ɑɪtəmz/ in Tableau 5. Candidate (i) violates FAITH C which ensures that the coda in the output is faithful to the coda in the input. However, (i) does not violate *IDENT (voice) and *FAITH V, the two higher ranked constraints. This makes it emerge as the optimal candidate. Candidate (ii) records a fatal violation of *IDENT-IO(voice), due to the similarity in the voice of the output and the input. The voiced alveolar fricative /z/, that ends the input ends (ii). Also, (ii), the RP output fatally violates *FAITH V, a higher ranked constraint which does not expect a correspondence between the vowel in the input and the one in the output. (ii) has schwa /ə/, present in the second syllable of the input. Candidate (iii) fatally violates *IDENT-IO(voice) just like (ii), while (iv) fatally violates *FAITH V in the same manner with (ii).

3.3 Pronunciation of Regular Plural Words whose Bases End with a Sibilant

Slashes, *cages*, *batches*, *crutches* and *bandages* were used to test the pronunciation of regular plural marker (-es) in words whose bases end with a sibilant. /ʃ/, a voiceless post-alveolar fricative ends the base of

slashes, /dʒ/, a voiced post-alveolar affricate ends the bases of *cages* and *bandages*, while /ts/, a voiceless post-alveolar affricate ends the bases of *batches* and *crutches*. The analysis is presented in Table 4.

Table 4: Pronunciation of regular plural words whose bases end with a sibilant

Regular plural words	Number of participants	R			
		/s/	/ɪs/	/ɪz/	NA
Slashes	24	-	23	01	
Cages	24	-	22	-	2
Batches	24	-	24	-	-
Crutches	24	-	24	-	-
Bandages	24	01	20	-	3
Total	120	01	113	01	05
Percentage	100	0.8	94.2	0.8	4.2

As seen in Table 4, 0.8% of the participants realised the allomorph of the plural words whose bases end with a sibilant as /s/, 94.2% of the participants realised it as /ɪs/, 0.8% of the participants realised it as /ɪz/, while 4.2% of the participants did not make use of any allomorph.

Below is the optimality theoretical analysis of *slashes* and *bandages* as pronounced by the larger percentage of the participants.

Tableau 6: Emergence of *slashes*

Input /slæʃɪz/ ⟶ Output [slæʃɪs]

	*IDENT-IO(voice)	FAITH V	IDENT-IO(front)	FAITH C
(i) [slæʃɪz]	*!			
☞ (ii) [slæʃɪs]				*
(iii) [slɑːʃɪs]		*	*	*
(iv) [slɑːʃɪz]	*!	*	*	

Constraint ranking: *IDENT (voice) >> FAITH V >> IDENT-IO(front) >> FAITH C

Optimal candidate: [slæʃɪs]

In Tableau 6, Candidate (i) represents the underlying RP output, and it fatally violates *IDENT-IO(voice), which disallows the output consonant from having identical voice with the input: /z/, voiced alveolar fricative found in candidate (i) is also found in the input. Candidate (ii) records a violation of a lower ranked constraint by ending with the coda /s/ (voiceless alveolar fricative), instead of the voiced alveolar fricative /z/ that ends the input. Candidate (iii) has three violations. It violates FAITH V, which ensures a similarity between the vowel in the input and the one in the output. It has /ɑː/, a central vowel in place of the front vowel /æ/ in the input. It also violates IDENT-IO(front) that ensures that an output has the same front vowel as the input: the vowel in the first syllable of (iii) is different from the one in the input. Furthermore, (iii) violates FAITH C just like (ii). Candidate (iv) fatally violates *IDENT-IO(voice) like (i), and FAITH V and IDENT-IO(front) like (iii). Therefore, (ii) which has the lowest number of violations becomes the optimal output.

Tableau 7: Emergence of *bandages*

Input /bændɪdʒɪz/ ⟶ Output [bændeɪdʒɪs]

	*DEP	*IDENT-IO(voice)	MAX-IO	FAITH (coda)
(i) [bændɪdʒɪz]	*!	*		
☞ (ii) [bændeɪdʒɪs]				*
(iii) [bændeɪdʒ]			**	
(iv) [bændeɪdʒs]			*	*

Constraint ranking: *DEP >> *IDENT-IO(voice) >> MAX-IO >> FAITH (coda)

Optimal candidate: [bændeɪdʒɪs]

Out of the four output candidates shown in Tableau 7, candidate (i), the RP output records two violations of the higher ranked constraints, while candidate (ii), records a violation of a lower ranked constraint. Candidate (iii) violates a constraint twice, while (iv) violates two constraints. (i) fatally violates *DEP, because it does not allow the insertion of the front vowel /e/ present in the other three candidates. It also violates *IDENT-IO(voice), which disallows the output consonant from having identical voice with the input. Although (i) does not violate MAX-IO and FAITH (coda), yet, its violation of *DEP and *IDENT-IO(voice), two higher ranked constraints automatically eliminates it from emerging as the optimal candidate. Candidate (ii) violates FAITH (coda) in that the coda of its final syllable is a voiceless alveolar fricative /s/, instead of a voiced alveolar fricative /z/ present in the input. Nevertheless, candidate (ii) emerges as the optimal candidate because it violates only FAITH (coda), a lower ranked constraint. Candidate (iii) violates MAX-IO twice; it deletes /ɪ/ and /z/. Candidate (iv) violates MAX-IO because it deletes the front vowel /ɪ/ present in the final syllable of the input. In addition, (iv) violates FAITH (coda) the same way (ii) violates it.

4. Conclusion

The optimality theoretical analysis of the data revealed that the selected Nigerian English Language teachers in Ibadan North LGA, Ibadan ranked markedness constraints higher than faithfulness constraints. They pronounced the regular plural marker (-s) or (-es) of words whose bases end with a voiceless or a voiced non-sibilant sound as /s/, and the

regular plural marker of words whose bases end with a sibilant as /ɪs/. The connected speech of the participants also corroborated this assertion. Their realisations, except in words whose bases end with a voiceless non-sibilant sound, vary from what is obtainable in the RP. A possible reason for this occurrence is due to the fact that many Nigerian speakers of English are more accustomed to pronouncing words the way they are written (orthography) rather than pronouncing based on the phonological composition of words (phonology). This is in Tandem with the finding of Sunday (2014) who affirms that most Nigerian English speakers cannot differentiate between orthography and phonology which makes them to always adopt spelling pronunciation. This is due to the phonotactics system of many indigenous Nigerian languages which has a correspondence between spellings and their pronunciations (Aina and Bodunde, 2016). It was also observed from the analysis that some of these English Language teachers omitted the regular plural morpheme completely in pronouncing the targeted words thus, leading to a case of no allomorph.

Since English Language is an essential subject/course in Nigerian educational system, it is recommended that ample time be accorded to teaching undergraduate and postgraduate students of English in higher institutions the core phonological rules of English, of which morphophonemics are part. This is because these trained students are the ones that will later on teach English Language at various levels of education in Nigeria. A solid foundation is thus needed for a better productivity.

References

Adejare, R. A. (2019). The acquisition and use of the -s plural morpheme by third-year students of English in a Nigerian university. *Open Journal of Modern Linguistics*, 9, 416-445.

Aina, M.O. & Bodunde, H. (2016). Pronunciation competence of selected second language speakers of English. In A. Odebunmi, A. Osisanwo, H. Bodunde & S. Ekpe (Eds.), *Grammar applied linguistics and society: a festschrift for Wale Osisanwo* (pp. 163-176). Ile Ife: Obafemi Awolowo University Press.

Akinjobi, A. & Oladipupo, R. (2005). Patterns of intonation of some Nigerian television reporters. *Ibadan Journal of European Studies, 5*, 1-16.

Al-Janaideh, R. & Mahadin, R. (2015). The acquisition of the English plural morpheme and the regular past tense morpheme by Arabic-speaking students in Jordan. *International Review of Social Sciences, 3*(11), 512-534.

Archangeli, D. (1997). Optimality Theory: An introduction to linguistics in the 1990s. In D. Archangeli & D. Langendeon (Eds.), *Optimality Theory: an overview* (pp. 1-32). Oxford: Blackwell Publishers. https://doi.org/10.1146/annurev.anthro.28.1.531

Banjo, A. (1996). *Making a virtue of reality: an overview of the English language in Nigeria*. Ibadan: Ibadan University Press.

Josiah, U., Bodunde, H. & Robert, E. (2012). Patterns of English pronunciation among Nigerian university undergraduates: challenges and prospects. *International Journal of Business, Humanities and Technology, 2*(6), 109-117.

Josiah, U.E. & Udoudom, J.C. (2012). Morphophonemic analysis of inflectional morphemes in English and Ibibio nouns: implications for linguistic studies. *Journal of Education and learning, 1*(2), 72-81. https://doi.org/10.5539/jel.v1n2p72

Kager, R. (1999). *Optimality Theory*. Cambridge: Cambridge University Press. https://doi.org/10.1016/S0024-3841(00)00012-7

Lieber, R. (2009). *Introducing morphology*. USA: Cambridge University Press.

McCarthy, J. J. (2004). *Optimality Theory in Phonology.* Malden and Oxford: Blackwell Publishing.

McCarthy, J. & Prince, A. (1995). Faithfulness and reduplicative identity. In Beckman, J., Dickney, W. & Urbanczyk. (eds.). *Papers in Optimality Theory*. UMOP 18. 249–384.

Prince, A. & Smolensky, P. (1993). Optimality theory: constraints interaction in generative grammar. Report no. Ruccs-Tr2, New Brunswick, NJ: Rutgers University Centre for Cognitive Science.

Prince, A. & Smolensky, P. (2004). *Optimality theory*: *constraint interaction in generative grammar.* USA: Blackwell Publishing.

Stemberger, J.P. & Bernhardt, B.H. (1997). Optimality theory. In M. Ball & R. Kent (Eds.), *The new phonologies* (pp 211-245). San Diego, CA: Singular Publishing Group.

Sunday, A. B. (2014). Deletion, aspiration and nasalisation rules in Nigerian English. *Ibadan Journal of English Studies, 10*, 20-37.

Sunday, A.B. (2021). Variants of central vowels in Educated Nigerian English. *International Journal of English Studies*, 18(1), 1-6.

Tamba, M. F. (2016). A contrastive analysis of nouns and verbs inflectional processes of English and C'lela languages with teaching implication. M.Ed. Project. Dept. of Arts and Social Science. Ahmadu Bello University. Vi+ 122pp.

Tiffen, B. 1974. The intelligibility of Nigerian English. Unpublished Ph.D Thesis. University of London.

Uba, E. (2015). A morphophonemic classification of Nigerian English. *Papers in English and Linguistics (PEL), 16*, 228-247.

Udofot, I. 2003. Stress and rhythm in the Nigerian accent of English: A preliminary investigation. *English World-Wide, 24*(2), 201-220. https://doi.org/10.1075/eww.24.2.04udo

Perspectives on the Pronunciation of Nigerian Pidgin and Other African Languages

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Abstract

A substantial number of research works on Nigerian Pidgin (NP) deal with its sociolinguistic profile (Elugbe, 1995; Jibril, 1995; Egbokhare, 2001; Ibrahim 2007; Akande, 2021; Faraclas, 2021; among others). Studies on its pronunciation patterns are relatively few and include those by Mafeni (1971), Elugbe and Omamor (1991), Elugbe (2008, 2015), Faraclas (2013), Ojarikre (2015), among others. This paper sets out to examine the pronunciation patterns of NP as used in the media in five different geographical locations in Nigeria with a view to identifying peculiarities associated with each zone and establishing a common or what may be a 'standard' variety of the language. Data were analyzed using auditory perception by the author who is herself a fluent speaker of NP. It was found that the Warri variety is the one commonly spoken in the media across the zones. For this reason, it was selected as the standard variety and described in some detail.

1. Introduction

Merriam-Webster defines pronunciation as 'the act or manner of pronouncing something; the way in which a word or name is pronounced; a particular person's way of pronouncing a word or the words of a language'. Pronunciation is concerned with the production of the sounds that are used to make meaning in a language; the way in which they are spoken and aspects of speech beyond the sounds, such as stress, rhythm, intonation, voice quality, colloquial use, and others. Through pronunciation, information as to whether a speaker of a language speaks it well or badly, uses the correct or wrong sounds, displays peculiar accent that depicts the geographical area he/she hails from, can easily be identified and used to judge the speaker. Pronunciation is often described as "phonology in action" (www.quora.com). Phonology is a branch of Linguistics that studies the sounds of a language as well as the relationships that exist between them. Crystal (2008:365) defines phonology as 'a branch of linguistics

which studies the sound systems of languages' while Davenport and Hannahs (2010:5) state that it 'specifies the actual pronunciation of each sound that makes up a word'. From the definitions and explanations above, only a thin line exists between pronunciation and phonology. In this presentation, we examine the sounds of Nigerian Pidgin (henceforth NP) spoken in five different locations in Nigeria, namely, Warri (Delta State), Onitsha (Anambra State), Port Harcourt (Rivers State), Lagos (Lagos State), and Abuja (Federal Capital Territory). We highlight some identifiable peculiarities and describe features of the Warri variety which is commonly regarded as the standard spoken variety.

2. **Pidgin Versus Creole**

Todd (1974:1) describes pidgin as a language that 'arises to fulfill certain restricted communication needs among people who have no common language' while Crystal (2008) defines it as a language with a markedly reduced grammatical structure, lexicon and stylistic range when compared with other languages but which is not the native language of any group of people. He states further that pidgins are formed by two mutually unintelligible speech communities attempting to communicate, each successively approximating to the more obvious features of the other's language. From the above descriptions, it is obvious that a pidgin arises from contact situations in which the groups in contact have no common language yet, there is an urgent need for communication between their members.

Although it has commonly been held that the contacts that have resulted in the development of pidgins have often been associated with trade between a dominant group whose language, called the superstrate language, supplies the bulk of the lexicon, and a less dominant, often multilingual group whose language(s), called the substrate language(s) controls its syntax, Faraclas (1996, 2013, 2021) maintains that the emergence of pidgins and creoles cannot be traced to a single source. As a result, pidgin has been called a hybrid, contact, trade or auxiliary language (Elugbe and Omamor, 1991). This may be why it is often regarded by speakers of the dominant languages as an inferior language that is useful mainly for familiar and informal conversations with the lower class of people in the social structure and unfit for serious domains like education and governance. Pidgins are often named after the dominant or superstrate languages and so we talk about English-based pidgin, Portuguese-based pidgin, French-based pidgin, and so on.

In West Africa, pidgin developed initially from trade contacts between European traders and the indigenous coastal peoples. According to Elugbe and Omamor (1991), the first Europeans to arrive the West African coast were the Portuguese in the 1400s and they established some kind of Portuguese-based pidgin, evidence of which can be seen in a number of Portuguese words found in the pidgin spoken in the region. They were followed by the French and German who did not make as much impact on the language situation. The last group was the English and they made the greatest linguistic impact on the region. This is because they were involved not only in trade but also in politics, religion and education; their language, therefore dominates the pidgin that developed in the area in which they operated. According to Spencer (1971:5), during the colonial era, Pidgin English lived an 'underground' existence, swept under the carpet by almost all colonial educators, and those who made use of it in public were regularly sanctioned and made to be ashamed of it. Over the years, however, pidgin has grown to become a popular language, used by people of every social and educational class and in virtually every domain of human communication. Its grammar and vocabulary have become more complex and expanded although it is still not officially recognized by any government in the region. Notable English-based pidgins and creoles in West Africa include Sierra Leone Krio, Ghanaian Pidgin, Nigerian Pidgin and Cameroonian Pidgin. Each of these varieties is said to have developed from the coastal areas and gradually spread to the upland areas and today, they are about the most spoken languages in the respective countries.

When a pidgin acquires native speakers, it is called a creole. Bakker (2008:131-135) cited by Mowarin (2012) identifies four sub-varieties of pidgins, namely: jargons, pidgins, pidgin-creoles and creoles. He describes a pidgin-creole as a class in between a pidgin and a creole, a former pidgin that has become the main language of a speech community and/or a mother tongue of some of its speakers. He states further that a pidgin-creole is not a creole because it is not the language of an ethnic or political group or the mother tongue of a whole speech community. He admits that it is always difficult to distinguish between pidgins and pidgin-creoles and between pidgin-creoles and creoles. However, Faraclas (2021:9), chooses to treat NP and most of the English lexifier varieties related to it as creoles rather than pidgins because, according to him, they are used in all walks of life (rather than being

restricted to limited contexts such as markets) and are spoken by significant numbers of people, even whole communities as one of their first and/or home languages. In this work, we follow Mowarin (2012, 2021) and regard NP as a pidgin-creole.

3. Nigerian Pidgin (NP)

Nigerian Pidgin is also called Nigerian Pidgin English (NPE) and, more recently in 2010 at a conference organized by IFRA Nigeria, Ibadan, the name Naija was added to the list of its names. Mafeni (1971) and Elugbe and Omamor (1991) among others claim that NP developed from contact between the multilingual, multiethnic and multicultural peoples of the coastlines of the Niger-Delta region of Nigeria and the early European traders, notably the Portuguese and later the English from about the middle of the 15th century. This explains why its linguistic resources are drawn from English, Portuguese and Nigeria's indigenous languages. According to Mafeni (1971), while its origin lies historically in the early contacts between Europeans and Africans on the coast, its development and spread is essentially a product of urbanization and contacts between Africans. Elugbe and Omamor claim that NP first started in the coastal cities of Calabar, Port Harcourt and Warri and was encouraged by the linguistic heterogeneity of these areas. Its spread and development in other parts of the country was initially hampered by relative linguistic homogeneity of those areas: Hausa in the north, Igbo in the southeast and Yoruba in the southwest. However, as noted by Faraclas (1996, 2021), the spread and utility value of NP in domains other than trade that include politics, religion, education, etc. point to the fact that its emergence cannot be traced to a single source.

Faraclas (2021:28) puts the population of NP speakers in Nigeria as at 2020 to be about 110,520,000, making it not just the biggest language in Nigeria but about the most spoken language in the world. It is projected that based on the rapid population growth in Nigeria, the figure may increase to about 300 million by the year 2050. Modern NP vocabulary has expanded extensively, its grammar is quite complex and it is now used in virtually every domain of communication to overcome language barriers in the home, workplace, mass media, government circles, political discourse and even in the classroom by teachers to explain difficult concepts. A recent private survey by this writer conducted among young undergraduate students of the Delta State University, Abraka, to find out about language use among them revealed that NP was more commonly used than English and their native

languages. Some of the reasons adduced include the fact that it is easy to understand, it enables its users to be creative and to communicate freely with both literates and illiterates, with people from within and outside the same linguistic background, and to express themselves freely without having to bother about the complex phonological and grammatical rules which make English difficult for them to handle. For some of the respondents, using NP also goes with the aura of using a 'foreign' language. The socio-linguistic profile of NP has surpassed what one would have thought of it some 50 years ago. The negative attitude and stigmatization that was associated with it has faded drastically and today, there is no region, zone or state in Nigeria where speakers of NP do not abound. Citing Jowitt (2019), Akande (2021:2) states that NP has become the unofficial lingua franca in several domains in Nigeria. Apart from its linguistic value in Nigeria, NP has also been found to be a popular language among West African immigrant communities in Europe and America, utilized as a lingua franca and language of group identity (Faraclas, 2021; Mair, 2021).

Elugbe (2008, 2015) identifies varieties of NP based on geographical/ horizontal, and educational/ vertical peculiarities, with the geographical differences, which are usually determined using phonetic variations, being more obvious than the educational ones. According to him, 'it is easier to say that someone is speaking a Northern variety than that one is speaking a graduate or school certificate … variety of NP' (Elugbe 2015:431). Apart from the influence of phonological and lexical resources from the local languages into NP, variations can also be found along the lines of age and domain of use. Nevertheless, there is a high degree of mutual intelligibility among the varieties and it is a commonly accepted fact that the flavour of the Delta pidgin spoken in Sapele and Warri including their environs is different and is considered to be the 'original' variety of the language (Aziza, 2003; Mowarin, 2008, 2021; Elugbe, 2015). Other regional varieties of NP that are commonly spoken about are Benin Pidgin, Port Harcourt Pidgin and Lagos Pidgin.

4. **Previous Studies on the Phonology of NP**

As mentioned earlier, works that examine the phonology of NP are relatively few when compared to those that discuss its sociolinguistic profile. They include Mafeni (1971), Elugbe and Omamor (1991), Elugbe (2008, 2015), and Mensah, Ukaegbu and Nyong (2021).

Mafeni describes the variety of NP spoken in the Sabon Gari area of Kano by people from southern Nigeria. His work is said to be the first scientific publication on the phonology of NP (Elugbe 2008:55). He postulates 24 consonant segments for NP thus:

Nasal:	/m, n, ɲ/
Plosive:	/p, b, t, d, k, g, kp, gb/
Affricate:	/ʧ, ʤ/
Roll Tap:	/r/
Lateral:	/l/
Fricative:	/f, v, s, z, ʃ, ʒ, h/
Approximant:	/j, w/

He points out that some varieties of NP do not have the phoneme /v/ and replace it with /f/, some lack /z/ and replace it with /s/, and many lack /ʒ/ and replace it with /ʃ/.

He identifies 7 oral vowel segments: /i, e, ɛ, a, ɔ, o, u/ for the language but no nasal vowels and, although he recognizes that phonetic diphthongs are possible, he treats them as sequences of vowel plus consonantal glide. He therefore transcribes a word like 'proud' as /prawd/. As for its syllable structure, he identifies 8 syllable types: V, CV, VC, CVC, CCV, VCC, CCVCC and N. The generalized formula is (p. 108): /C_{0-2} V C_{0-2}/ and /N/

Elugbe and Omamor (1991:79ff) postulate 25 consonant phonemes for NP as follows:

Nasals:	/m, n, (ɲ), ŋ, (ŋw)/
Plosive:	/p, b, t, d, k, g, kp, gb/
Affricate:	/(ʧ), ʤ/
Fricative:	/f, v, s, z, (ʒ)/
Lateral:	/l/
Approximant:	/ɹ, j, w, h/

According to them, the four consonant sounds in parenthesis above: ɲ, ŋw, ʧ, and ʒ are of a doubtful status, and also that ʒ occurs only in varieties in which there is interference from Standard English. This present study does not agree with the latter claim but considers ʒ as a sound of NP (see Section 5.1). They also state that ʧ and ʃ may be considered dialectal/idiolectal variants of the same phoneme and [ɲ]as

a nasalized variety of /j/, just as [ŋw] is a nasalized variety of /w/ even though they attest to the existence of [j̃] and[w̃] as other variants of /j/ and /w/ respectively.

They recognize significant nasalization in environments in which no nasal segment is seen to be responsible. They give the examples (p. 81):

1a. **na ĩ tɔk am**	'he said it/ it is he (who) said it'
1b. **dɛ̃m pe mi wɔ̃ ʃilĩ**	'they paid me one shilling'

To account for this phenomenon, they postulate an underlying 'non-segmental nasal element whose sole function is 'to nasalize surrounding vowels and any approximant next to them'. However, rather than this approach, this writer believes that a non-linear approach such as the autosegmental framework would be better and more economical to account for the phenomenon (see Section 5.2).

For the vowel phonemes, Elugbe and Omamor also attest to the 7 oral vowels earlier identified by Mafeni. In addition, they recognise a feature of significant nasalization which is represented as /n/ after the vowel on which it is realized, and 7 vowel sequences: ai, ɔi, au, iɛ, iɔ, ia, oa. They agree with Mafeni on the syllable types found in NP.

Elugbe (2008) lists 27 consonant segments for NP by adding /ʃ/, the voiceless palate-alveolar fricative and /r/, the voiced alveolar approximant to those identified in Elugbe and Omamor (1991). He posits the same 7 oral vowel segments, /i, e, ɛ, a, ɔ, o, u/, 5 nasal vowel segments, / ĩ, ɛ̃, ã, ɔ̃, ũ/ and 3 diphthongs /ae, ao, ɔe/ which could be said to correspond to /ai, au, ɔi/ respectively with slightly lower closures. He states that the 7 vowel segments and the 3 diphthongs of NP are a simplification of the English vowel system, postulating the following correspondences (pp.60-61):

English	correspond(s) to	NP
/iː, ɪ/		/i/
/ɛ/		/ɛ/
/æ, aː/		/a/
/ɒ, ɔː, ʌ/		/ɔ/
/ʊ, u/		/u/
/əː, ɜː/		/ɛ, a/
/ə/		/a, ɔ/
/ei/		/e, ee/
/əʊ, oʊ/		/o, oo/
/ai/		/ae/
/aʊ/		/ao/
/ɔɪ/		/ɔe/

He, however, treats the English centring diphthongs /ɪə, ɛə, ʊə/ as vowel sequences in NP corresponding to /ia, ɛa, uɔ/ respectively. He states that NP vowels /e/ and /o/ do not have nasal counterparts. While this may be true of some NP varieties such as the Southwest variety and this can be an influence from Yoruba which also lacks /ẽ, õ/ in its vowel inventory, in the Warri variety under study both ẽ and õ are attested.
Elugbe identifies two types of nasalization in NP: first, the type that arises from the presence of an underlying nasal as in (2) below:

2. Nã ĩ du am 'he did it'

The nasalization of **ĩ** (the 3rd person singular pronoun) in the sentence is attributed to an underlying [**na him du am**] in which the nasal of 'him' has disappeared in the surface structure leaving its trace on the surviving vowel.

The second type of nasality is that found in words in which vowel nasalization affects a preceding consonant segment as in (3) below:

3.	yam	'yam'	becomes	[**ɲãm**] or [**j̃ãm**]
	họn	'horn'	becomes	[**hõ**] or [**h̃ɔ̃n**]

He accounts for this second type by postulating a general rule by which approximants (and the lateral) 'become nasal … or nasalized in the environment of nasalized vowels' (p.62). (See also our Section 5.1 for more discussion.)

Mensah, Ukaegbu and Nyong (2021) identify 26 consonant sounds as follows (note that /ʒ/ is not in their inventory):

Nasals:	/m, n, ɲ, ŋ/
Plosive:	/p, b, t, d, k, g, kp, gb, kw, gw/
Affricate:	/ʧ, ʤ/
Fricative:	/f, v, s, z, ʃ, h/
Trill:	/r/
Lateral:	/l/
Approximant:	/j, w/

They recognize the 7 vowels identified by earlier linguists for NP but state that the language has no diphthongs or triphthongs.
As for the suprasegmentals, Mafeni (1971) claims that NP is a tone language with two basic tones, high tone and low tone which may be correlated with two degrees of stress, high tone syllables being more heavily stressed than low tone syllables. He makes two other claims: that NP is a syllable-timed language in which syllables that constitute a stretch of utterance tend to be of equal duration, and that the intonation of NP is similar to that of English. Elugbe and Omamor (1991) and Elugbe (2008,2015) agree with Mafeni in terms of pitch, that NP is a syllable-timed language and that the intonation of NP is similar to that of English. However, they do not agree that it is a tone language preferring to describe it as a pitch-accent language because pitch is used in a syntagmatic relation in NP rather than in a paradigmatic way as in a typical tone language.

5. The Present Study

Data for this work were collected from recordings of radio discussions from five different locations across Nigeria, namely, the Delta Broadcasting Service (DBS), Warri (Delta State), Wazobia FM, Onitsha (Anambra State), Wazobia FM, Port Harcourt (Rivers State), Correct FM, Lagos (Lagos State), and BBC FM, Abuja (Federal Capital Territory). All the data were gathered from educated NP speakers for two main reasons: (a) at the time this paper was being written, there was a lockdown and restriction of movement across states in Nigeria necessitated by the COVID-19 pandemic and so we had to rely on media sources from the various locations mentioned above. (b) it was

considered that the future of NP lies in the hands of its educated speakers who use it in complex domains and this group has helped significantly in lifting its profile from a stigmatized language to one of relevance to the social, economic and political wellbeing of Nigerians at home and in the diaspora. Besides, it is anticipated that in future, this group of speakers are in the best position to relate with the powers that be in government to push for the official recognition of NP in Nigeria and enhance its status by assigning it a role.

