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WORD STRESS PATTERNS OF YORUBA-ENGLISH BILINGUAL CHILDREN

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Abstract

Stress is one of the prosodic features of English, in addition to intonation and rhythm. Many English learners have great difficulty with these prosodic features. The need to urgently address this challenge motivated this study and many others. This study examined the stress patterns of Yoruba-English bilingual children in English disyllabic words. One hundred Nigerian children from two south-western states in Nigeria served as the study participants. The data for the study comprise six disyllabic nouns (*mother, baby, daughter, textbooks, person* and *village*), three disyllabic verbs (*believed, become, provide*), and one disyllabic adverb (*enough*). The findings reveal that both word initial and word final stress patterns were used in pronouncing English disyllabic words by Yoruba-English bilingual children in Ogun and Oyo states. *Village, mother, baby, daughter* and *person* were stressed on the initial syllable, while *enough, provide, textbooks, believed* and *become* were stressed on the final syllable. Except for *textbooks*,the stress patterns of the participants were similar to the Standard British English (SBE) patterns presented in the 18th edition of Daniel Jones' *Cambridge English Pronouncing Dictionary*. However, some of the Yoruba-English bilingual children from the public schools experienced difficulty in pronouncing some of the tested disyllabic words.

***Keywords*:** Nigerian English, stress, disyllables, Optimality theory, Yoruba-English, bilingual children.

Introduction

Great importance is conferred on the English language in Nigerian society, as several scholars have affirmed (Tiffen, 1974; Jowitt, 2000; Taiwo, 2009; and Akinjobi & Oladipupo, 2010 among others). As adult Nigerians are clamouring to improve their use of English by engaging in different forums, workshops and trainings, so are younger Nigerians groomed from cradle to

be efficient users of the language. It is a prestigious language that all and sundry, irrespective of background, ethnicity, academic and social accomplishment try to use in Nigeria. Little wonder English is referred to as Nigeria's lingua franca.

0In order to aid the appropriate use of the English language, which is a second and a prestigious language in Nigeria, English language is taught as a compulsory subject in Nigerian schools from the primary level of education to the tertiary level. This is not to refute the claim that some Nigerian children are already English-speaking on their first day at school, monolinguals or bilinguals with English dominance (Banjo, 1996). In primary education in Nigeria, English language is taught with utmost importance as it is the basis for literacy. As English language textbooks are designed to aid the efficient use of the language, so are accompanying literature texts organised to compliment in learning the language.

Several studies (Jowitt, 1991; Udofot, 2003; Faleye, 2014; Sunday &Oyatokun, 2016; Essien, 2018; Osifeso, 2020; Anyagwa 2021; Sunday & Oyemade, 2021 among others) have been carried out on stress patterns of Nigerian English (a variety of the English language spoken in Nigeria). However, nearly all of these studies focused on stress patterns of adult Nigerians without considering the way children, younger Nigerians, use stress in their spoken English. It is important to study how Nigerian children (especially primary school pupils), who are second language users of English use English stress, as they are young and in a foundational stage. A good usage of English stress at this level will aid their use of English language appropriately as they progress in their academic and life pursuits. Therefore, this study seeks to examine the way Nigerian bilingual children from the Yoruba ethnic group stress English disyllabic words, to see if it is in tandem with that of SBE, or in consonance with the existing reports on word stress patterns of Nigerian adult speakers of English.

Review of Literature

Yoruba is one of the three major ethno-linguistic groups in Nigeria. It belongs to the Niger-Congo language family. It is a major language spoken in the Southwest geo-political zone of Nigeria. The phonology of Yoruba is divided into segmental and the supra-segmental sounds. There are thirty segmental sounds in Yoruba consisting of twelve vowels (seven oral vowels and five nasal vowels), and eighteen consonants. The supra-segmental sounds of Yoruba language include syllable and tone (Tiffen, 1974; Atoye, 1989).

Low tone (represented with the diacritic ‘ ◌́’), mid tone (◌̄ not usually marked in words), and high tone (represented with the diacritic ‘ ◌̀’) are the three level tones used in Yoruba language. In Yoruba language, tone is principally used as a part of the word make up, and as a distinguishing element of meaning (Ward, 1952). Tones are lexically used in Yoruba to differentiate the meanings of words, whereas stress is used in English for word (especially lexical) classification. For example, in Yoruba, ja ̀(pluck) and ja ́ (fight), although consisting of the same phonemes (‘j’ and ‘a’), are differentiated by their tonal structures. In English language however, the lexical differences between ‘re'cord’ (verb) and ‘'record’ (noun) is shown with stress. The close connection tone has with stress is the main reason why high tone in Yoruba is associated with stress in the ears of native English speakers, and stressed syllable in English is associated with high tone in the ears of Yoruba speakers (Tiffen, 1974).

According to Essien (2018), Nigerians face a serious challenge in using English stress, thus affecting the intelligibility of Nigerian English. This may be due to the fact that

stress is foreign to Nigerians, whose mother tongues are tonal languages (Sunday &Oyatokun, 2016). Based on this factor, many Nigerian speakers of English tend to use English stress in ways that are completely different from what is obtainable in Standard British English (SBE). Jowitt (1991) asserts that the difference between Nigerian English stress and that of SBE at word level is most noticeable in the area of primary stress assignment. Sunday (2011) in his study of compound stress in Nigerian English observed that NE speakers make the first lexical item of compound words (except for compound verbs) prominent, differently from what is reported in Daniel Jones' 2005 *Cambridge English Pronouncing Dictionary,* where primary stress is assigned to the second lexical item of English compound words.

Akindele (2013) studied stress shift and suffixation in Educated Edo English (EEE), a sub-variety of Nigerian English. Using 200 Educated Edo English speakers who were university undergraduates as the study participants, she found out that EEE speakers' stress-shift pattern on English stems with additional suffixes does not conform to the stress-shift pattern of SBE. This stems from the inability of the participants to weaken the unstressed syllables before the stressed group, thus rendering all the syllables of the stems and the added suffixes prominently. In a different study on stressed and unstressed syllables alternation in EEE, Akindele (2017) reported that out of 6000 expected instances of stressed and unstressed syllables alternation, the participants had 694 (11.6%) appropriate use, with 5,306 (88.4%) inappropriate use. She said that the grids of EEE speakers showed proliferation of strong/strong (s/s) juxtaposition of stressed and unstressed syllables in rhythm units, compared to the alternation of weak/strong (w/s) or strong/weak (s/w) in the SBE.

Faleye (2014) examined variant word stress patterns in the spoken English of 324 Nigerian teachers from Kano, Oyo and Imo states, representing the three major ethnolinguistic groups in Nigeria. The participants were made to read prepared passages made up of 50 items in context and in isolation. A close perceptual analysis was carried out to ascertain the differences in the performance of the respondents on word stress. Sophisticated, standard and non-standard variant word stress patterns were noticeable in the articulations of the participants. He affirmed that variations in the stress patterns of Nigerian English are direct consequences of sociolinguistic variables of age, ethnic group, academic qualification, and teaching level.

In addition, Sunday & Oyatokun (2016) analysed word stress in educated Nigerian English using 150 educated Nigerians from the three major language groups in Nigeria as participants. The data for the study was collected using a prepared text consisting of four classes of words – nouns, verbs, adjectives and adverbs. The findings of the study showed a preference for a rightward syllable for primary stress, resulting in segmental changes. Also, Essien (2018) investigated stress in the Educated Nigerian Accent of English (ENAE) with the aim of analysing stress and rhythmic patterns of Nigerian English. Twenty Educated Nigerian speakers, who served as the experimental group, were selected by a Stratified Random Sampling technique from two Federal Universities in Nigeria. Their performances were compared to that of a Briton who was the control in the study. The findings of the study revealed that Educated Nigerian English (ENE) speakers feature more stressed syllables in their realisations, thereby making their stress pattern

significantly different from that of the native speaker's variety represented by the control. The focus of Osifeso (2017) was to examine English word stress patterning among sixty senior secondary school students and forty teaching and non-teaching staff from four different schools in Lagos state. The participants were all Yoruba-English bilingual speakers and belonged to the mesolectal speakers of English in Nigeria. The analysis of the four hundred and thirty words which constituted the data, showed that the Lagos Yoruba- English bilinguals preferred the final syllable stress for disyllabic nouns, verbs, tri-syllabic compounds, verbs and tetra-syllabic verbs. Tri-syllabic nouns, adjectives and penta-syllabic adjectives were stressed on the penultimate stress, while tetra-syllabic and penta-syllabic nouns favoured ante-penultimate stress. Only disyllabic adjectives were stressed on the initial syllable.

In a 2020 study aimed at determining the ranking of stress-related constraints in Yoruba English in producing the optimal output, Osifeso observed that Educated Yoruba English bilinguals were accustomed to using rightward patterning for English word stress. His ninety participants who vary as per academic qualifications, age, location, gender and discipline showed a reordering of the English (native speaker's) word stress related constraints. The results of the analysis revealed that UNEVEN-IAMB (which prefers light-Heavy syllable to Light-Light/Heavy) and Weight-to-Stress Principle (WSP) (which ensures that heavy syllables are stressed) were the most preferred or higher ranked constraints in educated Yoruba English word stress patterning.

Furthermore, Anyangwa (2021) in her contrastive study on the geographical variations in Nigerian English word stress, affirmed differences in the stress patterns of Igbo English (IE) and Yoruba English (YE), southern regional accents of Nigerian English. Her participants, who were fifty undergraduate students of the University of Lagos were asked to read a word list comprising disyllabic, tri-syllabic, quadri-syllabic and compound words. Although the participants varied as per ethnicity, age, gender, faculty and level of study, the findings of the study showed that IE stress patterning varied notably from YE. The highest degree of convergence in the English usage of the two tribes was seen in tri-syllabic words, with compound words having the highest degree of divergence. She added that neither YE stress nor IE stress can be said to completely replicate the Received Pronunciation stress.