From the data collected for this study, we make two assertions here: (a) we reiterate the fact that although varieties of NP exist, there is a high degree of mutual intelligibility among them such that sound correspondences are to a large extent predictable, and (b) the Delta variety is the one commonly used in the media and by popular comedians. We have therefore chosen to examine the sound system of NP collectively as a unit using the Warri variety as a reference point and highlight peculiarities as they arise.

5.1 Consonant Segments

26 phonetic consonant segments are identified in our data as follows:

Nasal:	[m, n, ɲ, ŋ, ŋw]
Plosive:	[p, b, t, d, k, g, kp, gb]
Affricate:	[ʧ, ʤ]
Fricative:	[f, v, s, z, ʃ, ʒ, h]
Roll	[r]
Lateral:	[l]
Approximant:	[j, w]

As we shall show in our discussion below, there are only 22 phonemic consonant segments, namely, /m, n, ɲ, p, b, t, d, k, g, kp, gb, f, v, s, z, ʃ, ʒ, h, r, l, j, w/.

5.1.1 Nasals

Of the five nasal consonants listed above, only three /m, n, ɲ/ are recognized for NP. /m/ has one allophone [m]; /n/ has two allophones: [ŋ] a homorganic nasal found whenever /n/ is followed by a velar consonant while [n] occurs elsewhere; and /ɲ/ also has two allophones which occur in free variation: [ɲ] and [j̃] the nasalized palatal approximant. They are found in the following words:

6.

/m/	**m̄ɔ̄ñ̄i**	mọni money'	**wum̄ɛ̄(n)**	wumẹn	'women'
/n/	**n̄ét̄iv**	netiv 'native'	**bãŋgá**	banga	'oil palm fruit'
/ɲ/	**ɲãŋgá/j̃ãŋgá**	nyanga 'pride'	**pàɲ̃á/p̃àj̃á**	panya	'foolish/stupid person'

The labial-velar nasal [ŋw] was found in very few words borrowed from Igbo such as [**ŋwa**] 'child', [**ŋw̃ő́kém**] 'my boy/my man'. It is not recognized here as a sound of NP because most non-Igbo speakers typically pronounce these words as [w̃ã] and [w̃ő́kém] respectively with the nasalized labial-velar approximant.

5.1.2 Plosives

Eight plosive consonant segments: /p, b, t, d, k, g, kp, gb/ are identified as phonemic and they have one allophone each. However, in the speech of Igbo speakers, a slight implosion is heard in the pronunciation of the labial-velar plosives /kp, gb/ in words such as /**òkpè**/ 'fool' and / **ógbè** / 'a place name'. Words with the labial-velars are loans from the indigenous/substrate languages. The plosives are found in the words below:

5

/p/	**pàlávà**	'trouble'		/b/	**bɔ̀rɔ̀bɔ́ró**		'one who borrows'
/t/	**tŕɛ̀k**	trẹk	'a walk'	/d/	**dɛ̀m**	dẹm	'them'
/k/	**kék**		'cake'	/g/	**gét**		'gate'
/kp/	**òkpètú**		'trouble'	/gb/	**gbèghé**		'make trouble'

5.1.3 Affricates

The affricates /ʧ, ʤ/ are heard clearly in the pronunciations of speakers of NP whose indigenous languages already have them or those who have learned them from English. Igbo speakers, for instance, have the sounds in Igbo words such as /ʧì/ **chi** 'God' and /ʤi/ **ji** 'yam' so they easily articulate them well in NP words of English origin that have them. However, in the Warri variety, the affricates are absent from the indigenous languages of the area and so they are heard in the

pronunciation of NP speakers who are influenced by Standard English. In the typical Warri variety, the affricates are replaced with the palatal fricatives /ʃ, ʒ/ respectively by the Urhobo, Isoko and Itsekiri speakers while the typical Izon speaker replaces both /ʧ/ and /ʃ/ with [s] and /ʤ/ and /ʒ/ with [z]. Therefore, in the examples in (6) below, the English words in (6a) are pronounced by the average Warri speaker as in (6b) while the typical Izon speaker pronounces them as in (6c).

6a.	English Speaker		6b.	Warri Speaker	6c.	Izon Speaker
	/ʧ/	/**ʧi:t**/ 'cheat'		[**ʃit**]		[**sit**]
	/ʧ/	/**əʧi:v**/ 'achieve'		[**aʃiv**]		[**asiv**]
	/ʤ/	/**ʤizəs**/ 'Jesus'		[**ʒizɔs**]		[**zizɔs**]
	/ʤ/	/**rɪdʒekt**/ 'reject'		[**riʒɛt**]		[**rizet**]

Elugbe and Omamor (1991) claim that **ʧ** and **ʃ** could be considered as dialectal/idiolectal variants of a single phoneme rather than as separate segments. They also regard the fricative /ʒ/ as one of the four fricatives of a doubtful status which occurs only in varieties in which there is interference from Standard English. Evidence from our data does not support this claim because the palatal fricatives /**ʃ**/ and /**ʒ**/ were found to be distinct sounds in the consonant inventory of the indigenous languages of the Warri area (apart from Izon) which fact supports the ease with which the people articulate these sounds in NP words and may not be attributed to interference from Standard English. We, therefore, posit here that **ʧ** and **ʃ** should be considered as allophones in free variation of the fricative /**ʃ**/ and **ʤ** and **ʒ** as allophones in free variation of the fricative /**ʒ**/. We thus state that NP does not have the affricates /ʧ/ and /ʤ/ and NP speakers who articulate them do so either because they are available in their indigenous languages or are the result of influence from Standard English.

5.1.4 Fricatives

Seven fricative segments are attested as follows: /f, v, s, z, ʃ, ʒ, h/. Although the labio-dental fricatives /f/ and /v/ are contrastive sounds in the Warri variety, in some other varieties, e.g. Lagos and Onitsha, it was noticed that they may occur as allophones of the same phoneme /f/ in free variation, especially in intervocalic and word/utterance-final positions. The examples in (7a) below are taken from data collected from

Warri speakers while those in (7b) are from data Lagos and Onitsha speakers:

7a.	Warri Speaker	7b.	Lagos/Onitsha Speaker	
/f/	**fívà**		**fífà**	'fever'
/v/	**vísítɔ̀**		**físítɔ̀**	'visitor'
/f/	**rìlíf màtírìàs**		**rìlíf màtírìàs**	'relief materials'
/v/	**rìmúv**		**rìmúf**	'remove'

Similarly, the alveolar fricatives /s, z/ are contrastive sounds in most of the varieties examined but in the Southwest variety [s] is more commonly heard in place of [z] and may even replace [ʃ, ʒ, ʧ]. Below are some examples:

8.	Standard NP	Southwest Variety	Gloss
/s/	**sàbí**	**sàbí**	'know'
/z/	**zàgàzágá**	**zàgàzágá / sàgàságá**	'untidy/confusion'
/ʃ/	**ʃɔ́ʃ**	**sɔ́s**	'church'
/ʒ/	**ʒãmbɔ̀dí**	**zãmbɔ̀dí**	'crowd'

The voiceless glottal fricative /h/, although has frication, often behaves as an approximant and Elugbe (2008:57) identifies it as such. It can easily be elided and can be nasalized in the environment of a nasal/nasalized segment like a typical approximant. For example:

9a. **hɛ́p / (h)ɛ́lɛ̀p** 'help' 9b. **(h)ã́(d) / ɦã́(d)** 'hand'

However, /h/ has been identified as a fricative because its behavior here is not peculiar to NP. In Urhobo, for instance, /h/ is clearly articulated with frication and behaves in a similar way as reported here (cf Aziza 1997, 2002).

5.1.5 Other Consonant Segments

The alveolar roll /r/ has two allophones that occur in free variation: [r] and the alveolar tap [ɾ]. However, whereas the tap [ɾ] is receptive to nasality in the environment of a nasal segment, the roll [r] is not. Our

data also reveal that the alveolar lateral /l/is not receptive to nasality contrary to the claim by Elugbe and Omamor (1991) that /l/ can be nasalized, and it is often not realized in word-final position. The approximants, /j, w/, are receptive to nasality within a nasal environment. In (10) below, there are words that exemplify the sounds:

10a.	/r/	**rẽ(n) / ɾẽ(n)**	'rain'
b.	/l/	**láìt/ láìt**	'light'
c.	/l/	**lɛ̃n/ lɛ̃(n)**	'learn'
d.	/l/	**akɔhɔ**	'alcohol'
e.	/r, l/	**matiria**	'marerial'
f.	/j/	**jãm/ j̃ãm / ɲãm**	'yam'
g.	**wĩn**	**/ wĩn / w̃ĩ(n)**	'win'

5.2 Vowel Segments

In our Warri data, NP vowel system includes the seven oral vowels identified in the earlier studies /i, e, ɛ, a, ɔ, o, u/, seven nasal vowels /ĩ, ẽ, ɛ̃, ã, ɔ̃, õ, ũ / and four diphthongs /ai, ɔi, iɛ, ao/. The oral monophthongs and their nasal counterparts are listed as follows:

i	**ĩ**			**u**	**ũ**
e	**ẽ**			**o**	**õ**
ɛ	**ɛ̃**			**ɔ**	**ɔ̃**
		a	**ã**		

Whereas Mafeni does not recognize the existence of nasality in NP vowels, both Elugbe and Omamor (1991) and Elugbe (2008) attest to its existence but for only5 vowels; they exclude the close-mid vowels from nasality. However, from the examples in (11) below, all 7 vowels can be nasalized, although it must be admitted that /ẽ/ and /õ/ are not as common as the other 5 nasal vowels.

11a. **ì bi̋ tɔ́k a̋(m)** I bin tọk am 'he had said it'

11b. **dì rìsríʃɔ̋ w̃ɛ̋ dɛ̋ pút i̋ plés** Di restrishọn wẹn dẹm put in ples
'the restriction that was put in place'

11c. **ì nɔ̃́ nɔ̋ sé rɛ̋ gò fɔ́** I nọ no se ren go fọl
's(he) did not know that there would be rain / the rain would fall'

11d. **w̃ɛ̋ mű kɔ̃́ dè ʃáìn** wẹ́n mún kọ́n dè sháìn 'when the moon started to shine'

Elugbe and Omamor also claim that significant nasalization which occurs in environments in which no nasal segment is found can be accounted for by postulating an underlying non-segmental nasal element /n/ whose sole function is to nasalize surrounding vowels and any approximant next to them. The examples in (12) below are taken from (Elugbe and Omamor 1991:81):

12a. [**nằ ḿ tɔ́k ằm**] 'he said it/ it was he (who) said it'

12b. [**dɛ̃̀m pé mi̋ wɔ́ ʃílì̋**] 'they paid me one shilling'

12c. **yam [ɲãm] / [j̃ãm]** 'yam'

12d. **họn [hɔ̃] / [h̃ɔ̃n]** 'horn'

Other examples can be found in (13) below:

13a. [**àì gív a̋ i̋ búk**] **ai give am im book** 'I gave him/her his/her book'

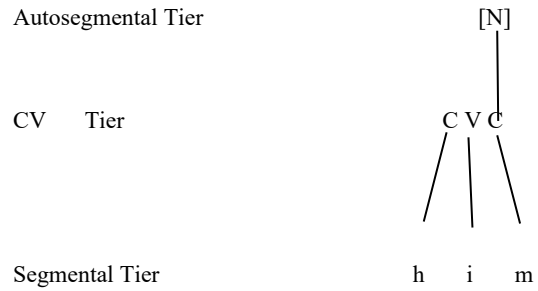
13b. **[éjìró sɛ́l i̋ háùs]** **ejiro sẹl im haus** 'Ejiro sold his/her house'

While we agree that virtually every case of significant nasalization of NP vowels can be traced to a nasal consonant which has disappeared from the surface form and /n/ can be used to represent any nasal consonant, accounting for the phenomenon using a nonlinear approach would be better than the linear approach they have adopted. This is more so because, as the form in (13b) above shows, nasality can spread as it does to the 'i' of 'his/her' after the loss of the consonants /h, s/. Note that in (13b) there is no nasal segment in the English form from which the third person singular pronoun was derived. A linear approach makes nasality

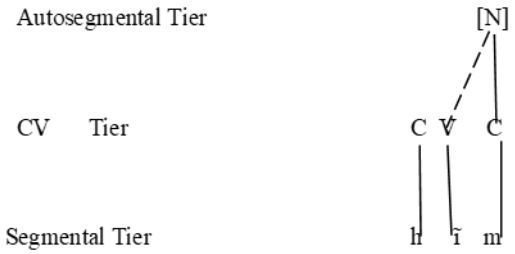
a property of the segment which requires multiple rules to explain. We believe that it is better and more economical to account for significant nasalization in NP using a non-linear approach like the autosegmental framework first propounded by Goldsmith (1976) to account for tones but later expanded to account for other non-segmental phenomena like nasality and vowel harmony. In this framework, nasality is recognized as an autosegment which can survive even after the disappearance of the segment that bore it in the underlying structure because it belongs to a separate autosegmental tier which is independent of the segmental tier to which sound segments belong. What happens to elements on one tier does not necessarily affect elements on a different tier. Elements on separate tiers are co-articulated only because they are linked by association lines. However, these association lines may be broken thereby severing the link between them and surviving elements can get relinked on neighbouring segments and be co-articulated based on well-formedness conditions that are language specific. Besides, autosegments are capable of spreading to other segments that are receptive to them within a phonological group (cf Goldsmith (1976,1990), Halle and Vergnaud (1982), Clements and Keyser (1983), Pulleyblank (1986), Aziza (2002), among others).

The nasalization of the vowels and approximants in (12) and (13) above is traceable to nasal spreading from the nasal consonants in the source words 'him', 'shilling', 'want', 'yam' and 'horn' respectively that were borrowed from English. The NP forms indicate that even with the elision of the nasal consonants that were present in the original forms, nasality survives and relinks onto the receptive segments within the environment since it is on a separate tier from the segmental tier. Thus, since nasality is an autosegment on an independent tier from the segmental tier, the disappearance of the nasal consonants notwithstanding, the nasality autosegment survives and is relinked onto a surviving segment that is receptive to it within its environment and is co-articulated with it. It should also be noted that spreading of an autosegment may be bi-directional, that is, from left to right or from right to left. The only constraint is that association lines do not cross. In (14) below, NP /ĩ/ '3rd person singular pronoun 'him'' may be derived as follows:

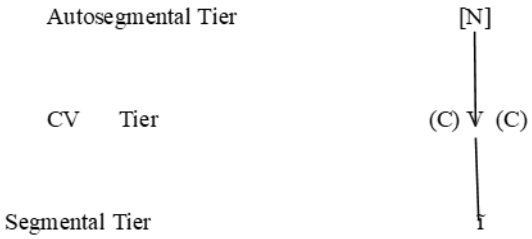
14a. Underlying Representation



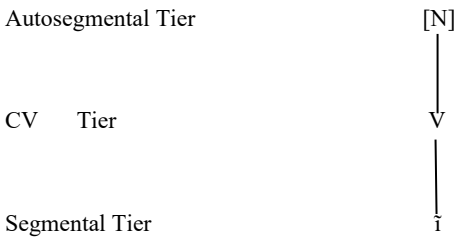
14b. By [N] Spreading



14c. By Consonant Deletion



14d. Surface Form in NP



As for the diphthongs /ai, ɔi, iɛ, ao/, their status seems somewhat unclear because, particularly among the not-so-well educated, a weak [j] is often heard between the two vowels making up each of the first three diphthongs and a weak [w] between the fourth diphthong effectively turning a CVV syllable into a CVCV word. This may be an influence from the predominantly CV syllable structure of the indigenous languages of the area. The following are some examples:

15a.	/ai/	[**hai**] / [**ha^{j}i**]	'high'
15b.	/ɔi/	[**bɔi**] / [**bɔ^{j}i**]	'boy'
15c.	/iɛ/	[**iɛ**]/[**i^{j}ɛ**]	'ear'
15d.	/ao/	[f**ao**] / [**fa^{w}o**]	'fowl'

5.3 Syllable Structure

All the eight syllable structure types identified by the earlier researchers are attested in our data as spoken by educated NP speakers. However, it is noteworthy that illiterate NP speakers have problems articulating closed syllables and consonant clusters, especially non-CrV clusters. It is common to hear either an insertion of a vowel to break a consonant cluster or a conversion of a closed syllable to an open one either by the insertion of a final vowel or the deletion of the final consonant. This pattern is traceable to influence from the substrate languages most of which have limited consonant clusters if at all. In (16) below, we present examples with the alternative pronunciation where available:

16.	V	**ĩ**	'3rd person singular pronoun'
	CV	**no**	'know'
	VC	**am / ã**	'3rd person singular pronoun'

CVC	**tɔ́k / tɔ́kù**	'talk' (insertion of a final vowel /u/ to convert a closed syllable CVC to CVCV structure.)
CVC	**pɔ́ʒ / pɔ́dʒ**	'purge'
CCV	**krai**	'cry'
VCC	**ask / as**	'ask' (deletion of /k/ to simplify a complex syllable)
CCVCC	**stand / sitãn(d)**	'stand' (insertion of /i/, optional deletion of /d/)
N	**ŋ́-kɔ́**	'form of expression showing defiance' (Yoruba)

CVC + CVC /sɪt daʊn/ 'sit down' becomes CV + CV **sidɔ̃** (deletion of /t, n/ and simplification of /aʊ/ to /ɔ̃/)

5.4 Suprasegmentals in NP

In this section, we examine pitch and intonation patterns of NP. The first thing to note is that stress, tone and intonation are closely interwoven in this language as in many African languages. Our data agree largely with the findings reported in the works reviewed earlier on both pitch and intonation. There is no doubt that NP is a syllable-timed language as each syllable in a word or utterance is uttered with equal duration; there are no weak and strong forms as there are in English. This makes NP pattern of pitch similar to that of the substrate languages. See example (17) below:

17. [dɔ́g wé nɔ̋ híɛ́ wɔ̀d dè fɔ́ló dèdì bɔ̀dí ɛ́ntá grév]
'a dog that does not listen enters the grave with the corpse'

It was also found that, although it cannot be said to be a rule, a stressed syllable in an English loan word commonly corresponds with a high tone in the NP form while the weak stress or no stress at all often corresponds with the low tone as the examples in (18) below illustrate:

18.	English	NP	
a.	/'mærɪ/	/**márì**/	'marry'
b.	/'bʊk/	/**búk**/	'book'

c.	/'leit/	**/lét/**	'late'
d.	/'wʊmən/	**/wúmǎ/**	'woman'
e.	/'kæri/	**/kárì/**	'carry'

However, there are also many words, especially disyllabic loan words from English which do not follow this pattern. In the forms in (19), whereas it is the first syllable that bears stress in the English word, in the NP form, it is the second syllable that carries the high tone.

19.	English	NP	
a.	'mʌnɪ	**mɔ̃ńǹ**	'money'
b.	'kɒpɪ	**kɔ̀pí**	'copy'
c.	'pɑ:tɪ	**pàtí**	'party'
d.	'ɑ:ntɪ	**àntí**	'auntie'

In some words, the placement of the high tone is idiolectal so that one finds alternative pronunciations, even by the same speaker. Some examples are in (20):

20a.	**mátà**	alternates with	**màtá**	'matter'
b.	**pɛ́sɪ̀**	alternates with	**pɛ̀sɪ́**	'person'

As has been previously noted, there are a few minimal pairs which differ in meaning as a result of a difference in the pitch pattern, they include:

21a.	**fàdá**	'Catholic Priest'	**fádà**	'father'
b.	**bàbá**	'an old man'	**bábà**	'barber'
c.	**sìstá**	'elder sister/relation'	**sístà**	'nurse/Reverend Sister'

From the foregoing, it is obvious that the behavior of pitch in NP is unique to itself with features of both the substrate and superstrate languages. This confirms Elugbe and Omamor (1991) and Elugbe (2008)'s description of NP as a pitch-accent language rather than a tone language as claimed by Mafeni (1971).

The intonation pattern of NP is similar to that of English: the falling tune being associated with a statement and the rising tune with a Yes/No question. A few examples are in (22 and 23) below:

22a. [**yù gò dríŋk bìɛ̀**] ↘ 'You will drink (a) beer' (Statement)

22b. [**yù gò dríŋk bíɛ́**] ↗ 'Will you drink (a) beer?' (Yes/No Question)

23a. [**wì bái bàg**] ↘ 'We bought a bag' (Statement)

23b. [**wì bái băg**] ↗ 'Did we buy (a) bag?' (Yes/No Question)

The forms in (22a, 23a) are uttered on a falling tune because they are statements while the forms in (22b, 23b) are uttered on a rising tune because they are yes/no questions.

6. Summary and Conclusion

This paper has examined pronunciation patterns of NP collected from media houses in five different locations across Nigeria and established some features of its pronunciation. It reiterated the fact that although varieties of NP exist, there is a high degree of mutual intelligibility among them such that sound correspondences are to a large extent predictable. The sound system of NP was therefore examined collectively as a unit. However, noting the fact that the Warri variety is commonly considered as the 'standard' variety and popularly used in the media and by popular artists and comedians, it was chosen as the reference point and its sound system described in some detail. It was established that standard NP has twenty-two consonants, seven oral monophthongs, seven nasal vowels and four diphthongs, although the status of the diphthongs is inconclusive at the moment. Evidence that NP is a pitch-accent language was also provided. The paper shows that although the lexicon of NP derives mainly from the superstrate (English) language, its phonology and grammar are closely related to the substrate (Nigerian) languages with which it lives.

NP definitely feels very much at home in Nigeria and has spread quite rapidly across the country both horizontally (geographically) (it is the most widely spoken language in the country) and vertically across class of speakers and domains of use. It is hoped that the Nigerian government will listen to the yearnings of the several linguists and language experts from across the world who believe that NP should be recognized and officially assigned a role to solve the language problems bedeviling the country.

References

Akande, Akinmade T. 2021. Introduction. In Akinmade T. Akande and Oladipo Salami (eds.), *Current Trends in Nigerian Pidgin English: A Sociolinguistic Perspective, 1-8.* Berlin/Boston: De Gruyter Mouton.

Aziza, R. O. 1997. *Urhobo Tone System*. Unpublished Ph.D Thesis. University of Ibadan, Nigeria.

Aziza, Rose. 2002. Nasality in Urhobo: An Autosegmental Perspective. *Journal of West African Languages,* XXIX (2),11-22.

Aziza, Rose O. 2003. Pidgin and the Indigenous Languages of the Warri Area of Delta State. In Ozo-mekuri Ndimele (ed.), *Four Decades in the Study of Languages and Linguistics in Nigeria: A Festschrift for Kay Williamson.* Aba: National Institute for Nigerian Languages.

Aziza, Rose O. 2015. Aspects of the Syntax of Modern Nigerian Pidgin. In Ruth Kramer, Elizabeth C. Zsiga and One Tlale Boyer (eds.), *Selected Proceedings of the 44th Annual Conference on African Linguistics*. Summerville, MA: Cascadilla Proceedings Project.

Berry, Jack. 1971. Pidgins and Creoles in Africa. In Sebeok, Thomas A. (Ed.), *Current Trends in Linguistics*. The Hague: Mouton

Clements, G. N. and S. J. Keyser. 1981. *Phonology: A Generative Theory of the Syllable*. Cambridge, MA: M. I. T. Press.

Crystal, David. 2008. *A dictionary of linguistics and phonetics.* (6th ed.), Oxford: Blackwell.

Davenport, Mike, and S. J. Hannahs. 2010. *Introducing phonetics and phonology*. (3rd ed.) London: Hodder Education.

Egbokhare, Francis. 2001. The Nigerian linguistic ecology and the changing profiles of Nigerian Pidgin. In Herbert Igboanusi (ed.), *Language attitude and language conflict in West Africa*, 105-124. Ibadan: Enicrownfit Publishers.

Elugbe, Ben O. and Augusta Omamor. 1991. *Nigerian Pidgin (Background and Prospects).* Ibadan: Heinemann Educational Books Nigeria Plc.

Elugbe, B. O. 1995. Nigerian Pidgin: Problems and Prospects. In Ayo Bamgbose, Ayo Banjo and Andrew Thomas (eds.), *New Englishes: A West African Perspective, 284-300*. Ibadan: Mosuro.

Elugbe, Ben 2008. Nigerian Pidgin English: Phonology. In Ragend Mesthrie (ed.), *Varieties of English: Africa, South and Southeast Asia, 55-66*. Berlin: Mouton.

Elugbe, Ben 2015. Nigerian Pidgin: Some Matters Arising. In Ikenna Kamalu and Isaac Tamunobelema (eds.). *Issues in the Study of Language and Literature: Theory and Practice*, 428 - 436. Ibadan, Kraft Books Ltd.

Ethnologue. ethnologue.com/language/pcm.

Faraclas, Nicholas. 1996. *Nigerian Pidgin*. London, Routledge.

Faraclas, Nicholas 2013. Nigerian Pidgin. Suzanne Maria Michaelis, Philippe Maurer, Martin Haspelmath and Magnus Huber (Eds.) *The Survey of Pidgin and Creole Language Structures*. apics-online.info/surveys/17.

Faraclas, Nicholas. 2021. Naija: A language of the future. In Akinmade T. Akande and Oladipo Salami (eds.), *Current Trends in Nigerian Pidgin English: A Sociolinguistic Perspective, 9-38.* Berlin/Boston: De Gruyter Mouton.

Goldsmith, John. 1976. An Overview of Autosegmental Phonology. In John A. Goldsmith (ed.) *Phonological Theory: The Essential Readings*, 137-161. Oxford: Blackwell Publishers Ltd.

Halle, M. and J. R. Vergnaud. 1982. On the Framework of Autosegmental Phonology. In H. van der Hulst and N. Smith (eds.), *The Structure of Phonological Representations 1*. Dordrecht: Foris Publications.

Ibrahim, Rabi Abdulsalam. 2007. Pidgin English in Nigeria: A Sociolinguistic Appraisal. In Ozo-mekuri Ndimele (ed.), *Convergence: English and Nigerian Languages A Festschrift for Munzali A. Jibril*, 93-100. Port Harcourt, M&J Grand Orbit Communications Ltd. & Emhai Press.

Jibril, M. 1995. The Elaboration of the Functions of Nigerian Pidgin. In Ayo Bamgbose, Ayo Banjo and Andrew Thomas (eds.), *New Englishes: A West African Perspective*, 232 - 247. Ibadan, Mosuro.

Marchese, Lynell and Anne Schnukal (1982). Nigerian Pidgin English of Warri. *JOLAN* No. 1, 213 – 219.

Mafeni, Bernard (1971). Nigerian Pidgin. In John Spencer (ed.) *The English Language in West Africa*, 95 - 112. London: Longman.

Mair, Christian. 2021. Nigerian Pidgin: Changes in prestige and function in non-Anglophone diasporic contexts. In Akinmade T. Akande and Oladipo Salami (eds.), *Current Trends in Nigerian Pidgin English: A Sociolinguistic Perspective, 39-66.* Berlin/Boston: De Gruyter Mouton.

Mensah, Eyo, Eunice Ukaegbu and Benjamin Nyong. 2021. In Akinmade T. Akande and Oladipo Salami (eds.), *Current Trends in Nigerian Pidgin English: A Sociolinguistic Perspective, 177-200.* Berlin/Boston: De Gruyter Mouton.

Mowarin, Macaulay. (2008). Aspects of Lexico-Semantic Processes in Nigerian Pidgin. *Journal of the Linguistics Association of Nigeria* 12, 57-66.

Mowarin, Macaulay. (2012). Q-Word in Nigerian Pidgin. *Journal of the Linguistic Association of Nigeria* 15 (1&2), 95-109.

Mowarin, Macaulay. 2021. Emphasis, focalization and topicalization in Nigerian Pidgin. In Akinmade T. Akande and Oladipo Salami (eds.), *Current Trends in Nigerian Pidgin English: A Sociolinguistic Perspective, 221-248.* Berlin/Boston: De Gruyter Mouton.

Muhlhausler, Peter. 1986. *Pidgin and Creole Linguistics*. Oxford: Basil Blackwell Ltd.

Ndimele, Roseline I. 2011. Communication Problems of Nigerian Pidgin Speakers. Paper presented at the Summer Conference of the Society for Pidgin and Creole Linguistics, Accra, Ghana, August 2 – 6, 2011.

Ojarikre, Anthony. 2015. A Contrastive Study of Aspects of the Segmental Phonology of Nigerian Pidgin English. *Journal of Literature, Languages and Linguistics.* Vol. 12. iiste.org/journals/index.php/ (accessed 2/5/2020).

Oribhabor, Eriata. 2009. The Use of Naija in the Media, Arts and Entertainment. Paper presented at the Conference on Nigerian Pidgin, organized by IFRA, University of Ibadan, July 8 – 9, 2009.

Pulleyblank, D. 1986. *Tone in Lexical Phonology*. Dordrecht: Reidel.

Spencer, John. 1971. West Africa and the English Language. In John Spencer (ed.) *The English Language in West Africa*. London: Longman

Todd, Loreto. 1974. *Pidgins and Creoles*. London: Routledge and Kegan Paul.

R-Impacted Tonic Vowel Monographs in Educated Nigerian Spoken English

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Abstract
This paper investigated the phonetic realizations of four vowel monographs (a, e, o, u) in Educated Nigerian Spoken English (ENSE), particularly within stressed syllables where an alveolar liquid is the onset of the immediate succeeding syllable. This is to identify the pronunciation patterns favoured in ENSE within the contexts. One hundred and forty disyllabic and polysyllabic words were administered to seventy university final year students to pronounce, and also to indicate the phonemes they cognitively assigned to those vowel monographs in the studied contexts. Their articulations were recorded and phonetic realizations of the target vowels were perceptually identified following patterns of Daniel Jones' cardinal vowels. Taxonomic and generative phonology were eclectically employed as the framework. The findings of the study revealed that ENSE speakers favour Chomsky and Halle's (1968) context-general rules 70 and 80 and do not acknowledge the r-impacted rules as obtainable in SBE. Imitation and analogy were the main factors responsible for the identified patterns. It was submitted that, while the patterns favoured in ENSE could be useful to scholars codifying Nigerian English accent, the continued promotion of such has some pedagogical implications since SBE is still being used as the model of assessments in Nigerian academic institutions.

Graphophonemics, Educated Nigerian Spoken English, vowel monographs, formal rules, underlying and surface representations

1. Introduction
The spread of English, which unarguably has earned it a place as de facto language of international commerce, education, world politics, and consequently a de jure language of governance in many commonwealth states (King, 2020), has also led to its domestication in different regions/continents resulting in what is known today as World Englishes. This nativization of English, however, does not evolve without some noticeable departure from the conventions associated with the internationally recognized standard varieties (or what is called the inner circle, following Kachru's classifications) thereby giving birth to variant features characteristic of different regions. A good number of scholars

have investigated these features viz-a-vis their regional peculiarities (Bobda, 2001; Kachru, 1983; Sey, 1973; Todd, 1982; Wolf, 2010).

Nigerian English is one of the world Englishes which has received a fair share of scholarly attention. While some of these academic works focused on describing its unique features (see Adedimeji, 2007; Adetugbo, 1977; Jowitt, 1999, 2019; Kujore, 1985), some concentrated on categorizing variations observed in the features based on speakers' educational or ethnic backgrounds (Adesonoye, 1973; Bamgbose, 1982; Jibril, 1979; Brosnahan, 1958; Odumuh, 1987). In a further quest to deepen research on Nigerian English, a number of scholars have studied its features on different aspects, some focusing discretely on its written aspects, and some on its spoken aspects. Educated Nigerian Spoken English [ENSE] (Bamgbose, 1982; Odumuh, 1984) is one of the outcomes of such attempts, with scholars either describing its supra-segmental (Jowitt, 2000; Soneye & Oladunjoye, 2015; Udofot, 2003) or segmental features (Bobda, 2007; Ubong & Babatunde, 2011; Ugorji, 2010). This paper is one of such attempts to account for the segmental features of ENSE, but from a graphophonemic (grapheme-to-phoneme-correspondence) perspective. It tests lexical items, which have similar structures, with a view to determining the common phonemic and phonetic features contextually ascribed to the selected vowel graphemes in such lexical items within ENSE, and comparing same with those of Standard British English (SBE).

1.1 The Graphophonemic Approach

The graphophonemic dimension assumed in this work was informed by the observation that the majority of young L2 users of English formally learn to read English words by mapping sounds onto the spelling units. In addition, adult users most time learn new words from the dictionary, and when articulating such words, they map onto their graphemes the phonemes to which they presume they correspond, mappings that are often influenced by overgeneralization (Li, 2010). As they use these words, others imitate them and the spread of such patterns continues (Crystal, 1997). Again, it has been acknowledged by scholars (Awonusi, 2007; Ekundayo, 2016, among others) that aside interference, some of the fossilized or institutionalized pronunciation patterns of ENSE emanated from incidences of analogy resulting from spelling pronunciation. This is what Well (2005: 4) meant when he noted that "Many of the oddities of non-native speaker pronunciation of English are due to inappropriate inference from the spelling". Thus, analysing

Nigerian English from a grapheme-to-phoneme angle will not only enrich descriptive linguistic domain but also create available resources that will expose English pronunciation teachers to the phonetic features of ENSE that originated from spelling pronunciation. This will enable them to determine the specific lexical contexts to focus on when teaching SBE pronunciation to Nigerian students or other ESL learners who need them for specific purposes.

The grapheme as used in this study means an alphabetical letter or a combination of such which represents a phoneme in a word, especially in alphabetic orthographies such as English. A grapheme is defined here as the smallest unit of a writing system of any given language. It spells a phoneme in a word. A grapheme can be categorized into monographs (those made up of one letters), digraphs (those formed by a combination of two different letters realizing single sounds), doublets (those formed by a combination of same letters realizing single sounds), and polygraphs (those formed by a combination of more than two letters). The linguistic approach that accounts for the relationship between the grapheme and the phoneme has been tagged graphophonemics (Anderson, 2014; Deschamps et al, 2004, Pukli, 2017). Graphophonemics as an approach accounts for the interplay of graphemic and phonemic units, the interplay that often determines a language's pronunciation and spelling patterns in form of rules, especially in English. For example, in the word *ball,* grapheme *a* allows doublet *ll* which corresponds to phoneme /l/, to follow it, and doublet *ll* in return influences its correspondence to /ɒ/ instead of /æ/, and also allows only a vowel monograph such as grapheme *a* to function as the nucleus of the syllable. In acknowledging the significance of this approach, Pukli (2017:3) observed that "the study of graphophonemics has uncovered a number of tendencies that can be expressed in formal rules predicting the sound of each grapheme in different positions in the word…".

1.2 Related Studies

As earlier noted, so many scholars have worked on the segmental features of spoken Nigerian English; however, only a few approached the subject explicitly from a graphophonemic angle. Among these few are Adepoju (2014), Ekundayo (2016), Okoro (2017), and Uba (2015), though Uba engaged a morphophonemic approach, which we consider to differ slightly from graphophonemics. However, explaining our

observed differences between the two approaches falls outside the scope of the present paper.

Okoro (2017) studied the pronunciation patterns of Nigerian English especially patterns resulting from spelling pronunciation, which he tagged faulty analogy and regarded as sub-standard forms. Sourcing data from personal observations and recordings, he identified some of the contexts where phonemic correspondences of some graphemes are transferred to other similar contexts in which they appear, making such realizations different from those of SBE, for example, the realization of 'flour' as /flɔ:/ because grapheme *our* is realized as /ɔ:/ in 'pour' (2017:38). It must, however, be stated that those pronunciation features of Nigerian English, emanating from spelling pronunciation, are no longer seen as errors by many scholars, but idiosyncratic features of Nigerian English (see Bamgbose, 1998; Olajide & Olaniyi, 2013; Okoro, 2004). To Bamgbose, what remains is the codification of the features and their acceptability (1998:4). In fact, available data has shown that digital recognition-cum-acceptability of Nigerian English accent is growing by the day as its patterns are being acknowledged technologically. For instance, it has been reported that in July 2019, Google announced its new Nigerian English accented voice for Maps, Google Assistant, and other Google products (Kazeem, 2019).

While examining what he called 'faulty analogy' that is characteristic of grapheme-to-phoneme correspondences in Nigerian spoken English, Adepoju (2014) hinted on the obstruction of intelligibility as one of the implications of such faulty analogy, noting that such deviations delay comprehension or even derail thought in verbal communication. Though the work examined some incidences of grapheme-to-phoneme correspondences in Nigerian English as occurred in political discourse on radio and TV programmes, it was actually a pragmatic analysis accounting for the infelicity of such usage. Using the expression, *intraference* (which we consider same as analogy or overgeneralization resulting from spelling pronunciation), Ekundayo (2016) examined the manifestation of this phenomenon in the articulation of graphemes <i> and <y> in ENSE. The study found that grapheme <i> and <y> are articulated as /i/ and /ɪ/ where RP uses /ɑɪ/, and as /ɑɪ/ where RP uses /i/ or /i:/. His study is much similar to the current paper in terms of its graphophonemic and corpus-based approach. However, while it focused on two graphemes (i and y), this paper examines four vowel monographs (a, e, o, u) appearing in similar lexical environments.

1.3 Purpose of the Study

It has been observed that when educated Nigerian users of English read out texts written in English, their phonetic realizations (pronunciation) of four English vowel monographs (a, e, o, and u), which appear in tonic syllables and are followed immediately by a liquid alveolar (realized by monograph *r* and is functioning as the onset of the succeeding syllable) vary from those of SBE. It is instructive to note that SBE is the model being adopted in Nigerian academic institutions for the teaching and learning of English phonology. In this study, the Oxford Advanced Learners English Dictionary is our selected SBE guide. The purpose of this paper, therefore, is to discover the phonemic qualities mapped onto these vowel monographs by this group of ESL users and their eventual phonetic outputs, and also to determine the factors responsible for such mappings. The underlying objectives of the study are to (1) account for the perceived ENSE phonetic representation of the selected vowel monographs within the stated environments, (2) identify the English phonemes cognitively assigned to the graphemes by Educated Nigerian users of English and compare them with their phonemic correspondences in SBE, (3) ascertain the factors responsible for the choice of those phonemes in ENSE, and (4) present the graphophonemic rules applicable in the studied environments within the SBE.

2. Methodology

One hundred and forty words used for the study were systematically collected from an online word database (wordbyletter.com). The subjects in the study comprised seventy final year undergraduate students of different disciplines drawn from two public universities. They were divided into seven groups of ten, and the ten participants forming a group were tested individually in informal settings. The collected lexical items were randomly divided into seven sets of twenty words, which were administered to each participant during each contact. The researcher had seven contacts with each participant, making it a total of four hundred and ninety contacts (within forty-nine days) to get each of them to pronounce all the words.

Before conducting a test, each participant was exposed to English phonemes using everyday or common words to demonstrate the sound each phoneme represents. In each meeting, a list of such words with their phonemic symbols was provided for the participants. Before

a participant pronounced the words, they were asked to identify a phoneme which they feel the underlined graphemes in the words should correspond to depending on how they pronounce the words. Afterwards, they were asked to pronounce the words. This was to identify the phonemes they cognitively assigned to each grapheme (as underlying representation) and their eventual phonetic outputs (as surface representation). Their articulations of the words were then recorded, played and the phonetic representations of the vowel monographs in focus were identified as perceived. In each of the last contacts, a questionnaire containing two structured questions was administered to each participant to ascertain what informed the choice of phoneme they selected for each grapheme in each word, and also to determine if they had been exposed to any of the English graphophonemic rules in the course of their education.

The data collected for the analysis were presented in statistical tables, and in accounting for the participants' phonetic representations of the target graphemes, patterns of Daniel Jones' cardinal vowels (as demonstrated in orbiting teapot YouTube Channel) were adopted.

The methodological framework for this study comprises feature-description approach of language's contrastive sounds, which is associated with taxonomic phonology, and the representation of underlying and surface levels of sounds, generation and formalization of rules, which are associated with the generative phonology. In other words, some core concepts and practices associated with the taxonomic and generative orientations were eclectically adopted for the direct analysis of the data. For instance, the various phonemes to which the studied graphemes correspond were described using taxonomic phonology terms, and the phonemes were recognized as underlying phonological representations of the graphemes while the perceived phonetic outputs were considered as the surface representations. In addition, the pronunciation rules (graphophonemic rules) observed in Standard British English (SBE) variety were presented following the generative approach of formal rule expression; however, Carney's (1994) text-to-speech rules' presentation was adopted as the model of analysis.

3. Analysis and Findings

In this section, we analyse the various phonemic correspondences of the studied four vowel monographs as obtainable in ENSE and compare

them with those of SBE. We further analyse and compare the favoured graphophonemic (pronunciation) rules between the two varieties.

3.1 Educated Nigerian Spoken English (ENSE*)* and Standard British English Phonemic Correspondences of R-Impacted Tonic Vowel Graphemes and ENSE Phonetic Outputs

The identified phonemic correspondences of the four vowel monographs as obtainable in ENSE and SBE as well as their phonetic realizations by the respondents (representing ENSE's accent) are presented in statistical tables below, each table accounting for a particular grapheme.

Table 1: Phonemic/Phonetic Correspondences of Grapheme *a* in ENSE and SBE

S/N	Lexical Item	UR	PR	NoR	SBE	S/N	Lexical Item	UR	PR	NoR	SBE
1.	V<u>a</u>ry	/æ/	[a]	59	/eə/	2.	utilit<u>a</u>rian	/eɪ/	[e]	70	/eə/
3.	N<u>a</u>ry	/æ/	[a]	70	/eə/	4.	veget<u>a</u>rian	/eɪ/	[e]	70	/eə/
5.	W<u>a</u>ry	/eɪ/	[e]	62	/eə/	6.	utilit<u>a</u>rian	/eɪ/	[e]	70	/eə/
7.	M<u>a</u>ry	/eɪ/	[e]	70	/eə/	8.	preca<u>r</u>ious	/æ/	[a]	70	/eə/
9.	Cl<u>a</u>ry	/æ/	[a]	70	/eə/	10.	honor<u>a</u>rium	/eɪ/	[e]	70	/eə/
11.	Gl<u>a</u>ry	/æ/	[a]	70	/eə/	12.	sanit<u>a</u>rium	/eɪ/	[e]	70	/eə/
13.	agr<u>a</u>rian	/eɪ/	[e]	70	/eə/	14.	sol<u>a</u>rium	/æ/	[a]	70	/eə/
15.	authorit<u>a</u>rian	/eɪ/	[e]	70	/eə/	16.	v<u>a</u>riant	/æ/	[a]	59	/eə/
17.	barb<u>a</u>rian	/eɪ/	[e]	70	/eə/	18.	v<u>a</u>riance	/æ/	[a]	59	/eə/
19.	disciplin<u>a</u>rian	/eɪ/	[e]	70	/eə/	20.	parliament<u>a</u>rian	/eɪ/	[e]	70	/eə/
21.	egalit<u>a</u>rian	/eɪ/	[e]	70	/eə/	22.	cl<u>a</u>rion	/æ/	[a]	70	/æ/
23.	humanit<u>a</u>rian	/eɪ/	[e]	70	/eə/	24.	transp<u>a</u>rent	/eɪ/	[e]	60	/æ/, /eə/

UR = ENSE underlying representation; PR = ENSE phonetic representation; NoR = number of respondents; SBE = phonemic correspondence of graphemes in SBE. The graphemes in focus are underlined in each word.

As can be seen in Table I, grapheme *a* is cognitively realized in ENSE as a closing diphthong /eɪ/ and phonetically as number two primary cardinal vowel *[e]* in some words and also cognitively as a front low short vowel /æ/, phonetically as number four primary cardinal vowel *[*a*]* in some other words within the studied environments. These realizations contrast with those of SBE in which grapheme *a* corresponds to a centering diphthong /eə/. There appears, cognitively, a point of agreement between ENSE and SBE in terms of the phoneme assigned to

grapheme *a* in the pronunciation of *clarion*, a word we can classify as an exception to the SBE pattern.

However, it appears that ENSE follows Chomsky and Halle's rule 70 which applies to our studied contexts: æ → A / _CiV or e → E / ___ CiV (1968:47). We refer to this rule as a general rule. The rule implies that /æ/ becomes [e] or /e/ becomes [i:] in the environment where it is followed by a consonant plus iV nucleus. What could be noticed in this rule is that Chomsky and Halle failed to qualify their C (Consonant). For example, the C stands for any consonant, but in SBE, a liquid alveolar realized by monograph *r* (which is a consonant) marks a change of feature in the vowel within this context, thus realizing grapheme *a* as /eə/ instead of /eɪ/. Also, in their rule 80— **v→ [+tense] / ___ {C{$^{i}_{e}$}V}**— they did not qualify their tense vowel by failing to indicate that the tensing feature may vary depending on the nature of the succeeding consonant. To further illustrate these explanations, the SBE context-general rules, including the context-specific rules, which determine the phonemic correspondences of grapheme *a*, from a text-to-speech perspective are presented and exemplified below.

Context-General Rule and R-Impacted Exceptions for Grapheme *a*

1. Context-General Rule: <a> → /eɪ/ | ___$C[1] <iV> (Carney, 1994:298; Ozim, 2017:48)

The prose statement for this rule is that grapheme *a* becomes a closing diphthong /eɪ/ where it is followed by a syllable that contains a single consonant plus grapheme *i* followed by another vowel, which forms the nucleus of another succeeding syllable (e.g. *exp**a**-**ti**-**a**te, st**a**-**di**-**u**m, **a**-li-as, **a**vi-an*) or the vowel combines with grapheme *i* to form the nucleus of that syllable, especially where the consonant grapheme realizes a palato-alveolar and there is no magic e after the graphemic coda (e.g. *gr**a**-**cio**us, **A**-sian, cont**a**-gious)*. It must be noted that this rule does not apply in some words—*mafia, retaliate, valiant, ration, gladiator*—which we can refer to as exceptions.

R-Impacted Rule, Exception to General Rule 1: <a> → /eə/ | ___$r[1] <iV> (Ozim, 2017:52)

The prose statement for the above rule is that where the consonant is a monograph *r*, grapheme *a* corresponds to centering diphthong /eə/. Examples: *prec**a**rious, sect**a**rian, v**a**riant, sol**a**rium*, etc. This operation is recognized in SBE as represented in the *Oxford Advanced English*

Learners Dictionary, but it is not recognized in ENSE as shown in the analysed data.

2. Context-General Rule: <a> → /eɪ/ | __$C[1] <y># (Carney, 1994:298)
This rule implies that grapheme *a* corresponds to /eɪ/ where it is followed by a single consonant plus grapheme *y* in a disyllabic word. Examples: *zany, shaky, wavy*, etc.

R-Impacted Rule, Exception to General Rule 2: <a> → /eə/ | __$r[1] <y># (Ozim, 2017:52)
This rule implies that where the consonant is a monograph *r*, grapheme *a* corresponds to centering diphthong /eə/. Examples: *v**ar**y, M**ar**y, ch**ar**y, sc**ar**y*, etc. **The indication of monograph *r* is vital because where the preceding consonant is realized by a doublet *rr* which coalesces into a single liquid alveolar /r/, the vowel grapheme will not correspond to diphthong /eə/, but monophthong /æ/**. Examples: *c**ar**ry, m**ar**ry, t**ar**ry*, etc.

Table 2: Free Variation in the Articulation of Grapheme *a* within ENSE

S/N	Lexical Item	UR	PR	NoR		UR	PR	NoR	Total	SBE
25.	scary	/e/	[ɛ]	50		/æ/	[a]	12	62	/eə/
26.	chary	/æ/	[a]	65		/e/	[ɛ]	05	70	/eə/
27.	sparing	/æ/	[a]	58		/e/	[ɛ]	12	70	/eə/
28.	proletarian	/eɪ/	[e]	61		/æ/	[a]	09	70	/eə/
29.	sectarian	/eɪ/	[e]	67		/æ/	[a]	03	70	/eə/
30.	totalitarian	/eɪ/	[e]	54		/æ/	[a]	16	70	/eə/
31.	librarian	/eɪ/	[e]	58		/æ/	[a]	12	70	/eə/
32.	gregarious	/eɪ/	[e]	55		/æ/	[a]	15	70	/eə/
33.	hilarious	/æ/	[a]	64		/eɪ/	[e]	06	70	/eə/
34.	multifarious	/eɪ/	[e]	45		/æ/	[a]	25	70	/eə/
35.	nefarious	/æ/	[a]	42		/eɪ/	[e]	28	70	/eə/
36.	various	/æ/	[a]	49		/eɪ/	[e]	11	60	/eə/
37.	adversarial	/æ/	[a]	53		/eɪ/	[e]	17	70	/eə/
38.	variation	/æ/	[a]	47		/eɪ/	[e]	23	70	/eə/

Incidences of free variation are also observed in the articulation of grapheme *a* in certain words within the studied environment. As can be seen in Table 2, some participants realized *a* as /æ/ [a] in some words while some realized it as /eɪ/ [e]. This observation is also made in Bobda (2007:302).

Table 3: Phonemic/Phonetic Correspondences of Grapheme *e* in ENSE and SBE

S/N	Lexical Item	UR	PR	NoR	SBE	S/N	Lexical Item	UR	PR	NoR	SBE
1.	ven<u>e</u>real	/e/	[ɛ]	70	/ɪə/	2.	imp<u>e</u>rium	/e/	[ɛ]	70	/ɪə/
3.	eth<u>e</u>real	/ɪ/	[i]	70	/ɪə/	4.	delet<u>e</u>rious	/e/	[ɛ]	70	/ɪə/
5.	imp<u>e</u>rious	/e/	[ɛ]	70	/ɪə/	6.	myst<u>e</u>rious	/ɪ/	[i]	70	/ɪə/
7.	s<u>e</u>rious	/ɪ/	[i]	70	/ɪə/	8.	sup<u>e</u>rior	/ɪ/	[i]	70	/ɪə/
9.	ant<u>e</u>rior	/ɪ/	[i]	70	/ɪə/	10.	ext<u>e</u>rior	/ɪ/	[i]	70	/ɪə/
11.	inf<u>e</u>rior	/ɪ/	[i]	70	/ɪə/	12.	int<u>e</u>rior	/ɪ/	[i]	70	/ɪə/
13.	post<u>e</u>rior	/ɪ/	[i]	70	/ɪə/	14.	ult<u>e</u>rior	/ɪ/	[i]	70	/ɪə/
15.	diphth<u>e</u>ria	/e/	[ɛ]	70	/ɪə/	16.	imp<u>e</u>rial	/e/	[ɛ]	70	/ɪə/
17.	s<u>e</u>rial	/ɪ/	[i]	70	/ɪə/	18.	val<u>e</u>rian	/e/	[ɛ]	70	/ɪə/
19.	exp<u>e</u>rience	/ɪ/	[i]	70	/ɪə/	20.	exp<u>e</u>riential	/ɪ/	[i]	70	/ɪə/
21.	sid<u>e</u>real	/e/	[ɛ]	70	/ɪə/	22.	ap<u>e</u>rients	/e/	[ɛ]	70	/ɪə/
23.	minist<u>e</u>rial	/e/	[ɛ]	70	/ɪə/	24.	f<u>e</u>ria	/e/	[ɛ]	70	/ɪə/
25.	mat<u>e</u>rial	/ɪ/	[i]	70	/ɪə/	26.	fun<u>e</u>real	/e/	[ɛ]	70	/ɪə/

In ENSE, grapheme *e* is realized phonemically within the studied environment as a front high short vowel /ɪ/ resulting phonetically in number one primary cardinal vowel [i] in some words, and phonemically as a front mid short vowel /e/ resulting in number 3 primary cardinal vowel [ɛ] (though sounds something close to [e]) in some other words, as can be seen in Table 3 (See also Bobda, 2007:302). However, in SBE, grapheme *e* is realized as a centering diphthong /ɪə/ within the lexical context. It can therefore be said that while grapheme *e* is monophthongized in ENSE, it is diphthongized in SBE. Again, to illustrate the divergence between SBE and ENSE in the phonemic correspondences of grapheme *e* within the studied contexts, we present below the context-general rules favoured by ENSE speakers and the context-specific rule recognized in SBE dictionaries.

Context-General Rule and R-Impacted Exceptions for Grapheme *e*

1. Context-General Rule: <e> → /i:/ | __$C[1] <i/eV> (Carney, 1994:320; Ozim, 2017:55)

The prose statement for this rule is that grapheme *e* becomes a front high long vowel /i:/ where it is followed by a syllable that contains a single consonant onset plus either grapheme *i* or *e* and another vowel which forms the nucleus of the last succeeding syllable (e.g. *com**e**-**d**i-**a**n, g**e**-**n**i-**u**s, amn**e**-**s**i-**a***) or combines with grapheme *i* or *e* to form a nucleus of that syllable (e.g. *coh**e**-sion, fac**e**-tious)*. It must be noted that this rule does not apply in some words: *pr**e**cious, sp**e**cial, discr**e**tion, el**e**giac, sacril**e**gious.*

R-Impacted Rule as an Exception to Rule 1: <e> → /ɪə/ | __$r[1] <iV> (See Ozim, 2017:57)
This rule implies that where the consonant is a monograph *r*, grapheme *e* corresponds to centering diphthong /ɪə/. Examples: *bact**e**r**i**a, imp**e**r**i**um, sup**e**r**i**or, crit**e**r**i**a*, *ven**e**r**e**al*, etc.

Table 4: Free Variation in the Articulation of Grapheme *e* within ENSE

S/N	Lexical Item	UR	PR	No.		UR	PR	No.	Total	SBE
27.	bacterial	/ɪ/	[i]	42		/e/	[ɛ]	28	70	/ɪə/
28.	cerium	/e/	[ɛ]	55		/ɪ/	[i]	15	70	/ɪə/
29.	hysteria	/ɪ/	[i]	40		/e/	[ɛ]	30	70	/ɪə/
30.	wisteria	/e/	[ɛ]	62		/ɪ/	[i]	08	70	/ɪə/
31.	arterial	/ɪ/	[i]	38		/e/	[ɛ]	32	70	/ɪə/
32.	managerial	/ɪ/	[i]	47		/e/	[ɛ]	23	70	/ɪə/
33.	criteria	/e/	[ɛ]	54		/ɪ/	[i]	16	70	/ɪə/
34.	cafeteria	/e/	[ɛ]	51		/ɪ/	[i]	19	70	/ɪə/
35.	ceria	/e/	[ɛ]	62		/ɪ/	[i]	08	70	/ɪə/

From Table 4, we can see that just like with grapheme *a*, there are also incidences of free variation in the articulation of grapheme *e* in ENSE within the studied context.

Table 5: Phonemic/Phonetic Correspondences of Grapheme *o* in ENSE and SBE

S/N	Lexical Item	UR	PR	NoR	SBE		S/N	Lexical Item	UR	PR	NoR	SBE
1.	glory	/əʊ/	[o]	60	/ɔ:/		2.	story	/əʊ/	[o]	60	/ɔ:/
3.	tory	/əʊ/	[o]	70	/ɔ:/		4.	accusatorial	/əʊ/	[o]	70	/ɔ:/
5.	dictatorial	/əʊ/	[o]	70	/ɔ:/		6.	editorial	/əʊ/	[o]	70	/ɔ:/
7.	equatorial	/əʊ/	[o]	70	/ɔ:/		8.	factorial	/əʊ/	[o]	70	/ɔ:/
9.	cursorial	/əʊ/	[o]	70	/ɔ:/		10.	memorial	/əʊ/	[o]	70	/ɔ:/
11.	tutorial	/əʊ/	[o]	70	/ɔ:/		12.	territorial	/əʊ/	[o]	70	/ɔ:/
13.	sensorial	/əʊ/	[o]	70	/ɔ:/		14.	senatorial	/əʊ/	[o]	70	/ɔ:/
15.	professorial	/əʊ/	[o]	70	/ɔ:/		16.	historian	/əʊ/	[o]	70	/ɔ:/
17.	emporia	/əʊ/	[o]	70	/ɔ:/		18.	euphoria	/əʊ/	[o]	59	/ɔ:/
19.	victoria	/əʊ/	[o]	70	/ɔ:/		20.	auditorium	/əʊ/	[o]	70	/ɔ:/
21.	corium	/əʊ/	[o]	70	/ɔ:/		22.	emporium	/əʊ/	[o]	70	/ɔ:/
23.	sensorium	/əʊ/	[o]	70	/ɔ:/		24.	orient	/əʊ/	[o]	70	/ɔ:/
25.	excoriate	/əʊ/	[o]	70	/ɔ:/		26.	censorious	/əʊ/	[o]	70	/ɔ:/
27.	glorious	/əʊ/	[o]	60	/ɔ:/		28.	laborious	/əʊ/	[o]	70	/ɔ:/
29.	meritorious	/əʊ/	[o]	70	/ɔ:/		30.	notorious	/əʊ/	[o]	70	/ɔ:/
31.	victorious	/əʊ/	[o]	60	/ɔ:/		32.	sartorial	/əʊ/	[o]	70	/ɔ:/
33.	gory	/ɒ/	[ɔ]	70	/ɔ:/		34.	dory	/ɒ/	[ɔ]	70	/ɔ:/

In ENSE, grapheme *o* corresponds phonemically to a closing diphthong /əʊ/ realizing phonetically the seventh primary cardinal vowel [o], but

in SBE, it corresponds to a back mid long vowel /ɔ:/. While grapheme *o* is monophthongized in SBE, it is diphthongized in ENSE. However, there are exceptions in ENSE as can be found in *gory* and *dory* in which grapheme *o* corresponds to a back low short vowel /ɒ/ instead of /əʊ/. Again, as already noted in the preceding paragraphs, SBE patterns follow the context-specific rules which are not recognized by speakers of ENSE. Speakers of ENSE rather follow the context-general rules in most words. These rules are presented below for further illustration.