Lastly, Sunday & Oyemade (2021) explored the features of tone in the Nigerian English stress pattern. Three hundred ENE speakers from Hausa, Igbo, and Yoruba ethnic groups were given a specially prepared text with twenty-two disyllabic words, eighteen tri-syllabic words, thirteen polysyllabic words, and sixteen compounds to read. The findings of the study showed that stress was assigned in a tone-influenced manner, as the presence and the position of the high tone determined stress.

Although the findings of the reviewed studies on Nigerian English stress above showed a variation from the way it is used in the SBE, this results from the manner in which Banjo's (1996) Educated Nigerian English speakers (except for the secondary school participants in Osifeso, 2017) use English. The participants in the majority of the studies were either undergraduates or graduates. The only study (Osifeso, 2017) that utilised participants aside from Banjo's (1996) Variety III speakers of Nigerian English, experimented with senior secondary school students. None of the studies examined how children in primary schools, who are taught based on the modern view of education endorsed by Nigeria's

National Curricula in English (Jowitt, 1991), use English stress in speech. It is important to study this as children are receptive learners, who derive joy and satisfaction when they apply their newly acquired skills to tasks, and find out that their skills work (Church, 1994). More so, the children of today will grow to be the adults of tomorrow who will determine the direction in which the nation's education and economic development will move (Akpudiogwu, 2008).

Theoretical Framework

This study employs Optimality theory (OT) for its theoretical analysis. OT concerns human language capacity (Kager, 1999) and uses two mechanisms (input and constraint) in determining the pronunciation of a word. Input has to do with the underlying representation of a word (Stemberger & Bernhardt, 1997), while constraint refers to a structural requirement that may be satisfied or violated by an output form (Kager, 1999). Two types of constraints - faithfulness and markedness - are used in OT. Faithfulness constraints ensure the exact preservation of the input in the output, while markedness constraints are concerned with the well-formedness of the output by ensuring the input-output relationship (Prince & Smolensky, 1993).

In OT, constraints are universal (drawn from the grammars of all natural languages) and violable (due to the language-specific ranking of constraints) (Kager, 1999). While constraints are universal, the rankings are not. The ranking of constraints depends on the language that is being considered. A higher-ranked constraint in a language may be violated in another language. In OT, an asterisk (*) is used to indicate violation, while a fatal violation of a highly ranked constraint is indicated by an asterisk and an exclamation mark (*!). A possible set of items for analysis are generated by GEN from the input-output pair, and H-eval evaluates them for relative harmony (Prince & Smolensky, 2004).

The candidate with the lowest number of violations of constraints emerges as the optimal output and is represented with a pointing finger (☞) (Archangeli, 1997). In OT, cells are shaded when any violation that they may contain can have no effect on the outcome because higher-ranking constraints are decisive (McCarthy, 2007). The narrow or phonetic transcription is usually used when presenting the optimal candidates, hence, the optimal candidates are enclosed in square brackets.

The following constraints are relevant in discussing the word stress patterns of Yoruba-English bilingual children:

a. Noninitiality (NON-INI): It forbids the occurrence of a foot at word-initial (Sunday & Oyatokun, 2016).
b. Nonfinality (NON-FIN): The prosodic head of the word does not fall on the word-final syllable (Prince & Smolensky, 1993; McCarthy & Prince, 1993).
c. Trochee or Ft-Type Troc: Assigns one violation mark for every foot that is not left-headed (Prince & Smolensky, 1993; McCarthy & Prince, 1993).
d. Weight-to-Stress Principle (WSP): Assigns one violation mark for every heavy syllable that is unstressed (Prince & Smolensky, 1993).
e. *****ʌNUC**:** It forbids the occurrence of /ʌ/ nucleus.
f. *Central L_V: NUC**:** Long central vowels cannot occupy the syllable peak position.
g. *****Schwa-NUC: No schwa nucleus.
h. Complex Nucleus**:** Assigns one violation mark for every nucleus that is not complex (long vowels and diphthongs).

i. *****Complex-NUC**#:** Forbids the occurrence of a complex nucleus at syllable-final position.
j. Complex-NUC#: Forbids the occurrence of a non-complex nucleus at syllable-final position.
k. *Complex Coda**:** Forbids the occurrence of complex coda.

Methodology

One hundred bilingual primary school children from Ogun and Oyo states in Nigeria constituted the participants in the study, and all were primary five pupils from public and private schools. Fifty of the participants (twenty-five each from Ogun and Oyo) attend government owned or public primary schools, while the remaining fifty (twenty-five each from Ogun and Oyo) attend private owned primary schools. The choice of school (private or public) was used as a variable to assess the performance of Yoruba-English bilingual children;s use of English stress patterns. All the participants speak Yoruba language as their mother tongue.

A short reading passage extracted from the Basic Education Curriculum (BEC) edition of *Spectrum High Standard English for Primary Schools, Book 3*, was used in generating the data for the study. Although the participants were all primary 5 primary school children, the passage was extracted from a primary three English Language textbook to make the words easy for them to pronounce irrespective of their school type. Ten disyllabic words consisting of six nouns, three verbs and one adverb were chosen for analysis based on everyday usage. The renditions of the participants were audio-recorded. Analysis of data was done perceptually using simple percentages, theoretically using constraints ranking in Optimality theory, and acoustically using PRAAT speech analysis software developed by Boersma &Weenink (2006). Daniel Jones' *Cambridge English Pronouncing Dictionary*, 18th edition, served as a basis for Standard British English (SBE).