Context-General Rule and R-Impacted Exceptions for Grapheme *o*

1. Context-General Rule: <o> → /əʊ/ | ___$C[1] <iV> (Carney, 1994:354; Ozim, 2017:60)
This rule implies that grapheme *o* corresponds to a closing diphthong /əʊ/ where it is followed by a syllable having a single consonant plus grapheme *i* and another vowel which forms the nucleus of another succeeding syllable (e.g. *c**o**-pi-ous, ut**o**-pi-an*) or combines with grapheme *i* to form the nucleus of that syllable (e.g. *atr**o**-cious, er**o**-sion*)

R-Impacted Rule, Exception to General Rule 1: <o> → /ɔ:/ | ___$r[1] <iV> (Ozim, 2017:60)
Where the consonant is a monograph *r*, grapheme *o* corresponds to back mid long vowel /ɔ:/. Examples: *merit**o**rious, c**o**rium, hist**o**rian, euph**o**ria*, etc.

2. Context-General Rule: <o> → /əʊ/ | ___$C[1] <y>#
Grapheme *o* becomes /əʊ/ where it is followed by a single consonant plus grapheme *y* in a disyllabic word. Examples: *st**o**ny, b**o**ny, ph**o**ny, t**o**ny*, etc.
R-Impacted Rule, Exception to General Rule 2: <o> → /ɔ:/ | ___$r[1] <y># (Ozim, 2017:61)
Where the consonant is a monograph *r*, grapheme *o* corresponds to back mid long vowel /ɔ:/. Examples: *st**o**ry, gl**o**ry, g**o**ry, t**o**ry, d**o**ry*, etc.

Table 6: Phonemic/Phonetic Correspondences of Grapheme *u* in ENSE and SBE

S/N	Lexical Item	UR	PR	NoR	SBE		S/N	Lexical Item	UR	PR	NoR	SB
1.	j<u>u</u>ror	/ʊ/	[u]	70	/ʊə/		2.	r<u>u</u>ral	/ʊ/	[u]	70	/ʊə
3.	l<u>u</u>rid	/ʊ/	[u]	70	/ʊə/		4.	p<u>u</u>rity	/ʊ/	[u]	70	/ʊə
5.	p<u>u</u>rify	/ʊ/	[u]	70	/ʊə/		6.	p<u>u</u>rist	/ʊ/	[u]	70	/ʊə
7.	j<u>u</u>risdiction	/ʊ/	[u]	70	/ʊə/		8.	c<u>u</u>rable	/ʊ/	[u]	70	/ʊə
9.	c<u>u</u>rate	/ʊ/	[u]	70	/ʊə/		10.	c<u>u</u>rative	/ʊ/	[u]	70	/ʊə
11.	d<u>u</u>rable	/ʊ/	[u]	70	/ʊə/		12.	c<u>u</u>rio	/ʊ/	[u]	70	/ʊə
13.	c<u>u</u>ria	/ʊ/	[u]	70	/ʊə/		14.	c<u>u</u>riosity	/ʊ/	[u]	70	/ʊə
15.	c<u>u</u>rious	/ʊ/	[u]	70	/ʊə/		16.	f<u>u</u>rious	/ʊ/	[u]	70	/ʊə
17.	inj<u>u</u>rious	/ʊ/	[u]	70	/ʊə/		18.	us<u>u</u>rious	/ʊ/	[u]	70	/ʊə
19.	luxurious	/ɪ/	[i]	70	/ʊə/		20.	sp<u>u</u>rious	/ʊ/	[u]	70	/ʊə
21.	pen<u>u</u>rious	/ʊ/	[u]	70	/ʊə/		22.	merc<u>u</u>rial	/ʊ/	[u]	70	/ʊə
23.	c<u>u</u>rium	/ʊ/	[u]	70	/ʊə/		24.	d<u>u</u>rian	/ʊ/	[u]	70	/ʊə
25.	pr<u>u</u>rient	/ʊ/	[u]	70	/ʊə/		26.	part<u>u</u>rient	/ʊ/	[u]	70	/ʊə
27.	inf<u>u</u>riate	/ʊ/	[u]	70	/ʊə/		28.	luxu<u>r</u>iate	/ʊ/	[u]	70	/ʊə
29.	cent<u>u</u>rion	/ʊ/	[u]	70	/ʊə/		30.	dec<u>u</u>rion	/ʊ/	[u]	70	/ʊə
31.	j<u>u</u>ry	/ʊ/	[u]	70	/ʊə/		32.	f<u>u</u>ry	/ʊ/	[u]	70	/ʊə
33.	b<u>u</u>ry	/e/	[ɛ]	70	/e/		34.	b<u>u</u>rial	/e/	[ɛ]	70	/e/

It can be noticed from Table 6 that grapheme *u* is monophthongized in ENSE but diphthongized in SBE within the studied context. While it is phonemically realized as a back mid short vowel /ʊ/ in ENSE resulting in phonetic realization of the eighth primary cardinal vowel [u], it is realized as a centering diphthong /ʊə/ in SBE (See also Bobda, 2007:302). However, there is an agreement between ENSE and SBE in the pronunciation of the words *bury* and *burial* in which grapheme *u* corresponds to /e/. Thus, we can classify these words as exceptions to the observed contextual pattern. The context-general and specific rules favoured respectively by ENSE and SBE are presented below.

Context-General Rule and R-Impacted Exceptions for Grapheme *u*

1. Context-General Rule: <u> → /u:/ | __$C[1] <iV> (Carney, 1994:373; Ozim, 2017:63)
This rule implies that grapheme *u* corresponds to a back high long vowel /u:/ where it is followed by a syllable having a single consonant plus grapheme *i* and another vowel which forms the nucleus of another succeeding syllable or combines with grapheme *i* to form the nucleus of that syllable. Examples: *d**u**bious, st**u**dious, impec**u**nious, f**u**sion,* etc.

R-Impacted Rule, Exception to General Rule 1: <u> → /ʊə/ | __$r[1] <iV> (Ozim, 2017:63)

Where the consonant is monograph *r*, grapheme *u* corresponds to a centering diphthong. Examples: *c**u**rious, f**u**rious, c**u**rium, d**u**rian*, *cent**u**rion*, etc.

2. Context-General Rule: <u> → /u:/ | __^{1}C^{1} <y># Grapheme *u* becomes /u:/ where it is followed by a single consonant plus grapheme *y* in a disyllabic word. Examples: *p**u**ny, fl**u**ky, L**u**cy*, etc. It should be noted that this rule does not apply in these words: *b**u**sy and st**u**dy*

R-Impacted Rule, Exception to General Rule 2: <u> → /ʊə/ | __$r^{1} <y># (Ozim, 2017:63)
Where the consonant is a monograph *r*, grapheme *u* corresponds to a centering diphthong /ʊə/. Examples: *jury, fury,* etc.

3.2 Factors Influencing Choice of Phonemic Correspondences of Graphemes in ENSE

Table 7: Participants' Responses on Factors Responsible for their Choice of Phonemes

Responses	Yes	%	No	%	Total	%
Analogy	55	78.57	15	21.43	70	100
Imitation	52	74.28	18	25.71	70	100
Awareness of SBE Pattern	12	17.14	58	82.86	70	100

From the participants' responses we can deduce that analogy and imitation (aside mother tongue interference) are the main factors influencing ESL users' choice of phonemes when mapping graphemes onto sounds. For instance, out of the seventy participants, fifty-two admitted that they pronounce some words based on how they hear other people pronounce them, especially common words used in everyday conversations, and fifty-five accepted that they pronounce uncommon words based on how their target grapheme is pronounced in another word which has almost the same structure (see also Li, 2010). For example, in pronouncing *nary*, speakers look at how grapheme *a* is pronounced in *carry,* and then assign the sound to the *a* in *nary*. However, some participants claimed that they are aware of certain grapheme-to-phoneme patterns in SBE. This is why in Tables 1, 2 and 5 some words do not have up to seventy participants realizing the graphemes like the common pattern in ENSE. For example, in words like

various, *vary*, *wary*, *variant*, *variation*, t*ransparent*, *scary* about ten to eleven participants realized grapheme *a* within the target context as /eə/ [ɛ], and in words like *story, glory, glorious, euphoria*, and *victorious*, the same participants realized grapheme *o* as /ɔ:/, just like the SBE pattern.

3.4 Summary of Findings

While grapheme *a* corresponds to a centering diphthong /eə/ in SBE in the studied contexts, it corresponds to a closing diphthong /eɪ/ or front low short monophthong /æ/ in ENSE which are respectively represented phonetically as [e] and [a]. For grapheme *e*, it corresponds phonemically in SBE to a centering diphthong /ɪə/ in the studied environments, but to a front high short monophthong /ɪ/ or front mid monophthong /e/ in ENSE, and these phonemes are respectively realized phonetically as [i] and [ɛ], but the [ɛ] sounds almost like [e]. While grapheme *o* corresponds phonemically to a back mid long monophthong /ɔ:/ in SBE, it becomes a closing diphthong /əʊ/ in ENSE which is phonetically realized as [o]. Again, in SBE, grapheme *u* corresponds phonemically to a centering diphthong /ʊə/ within the studied context, but in ENSE, a back high short monophthong /ʊ/ is mapped onto it resulting in phonetic realization of [u].

These findings corroborate Bobda's (2007) findings on the segmental features of Nigerian English phonology. It was also found that ENSE favours the context-general rule presented as rules 70 and 80 in Chomsky and Halle (1968) and does not acknowledge the r-impacted exception to the rules, as obtainable in SBE. Furthermore, in ENSE, there are incidences of free variation in the pronunciation of vowel monographs *a* and *e* within the studied contexts, and analogy (otherwise known as over-generalization) and imitation, as well as lack of awareness of SBE pronunciation rules, are the main factors responsible for the choice of phonemes mapped onto the target vowel monographs within the studied contexts, in ENSE. In addition, it was found that the majority of the respondents are not aware of the context-specific pronunciation rules in SBE, such as the r-impacted rules presented in this study, and it can be assumed that this is also probably common among most educated Nigerian users of English.

4. Conclusion

This paper has examined the phonemic and phonetic realizations of four vowel monographs (a, e, o, u) in ENSE specifically in stressed syllables followed immediately by monograph *r* serving as the onset of the immediate succeeding syllable. While monograph *r* impacts the vocalic qualities of the four vowel monographs in SBE, it does not in ENSE. The phonemic cum phonetic correspondences of the studied graphemes in ENSE follow the context-general rules in Chomsky and Halle's (1968), and consequently do not acknowledge the r-impacted rule which serves as an exception to the general rules, as acknowledged in SBE. It is therefore concluded that the phonemic realizations of the specified vowel monographs within ENSE differ from those of SBE, and that ENSE does not acknowledge the impact of monograph *r* in the studied environments, as obtainable in SBE. It is, therefore, our submission that, while these identified pronunciation patterns of ENSE could be useful to scholars attempting the codification of Nigerian English accent, the continued promotion of such patterns could have some pedagogical implications because our educational institutions still favour the SBE pronunciation model in their various English language classrooms.

Consequently, we recommend that English for specific purposes' practitioners, who teach English pronunciation in Nigeria, should constantly expose Nigerian learners of English to context-specific rules inherent in SBE alongside their exceptions, such as the ones discussed in this study, as this will aid in enhancing intelligibility in learners' communicative English (especially among native speakers of English) as well as effective performance in their oral English or English phonology-related activities or examinations.

REFERENCES

Adedimeji, M. (2007). The linguistic features of Nigerian English and their implication for 21st century English pedagogy. *Abuja Communicator*, *3*(1) 157-174.

Adepoju, B. (2014). An analysis of grapho-phonological infelicities in the Nigerian political discourse. *Lagos Notes and Records, 20*(1), 35-50

Adesanoye, F. A. (1973). *A study of varieties of written English in Nigeria* (Unpublished PhD Thesis). University of Ibadan.

Adetugbo, A. (1977). Nigerian English: fact or fiction? Lagos notes and records. *Journal of African Studies, 1*, 128-141.

Anderson, J. (2014). Graphology and anachronic phonology: notes on episodes in the history of pseudo-phonology. *Folia Linguistica*, *35*(1), 1-54.

Awonusi, V. O. (2007). Good spoken English and national development: Sociophonology in the service of man. *Excerpts of Inaugural Lecture at the University of Lagos*, March 14, 2007.

Bamgbose, A. (1982). Standard Nigerian English: issues of identification. In B.B. Kachru (ed.). *The other Tongue: English Across Cultures*. Pergamon Press.

Bamgbose, A. (1998). Torn between the norms: innovations in world Englishes. *World Englishes, 17*, 1-14.

Simo Bobda, A. (2001). East and Southern African English accents. *World Englishes*, *20*, 269-284

Simo Bobda, A. (2007). Some segmental rules of Nigerian English phonology. *English World-wide*, *28,* 279-310.

Brosnahan, L. (1958). English in Southern Nigeria. *English Studies*, *39*, 97-110.

Carney, E. (1994). *A survey of English spelling*. Routledge.

Chomsky, N., & Halle, M. (1968). *The sound pattern of English*. Harper & Row.

Crystal, D. (1997). *The Cambridge encyclopedia of language* (2nd edn). Cambridge University Press

Deschamps, A., Duchet, J. L., Fournier, J. M., & O'Neil, M. (2004). *English phonology and graphophonemics*. Ophrys.

Ekundayo, B. S. (2016). The phonemic realisations of the letter <Ii> and <Yy> in educated Nigerian English accent and its implications for ESL teaching and learning. *Gist Education and Learning Research Journal*, (12), 115-131.

Jowitt, D. (1991). *Nigerian English usage: An introduction*. Longman.

Jowitt, D. (2000). Patterns of Nigerian English intonation. *English World-Wide*, *21*, 63-80.

Jowitt, D. (2019). *Nigerian English*. de Gruyter Mouton.

Jubril, M. (1979). Regional variation in Nigerian spoken English. In E. Ubahakwe (Ed.), *Varieties and Functions of English in Nigeria* (pp. 78-93). African Universities Press.

Kachru, B. B. (1983). *Indianization of English: The English Language in India*. Oxford University Press.

Kazeem, Y. (2019, July 31). How Google created a Nigerian voice and accent for maps. *Quartz Africa*. https:// www.google.com/amp/s/qz.com.

King, R. D. (2020). Beginnings. In C. L., Nelson, Z. G., Proshina, & D. R., Davis (eds.). *The handbook of world Englishes, 2nd edition*, (pp. 5-16). Wiley Blackwell.

Kujore, O. (1985). *English usage: Some notable Nigerian variations*. Evans Brothers.

Li, D.C. (2010). When does an unconventional form become innovation? In A. Kirkpatrick (ed.). *The Routledge Handbook of world Englishes* (pp. 197-211). Routledge.

Odumuh, A. (1984). Educated Nigerian English as a model of Standard Nigerian English. *World Language English, 3,* 231-235.

Odumuh, A. (1987). *Nigerian English*. ABU Press.

Olajide, S. B & Olaniyi, O. K. (2013). Educated Nigerian English phonology as core of a regional "RP". *International Journal of Humanities and Social Sciences, 3*(14), 277-286.

Okoro, O. (2017). Nigerian English usage and the tyranny of faulty analogy III: Pronunciation. *California Linguistic Notes, 41*(1), 26-62.

Okoro, O. (2004). Codifying Nigerian English: some practical problems of labelling. In S. Awonusi & Babalola (eds.). *The domestication of English in Nigeria: a festschrift in honour of Abiodun Adetugbo at 65* (pp. 166-181). University of Lagos Press.

Ozim, C.M. (2017). *A study of English graphophonemic rules* (Unpublished M.A. Dissertation). Univeristy of Jos, Nigeria.

Pukli, M. (2017). The practical value of formal graphophonemic rules: insights from lexical frequency and linguistic competence. *La cle des Langues*. https://hal.archives-ouvertes.fr/hal-03080889

Sey, K.A. (1973). *Ghanaian English: An exploratory survey*. Macmillan.

Soneye, T. & Oladunjoye, F.J. (2015). Syllable phonotactics in educated Nigerian spoken English. *Konin Language Studies*, *3*(3), 255-269.

The cardinal vowels with Daniel Jones. YouTube: orbitingteapot, uploaded 14 December 2007.

Todd, L. (1982). The English Language in West Africa. In R. Bailey, & M. Gordach (eds.). *English as a world language* (pp. 281-305). University of Michigan Press.

Uba, E. (2015). A morphophonemic classification of Nigerian English. *Papers in English and Linguistics, 16*, 228-247.

Ubong, J. E., & Babatunde, S. T. (2011). Standard Nigerian English phonemes: The crisis of modelling and harmonization. *World Englishes, 4*, 533-550.

Udofot, I. (2003). Stress and rhythm in the Nigerian accent of English: A preliminary investigation. *English World-Wide*, *24*(3), 201-220.

Ugorji, C. U. C. (2010). *Nigerian English Phonology*. Peter Lang.

Wells, J. (2005). Goals in teaching English pronunciation. *https//semanticsscholar.org/paper*

Wolf, H. (2010). East and West African Englishes: Differences and commonalities. In A. Kirkpatrick (ed.). *The Routledge handbook of world Englishes* (pp. 197-211). Routledge

Realisation of Content and Function Words in English Rhythm Groups in the Connected Speech of Selected Nigerians

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Abstract

This study examined whether university undergraduates who are Nigerians realise weak forms in English rhythm groups (content words and function words) in connected speech or not. Three hundred undergraduates (150 males and 150 females) served as participants and two Standard English (SE) speakers served as native baselines. Thirteen English rhythm groups (17 function words and 13 content words) in connected speech were produced by each of the participants into Speech Filling System (SFS), 1.41 installed on a digital HP 250 laptop. Rhythm Alternation Principle (RAP), modelled towards metrical theory of strong/weak (s/w) and weak/strong (w/s) syllable alternation served as the theoretical model. For English rhythm groups, out of the expected result of 3,900, appropriate production was 1,153 (29.7%), inappropriate 2,747 (70.4%). Out of 5,100 for function words, appropriate use was 67 (1.3%); inappropriate use was 5,033 (98.09%). Appropriate production of content words was 3,533 (90.6%) and inappropriate 367 (9.4%). Males and females 'appropriate production for English rhythm groups was 574 (14.7%) and 578 (14.8%) while inappropriate use was 35.3% and 35.2% respectively, with no significant difference. Mean duration of the SE speakers was 0.070 - 0.078 while participants had 1.88 - 2.26 milliseconds. Participants RAP showed non- alternation of strong and weak syllables, with predominant use of s/s on every syllable as against SE alternation of w/s or s/w. The study concludes that Nigerians have the tendency not to realise weak forms in English rhythm words.

Content words and function words, English rhythm groups, Nigerians, Syllable timing, Connected speech, Standard English

1. Introduction

In English, connected speech can be understood in relation to content and function words. Not all words in an English utterance have equal degrees of importance (Gimson, 1989). Some of them are relatively more important than the others. The content or lexical words, which are usually stressed in English connected speech, include nouns, main verbs, adjectives, demonstrative pronouns and adverbs while the grammatical

or form words, usually unstressed, comprise pronouns, auxiliary verbs, conjunctions, prepositions and articles (Akinjobi, 2000). The content words in an English sentence provide the information that the speakers want to give; hence they are made more prominent than other words in the sentence. In English, connected speech refers to both content and grammatical words in connection. Usually, in Standard English, grammatical elements will not be given prominence but produced with content elements. This phenomenon further helps to account for the stress-timing rhythm of Standard English. This may however not be true for Nigerians who do not have the native intuition to account for this phonological phenomenon.

1.1 Literature Review

1.1.1 Strong and Weak Forms

English connected speech is characterised with strong and weak forms. That is, in the course of pronunciation, some syllables are made strong while others are weak. In connected speech therefore, it is expected of the English language users and speakers to be able to distinguish between strong and weak syllables and more importantly, know when they occur in the events or occasions of conversations. Roach (2000:81) asserts that stress is very important when it comes to deciding whether a syllable is strong or weak. Osisanwo (2012:125) further asserts Roach's views by claiming that strong and weak forms manifest within the range of stress both in isolation and in connected speech. In the English language, the way sounds are produced when they occur in isolation is different from the way they are produced when they occur in connected speech. The occurrence or realization of words in isolation and sentence has been divided into two forms: strong and weak forms. The strong forms are usually stressed in pronunciation while the weak counterparts- mostly represented at the vowel level by the schwa /ə/ (vowel 12) - are usually unstressed. The strong forms of syllables are the syllables that are usually occupied by high pitch/prominence, and they mostly carry primary stress. Words which have weak forms are mostly function words: conjunctions, articles, pronouns, prepositions and modals. Roach (2000:81) claims it is important to note, on one hand, that any strong syllable will have as its peak one of the vowel phonemes (or possibly a triphthong) but not the phonemes /ə/, /i/ and /u/. However, if the vowel is short, the strong syllables will always have a coda. On the other hand, weak syllables only have a very minute number of possible

peaks. At the final position of a word, we may have a weak syllable ending with a vowel (that is, without coda).

1.1.2 English Strong and Weak Forms

Gimson (1989:26–262) further exemplify the presence of the strong and weak grammatical forms in English:

Word	Strong Form	Weak Form
a	/eI/	[ə]
am	/æm/	[əm, m]
an	/ æn/	[ən, n]
at	/ æt/	[ət]
can (aux.)	/ kæn/	[kən, kn]
must	/mʌst/	[məst, məs]
of	/ɔv/	[əv, v, ə]
them	/ðəm/	[ðəm, ðm, m]
we	/wi:/	[wɪ, wə] + cons.
the	/ði:/	[ðI] + vowel
		[ðə] + consonant

There is a general tendency for all unstressed vowels in English syllables to shorten and become of lower intensity. Also, in the English language, the way sounds are produced when they `occur in isolation is different from the way they are produced when they occur in a connected speech. It therefore means that English connected speech displays an alternation of stressed and unstressed syllables (Hyman, 1975; Adepoju, 2017). In the opinion of Roach (2000), the terms, 'strong' and 'weak' are used to refer to the phonetic characteristics of syllables which could be described partly in terms of saying that strong syllables are stressed while weak syllables are unstressed. In the same vein, Akinjobi (2012) discusses consonants and vowels in unstressed syllables as subject to elision or reduction in English connected speech. However, this phonological phenomenon, which seems to be a strong phonetic criterion that helps to account for SE rhythm may be problematic for Nigerians generally and hence the need for this study.

1.1. 3 Nigerian English Connected Speech

Jowitt (2020), remarks that the phonology of Nigerian English has received attention from Nigerian scholars at the phonological and suprasegmentals levels. According to him, suprasegmental phonology of stress, rhythm, and intonation are as widely researched just as the segmental phonology. Several scholars, Gut (2005), Akinjobi (2006), Jowitt (2000), Akindele (2018, 2019, 2020) have done extensive studies

on the suprasegmentals of Nigerian English . These scholars have consistently affirmed that Nigerian English prosodies differ from Standard English forms. For instance, Akinjobi (2006), Akindele (2018) explored Nigerian English stress and rhythm in relation to vowel reduction and duration respectively through acoustic means. Akinjobi (2006) maintains that English connected speech is a complex field of study and that majority of Nigerians do not reduce vowels in unstressed syllable positions. Akindele (2018) also concludes that the duration of Educated Edo English speakers, a sub-variety of Nigerian English, is inelastic using the speech Rhythm Ratio acoustic model. The results of Akinjobi (2006) and Akindele (2018) further affirm that the fundamental phenomenon of English connected speech is the inability of the participants to alternate between strong and weak syllables in relation to stress-timing of Standard English rhythm where strong and weak syllables are alternated in conformity with English stress timing rhythm.

Relatedly, some scholars (such as Oladipupo, 2008; Jowitt, 2019, 2020) have also noted that part of the reasons Nigerian English connected speech, especially in the areas of intonation, differ significantly from SE form is a result of several reasons: the structure of the English phonological system, as reflected in 'the syllabus', which makes it inevitable for the teaching of the segmentals before the suprasegmentals; which may often never get taught at all, teachers and learners of English pronunciation in Nigerian schools not giving adequate attention to pronunciation teaching, distinction is not made between 'word-level stress' and 'stress in connected speech'. The teaching of connected speech thus becomes a 'vicious circle', the teachers' lack of knowledge conditioning the learners' lack of knowledge (Jowitt, 2020). Hence, Jowitt, (1991) submits that **t**he English connected-speech system that operates in Nigeria can best be referred to as Popular Nigerian English (PNE), and does not represent Standard Nigerian English' (SNE), which is the usage of the most highly educated and often older Nigerians.

1.2 Purpose of the Study

The purpose of this study is to find out whether Nigerians realise weak forms in English rhythm groups (content words and function words) in English connected speech or not. In respect of this purpose, the following research questions guided the study:

i. To what extent do Nigerians appropriately produce function words in connected speech as affirmed in Standard English usage?
ii. How do Nigerians produce content words in connected speech as affirmed in Standard English usage?
iii. How do Nigerians produce English rhythm groups in connected speech as affirmed in Standard English form?
iv. Is there any significant difference in the male and female Nigerians' production of English rhythm groups in connected speech?

2. Methodology

The population for this study comprised 150 males and 150 females who are final year L2 speakers of English and undergraduates of Osun State University, Nigeria. The instrument used was validated by experts in the field of phonology before administration. The instrument was further segmented into 17 grammatical items, 13 content items, and 13 rhythm words for analysis. Each of the participants was made to produce the English expressions into a speech software (Speech *Filling System 1.41 (SFS),* installed on a digital *HP 250 laptop.* Recorded productions of the participants were subjected to elicitation and transcription. Production of the participants was further cropped; with tokens of occurrence taken as appropriate use. The highest occurrence in production of the participants was taken as the norm for appropriate use. Rhythmic Alternation Principle (RAP), modelled on Liberman and Prince's (1977) Metrical Theory was adopted as the theoretical framework for this study. The model is a characteristic of English rhythm where strong and weak syllables are expected to be alternated in order to avoid stress clash. This model holds that the overall rhythmic pattern of utterances should be organised in such a way that there is an alternation of strong and weak syllables in a rhythm word in order to avoid stress clash (Ukam and Uwen, 2019).