Analysis

The renditions of the 100 participants were examined. The analysis identified the stress patterns in the participants' renditions and compared the recurring stress patterns in the speech of bilingual Nigerian children who attend public primary schools, with those who attend private primary schools. The disyllabic words tested were *mother, baby, enough, daughter, textbooks, believed, become, person, provide*, and *village.* All the participants were classified into two groups: private school pupils and public school pupils. The test words were extracted from the renditions of the participants who belong to either of the groups. Their renditions of each of the words were presented in tabular forms. The pattern with the highest number of occurrences was taken as the model upon which the acoustic and theoretical analyses were done.

Table 1: Participants' performance in the tested disyllabic word

SCHOOL CLASSIFICATION				WORD			VILLAGE		
Gender	Public		Private	Stress Position			1st Syllable	2nd Syllable	Word Not Pronounced (WNP)
Male	25		27	Public			24	18	8
Female	25		23	Private			29	20	1
Freq /Perc (%)	50		50	Freq /Perc (%)			53	38	9
WORDS	MOTHER			BABY			ENOUGH		
Stress Position	1st Syllable	2nd Syllable	WNP	1st Syllable	2nd Syllable	WNP	1st Syllable	2nd Syllable	WNP
Public	31	12	7	32	7	11	3	22	25
Private	36	14	-	43	7	-	1	49	-
Freq /Perc (%)	67	26	7	75	14	11	4	71	25
WORDS	PROVIDE			DAUGHTER			TEXTBOOKS		
Stress Position	1st Syllable	2nd Syllable	WNP	1st Syllable	2nd Syllable	WNP	1st Syllable	2nd Syllable	WNP
Public	2	29	19	28	5	17	8	31	11
Private	-	50	-	39	11	-	8	42	-
Freq /Perc (%)	2	79	19	67	16	17	16	73	11
WORDS	BELIEVED			BECOME			PERSON		
Stress Position	1st Syllable	2nd Syllable	WNP	1st Syllable	2nd Syllable	WNP	1st Syllable	2nd Syllable	WNP
Public	1	33	16	-	31	19	27	7	16
Private	1	49	-	-	46	4	22	28	-
Freq /Perc (%)	2	82	16	-	77	23	49	35	16

Key: Freq- Frequency Perc- Percentage

As revealed in Table 1, the majority of the participants stressed *village, mother, baby, daughter* and *person* on the initial syllable, and *enough, provide, textbooks, believed* and *become* on the final syllable. Nine participants (8% from public school and 1% from private school) could not pronounce *village*, while 23 participants (19% from public school and 4% from private school) could not pronounce *become*. Some of the participants who are public school pupils had difficulty pronouncing *mother, baby, enough, provide, daughter, textbooks, believed* and *person.* Generally, there is no preference in stress assignment on words, as both word-initial stress and word-final stress were used in pronouncing the tested words.

STRESS PATTERN OF *MOTHER*

Out of a hundred bilingual Nigerian children, 67 participants stressed the first syllable. This indicates that, generally, the first syllable is the preferred one for primary stress placement. The theoretical analysis is presented in Tableau 1.

Table 2: Emergence of ˈ*mother*

Input: /ˈmʌðə/ ⟶ Output: [ˈmɔːdæ]

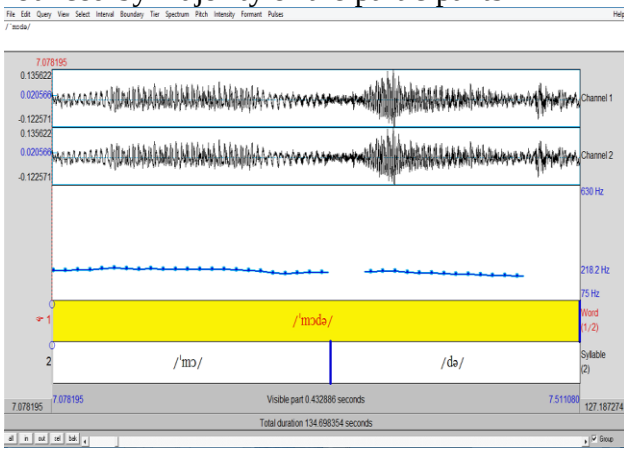
	NON-FINALITY	*ʌNuc	WSP
1. ('mʌ.ðə)		*!	
2. (mʌ.'ðə)	*!	*!	
3. (mɔ:'dæ)	*!		*
☞ ('mɔ:dæ)			

Constraint ranking: Non-finality >> *ʌNuc>> WSP

Optimal candidate: [ˈmɔ:dæ]

Table 2 shows that in the Nigerian pronunciation of mother, the peak of the first syllable, which has a long vowel, is considered heavier than the second. Five candidates were generated. Candidate (i), which is the Standard British English (SBE), violated *ʌNuc (forbids the existence of /ʌ/ as the nucleus of a syllable) and as such, it is disqualified from the competition. Candidate (ii) violated Non-finality, *ʌNuc, which led to its disqualification. Non-finality forbids word-final feet. Candidate (iii) disobeyed Non-finality and WSP; as such, it got disqualified. The optimal candidate, candid-date (iv), satisfied all three constraints. The pitch contour for *mother* is presented in Figure 1.