Analysis

Table 1: Nigerians Production of Function Words in Connected Speech

Function words (17)	**Participants (300)**			
	Appropriate Use	**%**	**Inappropriate Use**	**%**
/ðə/	9	3%	291	97%
/ɒv/	0	0%	300	100%
/ðə/	9	3%	291	97%
/IZ//	16	5.3%	284	94.6%
/æ /	0	0%	300	100%
/ðə/	0	0%	300	100%
/ɪntu:/	0	0%	300	100%
/ɪt/	17	5.6%	283	94.3%
/ænd/	0	0%	300	100%
/hi/	0	0%	300	100%
/iz/	16	5.3%	284	94.6%
ðə/	0	0%	300	100%
//bikəs/	0	0%	300	100%
/ɒv/	0	0%	300	100%
/ɒv/	0	0%	300	100%
/Ənd/	0	0%	300	100%
/ʌndə/	0	0%	300	100%
Expected Use (5,100)	**67**	**1.31%**	**5,033**	**98. 68%**

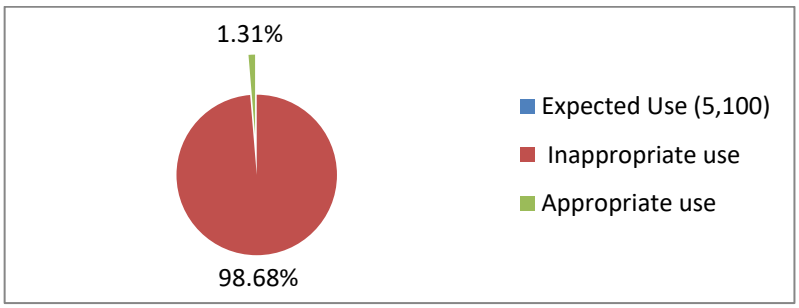

Table 1 and Fig 1 represent the performance of participants in the function words in connected speech. Out of 5,100 expected outcomes of appropriate use, only 67 (1.31%) instances of appropriate use were noticed while 5.033 (98.68 %) had inappropriate use. The performance of the participants shows that they could not weaken function words in connected speech, which is a basic phonological phenomenon that helps to account for Standard English rhythm.

Table 2: Nigerians Production of Content Words in Connected Speech

Content Words	**Participants (300)**			
	Appropriate Use	**%**	**Inappropriate Use**	**%**
/ˈneɪm/	300	100%	0	0%
/ˈlɔːd/	300	100%	0	0%
/ˈstrɒŋ /	300	100%	0	0%
/ˈtəʊər/	293	98%	7	2.3%
/ˈraɪtʃəs/	239	80%	61	20.3%
/ˈrʌnz/	300	100%	0	0%
/ˈseɪvd/	300	100%	0	0%
/ˈfuːlz/	300	100%	0	0%
/ˈdespaiz/	205	68.3%	95	31.6%
/ˈlɔːd /	300	100%	0	0%
/ˈlæk/	300	100%	0	0%
/ˈwizdəm/	287	95.7%	13	4.3z
/ʌndəˈstændiŋ/	109	36.3%	191	63.6%
Total expected Use (3, 900)	**3,533**	**90.58%**	**367**	**9.42%**

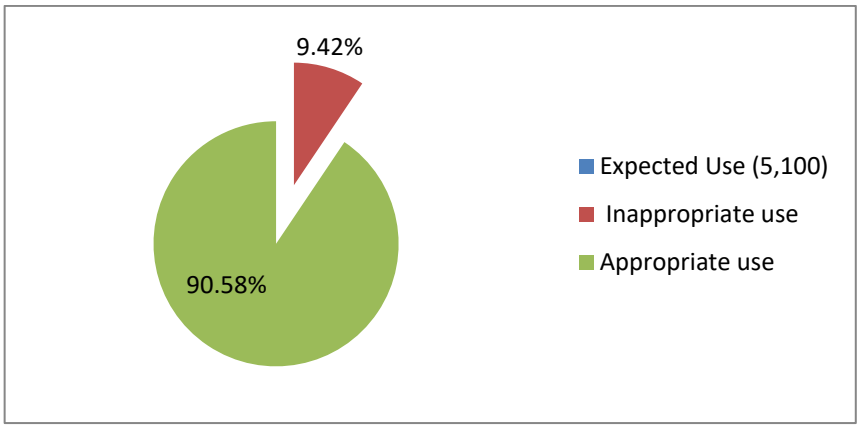

Table 2 and Fig.2 present the performance of the participants in the production of content words elicited from the English connected speech. Out of 3,900 expected outcome of use, 3,553 (90.58%) had appropriate use while 367 (9.42%) had inappropriate use. The production of participants shows that the participants do not have challenge articulating the content words in connected speech.

Table 3: Nigerians Production of English Rhythm Groups in Connected Speech

Rhythm Words	**Participants (300)**			
	Appropriate Use	**%**	**Inappropriate Use**	**%**
/ðə'neɪmɒvðə/ the name of the	0	0%	300	100%
/'lɔ:dzæIzæ / Lord is a	0	0%	300	100%
/'strɒŋ / strong	300	100%	0	0%
/'təʊərðə/ tower the	0	0%	300	100%
/'raItʃəs/ righteous	279	93%	21	7%
/'rʌnsɪntu:ɪtændhiiz/ runs into it and he is	0	0%	300	100%
/'seɪvd / saved.	300	100%	0	0%
/ðə'fu:lz/ the fools	256	85.3%	44	14.7%
/ 'despaizðə / despise the	0	0%	300	100%

/'lɔ:dbikəsɒv / Lord. because of	0	0%	300	100%
/'lækɒv/ lack of	0	0%	300	100%
/'wizdəməndʌndə / wisdom and under	0	0%	300	100%
'stændiŋ/ standing	18	6%	282	94%
Total expected Use (3, 900)	**1,153**	**29. 56%**	**2, 747**	**70.44 %**

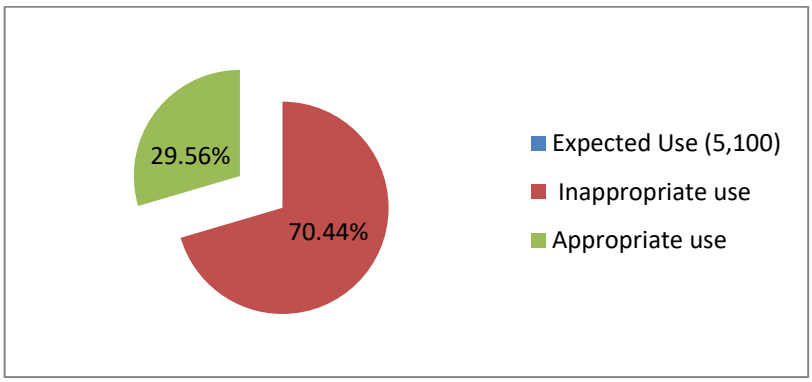

Table 3 and Fig. 3 reveal participants production of English rhythm groups elicited from connected speech. Out of 3,900 expected outcomes of use, only 1, 153 (29.56%) had appropriate use while 2,747 (70.44%) had inappropriate use. The production of the participants shows that majority of them did not make all unstressed syllables part of the English rhythm group.

Table 4: Differences in the Male and Female Nigerians' Performance in English Rhythm Groups in Connected Speech

Rhythm Groups	Participants							
	150 males				150 females			
	Appropriate Use	%	Inappropriate Use	%	Appropriate Use	%	Inappropriate Use	%
/ðə'neɪmɒvðə/ the name of the	0	0	150	100	0	0	150	100
/'lɔ:dzælzæ/ Lord is a	0	0	150	100	0	0	150	100
/'strɒŋ/ strong	150	100	0	0	150	100	0	0
/'təʊərðə/ tower the	0	0	150	100	0	0%	150	100
/'raɪtʃəs/ righteous	140	46.66	10	3.3	139	46.33	11	3.67
/'rʌnsɪntu:ɪtændhiiz/ runs into it and he is	0	0	150	100	0	0	150	100
/'seɪvd / saved.	150	100	0	100	150	100	0	0
/ðə'fu:lz/ the fools	126	42	24	8	130	100	20	6.6
/'despaizðə/ despise the	0	0	150	100	0	0	150	100
/'lɔ:dbikəsɒv/ Lord.because of	0	0	150	100	0	0	150	100
/'lækɒv/ lack of	0	0	150	100	0	0	150	100
/'wizdəməndʌndə/ wisdom and under	0	0	150	100	0	0	150	100
'stændiŋ/ standing	8	2.6	142	47.3	10	3.3	140	46.67
Total expected Use (1, 950)	**574**	**14.71 %**	**1,376**	**35.28 %**	**579**	**14.85 %**	**1,371**	**35.15 %**

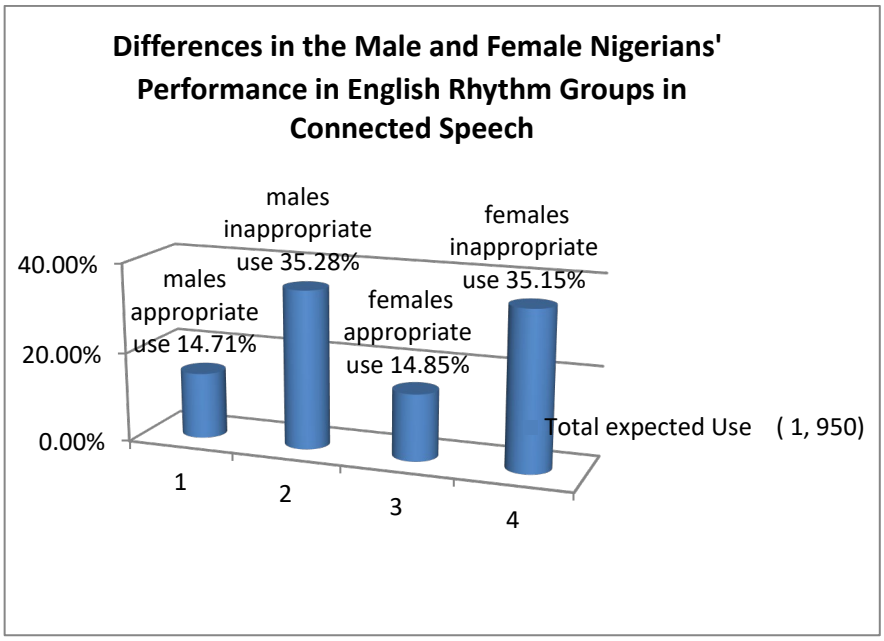

Table 4 and Fig. 4 represent the difference in the male and female Nigerians in the production of English rhythm groups in connected speech. Males' overall production for English rhythm groups in the connected speech was 579 (14.71%) bringing inappropriate use to 1,376 (35.28%). Females had appropriate use of 579 (14.85%). Inappropriate use for females was 1,371 (35.15%), with no significant difference for males and females' articulation of English rhythm groups in connected speech.

Table 5: Nigerians Overall Production of Content Words and Function words in English Rhythm Groups in Connected Speech

Items	Appropriate Use	%	Inappropriate Use	%
Function words	51	1.31%	5,049	98.68%
Content words	3,533	90.58%	367	9.42%
English Rhythm Groups	1,153	29. 56%	2, 747	70.44%

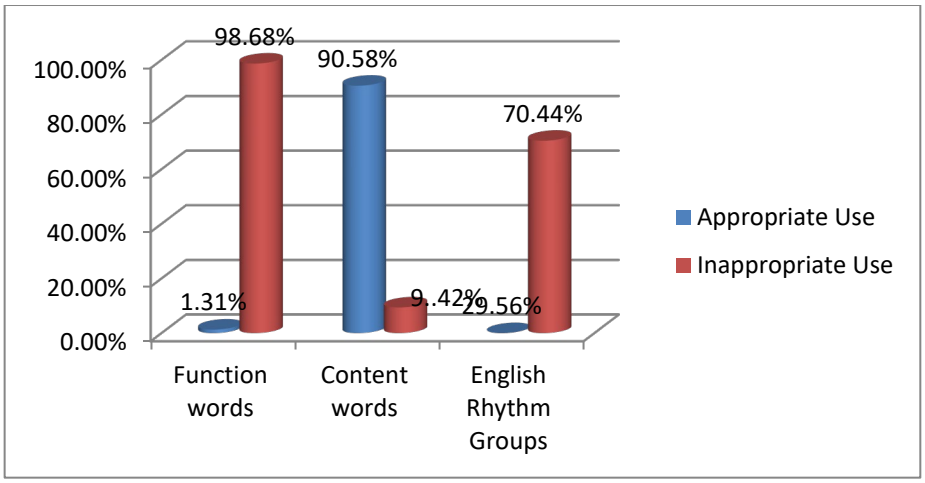

Table 5 and Fig. 5 show the overall production of participants' appropriate use of content words, function words and English rhythm groups. For function words, only 51 (1.31%) instances of appropriate use were observed while 3, 049 (98.68%) had inappropriate use. Content words were used in 3,533 (90.58%) appropriate instances of use, bringing inappropriate use to 367 (9.42%). This implies that participants were able to make the stressed syllable strong and the unstressed syllable weak as expected. For English Rhythm groups however, production of the participants showed that appropriate use was 1,153 (29.56%) while inappropriate use was 2,747 (70. 44%).

Table 6: English Alternation Principle in Nigerians' Production of English Rhythm Groups in Connected Speech

English Rhythm Groups	**Native English**	**Participants Alternation in English Rhythm Words**
/ðəˈneɪmɒvðə/ the name of the	W S W W	S S S S
/ˈlɔːdzæIzæ / Lord is a	S WW	S S S
/ˈstrɒŋ / strong	S	S
/ˈtəʊərðə/ tower the	SWW	SSS
/ˈraItʃəs/ righteous	SW	SS
/ˈrʌnsɪntuːɪtændhiiz/ runs into it and he is	SWWWWWW	SSSSSSS
/ˈseɪvd / saved.	S	S
/ðəˈfuːlz/ the fools	S	S
/ ˈdespaizðə / despise the	SW	SS
/ˈlɔːdbikəsɒv / Lord. because of	WSWWW	SSSSS
/ˈlækɒv/ lack of	SW	SS
/ˈwizdəməndʌndə / wisdom and under	SWWWW	SSSSS
ˈstændiŋ/ standing	SW	SS

The Rhythm Alternation Principle of Nigerians revealed that participants do not alternate strong and weak forms. In Standard English, function words are expected to be weakened in connected speech. This phenomenon clearly makes Nigerian English rhythm differ significantly from Native English. The inability to alternate between strong and weak forms in the connected speech is highly significant for intelligibility and should not be taken for granted by Nigerians generally.

Table 7: Measurement of the Duration of English Rhythm Words as Produced by the Participants

	/ˈðəneɪm ɒvðə/	/ˈlɔːdz æIzæ /	/ˈstr ɒŊ/	/ˈtəʊə rðə/	/ˈraItʃ əs/	ˈrʌnsɪntuːɪ tændiiz/	/ˈseɪv d	Mean Duration
SE1	0.029	0.35	0.047	0.061	0.089	0.140	0.086	**0.070**
SE2	0.047	0.031	0.051	0.077	0.098	0.143	0.097	**0.078**
Participant1	2.019	1.022	1.037	1.431	1.340	4.315	3.883	**1.88**
Participant2	2.027	1.128	1.097	1.339	1.355	4.335	3.855	**1.89**
Participant3	2.049	1.229	1.397	2.021	2.344	4.201	3.836	**2.12**
Participant4	2.032	1.099	1.297	2.231	2.344	4.305	3.806	**2.14**
Participant5	2.053	1.329	1.393	2.332	2.340	4.315	3.836	**2.20**
Participant6	2.029	1.297	1.398	2.431	2.244	4.321	3.532	**2.16**
Participant7	2.040	1.249	1.392	2.401	2.350	4.325	3.430	**2.15**
Participant8	2.047	1.327	1.591	2.411	2.848	4.323	3.533	**2.26**
Participant9	2.077	1.058	1.487	2.241	2.260	4.334	3.707	**2.15**
Participant10	2.067	1.097	1.781	2.217	2.234	4.347	3.127	**2.11**

Table 7 shows the Standard English speakers and Nigerians duration in milliseconds in the production of the English rhythm groups in the first segment of the connected speech. Mean duration of participants in the English rhythm groups was between 1.88- 2.26 milliseconds while that of the native baselines ranged between 0.070- 0.078 milliseconds. Results of the participants showed application of quantity weight on each of the syllables of the English rhythm groups as revealed from the instrumental analysis above. For instance, the syllables of the function words were not produced with the syllables of the content words in the English rhythm groups. This could be as a result of the perceived inability of participants to alternate between syllables of function words and content words that make up the English rhythm groups in the connected speech. The duration of participants also revealed that quantity weight was applied in the production of the English rhythm groups as perceived through auditory means. This further confirmed the syllable timing rhythm for Nigerian English. Whereas, the two Standard English speakers who served as native baselines instrumental analysis

showed non-application of weight on the function words, and all function words were rendered together with the content words that make up the rhythm groups in the English connected speech. .

3. Findings and Discussions

i. Participants' production of function words in connected speech show that out of 5,100 expected outcome of use, only 67 (1.31%) instances of appropriate use were noticed while 5.033 (98..68%) had inappropriate use. The production of the participants shows that they could not weaken function words in connected speech. Weakening of function words in a connected speech is a basic phonological phenomenon that helps to account for Standard English rhythm. With the low production of 1.31% appropriate use, it shows that predominantly, the participants could not weaken function words in connected speech. This could be as a result of the tone language background of participants as well as L1 transfer on the target language.

ii. The performance of the participants in the production of content words elicited from the connected speech shows that out of 3,900 expected outcome of use, 3,553 (90.58%) had appropriate use while 367 (9.42%) had inappropriate use. The production of the participants shows that the participants do not have problem articulating the content words in connected speech. This is because participants could make the stressed syllable strong and the unstressed syllable weak as perceived through auditory means. This further reconfirms earlier studies (Akinjobi, 2006; Ukam and Uwen, 2019) that many Nigerians do not have problem articulating strong forms in connected speech. This is likely to be as a result of positive transfer of the high pitch phenomenon which is predominant in many Nigerian languages. Thus, a positive transfer of first language (L1) on target language was noticed in this regard.

iii. For English rhythm groups, participants' production was very low, with appropriate use of 1,153 (29.56%) noticed, out of 3,900 expected outcome of use. Inappropriate use was higher at 2,747 (70.44%). The production of the participants shows that they could not alternate between strong and weak syllables of the English rhythm groups. Alternation of stressed and unstressed syllables in a connected English speech is a strong linguistic phenomenon which helps to account for the stress-timing rhythm of Standard English. With the low production in the English rhythm groups of participants, speech comprehensibility will definitely be problematic for the participants especially when listening to native speakers. Apart, instrumental analysis of the participants' production of English rhythm groups also showed that participants applied quantity weight on each of the syllables that make up the rhythm words. With a mean duration of 1.88- 2.20 milliseconds as elicited from participants compared to the two Standard English speakers mean duration of 0.070- 0..078msc, instrumental results further confirm that most Nigerians do not alternate between strong and weak syllables of the English rhythm groups in connected speech . This linguistic phenomenon has great implication for comprehension when native speakers listen to Nigerians generally and when they make English speech.

iv. The male and female Nigerians' production in English rhythm groups in connected speech shows that males overall production for English rhythm groups in the connected speech was 574 (14.71%) bringing inappropriate use to 1,376 (35.28%). Females had appropriate use of 579 (14.89%). Inappropriate use for females was 1,371 (35.15%). There is, therefore, no significant difference for

males and females in the production of English rhythm groups in the English connected speech.

4. Conclusion and Recommendations

The results of the participants in the function words and content words show that participants do not weaken function words in connected speech but make content words prominent with a high performance of 90.6 %. This performance shows that even though the participants could produce the content words in the given English expressions, the participants' overall production confirmed that participants did not alternate between strong and weak syllables in the English rhythm groups in the connected speech. This, however, is a strong phonetic criterion that helps to account for the rhythm of Standard English. This implies that participants find it problematic to produce function words together with the content words that make up an English rhythm group in connected speech. This is due to the fact that participants find it problematic to alternate between strong and weak forms that make up a rhythm group in English. Hence, as affirmed from the production of the participants, it can be said that Nigerians do not realise weak forms in the production of English rhythm groups in connected speech, and this has a strong intelligibity problem for native speakers when listening to Nigerians as well as Nigerians when listening to English natives.

The Rhythm Alternation Principle model shows that participants could not alternate strong and weak syllables in the English rhythm groups in the connected speech. The results of this study further help to account for the syllable timing of Nigerian English. This study reaffirms that L1 has great influence on the rhythm of the participants especially due to the fact that they did not weaken the function words and as well could not alternate strong and weak syllables in the English rhythm groups in connected speech. The study, therefore, recommends that educated Nigerians generally should be careful in making their lexical choices when they speak. This is because in English connected speech, sounds tend to slur into one another, and hence they should be mindful of this phonological phenomenon and try to approximate to a near native rhythm (i.e. stressed and unstressed syllable alternation).

In the Nigerian environment, spoken English can improve if various communicative devices (network collaborative interactions, well-equipped language laboratory and computer assisted prosodic training etc) are taken from the developed countries into our learning environment to make Standard English available to second language

users in all areas of language learning. Speech modelling of users of near native English in Nigeria should be encouraged and made accessible to computer mediated training to L2 speakers. The Rhythm Alternation Principle of participants clearly revealed that they did not alternate between function and content forms of the English rhythm groups in the connected speech tested. This phenomenon clearly makes Nigerian English rhythm differ significantly from Native English. The inability to alternate between the strong and weak forms in the English rhythm groups in the connected speech is highly significant for intelligibility between native SE speakers and Nigerians generally.

References

Adepoju, O. (2017). Phrasal stress in English as a Second Language. BA Project. Department of Languages and Linguistics. Osun State University, Oshogbo, Nigeria. X-110.

Akindele, J.A. (2020). Anacrusis and the Rhythm of Selected Educated Edo (Nigerian) English Speakers: Acoustic Evidence. *Phonetics, Phonology and Sociolinguistics in the Nigerian Context: A Festschrift for Adenike Akinjobi.* R. Oladipupo, J. Akindele & A. Osisanwo (Eds). Ibadan: Stirling Horden Publishers. 157-170.

Akindele, J. A. (2019). Discrepancy in spoken and written English: Pedagogical implications for English as Second Language learners and speakers. *Syllabus Review*: *Multi-Disciplinary Journal of the Ecole Normal Superieure*. University of Yaounde 1-Cameroon. .8 (1), 190-208.

Akindele, J.A. (2018). A descriptive analysis of compound stress patterns of undergraduates speakers of English as a Second Language (SESL*). REAL Studies 15*. J. Schmied, M. Hofmann & A. Esimaje (Eds.). CUVILLIER VERLAG, Göttingen, Germany :165-176.

Akinjobi, A.A. (2000). An introduction to English phonetics and phonology. *Studies in English Language*. A.O. Babajide.(Ed.) Ibadan: Enicrownfit Publishers. 5-24.

Akinjobi A.A (2005). A study of the use of weak and strong forms of English grammatical words by educated Yoruba English speakers. *Ibadan Journal of English Studies* 2: 76- 95. Ibadan: Gold Press Ltd.

Akinjobi, A.A. (2012) . Academic Competence and Linguistic Performance: A study of English Intonation Tune Assignment by Some Nigerian Postgraduate Students of the English Language. *JNESA* 15(2): 1-12.

Atoye R.O. (2005). Deviant word stress in Nigerian English: Its implications for Nigerian's English oral literacy. *Paper presented at the 22nd Annual Conference of Nigeria English studies Association* (NESA), Ile- Ife: Obafemi Awolowo University.

Gimson, A.C. (1989). *An introduction to the pronunciation of English*. London: The English language book society and Edward Arnold Publishers.

Gut, Ulrike. (2005). Nigerian English prosody. *English World-Wide, 26*(2). 153-177.

Hyman, L. M. (1975). *Phonology*: *theory and analysis:* Holth Rinehart and Winson

Jowitt, D. (2006). *Oral English for Senior Secondary Schools*. Ibadan: Spectrum Books Ltd.

Jowitt, D. . (1991). *Nigerian English usage*. Lagos: Longman Nigeria.

Jowitt, D. (2000). Patterns of intonation in Nigerian English. *English World-Wide, 21*(1). 63-80.

Jowit, D. (2020). Nigerian English Connected Speech: Further Explorations. *Phonetics, Phonology and Sociolinguistics in the Nigerian Context: A Festschrift for Adenike Akinjobi.* R. Oladipupo, J. Akindele & A. Osisanwo (Eds). Ibadan: Stirling Horden Publishers.27-42.

Jowitt, D.. (2019). *Nigerian English*. Boston/Berlin: Walter de Gruyter Inc.

Liberman, M. and Prince, A. (1977). On stress and linguistic rhythm. *Linguistic inquiry* 8: 249-336.

Oladipupo, R. (2008). English intonation patterns of television reporters in Lagos State. MA. Project. Dept. of English. University of Ibadan. xiv +118.

Osisanwo, A. (2012). *Fundamentals of English Phonetics and Phonology 2nd Ed.* Lagos: Femolus Fetop.

Roach, P. (2000). *English phonetics and phonology: a practical course* 3rd ed. Cambridge: CUP.

Ukam, E. I. & Uwen, G. O. (2019). Rhythmic Alternation and Stress Clash: A Phonological Study of Erei-English Speakers UNIUYO Journal of Humanities (UUJH), Vol. 23, No. 1: 33-53.

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Reducing Articulatory Quandary in the Spoken English of Trainee-Teachers of English Through Rule Feeding Order

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Abstract
The passion for correct pronunciation of English in non-native settings continues to motivate researches into various aspects of English phonology. Concepts like phonological processes, rules, intonation, stress, and others are being explored towards reducing mispronunciation; yet flaws still linger among the non-native speakers of the language. Stringent adherence to the rules seems to constitute hindrances to smooth pronunciation of English, especially among those who have obtained academic trainings up to the university level. This paper tested rule feeding order among final-year English-Education undergraduates, using a text requiring application of rule feeding order to elicit their semi-spontaneous speeches. Participants' voices were recorded with android phone and were transferred into a laptop computer system with SFS application. Their performances at rule feeding contexts were checked, using a native speaker's production as a baseline. One mark each was assigned to their correct productions to generate numerical data for statistical analysis. Their variant productions were also subjected to phonological analysis, using Chomsky and Halle's (1968) Generative Phonological theory as framework. The findings revealed that the participants were deficient in the rule feeding order. Recommendations were therefore made towards exposing L_2 learners of English to rule ordering skills right from the secondary education level.

Graceful pronunciation, Mispronunciation, Fastidious execution, rule feeding

1.1 Introduction
The world English has been classified into numerous varieties, each of which is expected to be accepted as an authentic regional dialect of English (Kachru 1985). However, without seeking to advocate affected English, the teaching and learning of the globally intelligible variety of the English language has always required being modelled after the Standard British pronunciation, especially in Nigerian educational institutions (Okebukola, 2005; Agboyinu, 2018). The rationale for this cannot be isolated from two facts. Firstly, acceptance of a central norm around which all regional varieties can converge may enhance mutual intelligibility across regional boundaries

(Agboyinu, 20018:3). Secondly, using the native speakers' spoken forms as models may, to a large extent, reduce excessive emphasis on rules learnt in the grammar books and embrace the smooth and simple linguistic practice that are freely done among the native speakers. Thus, empirical researches and pedagogical contributions toward improving the standard of Nigerian variety of English cannot utterly ignore some beneficial models from the native speakers' pronunciations.

The drive towards uniformity, universal intelligibility and proficiency in the pronunciation of English has motivated several researches on the phonological structures of Nigerian English, resulting in catalogues of interrelated factors allegedly responsible for mispronunciations of English by Nigerian L_2 speakers. Prominent among the factors widely recognised are mother tongue interference, spelling-cued pronunciation, bookish pronunciation, ignorance of linguistic rules, learners' wrong hypothesis, mismatch between the articulatory settings of the learners and the superstrate language, false analogy, non-application of phonological rules and so forth (Jowitt, 1991; Awonusi, 2004; Dadzie, 2004; Omoniyi; 2004; Fakoya, 2006; Awonusi, 2007; Sogunro, 2014; Agboyinu, 2018). It is however worth mentioning that the rigours to which non-native speakers of English usually subject their articulatory tract in attempt to produce grammatically accurate structures also deserves to be checked against the simplicity permitted in linguistic performance of the native speakers in different phonological contexts. This is the motivation for this study.

1.2 Statement of the Problem

Much as scholars' efforts have brought to limelight a plethora of deviations in the spoken English in non-native settings alongside their various causative factors, the potentials of rule feeding principles at resolving most articulatory problems have not been fully explored in the literature. Chomsky and Halle (1968:3) hint that "the grammar of the language is the system of rules that specifies the sound-meaning correspondence. This implies that the whole grammar of a language cannot be said to have been learnt until one has mastered both the syntactic and phonetic forms of such language as well as their correlations. Effort towards exhibiting proficiency in syntactic structure alone has been the bane of non-native users of English. The two levels of linguistic representations, introduced by Ferdinand de Saussure as Langue and Parole (Bally and Sechehaye, 2015), adapted by Chomsky

and Halle (1968) as underlying and surface levels of representation, are not adequately applied to the spoken English of most non-native speakers of the language.

Most educated users of English in Nigeria often exert greater muscular effort towards producing sophisticated English expressions. Most often, the gestural manoeuvre permissible for reducing articulatory conflict in contexts of overlapping sequence of sounds with similar features (Gussenhoven and Jacobs, 2011: 34) are ignored. For instance, besides the basic phonological rules that enhance articulatory ergonomics (Agboyinu, 2018), situations also arise when application of one rule creates environment for another rule to apply. This is generally referred to as rule feeding relationship (Mascaró, 2011). Failure to apply this principle sometimes poses articulatory confusions to many non-native speakers of English and often results in mispronunciation. There seems to be scanty research reports on adoption of this concept for enhancing articulatory ease in the spoken English of Nigerians. In recognition of the fact that pedagogical strategy for correcting this drawback at the societal scale can be initiated at the secondary school level, teachers of English being produced at the universities ought to be equipped with this phonological concept. This motivates the focus of the present study on reducing articulatory quandary among trainee-teachers of English through rule feeding order.

1.3 Aim and Objectives of the Study

The general aim of this study is to establish the extent to which the trainee-teachers of English are able to observe rule feeding order in their spoken English. The specific objectives therefore are to examine the extent to which the participants are able to observe rule feeding relation between /t/ deletion and /s:/ degemination as well as /k:/ degemination.

2.0 Literature Review

This work was motivated to provide an insight into rule feeding order in phonological theory in view of the fact that rapid speech production in the English language is sometimes characterised by many wieldy inhibitions that frequently require corresponding solutions. Among the general causes of such inhibitions are gestural complications and phonotactic constraints which often lead to articulatory confusions. Most L_2 users of English who are familiar with some of the linguistic rules

also get perplexed at some points, especially when an overlapping incidence ensues among rules in some complex phonological contexts. These sorts of inhibition and their corresponding solutions are briefly examined here under the subtopics: articulatory gesture, phonotactic rules, rule feeding order and ease of articulation.

2.1 Articulatory Gesture and its Roles in Smooth Speech Production

Barberena, Keske-Soares and Berti (2014:339) observe that "Speech production requires complex coordination, involving organisation, planning and execution of phonoarticulatory movements." This view is corroborated in Jone's (2006: 98) assertion that "when we speak, many muscles are active at the same time; and sometimes the brain tries to make them do things they are not capable of." Browman and Goldstein (2003) also posit that "during the act of talking, more than one gesture is activated, sometimes sequentially and sometimes in an overlapping fashion". Corroborating this assertion, Gafo (2002: 1) says "speaking consists of orchestrating different speech organs in the vocal tract as their movement unfolds in space and time". This implies that the activities to which we subject the articulatory organs during speech production entail overlapping manoeuvres of the articulators, sometimes involving competition for space and time. Barberena et al. (2014:339) propose that articulatory gesture is both an action of constriction of the different articulators and the representation of the articulatory manoeuvre required for this action to occur. This implies that the motion of articulators in rapid speech is a complex process (Agboyinu, 2018: 37). Consequently, some disparate sound sequences often make the synchrony of the articulatory gestures difficult, even among native speakers, regardless of their innate competence. This justifies their subconscious adoption of P- rules and rule ordering principles in connected speech productions.

Agboyinu (2018: 36) elucidates this phenomenon, using articulation of the word, *exactly,* as an example in the following explanation:

> The underlying phonological component of *exactly* reflects a cluster of /ktl/. The strictures required for these three sounds involve overlapping closure at tongue body constriction location and tongue tip constriction location as well as overlapping tongue body constriction degree and tongue tip constriction degree. The tongue

> body constriction location is the velar, while the tongue tip constriction location is alveolar. The constriction degrees include a stop at velar point followed by a combination of stop and lateral at the alveolar point.

The gestural configurations described above represent overlapping closure of the air passage at equal degrees in both velar and alveolar positions. This portrays competing manoeuvres in the articulatory tract that make realisation of all the phonemes in the word, *exactly,* difficult. This justifies the deletion of /t/ and retention of /k/ as the closing segment of the first syllable. The preponderance of overlapping articulatory gestures in English connected speech is a significant source of pronunciation confusion to non-native speakers. However, articulatory complexities of this sort can only be resolved through P-rules and rule ordering principles.

2.2 Interface Between English Phonotactics and Rule Ordering

Phonotactic rule refers to the restrictions imposed on sound combinations in speech production in different languages. This phenomenon applies to both native and non-native speakers of any natural language. In the English language, sound combinations are restricted in relation to the scope of sound sequences that can occur in different positions of the word (Roach, 2000; Spencer, 2007; Fromkin, Rodman & Hyams, 2011). Fromkin, Rodman & Hyams illustrate phonotactic deviations with structures like *lbki, *ilbk, *bkil, and *ilkb, labelling them as non-words in English. Apart from the meaninglessness of these forms, it is obvious that such structures cannot yield to smooth gestural manoeuvres. Yule (1996) posits that "it is not an accident that forms such as "*fslg" and "*rnlg" do not exist or are unlikely ever to exist, as their formation do not obey the constraints on the sequence of position of English phonemes." This confirms that choices in phonemic combinations in rapid speech are rule governed. Thus, when any cluster of phonemes in the speech continuum tends to flout the phonotactic rules, the use of P-rule or rule ordering principles to resolve it becomes crucial (Hyman, 1975; Sommerstein, 1977; Bybee, 2003; Skandera & Burleigh, 2005; Endress & Mehler, 2010; Spencer, 2012; Awonusi, Ademola-Adeoye & Adedeji 2015).

2.3 Functions of Rule Feeding Order in Native Speakers' Contexts

The notion of rule feeding is a situation whereby a rule that is not specified in the lexical entry of a structure emerges as a result of the environment created by the phonetic output of another rule. This rule states that "rule **A** potentially feeds rule **B** if the phonetic output of rule **A** provides input for the application of rule **B**." Conversely, rule **A** is said to potentially feed rule **B** if the application of rule **A** eliminates the potential inputs for rule **B"** (Katamba, 1996; McCarthy, 2007; Bakovic, 2011; Hein, Murphy & Zaleska, 2014). The concept of rule feeding order therefore involves the emergence of a rule that is not specified in a lexical entry, but derives its input from the phonetic output of an apparent rule in the context. Drawing an example from the word, *standby,* Agboyinu (2018, p. 99) explains rule feeding order through the abutting consonants /ndb/ at syllable boundary. Through the P-rule application that causes the deletion of the coronal stop /d/ in the coda position of the first syllable, *stand,* the alveolar nasal, /n/, consequently shifts to a position contiguous to the labial segment /b/. This consequently licences homorganic assimilation of /n/ into place feature of /b/ to become /m/. The end product of this rule ordering interaction is [stæmbɑɪ]. Contexts requiring the rule feeding order are in high distributions in the English language. Speakers of English in non-native environments are therefore required to imbibe these principles so as to use them for resolving articulatory snags often triggered by disparate sound sequences in rapid speech production.

2.4 Rule Feeding Order as a Tool for Articulatory Ease

The hypothesis of ease of articulation is robustly discussed in natural phonology (Nathan, 1982). Dawood and Atawneh (2015:13), explaining the rationale for assimilation, state that "assimilation involves ease of articulation pressures, and it is an important means of making pronunciation easier". Shariatmadari (2006) and Ali (2016) aver that 'one of the laws that govern human body is the principle of minimum effort of muscle activities when speaking'; that is, to minimise difficulties facing articulators in a particular tongue movement in utterance production. It is assumed that the more significant the change is (in the place of articulation) from one segment to the next, the more difficult it is to articulate (Shariatmadari, 2006; Ali, 2016). Earlier, Trask (1996: 53) had backed an argument for ease of articulation in the following words:

> ...the various speech organs move about at their own pace, and do not all simultaneously or instantly jump from one speech sound to another ... Instead, the organs spend a good deal of time moving away from one configuration to the next one leaving and arriving at different times...moving the speech organs all over the place requires an effort, and making nearby sounds more similar reduces the number of movements required and hence the amount of effort.

The quote above highlights the rigours encountered by the articulatory organs in connected speeches as a justification for employing rules to reduce the gestural motions. This is in harmony with the assumption that a major motivation for phonological rules is the need to facilitate ease of articulation (Oladipupo & Akinjobi, 2015; Agboyinu, 2018). Thus, to explore the concept of rule feeding toward achieving smooth manoeuvres of articulators in pronunciation of English in a non-native setting like Nigeria is crucial.

3.0 Methodology

This study looks into the linguistic performances of undergraduate trainee-teachers of English in the production of phoneme sequences that require rule feeding relations between /t/ deletion and degemination of abutting /s:/ and /k:/ at word boundaries. It employed descriptive survey design, using mixed method involving quantitative and qualitative approaches for analysing the data collected through an achievement test. Forty randomly selected final year undergraduate students of English Education in University of Ibadan, affiliate centre, Federal College of Education, Abeokuta formed the sample of the study. The participants' productions were subjected to perceptual and acoustic analyses, within the framework of generative phonology. A native speaker's rendition was used as baseline to check their degrees of proximity or deviation from the Standard British Rule Feeding order. The quantitative approach involves assigning of 1 mark for each unit of correct adherence to rule feeding order in the reading of the twenty sentences. The scores generated through this process were subjected to frequency counting and percentage calculation. The qualitative approach involved phonological analyses of the participants' variant

forms, based on the tenets of generative phonology. Few wave forms of the participants' productions, analysed with the Praat window software, were checked against the native speaker's renditions for concrete validation of the findings.

4.0 Data Presentation and Analyses

Generative phonology (GP) theory holds that aberrantly long consonant clusters should be reduced. Most often, the median (or the least sonorous) phoneme is always the segment that suffers deletion in such situations (Chomsky & Halle 1968; Yule, 1996; Spencer, 2007; Fromkin, Rodman & Hyams, 2011; Gussenhoven & Jacobs, 2011). The G.P. theory also specifies degemination of successively occurring identical segments. The rule feeding notion of generative phonological theory holds that "rule A potentially feeds rule B if the output of rule A opens the environment that fulfils the condition for applying B which initially had no description in the lexical component (Mascaró, 2011; Agboyinu, 2018). In this study, the text used involved deletion of /t/ in long clusters at word boundaries. This triggered accidental abutting of identical segments; thus, opening environments for degemination rule to be applied. The performances of the participants in this regard were checked to establish the extent to which they were able to identify and apply these two notions of the GP rules in their spoken English for achievement of smooth articulation. The numerical data were analysed in Tables 4.1 and 4.2; while phonological analyses of their productions were done based on G P theory framework as presented in Tables 4.3 and 4.4. The acoustic properties of both the proximate and deviant forms produced by the participants were also compared, using a native speaker's production as baseline in Figures 4.1 and 4.2.

4.1 Rule Feeding Relation Between /t/ Deletion and /s:/ Degemination

The frequency of proper degemination of /s:/ in environments resulting from /t/ deletion by the participants were checked as presented in Table 4.1 below.

Table 4.1 /s:/ degemination in the context opened by /t/ deletion

S/no.	Lexical component	Standard form	Expected data	Observed data	Percentage
1	best student	[bestjudənt]	40	34	77.5%
2	latest style	[leɪtəstɑɪl]	40	30	
3	best seller	[beselə]	40	33	
4	first science	[fɜ:sɑɪənz]	40	34	
5	best son	[besʌn]	40	35	
6	herbalist service	[hɑbəlɪsɜ:vɪs]	40	25	
7	last sentence	[lɑsentəns]	40	35	
8	worst scandal	[wɔskăndəl]	40	25	
9	best sales	[beseɪlmɑnədʒə]	40	33	
10	capitalist state	[kɑpɪtɑlɪsteɪt]	40	26	
Total			400	310	

The data in the table above shows that the participants performed well in the observation of rule feeding order between /t/ deletion and /s:/ degemination. Out of the 400 instances of gemination that occurred in their reading of the passage, the participants were able to degeminate 310, amounting to 77 per cent of the total instances. This implies that the concepts of P-rule and rule feeding order taught to them in the 3rd year were imbibed by most of them, especially in the relation between /t/ deletion and /s/ degemination.

4.2 Rule Feeding Relation Between /t/ Deletion and /k/ Degemination

The frequency of proper degemination of /s:/ in environments resulting from /t/ deletion by the participants were checked as presented in Table 4.2 below.

Table 4.2 /k:/ degemination in the context opened by /t/ deletion

S/no.	Lexical component	Standard form	Expected data	Observed data	Percentage
1	direct contact	[dɑɪrekʌntɑkt]	40	19	39%
2	strict control	[strɪkəntrəʊl]	40	10	
3	baked corn	[beɪkɔ:n]	40	15	
4	correct counsel	[kərekɑʊnsəl]	40	18	
5	reflect carefully	[rɪflekeəfəlɪ]	40	20	
6	sacked cleaners	[sækli:nəz]	40	13	
7	masked criminals	[mæskrɪmmælz]	40	15	
8	mocked court	[mɔkɔ:t]	40	14	
9	cracked keg	[krækeg]	40	12	
10	perfect companion	[pɜ:fɪkəmpænjən]	40	20	
Total			400	156	

The data in the table above show that the total figure of rule feeding order expected in the reading of the text was 400 while their observed

approximate production was 156, amounting to 39 per cent. This implies that the participants were deficient in the application of /t/ deletion and the concomitant rule feeding order between /t/ deletion and degemination of geminate velar fortis /k:/. This result shows a sharp contrast between their linguistic performance in /t/ deletion with its consequent /s:/ degemination and their performance in the expected /t/ deletion that would have resulted in /k/ degemination.

4.3 Phonological Analyses of Participants' Variant Productions in /s:/ Degemination

In order to validate the findings derived from the numerical analyses above, the phonological analyses of the variant forms produced by the participants are presented in Tables 4.3 below.

Table 4. 3. Phonological analyses of participants' variant productions of /s:/

S/no.	Lexical component	Standard form	Participant's variant form	Deviations
1	best student	[bestjudənt]	[best student]	Insertion of /t/ and /s/ in word boundaries
2	latest style	[leɪtəstɑɪl]	[leɪtest stɑɪl]	
3	best seller	[beselə]	[best selɑ]	
4	first science	[fɜ:sɑɪənz]	[fɜ:st sɑɪənz]	
5	best son	[besʌn]	[best sɔn]	
6	herbalist service	[hɑbəlɪsɜ:vɪs]	[hɑbəlɪst sɜ:vɪs]	
7	last sentence	[lɑsentəns]	[lɑst sentəns]	
8	worst scandal	[wɔskändəl]	[wɔst skändɑl]	
9	best sales	[beseɪlmɑnədʒə]	[best seɪlmɑnədʒə]	
10	capitalist state	[kɑpɪtɑlɪsteɪt]	[kɑpɪtɑlɪst steɪt]	

The deviant productions earlier reported in the performances of the participants in Table 4.1 were observed to have exhibited insertion of /t/ and /s/, thus producing the phonemic components of the phrases at the phonetic level of representation. However, many of them who are used to the notion tested among them were able to observe the application of /t/ deletion in the first place and equally to degeminate the /s/ that was doubled as a result of the deletion. This led to very smooth production of the words without articulatory struggles. For those who could not observe this rule feeding relation, the ease with which they ought to have articulated their speeches were impeded by vigorous muscular effort towards production of all the sounds present in the words in the phonemic level of representations.

4.4 Phonological Analyses of Participants' Variant Productions in /k:/ Degemination

In order to isolate the deviation observed in the forms produced by the participants in the environment of abutting velar fortis triggered by /t/ deletion, the phonological analyses of their productions were done as presented in the table below.

Table 4.4 Phonological analyses of participants' variant productions of /k:/

S/no.	Lexical component	Standard form	Participants' variant form	Deviation
1	direct contact	[daɪrekʌntɑkt]	[daɪrekt kɔntɑkt]	Insertion of /t/ and /k/ in word boundaries
2	strict control	[strɪkəntrəʊl]	[strɪkt kɔntrəʊl]	
3	baked corn	[beɪkɔːn]	[beɪkt kɔːn]	
4	correct counsel	[kərekaʊnsəl]	[kɔrekt kaʊnsəl]	
5	reflect carefully	[rɪflekeəfəlɪ]	[rɪflekt keəfəlɪ]	
6	sacked cleaners	[sækliːnəz]	[sækt kliːnɑs]	
7	masked criminals	[mæskrɪmməlz]	[mæskt krɪmməls]	
8	mocked court	[mɔkɔːt]	[mɔkt kɔːt]	
9	cracked keg	[krækeg]	[krækt keg]	
10	perfect companion	[pɜːfɪkəmpænjən]	[pɑfekt kɔmpæniən]	

The data presented in the table above reveal that the participants' deficiency in the application of the P- rule involving /t/ deletion and its resultant degemination of the germinate /k:/ was obvious. Aside from the variant forms highlighted above, it was also observed that in some instances, the participants pronounced the phrases, *direct contact* as **[**daɪrekt kɔntɑkt**]** or **[**daɪret kɔntɑkt**]**. Similar deviations also occurred in production of the phrase, *perfect companion,* which were pronounced as [pɑfet kɔmpænɪən]. These forms are frequently observed in the spoken English of most Nigerian L_2 users of the language, thus resulting in deletion of /k/ instead of /t/ in most instances. Few samples of the wave forms of the participants' productions are compared below, reflecting the approximate and deviant forms, using the same phrases rendered by a native speaker as a benchmark to highlight the contrast in their performances in rule ordering skills.

4.5 Wave Form Views of Sample Phrases

The major concern of this work is to identify instances of adherence to rule feeding relation between /t/ deletion and degemination of twinning /s/ and /k/ in the speeches of participants. The three successive wave

forms in Figures 4.1-4.3 below represent acoustic properties of the native speaker's production and a sample each of the approximate and deviant productions observed in the speeches of the participants are compared to spotlight their respective acoustic similarities and differences. The two sample phrases selected for this purpose are *capitalist state* and *direct contact*.

4.6 Wave Forms Views of Capitalist State

The set of three wave forms below highlight the acoustic display of the phrase representing *capitalist state* produced by the native speaker alongside the approximate and deviant forms produced by the participants. The vertical pairing of the three wave forms is meant to establish, through comparison, the points of similarities and contrasts among the approximate and variant forms against the baseline of the native speaker's standard model.

Native speakers' rendition of *capitalist state* [kɑpɪtəlɪsteɪt]

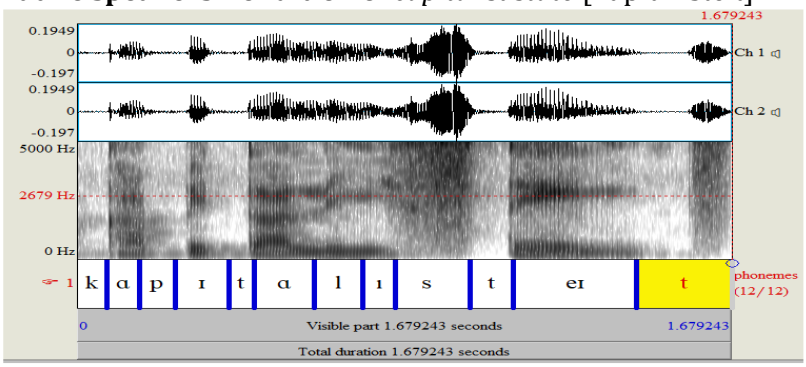

Figure 4.1. Source: (present study)

Approximate form of participants' production of *capitalist state* [kɑpɪtəlɪsteɪt]

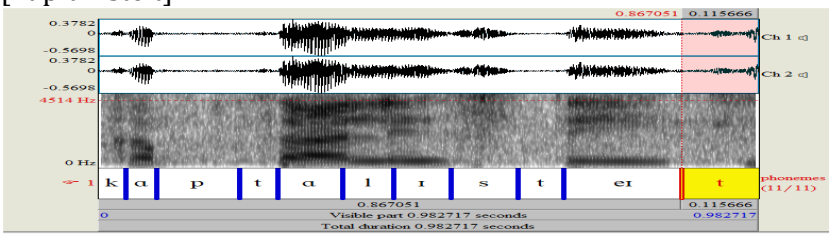

Figure 4.2. Source: (present study)

Pedantic form of participants' production of *capitalist state* [kɑpɪtəlɪsteɪt]

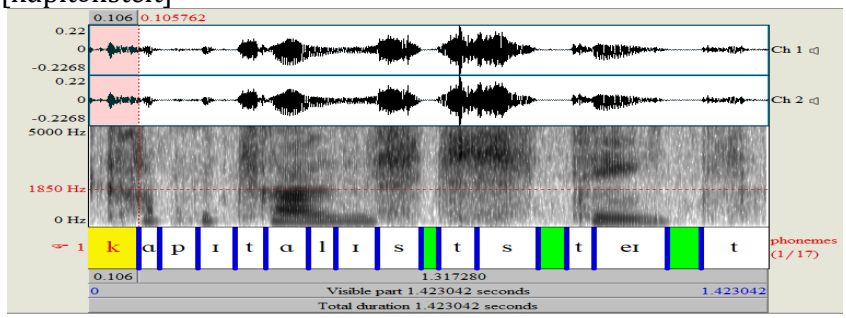

Figure 4.3. Source: (present study)

From the wave form displayed in Figures 4.1. 4.2. and 4.3. above, the acoustic values shown in the native speaker's production reveal that the segments, /t/ and /s/, were absent in the medial position of the phrase, *capitalist state,* resulting in realisation of [kɑpɪtəlɪsteɪt]. The wave form view of the approximate production in Figure 4.2 shows similar structure. However, the wave form view in Figure 4.3 exhibits a recurrent acoustic release of the /s/ and /t/ in quick succession. These are revealed by high frequency of friction noises in the two regions at F1=110.52 / F2=2236.56, for the first /s/ and F1= 984.03 / F2=2211.22 for the second /s/ respectively. They are followed by short portions of silence in the amplitudes, spanning 36ms and 70ms respectively, before the acoustic release of the succeeding alveolar fortis, /t/, in both instances. These acoustic cues provided concrete indices for the annotation below the spectrogram. The proximity of the wave forms representing the approximate productions to the native speaker's wave form confirmed that /t/ deletion and its simultaneous degemination of

twinning /s/ were observed by some participants. Conversely, the variant forms established the failure of some of them to apply the /t/ deletion rule, resulting in counter-feeding of the rule ordering that is required to eliminate the gestural snag occasioned by the cluster /tst/ in the word boundary of the phrase, *capitalist state.*

4.7 Wave Form Views of Direct Contact [dɑɪrekɔntækt**]**

The set of three wave forms below highlight the acoustic display of the phrase representing *direct contact,* produced by the native speaker alongside the approximate and deviant forms produced by the participants. The vertical pairing of the three wave forms is meant to compare and spotlight the respective areas of similarity and contrast among the approximate and variant forms against the baseline of the native speaker's standard model.

Native speaker's rendition of *direct contact* **[**dɑɪrekɔntækt**]**

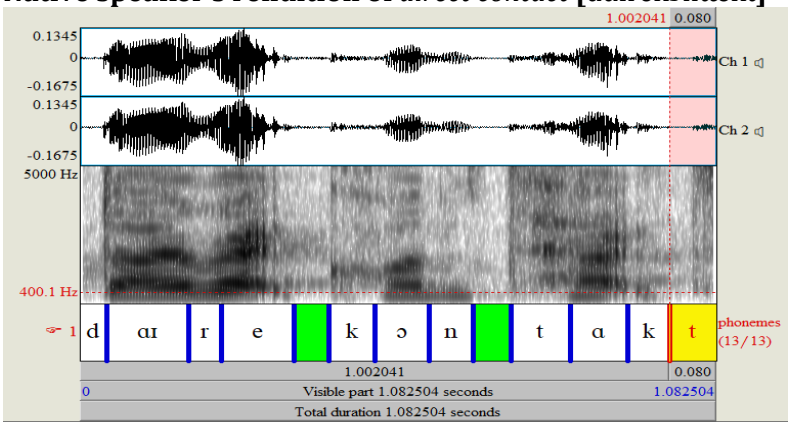

Figure 4.4 Source (present study)

Approximate form of participants' production of *direct contact* **[**dɑɪrekɔntækt**]**

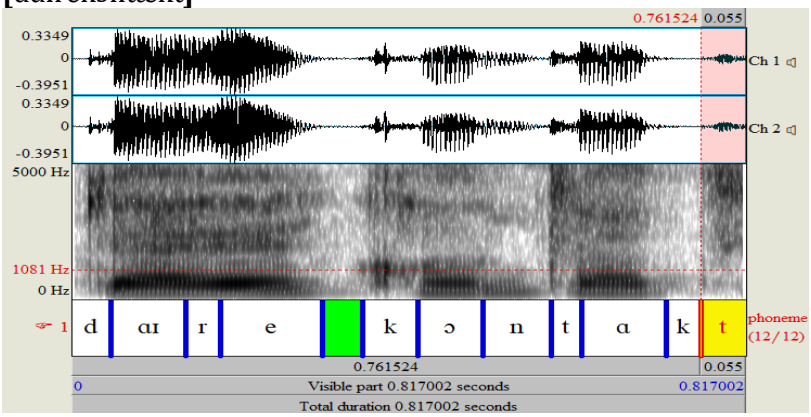

Figure 4.5 Source: (present study)

Pedantic form of *direct contact* [dɑɪret kɔntɑkt] **produced by some participants**

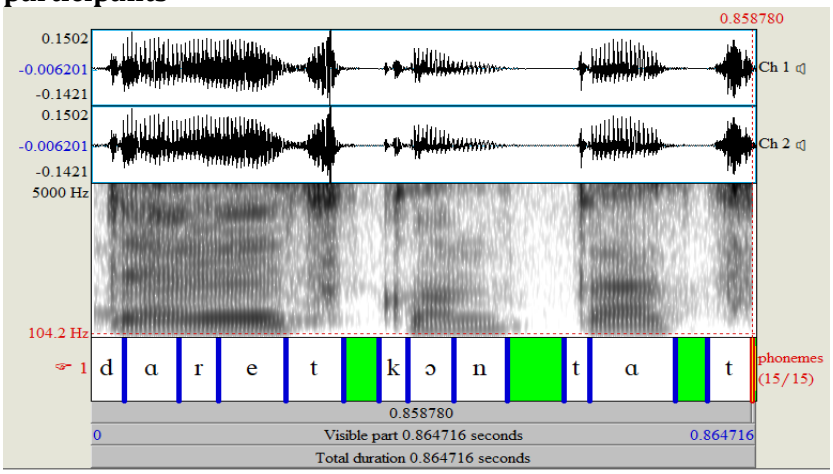

Figure 4.6. Source: (present study)

The wave forms in figure 4.4. represent the native speaker's rendition of the phrase, *direct contact,* while 4.5 and 4.6 represent the approximate and variant productions of the participants respectively. In the lexical components of this phrase, the coronal fortis /t/ was flanked on both sides by velar fortis /k/. However, in Figures 4.4 and 4.5, the coronal fortis /t/ was deleted, and resulting in twinning of /k/ that consequently

opened the environment for degemination to realise the phrase as [dɑɪrekɔntækt]. This articulatory execution is evident in the silent portions in the amplitudes, spanning 57ms for the native speaker and 53ms for the approximate production. This occurs immediately after the vowel /e/ followed by the acoustic release of the velar stop, /k/ at the initial position of *contact*. However, in the wave form in figure 4.6, the silence signalling occlusion at the velar point before the release of /k/ did not follow the vowel /e/ as shown in the first two wave forms. This implies deletion of the first /k/, leaving out the final /t/ in *direct* before the silence that precedes the acoustic release of the velar fortis /k/ at the initial position of *contact*. The result of this was production of the phrase as [dɑɪret kɔntɑkt]. This exhibits an articulatory dilemma stemming from ignorance of the appropriate segment to delete in a complex situation. It also corroborates the claim of Soneye and Oladunjoye (2015) that some Nigerian educated speakers of English wrongly delete /k/ in some phonological contexts.