Figure 1: Pitch contour for *mother* as pronounced by majority of the participants



The pitch contour in the Praat image above shows that the first syllable [mɔ:] had a pitch value of 213 Hz, an intensity mean of 65.2 dB, and duration of 0.271 seconds. This shows that the first syllable has a higher value than the second syllable [dæ] which has an F_0 of 201 Hz and an intensity value of 61.72 dB, making the first syllable more prominent than the second syllable.

STRESS PATTERN OF *PROVIDE*

Seventy-nine participants stressed *provide* on the second syllable, the way it is in SBE. The theoretical analysis is presented below.

Table 3: Emergence of proˈvɪde

Input: /prəuˈvaɪd/ Output:[prəuˈvaɪd]

	NON-INITIALITY	WSP	*SCHWA NUC	COMPLEX-NUC
☞ (prəu.'vaɪd)				
('prəu.vaɪd)	*!			
(prə.'vaɪd)			*!	*
('prɔ.vaɪd)	*!	*!		*

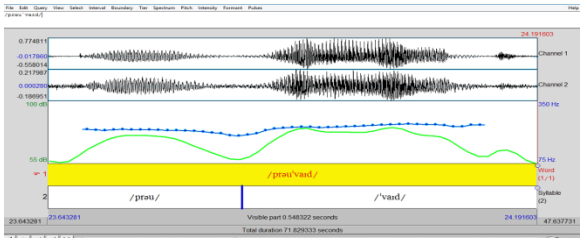
Constraint ranking: NON-INI >>WSP >> *SCHWANUC >> COMPLEX-NUC

Optimal candidate: [prəuˈvaɪd]

Table 3 shows that Non-initiality, which forbids the assignment of stress to the first syllable, is the highest in the constraint hierarchy. The optimal candidate, Candidate (i), obeyed three highly-ranked constraints while Candidate (ii) violated Non-initiality. In Candidate (iii), there is an epenthetic schwa sound as the peak of the first syllable while the original peak is retained in the

second syllable. The constraint,*$_{SCHWA}$NUC, prohibits the occurrence of schwa as a syllable peak. The violation of this constraint is fatal, hence, the reason for the disqualification of Candidate (iii). Candidate (iv) was disqualified because it violated two highly-ranked constraints (Non-initiality and WSP) and Complex-NUC, which prescribes that syllable peaks should be complex. The spectrogram of *provide* is shown in Figure 2.

Figure 2: Spectrogram of "provide" as pronounced by majority of the participants



The pitch contour above shows the enunciation of 'provide' as realised by most of the participants (both private and public primary school pupils). The pitch value of the initial syllable is 217.7 Hz and the intensity value is 71.06 dB, while the pitch of the second syllable rises to about 236.2 Hz with 76.54 dB as the intensity value. The primary stress is on the second syllable.

STRESS PATTERN OF *VILLAGE*

Fifty-three per cent of the entire population stressed the first syllable in *village*, as it is stressed in the standard variety. This shows that there is a general preference for the first syllable in the enunciation of this word.

Table 4: Emergence of '*village'*

Input:/'vɪlidʒ/ ⟶ Output: ['vɪleɪdʒ]

	TROCHEE	COMPLEX-NUC#
1. ☞'vil.eɪdʒ		
2. vɪl. 'ɪdʒ	*!	*
3. vɪl. 'eɪdʒ	*!	
4. 'vɪl.ɪdʒ		*

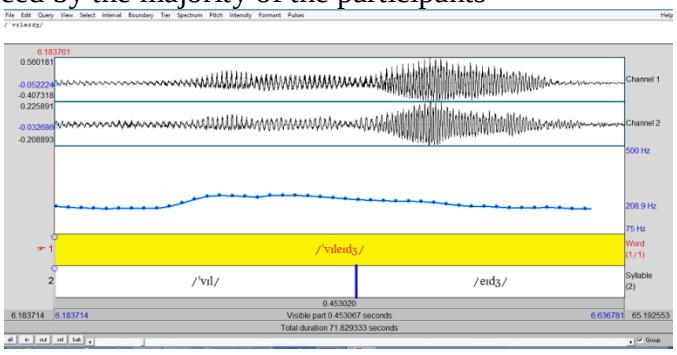
Output [vɪleidʒ]

Constraint ranking: Trochee >> Complex-NUC#

Optimal candidate: ['vɪleɪdʒ]

The table presents the ranking of constraints by the participants. Candidate (i), which is the optimal candidate, satisfied both constraints. The violation was, however, not fatal because of the status of the constraint. Candidates (ii) and (iii) violated Trochee (which forbids right-headed foot) and as such, incurred a fatal violation because it is highly ranked. This violation disqualified both candidates from the competition. Candidate (iv), the SBE candidate was also knocked out of the competition because it violated the highly-ranked constraint Complex-NUC#. Complex-NUC# forbids the occurrence of a non-complex nucleus at syllable-final position.