4.8 Summary of Findings

The findings made in this study reveal the following:

The production of the various phrases by the English native speaker, observed in this study, shows that syntactic accuracy is not superimposed on the spoken expression by native speakers, as it is done by most non-native speakers of the language.

The English language phonology permits using rule ordering processes to reduce articulatory rigour in complex structures.

A large number of the participants were able to apply the /t/ deletion rule in contexts involving the clusters of /s+t+s+t/ and were also able to degeminate the resultant twinning of /s:/, which justifies their being expected to equally apply rule feeding order principles in other contexts.

The participants were deficient at observing rule feeding relation between /t/ deletion and degemination of twinning /k/.

It is most likely that deficiency in rule feeding order is a significant source of pedantic articulation and mispronunciation of English among non-native speakers.

5.0 Conclusion

From the findings above, it is obvious that one of the pronunciation problems confronting Nigerian English speakers is the neglect of rule feeding order that can aid degemination of twinning sounds towards resolving disparate sequences of consonants in connected speech.

5.1 Discussion

The participants were able to observe deletion and rule feeding order in the phrases involving /s/ degemination but failed in the set of phrases involving degemination of /k/. They all seem to be hesitant towards deleting /t/ in an environment where the resultant effect is likely to leave the velar fortis /k/ bare at the final position of the stem before a suffix. This finding corroborates the aberrant simplification of cluster already established in the earlier studies on Nigerian English phonology (Akinjobi, 2009; Soneye and Oladunjoye, 2015). This attitude can therefore be construed as a common phonological variant of Nigerian English. Also, the articulatory difficulty associated with this choice of variation accounts for the pedantic pronunciation in Nigerian English. It also corroborates the earlier descriptions of such variants as spelling-cued pronunciation, bookish English and hyper-articulation (Ufomata, 1996; Fakoya, 2006; Awonusi, 2007; Akinjobi, 2011; Ekundayo, Longe & Teilanyo, 2012; Apeli & Ugwu, 2013). A correct choice of deletion in this type of string is a regular feature in the native speakers' speeches and their corresponding gestural simplicity. The neglect of the principles of P-rules and rule ordering relation often makes connected speech articulation trickier than it is assumed for speakers of English in non-native settings.

5.2 Recommendations

The need for simplifying unpronounceable sound sequences in English language through P-rules and rule ordering (feeding and bleeding) is a natural linguistic practice. Avoidance of this process usually triggers gestural complications that frequently lead to mispronunciation of English words by non-native speakers. The following recommendations are therefore proffered towards solving this quandary:

Without seeking to advocate affected English, it is logical to aver that rule ordering principles, which are freely practiced by the native speakers of English, have the potential to eliminate the articulatory hassles inherent in disparate clusters of phonemes.

While not contesting the importance of equipping the trainees-teachers with adequate knowledge of rules guiding proficiency in the use of the language, it is also germane that students should be encouraged to have a good grasp of the rule ordering principles in order to reduce pedantic articulation. Students should be introduced to phonological rules and the concomitant rule ordering relations right from the

secondary education level to enable them develop good foundation of phonological processes alongside the rule ordering skills. This will save them the trouble of pedantic pronunciation of English words at higher stages of education. The teaching of grammar at secondary education level should be punctuated with hints that exceptions to syntactic well-formedness are in high distribution in the spoken form of English. This will make them responsive to phonological rules that are capable of reducing articulatory dilemma and minimise the articulatory hitches characterising the Nigerian English with its attendant mispronunciations.

The general English curriculum at the tertiary level of education should be stocked with more concepts on phonological rules to educated learners of English as a second language on how to achieve articulatory ease and thus, demystify English pronunciation.

References

Agboyinu, A. M. (2018). Application of Standard British English phonological rules among senior secondary school teachers of English language in Ogun state, Nigeria. (Ph.D. thesis. University of Ibadan).

Akinjobi, A.A. (2009) "Consonant Cluster Simplification by Deletion in Nigerian. English" In *Ibadan Journal of English Studies*. (30)

Akinjobi, A. A. (2011). Academic competence and linguistic performance: A study of English intonation tune assignment by some Nigerian English language postgraduate students. In *African Nebula* Issue (4). 66-76.

Ali, L. H. (2016). Speech mechanism and ease of articulation: A Case study of consonant cluster reduction in English. In *International Journal of liberal arts and social science,* 4 (4). http://www.ijlass.org.

Apeli, C. U. & Ugwu, E. N. (2013). Phonological interference in the spoken English Performance of the Izon speaker in Nigeria: A product of systemic and interlanguage factors. In *International Journal of language, literature and gender Studies,* 2(6).73-189.

Awonusi, S. (2004). Some Characteristics of Nigerian English phonology. In A.B.K. Dadzie & S. Awonusi (Eds.). *Nigerian English: Influences and Characteristics*. Lagos. Concept Publications.

Awonusi, S. (2007). Good spoken English and national development: Sociophonology in the service of man. In *Inaugural lecture.* www.unilag.edu.ng

Awonusi, S., Ademola-Adeoye, F. & Adedeji, K. (2015). *Essentials of English phonetics and phonology.* Lagos: Concept Publications.

Bakovic, E. (2011). Opacity and ordering. Online publication. http://www.onlinelibrary.wiley.com

Bally, C. & Sechehaye, A. (2015). *Course in General Linguistics* Ferdinand de Saussure. New York: McGraw-Hill Book Company. http://www.faculty.georgetown.edu/irvinem/

Barberena, L., Keske-Soares, M., and Berti, L. (2014). Description of articulatory gestures concerned in the production of /r/ and /l/. Blog publication. http://www.dx.do.org

Browman, C.P. & Goldstein, L. Blog publication. http://www.citeseerx.ist.psu.edu/viewdoc/

Bybee, J. (2003). Phonology and language use. Cambridge. Cambridge University Press.

Chomsky, N. & Halley, M. (1968). *The sound pattern of English.* London. Harper and Row, Publishers

Dadzie, A. B. K. (2004). The concept of Nigerian English. In A.B.K. Dadzie and S. Awonusi (Eds.). *Nigerian English: Influences and Characteristics*. Lagos. Concept Publications.

Dawood, H. S. A. & Atawneh, A. (2015). Assimilation of Consonants in English and Assimilation of the Definite Article in Arabic. In *American Research Journal of English and Literature*, 1(4). https://www.arjonline.orgpers/arjel

Ekundayo, S. B., Longe, V. U. & Teilanyo, D.I. (2012). The development of English phonological rules and dynamics as 'interference': examples from educated Nigerian English usage. In *Journal of the Nigerian English studies association (JNESA),* 15 (1), 74-95. http://www.englishscholars.org.ng

Endress, A. D. & Mehler, J. (2010). Perceptual constraints in phonotactic learning. In *Journal of experimental psychology: American Psychological Association human perception and performance 2010,* 36(1). 235–250. https://www.sissa.it/cns/Articles/Perceptual Constraints in Phonotactics

Fakoya, A. (2006). Nigerian English: A Morpholectal Classification. Online papers. http://www.academia.edu/928218/

Fromkin, Rodman & Hyams, (2011). *An Introduction to Language*. Wadsworth. Cencage Learning.

Gafos. A. I. (2002). A grammar of gestural coordination.in Natural language and linguistic theory, (20, pp 269-337). Netherlands. Kluwer Academic Publishers.

Gussenhoven, C. & Jacobs, H. (2011). *Understanding Phonology.* (3rded.). Great Britain. Hoder Education.

Hein, J. Murphy, A & Zaleska, J. (2014). Rule flipping and the feeding-b leeding relationship. Blog publication. http://www.home.uni-leipizig.de/asw/

Jones, D. (2006). *English Pronouncing Dictionary*. (16th ed.). Cambridge. Cambridge University Press.

Jowitt, D. (1991). *Nigerian English usage: an introduction*. Ibadan. Longman.

Kachru, B. B. (1985). Standard, codification and sociolinguistic realism: the English language in the outer circle. In R. Quirk & H. G. Widdowson (Eds.). *English in the World: Teaching and learning the language and literatures.* Cambridge. Cambridge University Press. https://www.teachingenglish.org.uk/sites

Katamba, F. (1996). *An introduction to phonology.* (8th impression) London: Longman.

Mascaró, J. (2011). Rule ordering. In M. V. Ostendorf, et al. (Eds.) *The Blackwell companion to phonology.* 1736-1760. http:// mascaro-uab.weebly.com/uploads/Oxford. Wiley Blackwell.

McCarthy, J. J. (2007). Derivations and levels of representation. In Paul de Lacy (Ed.). *The Cambridge handbook of phonology*. Cambridge. Cambridge University Press.

Nathan, (1982) Natural phonology interference in second language acquisition. In *Selected papers from the Illinois TESOL/BE annual convention*. (10th, Chicago, IL, February 26-27 1982. files.eric.ed.gov/full text/ED225362.

Okebukola, F. (2005). Aural-oral perceptions: pronunciation defects in the socio-linguistic milieu of Nigeria. In N. C. Nwaboku, B. Akinpelu, & S.O. Makinde (Eds.). *Education: a socializing agent*. Lagos. Department of Curriculum Studies Lagos State University.
http://lasu.edu.ng/publications/education/foluso

Oladipupo, R. O. & Akinjobi, A. (2015). A sociophonetic study of young Nigerian English Speakers. In *Ghana Journal of linguistics*, 4(2). 92-107. https://www.ajol.info/index.php/gj

Omoniyi, T. (2004). The acquisition and use of English as a second language in Nigeria. In A. B. K. Dadzie & S. Awonusi (Eds.). *Nigerian English: influences and characteristics*. Lagos. Concept Publications.

Roach, P. (2000). *English phonetics and phonology.* (3rd ed). Cambridge. Cambridge University Press

Shariatmadari, D. (2006). Sound difficult? Why phonological theory needs 'ease of articulation'. *SOAS working papers in linguistics*, 14. 207- 226.
https://www.soas.ac.uk/linguistics/research/working papers.

Skandera, P. & Burleigh, P. (2005). A manual of Phonetics and phonology. Tubingen. Gunter Narr Verlag Tubingen. http://www.narr.de

Sogunro, B.O. (2014). Aspect of connected speech in the English as a Second Language Classroom. In *International Journal of Humanities and Social Sciences,* 3 (14).

Sommerstein, A. H. (1977). *Modern Phonology*. London. Edward Arnold (Publishers) Ltd.

Soneye, T. & Oladunjoye, F. J. (2015). Syllable phonotactics in educated Nigerian spoken English. KSJ, 3(3). 255-269. http://www.ksj.pwsz.konin.edu.pl/wp-content

Spencer, J. (1980). *The English language in West Africa*. London. Longman.

Trask, L. (1996). *Historical Linguistics*. London. Arnold.

Ufomata, T. (1996). Setting priorities in teaching English pronunciation in ESL contexts.
http://www.phon.ucl.ac.uk/home/sh19/ufomata/titi.

Yule, G. (1996). *The Study of Language.* (2nded.). United Kingdom. The Press Syndicate of the University of Cambridge.

Stress- or Tone-Timed English? Accounting for High Tone Variations in Nigerian Spoken English

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Abstract

Previous studies have reported that the melody of Nigerian spoken English (NSE) replicates the tonality of most indigenous languages, rather than the stress-timed nature of the Standard British English (SBE).Based on this perception, the authors undertook a study of the variations of high tones in NSE. Eighty participants comprising mainly Nigerian-English bilinguals from varied sociolinguistic backgrounds were used as the Experimental Group (EG from henceforth) for the study while a native speaker of SBE served as the "Native Baseline" (NBL from henceforth). The data was gathered by audio-recording the reading of a prepared text and some spontaneous speeches of the respondents, which were uploaded into a laptop computer for acoustic analysis using Praat, a speech analysis software. The data were further subjected to perceptual analysis and the TOBI system was used for the transcription of the tones of the Nigerian English syllables. Metrical theory served as the theoretical thrust while, as a complement, Pierre Humbert's phonology was used to support empirical evidence. Consequently, the authors observed that high tones are assigned indiscriminately to both stressed and unstressed syllables resulting in what could be considered as tone-timed rhythm. The study concluded that Nigerian English users realize more high tones that do not markedly correlate with the stress patterns of SBE.

1.0 Introduction

It is an established fact that all human languages are realized with a fluctuation in pitch. This arises from the fact that during sound production, the vocal cords vibrate at a certain rate. The rate of vibration corresponds closely to the pitch perceived by the hearer; for instance, the higher the rate of vibration, the higher is the perceived pitch (Dakat & Jonathan, 2016). Gussenhoven & Jacobs (2011, p.21) remark that "the more frequently the vocal folds open and close, the higher the pitch". This does not only make human language rhythmic but also classifies it as either stress-timed, syllable-timed or tone-timed, among others. Katamba (1989) and Clark, Yallop & Fletcher (2007) acknowledge that all languages use pitch, although various languages use it in different ways. When pitch operates within time domain of the word, it facilitates

the marking of grammatical properties and contrast lexical meaning. This is when it is described as tonal and it is common in most Nigerian or African languages (cf Jowitt, 2019). Conversely, when pitch operates within the domain of an entire utterance, it is described as intonational. Pitch timing or duration is also an aspect of the prosody of the English language. Human speech is isochronous, implying that it is characterized by the rhythmic division of time into equal proportions in a language. According to Wells (2006), rhythm is an aspect of prosody, others being intonation, stress and tempo of speech. Abecrombie (1967) further notes that every language in the world is spoken with one kind of rhythm or the other. In that study, this source categorizes French, Telegu and Yoruba as syllable-timed languages; and English, Russian and Arabic as stress-timed languages.

In addition, Gimson (1980) identifies the five distinct tones used in expressing meaning in speech: falling tone, rising tone, fall-rise tone, rise-fall tone and rise-fall-rise (or level) tone (cf Wells, 1999 cited in Galloway & Rose, 2015).When the pitch of the voice is manipulated on any of these tones, mostly in tonal languages, a different meaning is automatically portrayed or conveyed. Thus, prominence or pitch at the word level implies contrast in lexical meaning. This study specifically focuses on the variations occurring in the pitch of the voice resulting in the various high tone realizations in acrolectal Nigerian Spoken English (NSE).

Most Nigeria's indigenous languages are known to be tonal (cf Jibril, 1982; Essien, 1990; Udondata, 1993; Josiah, 2001; Gut, 2002; Udofot, 1997, 2007; Jowitt, 2019). However, educated Nigerian users of English appear to use the tonality of their native languages in realizing English words. Such users are those Ugorji (2010) sociolinguistically classified as mesolectal bilinguals – they have the patterns which show little L1 influence, associated with people who may be graduates or have a minimum of secondary school education. They are mostly the ones noticed to be speaking the English language with tonal inclinations arising from their respective mother tongues or tones. But Udofot (2004) extends this category of speakers to, sometimes, include some acrolectal, English bilinguals, no matter their levels of education. These remarks and many more have provided the requisite background and motivation for the present study. The study aims at finding out if the

rhythm of NSE is appropriately describable in terms of its tonality, or follows the conventional SBE model designated as stress-timed rhythm.

1.1 Literature Review

A good number of literature have provided insights into the current study. Tiffen (1974), for instance, conducted a research on the intelligibility rating of Nigerian English variety to British listeners and concluded that incorrect rhythm and incorrect and unusual syntax were the major causes of intelligibility failure. Udofot (2004) appears to corroborate this conclusion by stating that the factor which appears most influential in determining NSE utterances is accentuation. This is one of the major factors that makes spoken Nigerian English a uniquely distinct variety, different from the native speakers' variety.

A further study conducted in Udofot (2007) upholds the notion that Nigerian English intonation reflects the prosodic structure of the speakers' native language in a way that stressed syllables are associated with a high tone and unstressed syllables with low tones, following Wells (1982). In that study, the researcher ultimately draws the conclusion that NSE features more stressed syllables than are expected in a native variety, and all the stressed syllables do not correlate with high tones; rather, they are produced with low tones. The source reiterates the proposal by Gut (2002) that NSE is a tone language with tone on every syllable. The study concludes that NSE has more level tones and very few contour tones with the few contour tones tending to occur at intonation phrase boundaries and utterances.

These studies corroborate Adetugbo (1977, p.10) that had observed that "while SBE intonation is stress-timed, that of Nigerian English could best be described as syllable-timed" (see also Adetugbo, 2004). .Eka (1985) also corroborates Adetugbo (1977), describing the rhythm of SNE variety as inelastic-timed.

Jowitt's (2000) study examined the falling, rising and the complex nuclei as well as stress, pitch and accent among Nigerian participants used for his study, and draws the conclusion that: "certain patterns having a high frequency constitute a system in Nigerian usage, differing in important respects from native-speaker system, though lacking stability" (p. 63). Jowitt's (2019, p.38) study equally concludes that "English tends to be

more stress-timed, Nigerian languages more syllable-timed", following Dauer's (1983) broad categorization.
These conclusions reflect other scholars' findings on this subject (cf. Udofot, 1997; Peng & Ann, 2001; Awonusi, 2004; Akinjobi, 2004; Adegbija, 2004; Banjo, 2004; Wells, 2006; Hansen, 2006; Kachru, Kachru, & Nelson, 2006;Jowitt; 2007; Olaniyi, 2007,among others). Some of these sources have proposed a modified endonormative RP-type intonation model, particularly for newscasters, which of course, sometimes are inconsistent with the exonormative, RP intonation patterns (cf Adegbija, 2004).

Other forms of World Englishes have been observed to have similar experiences like those of SNE. For instance, Wells (1999) cited in Galloway and Rose (2015, p. 37) points out that certain British accents "have some tendency to use rising tones, where most other accents have falling tones"; Australian English tends to use rising pitch contours in declaratives and *wh*-questions "whereas most other accents have falling pitch"; and Irish English tends to use falling pitch contours in all communicative types.

In dealing with Tone and Break Indices (ToBI), Clark, Yallop and Fletcher (2007, Pp. 364-370) have noted that such analysis is an important approach to intonational phonology that "decomposes the characteristic tunes of English into separate tone targets which align in particular ways to elements of an utterance". In such an instance, these authors, citing Ladd (1996), suggest the adoption of autosegmental-metrical framework which signals the juxtaposition of these twin theories for an elaborate analysis. In this study, we will only adapt the metrical framework and a strand of the ToBI system since we are not entirely dealing with intonation. Obviously, the ToBI system will provide the basis for isolating High (H) tones from Low (L) tones based on the performances of the NBL in contradistinction to those of the EG, which form our major area of interest in the present study. Specifically, a ToBI transcription system for an utterance consists of symbolic labels for events on four parallel tiers; (a) orthographic tier; (b) break index tier; (c) tone tier and (d) miscellaneous tier. Each tier consists of symbols representing prosodic events, associated with the time in which they occur in the utterance. The conventions for annotation, according to ToBI, are defined for text-based transcriptions and for computer-based

labelling systems, such as waves. The ToBI system was primarily intended for English, but it has been applied to works in other languages such as Italian (Grice & Savino, 1995), German (Grice & Benzmuller, 1995) and Hungerian (Grice & Savino, 1995).

However, Akmajian, Demers, Farmer & Harnish (2010) have treated word-level tone contour as comprising high tone, low tone, low-high-low tone, among others. This source also remarks that "the high tone links with the most strongly stressed syllable in the word and the low tones spread to any available syllable to the right or left". It is doubtful if these observations will reflect the NSE tones since the tonal nature of most Nigerian indigenous languages do not correlate markedly with the tone systems of English word-level phonology.

In these reviews, our interest is to re-examine the various approaches adopted and the conclusions reached by these studies so as to determine an appropriate phonological categorization of the Nigerian English variety and thereby provide basic pedagogical tools for linguists or language experts who may be interested in adopting such models for pedagogical or other functional purposes.

1.2.0 Research Methodology

The study adopted different methodological approaches to achieve its goals. These approaches are variously described accordingly. First, the research design adopted for this study was the survey research method. Some topics were given as spontaneous speeches for discussion. The required variables in the spontaneous speeches were viewed as natural since the participants produced them in natural speech forms. The text for reading was adopted from Cruttenden (2008). It was made of ten simple sentences designed to test the use of various tones. This approach enabled the researchers to listen to the respondents as they read the script provided for them and also talk spontaneously on the topic provided for them. Both the audio-recoded spontaneous speeches made by the respondents and the texts were transcribed perceptually and the samples scrutinized to isolate observed tone tokens.

Next, selected samples of the corpus were further subjected to acoustic analysis to complement the perceptual analysis. The overall goal was to find out if educated Nigerian speakers of English actually use high tones for stressed syllables and low tones for unstressed ones as are expected

in Standard British English. This made it easier for the researchers to discover the tonal nature of the English language spoken by educated Nigerians used as respondents. In all, eight (8) sentences were provided for the respondents and the tokens were taken for the analysis. The findings are reported in subsequent sections of the study.

The study population comprised eighty (80) respondents drawn from different sociolinguistic backgrounds in Nigeria and a native speaker tagged "NBL", who speaks Standard British English. The languages considered for selecting the respondents are three major-group languages (Hausa, Igbo and Yoruba), and four minor-group languages (Ibibio, Idoma, Bokyi and Ejagham). This was to enable the researcher go beyond the ambit of the major ethnic groups and equally consider other minor group languages.

Indisputably, the language groups or dialects selected for this study are negligible when compared to the 513 languages and dialects approximated to exist in Nigeria to be used for generalizations (cf Bamgbose, 1982). However, Jibril (1982) has noted that "the English language spoken in Nigeria tends to maintain a North-South divide", (p. 12). Although this divide is not absolute, it is significant because of the historical antecedents that gave rise to such development. Besides, owing to rural-urban migration and the quest for greener pastures, speakers of different languages have moved and settled in locations other than their mother-tongue environments, and thus could speak English with accents other than theirs. So, the selection is merely typological to represent a few linguistic groups in Nigeria.

The second category of participants for the analysis was the Native baseline (NBL). This comprised only one respondent who is a Briton and a native speaker of the English language. This respondent was born and bred in Britain and had his education there as well. The NBL, usually referred to as the "control" in earlier studies (cf Eka, 1985; Udofot, 1997, 2004; Akinjobi, 2004; Josiah, 2009), is used for the purpose of interpolation and not comparison. In that case, one native speaker may be accurate. Although this number may be considered grossly negligible or inadequate, suffice it to say that this is not purely a contrastive study of ENSE and SBE. It is our consideration that one SBE native speaker can function as the measuring parameter for the variables used for the study.

One key research instrument used for the data collection is the questionnaire. It was prepared in three sections and titled: "Oral Test on the Realization of High Tones in Nigerian English." Section 'A' had some paralinguistic factors that required information on the respondents' age, sex, educational qualifications, course of study and the first language or mother-tongue of the respondents. This was meant to enable the researcher obtain the background information of the participants that could assist in analyzing the sociolinguistic factors that account for the tonality of Nigerian English. Section 'B' contained eight (8) sentences that tested variations in high tones (H). The items were read into an MP3 audio device by the respondents while Section C provided a topic to be discussed extemporaneously for five minutes.

The respondents comprised twenty (20) final-year degree students of the Department English of the University of Calabar, thirty (30) final-year degree students of the Department English from the Federal College of Education, Obudu, and five (5) lecturers from each of the institutions (making a total of 10 lecturers) from the English departments of the selected tertiary institutions. The questionnaire was equally given to twenty (20) news casters selected from the Nigerian Television Authority (NTA), Calabar; Cross River State Broadcasting Corporation (CRBC) and Ebonyi Broadcasting Corporation (EBBC). The reason is that these are specialists in reading news in Educated Nigerian English. They could equally make good phonemic distinctions in the Nigerian variety of English. It should be noted that university students in Nigeria cut across various ethnic groups: Hausa, Yoruba, Igbo and speakers of other minor-group languages.

Therefore, the authors considered it unnecessary to take another set of samples from students of English Department in Ebonyi State University. Such an effort could have resulted in the replication the same set of data after getting the eighty (80) participants needed for the study. Rather, all the respondents used were considered adequate as far as they were speakers of the educated variety of English from different sociolinguistic backgrounds in Nigeria.

In terms of discipline, the respondents were drawn from the Departments of English, Linguistics and Communication Arts. This is due to the fact that they could make a high level of phonemic distinctions since they were into some aspects of language study and were within the

domain of Banjo's Variety III speakers as those in the educated variety. Students and lecturers from these departments had better exposure to the English language than the others and thus were considered appropriate exponents for this study. They had been considered by Banjo (1971, 1976), Fakuade, (1978) and Eka, (1985; 2000), among others, as speakers of Educated Nigerian English.

The data for this research were gathered by audio-recording of spontaneous speeches of the participants using an audio device. A topic was also given to respondents for discussion so as to elicit spontaneous speech. The required variables in the spontaneous speeches were viewed as natural, since the participants produced them in natural speech forms. The text for reading was adopted from Cruttenden (2008). It was made of ten simple sentences designed to test the use of various tones. This was meant to discover if educated Nigerian speakers of English actually use high tones for stressed syllables and low tones for unstressed syllables as are expected in Standard British English. Both the spontaneous speech and prepared text aided the researchers to make up for the lapses in the variables of either of the approaches and thereby achieving an authentic result from the study.

The audio-recorded production from the eighty respondents were listened to by playing back the recorded readings and then transferring them into an HP laptop for acoustic analysis. The readings were first transcribed perceptually and then analyzed acoustically. For the acoustic analysis, Praat, a software for speech analysis was used to analyze the data obtained from the respondents' readings. The software aided in providing some acoustic details from respondents' utterances while the perceptual analysis was carried out after the transcription of the entire data.

Some of the sentences produced spontaneously and during the guided reading were analyzed based on observed tone patterns. That is, some utterances were randomly selected from the production of all the eighty respondents for analysis. The stress patterns and pitch accents were identified and marked, so as to examine the correlation of the high tones with stressed syllables in this variety of English. The stress patterns were marked on the syllables.

In addition, for the purpose of accuracy, the Tone and Break Index Tear (ToBI) system was used for the transcription of the tones of the Nigerian English syllables. ToBI system is an off-shoot of the TODI system. It uses a simplified system of high (H), Mid (M), low (L) and level tones, and any combination of these is considered as contour tones. The ToBI system of transcription was used by the researcher to indicate the distribution of the tones of each respondent (cf Udofot, 2007). TOBI was developed to fulfill the need of a prosodic notation system, providing a common core to which different researchers can add additional details within the format of the system. It focuses on the structure of American English, but transcribes word grouping and prominences. Silverman et al (1992) described the TOBI system as showing the following features: it

(i) captures categories of prosodic phenomena;
(ii) allows transcribers to represent some uncertainties in the transcription;
(iii) can be adopted to different transcription requirements by using subsets of the notation system;
(iv) has demonstrated high inter-transcriber agreement; and
(v) is equipped with software to support transcription using waves.

The study also adopted Pierrehumbert's (1980) Text-Tune association system where words or syllables are analyzed as having a High (H) or Low (L) tone or a contour tone. It presents four tones: Low (L), High (H), Low-High (L-H) and High-Low (H-L) corresponding to the fall, the rise, the fall-rise and the rise-fall. These terminologies are used by Roach (2004), Jones (2006) and Cruttenden (2008). However, the present study only accounted for high tones in the analysis.

The words, syllables, pitch, intensity and duration were analyzed after being read into an audio-recorder by the participants. The participants were categorized into three representative groups: A – the NBL; B – PhD, M.A. B.A. degree holders; and C – Final-year university undergraduates from English Departments of the sampled institutions. The tone is transcribed based on pitch on the vowels considered to yield high tones. A high pitch is often correlated with stress, but according to Ladefoged (2006: p. 247), "stressed sounds usually have a higher pitch" and in this study, we adopted Ladefoged's (2006) "higher pitch" model.

Three approaches were used for the analysis: perceptual, acoustic and metrical. Based on the frame of metrical theory, the tone patterns of the

experimental group and the NBL were analyzed. Therefore, the analysis was done using pitch as a prominence relation arising from the alternation of High (H) and Low (L) tone syllables.

The results of this study were analyzed statistically using Wilcoxon's Matched-Pairs Signed-Rank Test. This statistical tool is an alternative to the t-test of the difference between two dependent means. This tool is important because it weighs the size of a difference between pairs of scores; for example, the NBL and the EG. Individuals are matched and assigned to one of the two sets of participants at the beginning of the experiment. In analyzing the data, each pair of scores was considered separately, noting whether the second score was smaller or greater than the first (the NBL). The appropriate integer, W- or W+ was then assigned. The procedure for carrying out Wilcoxon's Matched-Pairs Signed-Ranked Test are presented below:

Step 1: Record the paired scores in two columns;
Step 2: Obtain the difference between members of each pair;
Step 3: If any difference is zero, disregard it in subsequent calculation and reduce 'n', the number of pairs of scores, accordingly;
Step 4: Disregard the sign of difference obtained and supply ranks to the absolute magnitude of the differences, assigning a rank of 1 to the smallest of the differences, 2 to the next smallest, and so forth. Ties in ranks are handled in the usual way;
Step 5: Next, re-supply the appropriate sign of the differences to the ranks of the differences;
Step 6: The test statistics will be sum of the rank with a positive sign whichever is smaller; the former is referred to as W- and the latter W+;
Step 7: Present critical values for one and two tailed tests at the usual levels of significance; and
Step 8: Compare the smaller of the obtained values of W– and W+ (disregarding the sign) with the many entries in the table corresponding to '*n* and *a*' and the nature of our alternative hypothesis.

Data on the study were presented and analyzed acoustically and perceptually. The findings on the acoustic data are presented in charts and subsequently discussed in detail so that the results could be viewed directly from the charts. The same is also done with the metrical analysis.

Table 1 shows the sentences and transcriptions of some of the sentences used as test items. This is followed by tables showing the result from the acoustic analysis of the production of both the NBL and the EG. Charts were also presented to show a comprehensive variation of the NBL's production and the EG.

From sentence 1 of the recorded test items which reads: // No. He couldn't be seen //, the NSE participants produced more high tones (H) than the NBL. Whereas the NBL produced three high tones, most of the NSE participants had four (4) and five (5) high tones respectively. This is sequel to the fact that the NSE participants produced almost every syllable and monosyllabic words with a high pitch, thereby resulting in high tones. The following table (Table 1) presents sentences used for the tonal analysis and their transcriptions.

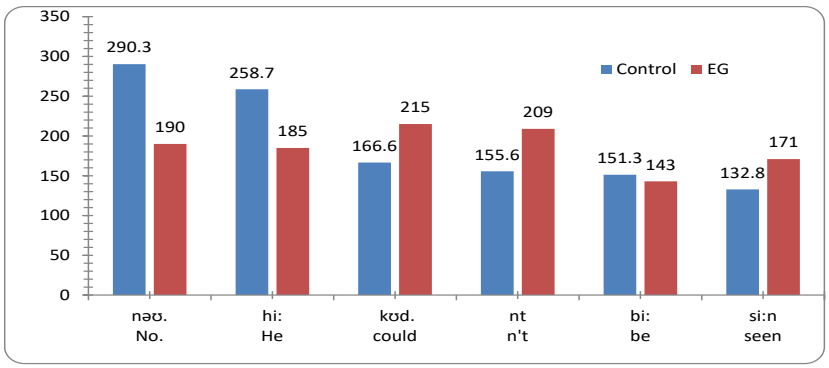
Table 1: Sentences Presented for Tonal Analysis and Their Phonemic Transcriptions

S/N	Sentences	**Transcription**
1.	No. He couldn't be seen.	/ˈnəʊ. hiː ˈ kʊd. n't biː ˈsiːn /
2.	He was running.	/hiː wɒz ˈrʌn.iŋ /
3.	No. Can you see?	/ˈnəʊ. kæn jʊː ˈsiː /
4.	He's not ill.	/hiːz nɒt iːl /
5.	No. It's true. It's shut.	/ˈnəʊ. ɪts ˈtrʊ. ɪts ʃʌt /
6.	It was raining.	/ɪt wɒz ˈɾeɪnɪŋ /
7.	He wasn't alone.	/hiː wɒz.nt əˈləʊn /
8.	On my way to Manchester.	/ ɒn mai wei tʊ ˈmæntʃɪstə /

Sentences and Transcriptions adapted from Jones (2006).

Chart 1 presents the acoustic data that displays the results of the study. It shows the contrast in the pitch duration of the NBL and the EG in the production of the sentence: "No. He couldn't be seen".

Chart 1. Acoustic Analysis of the Pitch Duration of the NBL and the EG with the Sentence: *"No. He couldn't be seen"*



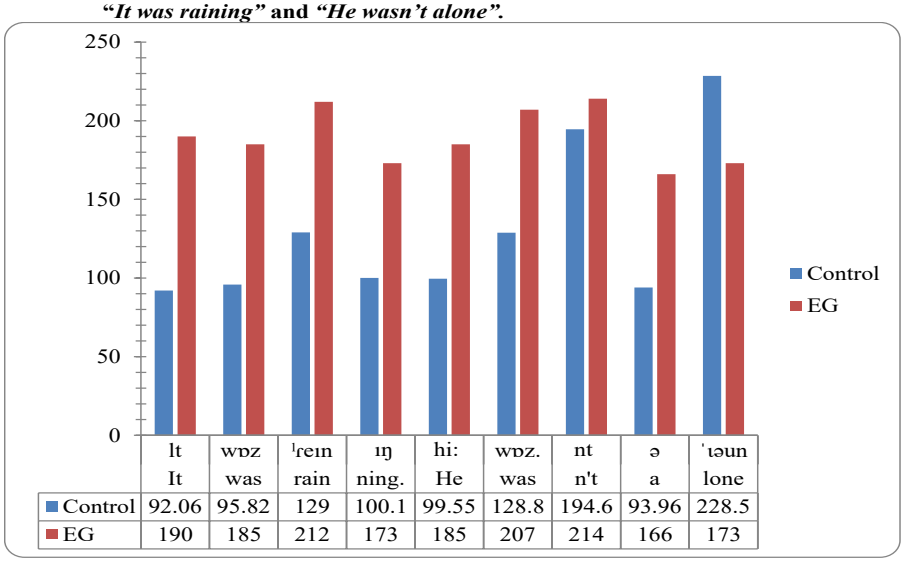
From the chart presented above, it could be seen that the pitch duration of the NBL on the syllable 'No' is 290.3 milliseconds against that of the EG which is 190 milliseconds. On the syllable 'he', the NBL used a pitch duration of 258.7 milliseconds to produce it, while the EG used 185 milliseconds for the same. These results indicate that the EG members represented by Nigerian participants did not apply stress to words as the SBE speaker did.

The pitch duration of the EG on the syllables 'could' and 'n't' were equally higher than that of the NBL. The EG used a pitch duration of 215and 209 milliseconds respectively to produce the two syllables. On the other hand, the NBL used 166.6 and 155.6 for the same syllables but made a difference between the stressed syllable "could" and the unstressed syllable "n't" with 11 milliseconds. The pitch duration between the two syllables is almost equal though with a difference of just 6 milliseconds. This implies that the EG did not differentiate the stress on the syllable "could" and "nt" which are not stressed but produced both with almost equal high pitch. This could be assumed to arise from the tonality of the EG's indigenous languages.

It was also observed that the NBL's pitch on the syllable "be" is 151.3, which is higher than that of the EG which is 143. On the final syllable, "seen", the NBL used a low pitch which has a duration of 132.8. The EG on the other hand used a higher pitch than the NBL and produced it in 171 milliseconds. Generally, the word 'seen' occurs as an unstressed syllable. This reveals that the EG used high pitch even on unstressed

syllables. The result presented on Chart 2 comes from two sentences – *It was raining* and *He wasn't alone.*

Chart 2. Acoustic Analysis of the pitch Duration of the NBL and the EG of the Sentences: *"It was raining"* and *"He wasn't alone".*



	lt It	wɒz was	ˈreɪn rain	ɪŋ ning.	hi: He	wɒz. was	nt n't	ə a	ˈləun lone
Control	92.06	95.82	129	100.1	99.55	128.8	194.6	93.96	228.5
EG	190	185	212	173	185	207	214	166	173

The first sentence reveals that the NBL had his highest pitch duration on the stressed syllable "rain" produced with a duration of 129 milliseconds against that of the EG which is 212 milliseconds, that is 83 milliseconds higher than that of the NBL. On each of the syllables in the first sentence, the pitch duration of the EG is higher than that of the NBL in both the stressed and the unstressed syllables. This reveals that the NSE users did not necessarily use high tones in correlation with stressed syllables; rather, the stressed syllables were produced with either high or low tones and vice versa.

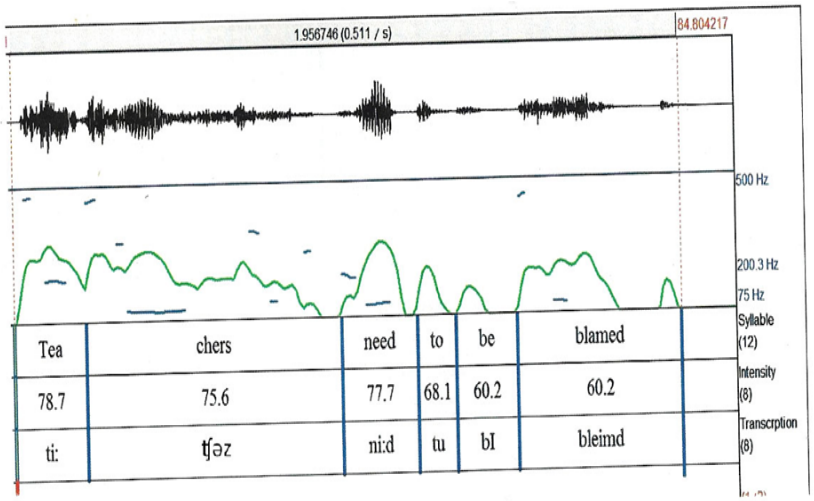
The acoustic analyses also reveal that in the first sentence, the EG stressed more syllables than the NBL. This indicates that many unstressed syllables were stressed, resulting from the tonality of the indigenous languages. The result from the second sentence reveals that the NBL had his highest pitch duration on the stressed syllable "lone" with a pitch duration of 228.5milliseconds against that of the EG, which was 173 milliseconds. This showed a difference of 55.5 milliseconds lower than that of the NBL. On the whole sentence, the EG still produced

more high tones on both the stressed and unstressed syllables than the NBL.

1.3.2 Spectral Analyses of the Spontaneous Speeches as Indicated on Each Slide

The wave forms on the next page display the spectral analysis of four spontaneous utterances from three respondents selected from the three major Nigerian linguistic groups – Hausa, Igbo and Yoruba and the NBL. The sentences analyzed were randomly selected from the spontaneous speech of one of the respondents from the selected linguistic groups. The spectrogram shows the wave forms and 3 interval tiers displaying the syllables, the intensity with which the syllables were realized and the transcription of the syllables. Below is the spectrogram showing the NBL's production of the utterance '*Teachers need to be blamed*'.

figure 1: Spectral Analysis of the Spontaneous Speech of the NBL with the Sentence: "*Teachers need to be blamed*"



The spectrogram in Figure 1 reveals that the NBL realized the highest intensity on the stressed syllable 'tea' [ti:] with 78.8 Hz while the unstressed syllable 'cher'[tʃə] was realized with a lower intensity of 75.6 Hz. Another syllable that was realized with a high intensity is the syllable 'need'[ni:d/] It was produced at 77.7 Hz. Other syllables in the utterance

were unstressed. They were realized with intensity between 60.2 Hz to 68.1 Hz.

Figure 2 shows the spontaneous realization of the sentence ***'Poor academic performance of students'*** made by one of the Yoruba respondents.

Figure 2: Spectral Analysis of the Spontaneous Speech of a Yoruba Respondent with the Sentence: *'Poor academic performance of students'*

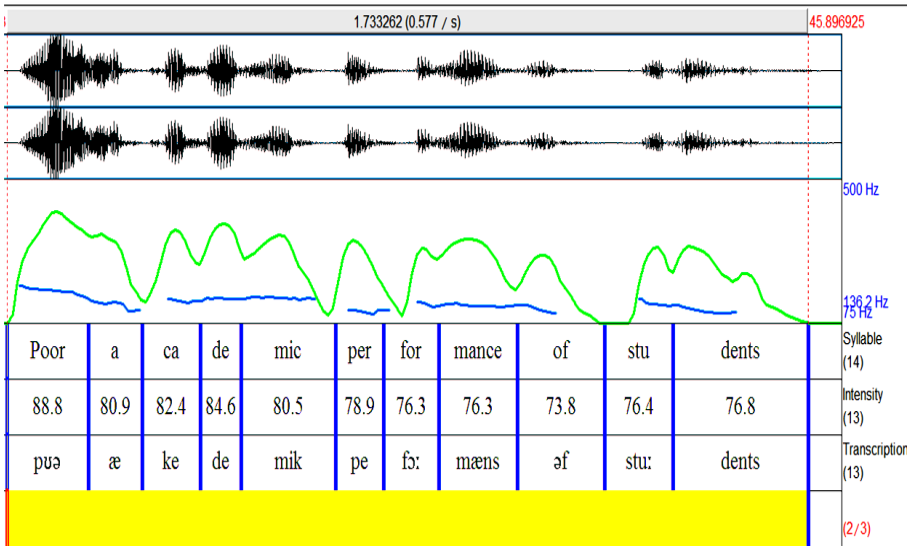


Figure 2 reveals that the respondent produced the highest intensity, which is 88.8Hz, on the syllable 'poor '/pʊə/. It was observed, from this analysis, that the respondent used more high tones than necessary. From our observation, too, even unstressed syllables were stressed. In fact, almost all the syllables were realized with high tones. It was also observed that the respondent did not pronounce most syllables according to SBE. For example, 'per'/p3:/was realized as [pe]; 'of' /əv/ was realized as [əf]; 'stu'/stju:/ was realized as [stu:] and 'dents' /dnts/ was realized as [dents].

Figure 3: **Spectral Analysis of the Spontaneous Speech of a Hausa Respondent with the Sentence: "*Our Students to Come Out with Very Poor Result*"**

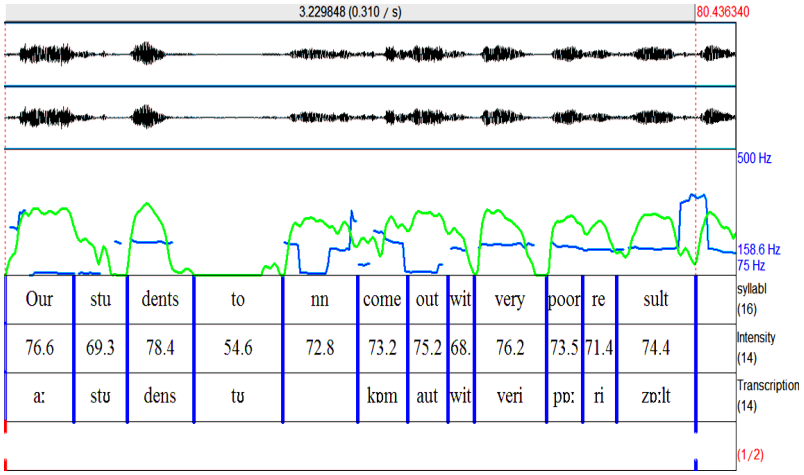
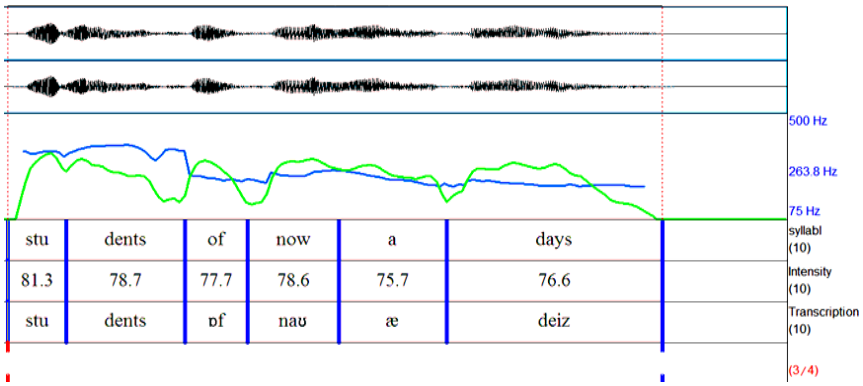


Figure 3 reveals that the syllable 'dents'[dnts] had the highest intensity in the utterance. Meanwhile, in SBE, the stress on the word 'students', is on the first syllable and not the second that was most prominent in the respondent's production. It was also discovered that, out of 11 syllables in the utterance, the syllable 'to' was the least stressed. Besides, there was an insertion of the alveolar nasal '[nn]' between the syllables 'to' and 'come'. There was a variant also in the pronunciation of some syllables. For example, the syllable 'our'/ɑuə/ was realized as [a:]; 'come'/kʌm/ was realized as [kɑm]; 'poor'/pʊə/ was realized as [pʊɔ] or [pɔ]. Figure 4 presents the spectral analysis of one of the Igbo respondents on the utterance '***Students of nowadays***.'

Figure 4: Spectral Analysis of the Spontaneous Speech of an Igbo Respondent with the Sentence: '*Students of nowadays*.'



The result reveals that the syllable that received the maximum intensity is 'stu' though realized as [stu] instead of /stju:/. It had an intensity of 81.3 Hz. Meanwhile, all other syllables in the utterance were realized with intensity not less than 76.6 Hz, which is high. This finding reveals that ENSE does not necessarily associate high tones with stressed syllables. The high or low tone could be assigned to any syllable, and notably, more high tones were usually used in their utterances than the NBL.

1.4 Metrical Analyses of the Data

This section presents the metrical analyses of some of the sentences used as test items: "No. He couldn't be seen" and "On my way to Manchester." The analysis was done using metrical grids while the application of metrical tree was considered unnecessary in the analysis since it would unavoidably replicate the findings of the study.

1.4.2 Metrical Grids

Metrical grids were originally proposed as an augmentation on metrical trees; which would clearly bring out violations of preferred metrical patterns (clashes) in a language (Carr 1993, 226). The words or phrases are arranged from the bottom up by placing an asterisk on each syllable, and thereafter place another one (asterisk) above any syllable labelled 'S' in the metrical tree. The number of the asterisks indicates the level of prominence, thus, the syllable with the highest prominence is the tone bearing syllable. Figures 6 and 7 present the metrical grids.

Figure 6: Metrical grid showing the metrical production of the NBL

				X		
				X		X
		X		X	X	X
X	X	X	X	X	X	X
On	my	way	to	Man	ches	ter

Figure 7 shows that the syllable 'Man' has the highest number of asterisks (4). That reveals the syllable that the NBL realized his primary stress. Next to this is the syllable 'ter' that he realized with three (3) asterisks. This indicates where the NBL realized the secondary stress.

Figure 7: Metrical grid showing the production of EG

		X		X	X	
X	X	X		X	X	
X	X	X	X	X	X	X
X	X	X	X	X	X	X
On	my	way	to	Man	ches	ter

Figure 10 reveals that the EG used more high tones than the NBL. The metrical grid reveals that three syllables were strongly produced – 'way' 'Man' and 'ches' were realized with high tones. This implies that the syllables that were realized with high tones do not quite correlate with stressed syllables.

1.4.3 Discussion of Findings on the Metrical Grids

The NBL's result presented on Figure 9 shows that the syllable 'Man' was produced with the highest prominence, followed by the syllable 'ter'. The syllables 'way' and 'ches' are equally strong (S) but not equal in prominence with the earlier mentioned two syllables, which account for the two asterisks only. The syllables 'On', 'my' and 'to' are weak (W), thus having one asterisk only. This implies that the NBL's production was made with adequate realization of stressed syllables as required, but the same could not be said of most of the EG's performance. The findings here corroborate Udofot's (2007) conclusion that

The result on Figure 7 shows that EG Participant 1 produced the syllables 'way', 'Man' and 'ches' with the highest prominence. The syllables 'on' and 'my' are equally strong (S) but not equal in prominence

with the earlier mentioned two syllables. This can be observed as they have three asterisks on them. The syllables 'to' and 'ter' are weak (W), thus having two asterisks only but still a bit higher in prominence than the NBL. This implies that EG Participant 1 produced more high tones than required.

In all, the performances of the participants used for the study contradict the notion exemplified in Akmajian, Demers, Farmer & Harnish (2010), where there could be the occurrence of low-high-low tone in a single utterance, or where the high tone links with the most strongly stressed syllable in a word. Rather, in our study, we noticed a preponderance of high tones, even where the NBL produced low tones. Based on both the acoustic and perceptual analysis adopted for this study, the findings has attested that full vowel timing determines tonal patterns in SNE (cf Udofot, 1997, 2004; Akinjobi, 2004). The results are also corroborated by earlier studies like Eka (1985) and Odumuh (1987) that simple tones form the great majority of tone tokens in SNE naturally leading to the description of its rhythm as "inelastic-timed". The implication is that spoken Nigerian English can rarely be classified as either exhibiting stress-timed or syllable-timed rhythm.

1.5 Conclusion

It was deduced from this study that stressed syllables do not essentially correlate with high or low tones. ENSE speakers use a higher pitch and less low pitch than the NBL. The NBL uses a longer duration for stressed syllables and a shorter duration for the unstressed syllables, while ENSE speakers use shorter duration in stressed syllables and longer duration in unstressed syllables (see Charts 1 and 2). For example, in the word *'couldn't',* the NBL used a high pitch for '*could'* and a low pitch for '*n't',*whereas almost all the EG used a high pitch for '*n't*' that is not a stressed syllable and some still stressed *could*. This implies that Educated Nigerian English users assign tone to almost every syllable in a word irrespective of where the stress pattern falls. This makes ENSE to sound tonal, thus, making us to submit that it is tone-timed.

1.6 References

Abecrombie, D. (1980). *Elements of General Phonetics*. Edinburgh: Edinburgh University Press.

Akinjobi, A. A. (2004). "A Phonological Investigation of Vowel Weakening and Unstressed Syllable Obscuration in Educated Yoruba English". A PhD Thesis of the University of Ibadan, Ibadan.

Akmajian, A., Demers, R. A., Farmer, A. K. & Harnish, R. M. (2010). *Linguistics: An Introduction to Language and Communication. 6th Edition.* U.S.A.: MIT Press

Awonusi, V. O. (2004). "Some Characteristics of Nigerian English Phonology". In Dadzie. A. B. K. & Awonusi, S. et al (Eds.). *Nigerian English: Influences and Characteristics.* Lagos: Concept Publications, p. 203-225.

Bamgbose, A. (1982). Standard Nigerian English: Issues of Identification. In: Kachru, B. (Ed.). (1992). *The Other Tongues: English Across Cultures*. Urbana: University of IIinois Press, p. 99-111.

Bamgbose, A. (1995). English in the Nigerian Environment. In: Bamgbose, A, Banjo, A, & Thomas, A. (Ed.). *New Englishes: A West African Perspective*. Ibadan: Mosuro Publisher, p. 8 -26.

Banjo, A. (2004). "A Note of Yoruba/English Bilinguals' Phonological Transfers". In Awonusi, S. & Babalola, E. A. (Ed.) *The Domestication of English in Nigeria. A Festscrift in Honour of Abiodun Adetugbo* Lagos: University of Lagos Press, p. 15-19.

Clark, J, Yallop, C. and Fletcher, J. (2007). *An Introduction to Phonetics and Phonology.* USA: Blackwell Publishing.

Cruttenden, A. (2008). *Gimson's Pronunciation of English (6th Edition).* London: Arnold

Dakat, B.V & Jonathan, J. (2016). Comparison of the operation of Tone in English language and in some Nigerian languages: A study of Berom, Tarok, Igala, Idoma and Kwalla languages. *International Journal of English language and communication studies, vol.2.No.1 1-9-retrieved 20/02/2021* www.iiardpub.org.

Dauer, R. (1983). Stress-Timing and Syllable Timing Reanalyzed. In: *Journal of Phonetics*. 11, 51-62.

Eka, D. (1985). "Phonological Study of Standard Nigerian English". Unpublished PhD Dissertation, Ahmadu Bello University (ABU), Zaria.

Essien, O. E. (1990). *A Grammar of the Ibibio Language.* Ibadan: University Press Ltd.

Galloway, N. and Rose, H. (2015). *Introducing Global English.* London: Routledge

Gimson A. C. (1980). An introduction to the pronunciation of English. London Edward Arnold.

Grice, M. & Benzmuller, C. (1995). Transcription of German Intonation Using TOBI Tones. The Saarbruecken System. *Phonus 1*. University of the Saarland, p. 33-51.

Grice, M. & Savino, M. (1995). Low Tone Versus Sag in Bari Italian Intonation; a Perceptual Experiment. Proc. X111. *International Congress of Phonetic Sciences*, Stockholm. p. 99-115.

Gut, U. (2002). "Nigerian English — A Typical West African Language?" *Proceedings of TAPS,* Bielefield, p. 6-67.

Gussenhoven, C. & Jacobs, H. (2011). *Understanding Phonology (3rd Ed.).* London: Hodder Education.

Hansen, J. G. (2006). "Acquiring a Non-Native Phonology." Retrieved from:http:www..sfs.unituebingen. de/linguist/issues/17/17-3392. html.

Jibril, M. M. (1982). "Phonological Variation in Nigerian Spoken English". Unpublished PhD Dissertation, University of Lancaster.

Jowitt, D. (2000). "Patterns of Nigerian English Intonation". In Schnieder, E. W. (Ed.). *English World-Wide: A Journal of Varieties of English.* The Netherlands: John Benjamin's Publishing Company, 21.1. Pp. 63-80.

Jowitt, D. (2007). "Standard Nigerian English: A Re-Examination". In: *Journal of the Nigerian English Studies Association.* 3 (1), p. 1-21.

Jowitt, D. (2019). *Nigerian English: Dialects of English.* Boston: De Gruyter Mouton.

Kachru, B., Kachru, Y. & Nelson, C. (2006). *A Handbook of World Englishes*. Oxford: Blackwell

Katamba, F. (1989). An introduction to phonology. London: Longman

Ladefoged, P. (1982). *A Course in Phonetics*. Florida: Thomson Wadsworth. Pp. 248-285.

Odumuh, A. E. (1986). *Nigerian English (NigE).* Zaria: Ahmadu Bello University Press Ltd.

Olaniyi, O. K. (2007). "Approximation to Standard British English: Nigerian English Suprasegmentals". In: Adegbite, W. and Olajide, B. (Eds.). *Reinventing the English Language in Nigeria in the Context of Globalization and Decolonization*, p. 109-123.

Peng, L. and Ann, J. (2001). "Stress and Duration in Three Varieties of English. In: World Englishes. 20.1, p. 1-27.

Pierrehumbert, J. (1980). *The Phonology and Phonetics of English Intonation.* Doctoral Dissertation. Cambridge, Mass Mit.

Silverman, K, Becman, M., Pitrelli, J., Ostendorf, M., Wightman, C., Pierrehumbert, J. & Hischberg, J. (1992). TOBI: A Standard for Labelling English Prosody. Proceedings 2. Canada: Banff.

Tiffen, B. W. (1974). "The Intelligibility of Nigerian English". Ph.D. Dissertation, University of London.

Udofot, I. M. (1997). "The Rhythm of Spoken Nigerian English". Unpublished Ph.D. Dissertation, University of Uyo.

Udofot, I. M. (2004). "Varieties of Spoken Nigerian English". In Awonusi, S. & Babalola, E. A. (Eds.). *The Domestication of English in Nigeria. A Festschrift in Honour of Abiodun Adetugbo.* Lagos: University of Lagos Press. Pp. 93-113

Udofot, I. M. (2007). "A Tonal Analysis of Standard Nigerian English" In: *Journal of the Nigerian English Studies Association.* 3 (1). Pp. 58-68.

Udondata, J. P. (1993). English and Anaang Phonological Systems: A Comparative Study. An M.A. Thesis of the University of Uyo.

Ugorji, C.U.C (2010). *Nigerian English Phonology*. Europe: Peter Lang. Available at:www.peterlang.de Retrieved 12/10/2014.

Wells, G. (1999). *Dialogic Enquiry: Towards a Sociocultural Practice and Theory of Education.* Cambridge: Cambridge University Press.

Wells, J.C. (1982). *Accents of English*. Cambridge: Cambridge University Press.

Wells, J. (2006). *English Intonation: AnIntroduction*. Cambridge. Cambridge University Press