Figure 3: Praat image of *village* as pronounced by the majority of the participants



The pitch contour in the image above is a representation of the participants' enunciation of *village*. The pitch on the first syllable rises to about 217.7 Hz before falling to about 188 Hz on the second syllable. This means that the first syllable

has more prominence than the second syllable.

STRESS PATTERN OF *ENOUGH*

For *enough,* a total of 71 (71%) participants stressed the second syllable and this variant is presented in Tableau 4 below.

Table 5: Emergence of *e'nough*

Input: /ɪ'nʌf/ ⟶ Output: [eɪ'nɔf]

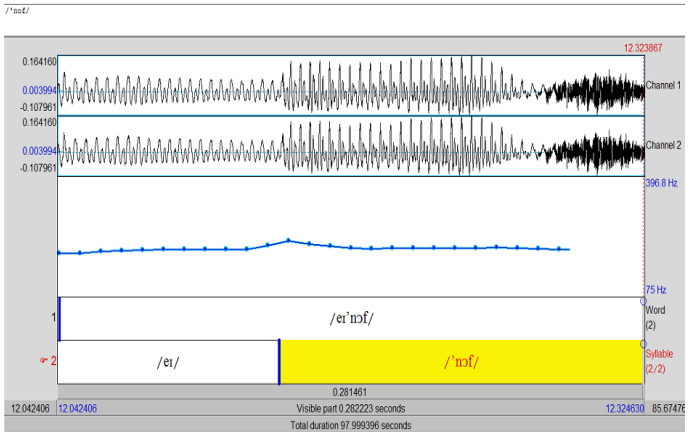
	NON-INITIALITY	*ʌNuc
☞eɪ.'nɔf		
'ɪ.nʌf	*!	*
'e.nɔf	*!	
'eɪ.nɔf	*!	
ɪ.'nʌf		*

Constraint ranking: Non-initiality >>*ʌNuc

Optimal candidate: [eɪ'nɔf]

From the interaction of the constraints, NON-INI is highly ranked on the hierarchy, while *ʌNuc is lower on the hierarchy. The violation of a highly-ranked constraint by Candidate (ii), Candidate (iii), and Candidate (iv) knocked them out of the competition. Candidate (v) violated *ʌNuc, which is not a highly ranked constraint. *ʌNuc disallows the occurrence of the mid-central unrounded vowel /ʌ/ as the syllable peak. Candidate (i), which is the optimal candidate, obeyed Non-INI and *ʌNuc.

Figure 4: Spectrogram of 'enough' as pronounced by the majority of the participants



In this spectrogram, the pitch value of the initial syllable is 200.5 Hz and the duration is 0.12, while the pitch of the second syllable rises to about 207.9 Hz. The primary stress is on the second syllable.

STRESS PATTERN OF *BELIEVED*

Out of the total participants, 82 stressed the second syllable while only two participants stressed the first syllable. This indicates that, generally, the second syllable is the preferred one for primary stress placement. The theoretical analysis is presented in Table 6.

Table 6: Emergence of *beˈlieved*

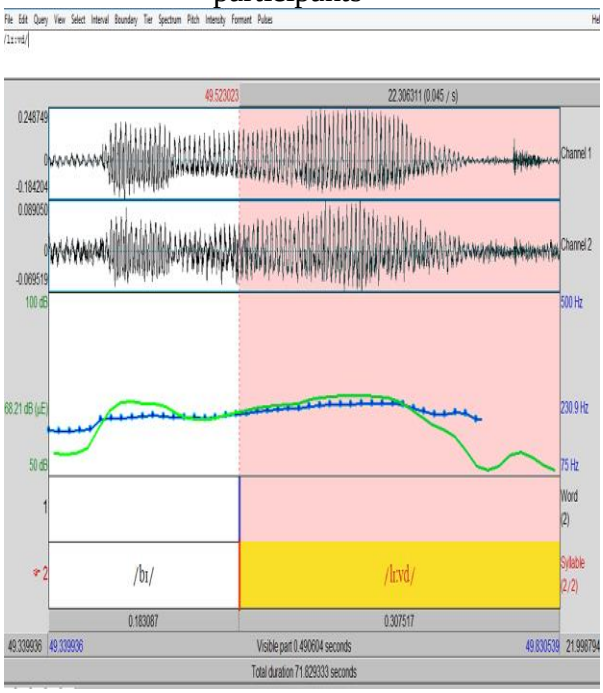
Input: /bɪˈlɪ:vd/ ⟶ Output: [bɪˈlɪ:vd]

	NON-INITIALITY	COMPLEX-NUC#	WSP
1. (bɪˈlɪvd)		*!	*
2. ☞ (bɪˈlɪ:vd)			
3. (ˈbɪlɪ:vd)	*!		
4(ˈbɪlɪvd)		*!	*

Constraint ranking:Noninitiality>>Complex-NUC#>> WSP Optimal candidate: [bɪˈlɪ:vd]

In Table 6, three constraints Non-initiality, Complex-NUC#, and WSP are involved in the analysis and they are ranked as Non-initiality>>Complex-NUC# >> WSP. Candidates (i), (iii), and (iii) fail to emerge as the optimal candidate owing to their violations of two highly ranked constraints Non-initiality, Complex-NUC#, and WSP. Non-initiality forbids the occurrence of a foot at word-initial while Complex-NUC# forbids the occurrence of a non-complex nucleus at syllable-final position. WSP prescribes that one violation mark should be given to every heavy syllable that is unstressed. The optimal candidate [bɪˈlɪːvd] satisfied all three constraints. This shows the preference for heavy syllables over light syllables by the majority of the participants. The output of the majority of the participants is the same as the input which is the RP. The pitch contour for *believed* is presented in Figure 5.

Figure 5: Pitch contour for *Believed* as pronounced by the majority of the participants



This Praat image shows that there are two syllables in *believed* with different pitch and intensity values. The first syllable /bɪ/ has an intensity value of 67.93dB, pitch value of 212Hz, and duration of 0.18ms while the second syllable /lɪːvd/ has a pitch value of 230.9Hz, intensity of 69.33dB, and duration of 0.31ms.

STRESS PATTERN OF *DAUGHTER*

Sixty-seven per cent of the entire population stressed the first syllable in *daughter*, as it is stressed in the standard variety. This shows that there is a general preference for the first syllable in the rendition of this word.

Table 7: Emergence of '*daughter*

Input: /'dɔːtə/ ⟶ Output:['dɔtæ]

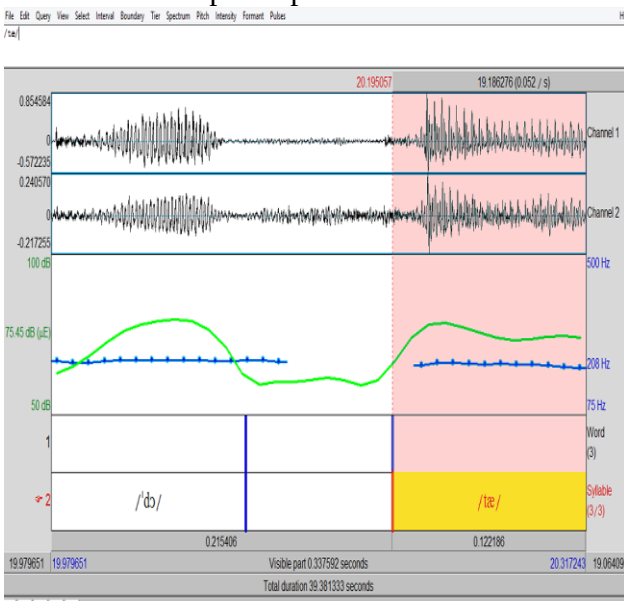
	***SCHWANUC**	*COMPLEX-NUCLEUS#	TROCHEE
. 'dɔːtə	*!	*!	
. dɔː 'tə	*!	*!	*
. 'dɔːtaː		**!	
☞'dɔtæ			

Constraint ranking: *SCHWANUC>>*Complex-Nucleus#>>Trochee

Optimal candidate: ['dɔtæ]

The table presents the ranking of constraints by the participants. Candidates (i), (ii) and (iii) disobeyed the two highly ranked constraints of *****SCHWANUC>>*Complex-Nucleus#. In addition to this, Candidate (ii) violated TROCHEE (which forbids right-headed foot). *****SCHWANUC prohibits the existence of a schwa nucleus while *Complex-Nucleus# forbids the occurrence of a complex nucleus at syllable-final position. These violations disqualified all three candidates from the competition. However, the violation of Trochee was not fatal because of the status of the constraint. Candidate (iv), which is the optimal candidate, satisfied all three constraints.

Figure 6: Praat image of *daughter* as pronounced by the majority of the participants.



The pitch contour in the image above is a representation of the participants' enunciation of *daughter*. The pitch on the first syllable rises to about 228.9 Hz before falling to about 209.4 Hz on the second syllable. This means that the first syllable has more prominence than the second syllable. The spectrum is a representative of *daughter* as rendered by the majority of the participants.

STRESS PATTERN OF *TEXTBOOKS*

Out of the total participants, 82 per cent stressed the second syllable while only two participants stressed the first syllable. This indicates that, generally, the second syllable is the preferred one for primary stress placement. The theoretical analysis is presented in Tableau 7.

Table 8: Emergence of *textbooks*

Input: /ˈtekstbuks/ ⟶ Output: [testˈbuks]

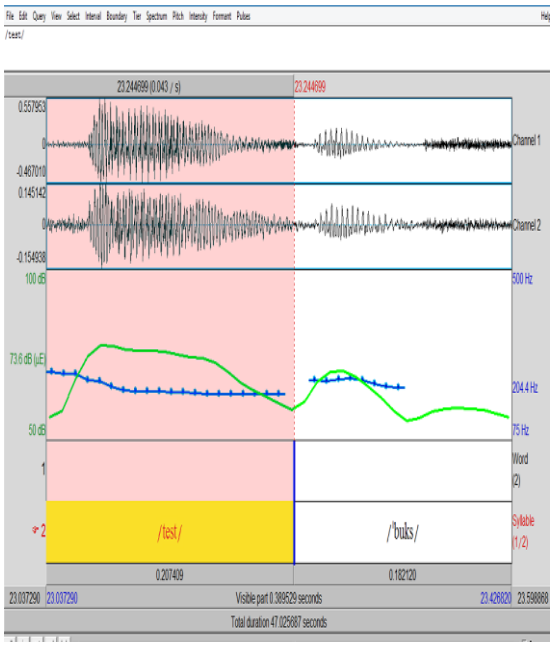
	NON-INITIALITY	*COMPLEX-NUC#	*COMPLEX CODA
ˈtekstbuks	*!		**
tekstˈbuks			**
tekstˈbu:ks		*!	**
☞test'buks			*
'testbuks	*!		*

Constraint ranking: Noninitiality>> *Complex-NUC# >> *Complex Coda

Optimal candidate: [testˈbuks]

The constraints used are hierarchically ranked as Non-initiality>>*Complex-NUC# >> *Complex Coda. Candidate (i) is the RP form while Candidate (iv) is the subjects' rendition. In the Tableau, [testˈbuks] emerged as the optimal candidate. The primary stress is on the second syllable unlike in the RP where the primary stress is on the first syllable. This shows that the forward stress is the participants' preferred stress form this disyllabic noun as 73 per cent of the entire participants stressed the second syllable while only 16 per cent stressed the initial syllable. 11 participants could not pronounce the word. Also, the complex coda /kst/ is reduced from a CCC form to a CC structure. The pitch contour for *textbooks* is presented in Figure 7.

Figure 7: Pitch contour for *Textbooks* as pronounced by the majority of the participants



The above Praat image gives a graphical illustration of the rendition of *textbooks* by the majority of the participants. It also shows the pitch values of the syllables in the word. The pitch on the second syllable rises to 219.7 Hz and the intensity value on the same syllable is 64.36 dB. This shows that the final syllable is produced with a greater force than the initial syllable and as such, it is the prominent syllable.

Discussion of Findings

Word-initial and word-final stress patterns were used by the Yoruba-English bilingual children in pronouncing English disyllabic words. *Village, mother, baby, daughter* and *person* were stressed on the initial syllable, while *enough, provide, textbooks, believed* and *become* were stressed on the final syllable. Except for *textbooks*, the stress patterns of the participants were similar to the Standard British English (SBE) patterns presented in the 18th edition of Daniel Jones' *Cambridge English PronouncingDictionary*. The aforementioned finding shows that the examined Yoruba-English bilingual children use English stress patterns more accurately, against the usage reported for Educated Nigerian English (ENE) speakers (undergraduates and graduates) in earlier studies (Sunday & Oyatokun, 2016; Essien, 2018; Osifeso, 2020), and even secondary school students (Osifeso, 2017). According to Sunday & Oyatokun (2016) and Osifeso (2020), ENE speakers have a preference for rightward syllable for primary stress. A possible reason for the improved use of the English language by these Yoruba-English bilingual children may be due to the wide range of access children have nowadays to the internet and the electronic media, especially television. Common English words like the ones tested in this study are often used in some of the cartoons and foreign movies children watch. Since children are receptive learners and prompt in applying their newly acquired skills to tasks (Church, 1994), pronouncing the majority of the tested words appropriately as used in SBE was not difficult for many of them.

The finding of the study also shows the effect of the sociolinguistic factor of school type (private or public) in appropriate use of stress. This is evident in the inability of some pupils in public school to even pronounce some of the tested words, let alone apply their stress correctly. This gives credence to Faleye (2014) who affirmed that sociolinguistic variables play essential roles in influencing the choice of stress patterns used by Nigerians in pronouncing English words. The other variations observed in stress assignment could be a function of certain non-linguistic factors like the availability of well-trained instructors and exposure to English words.

Conclusion

Yoruba-English bilingual children from Oyo and Ogun states stress English words from the noun word group (except for *textbooks*) on the first syllable, while those from the verb and adverb word groups are stressed on the second syllable as it is in SBE. This finding refutes the submission of Sunday & Oyatokun (2016) and Osifeso (2020) that

Educated Nigerian English (ENE) speakers have a preference for rightward syllable for primary stress. The sociolinguistic variable of school type (private or public) plays a key role in influencing the pronunciation of these children. Parents are advised to give their children more access to educative programmes on the internet and the electronic media, while guiding their choice of programmes. Teachers (especially English Language teachers) are encouraged not to rely rigidly on the traditional methods of teaching, but to embrace Information Communication Technology (ICT), as well as the electronic media (both radio and television) where appropriate.

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