Konin Language Studies
Faculty of Philology, State University of Applied Sciences in Konin, Poland
KSJ 3 (3). 2015. 255-269
http://ksj.pwsz.konin.edu.pl

Syllable phonotactics in educated Nigerian spoken English

Taiwo Soneye
Obafemi Awolowo University, Ile-Ife, Nigeria
soneyes2002@yahoo.com

Faleye James Oladunjoye
Obafemi Awolowo University, Ile-Ife, Nigeria
adeolafe@yahoo.co.uk

Abstract

There exists a dearth of corpus driven research on syllable phonotactics of Educated Nigerian Spoken English (ENSE). This study is geared towards filling this gap. It is a descriptive research project into the consonant cluster phonotactics of the spoken English mono-morphemic and polysyllabic words of educated Nigerians. The research considers the various reduction modes whether by insertion, substitution or elision (deletion) and the phonetic environments in which these phenomena thrive in Educated Nigerian Spoken English. The data comprised part of a corpus drawn from the International Corpus of English (ICE), Nigeria data, namely the broadcast interviews (b_int), broadcast news (b_new) and the unscripted speeches (un_sp). The ICE Nigeria data was compiled between 2010 and 2012 at the University of Augsburg and the University of Münster, Germany. The (One million) ICE Nigeria corpus is available online and accessible to interested linguists across the globe. 20 Nigerian postgraduate university students of English were also engaged for collaborative validation of the pronunciation features observed in the ICE, Nigeria data that was employed. The majority of the speakers in the ICE corpus used for this study have Yorùbá as their first language but the entire corpus comprises speakers of at least three major Nigerian Languages. The spoken texts span across formal, semi-formal and informal contexts, respectively. All contexts of feature occurrence were analyzed using both manual (perceptual) and instrumental

methods of analysis. Findings reveal the prevalence of a systematic deletion in triple clustered words in educated Nigerian spoken English (ENSE) some of which potentially lead to misunderstanding in specific contexts.

Keywords: syllables; phonotactics; coda cluster; reduction modes

1. Introduction

The main purpose of this study is to find out the articulatory structure or pronunciation patterns of English syllables by educated Nigerians. The English syllables considered here are those that have consonant clusters either at the medial or coda positions. Particular attention is paid to features that might be peculiar to Nigerian English (NE) when put side by side British English (BE) which was bequeathed to Nigeria more than half a century ago. The current study, in addition to its main purpose, will consider whether the forms of consonant cluster reduction in Educated Nigerian English could lead to misunderstanding or lack of understanding. Furthermore, all of this will enable an elucidation of the features of the Nigerian Educated English in the light of emerging interest in the world Englishes (Schneider, 2003).

The knowledge of syllable structure is significant in understanding the constraints of phonotactics in languages. Phonotactics, according to Yavas (2011, p. 131), "refers to the system of arrangement of sounds and sound sequences". It deals with the restrictions in phonemes co-occurring or the permissible combinations of phonemes in a particular language. Phonotactics defines permissible or non-permissible syllable structure, consonant clusters, and vowel sequences in specific languages. Permissible complex nature of syllable structures differs significantly from one language to another. Speakers of English as a second language (ESL) generally, and in Nigeria in particular, resort to cluster reduction through several ways, as a means of simplification. One or more methods of simplification are often employed; some elide, some insert epenthetic vowels, others might substitute with other phonemes. The implication of these simplification methods is that it creates different cluster patterns at the onset (*play* /pleɪ/ and *strike* /straɪk/), medial (*atlas*/ˈætləs/ and *vulgar* /ˈvʌlgə/) and coda (*act* /ækt/, *help* /help/ and *asked*/æskt/) positions across various varieties of English (Szigetvari, 2007, p. 410).

2. Theoretical background and literature review

Syllable cluster phonotactics varies across different varieties of English. Huber (2004, p. 861), in describing consonant clustering in Ghanaian English (GhE) syllables, states that "cluster reduction is a phenomenon that GhE shares with other West African Englishes". However, this phenomenon, according to the author, is relatively prevalent in the English of the less educated in Ghana. It should be stressed that the study focuses on the description of cluster reduction at the coda position. Also, Shibuya and Erickson (2010, abstract page) observe that "Japanese speakers often face difficulty in producing complex syllable onsets in English and insert an extra vowel" and they add "that an L1 phonological process was involved in vowel insertion by Japanese speakers". Commenting on this same issue, Bamisaye and Ojo (2015, p. 380) posit that Yoruba speakers of English adjust the phonotactics of English consonant structure "in order to fit into the template of the Yoruba syllable structure" in which CV, V and N are only permissible. Although the focus of their study is the acculturation of the English lexicon into Yoruba Newscast, it is relevant in its observation about the adjustment of the English phonotactics. Jowitt (1991), Simo Bobda (1995) and Gut (2007) describe the phenomenon of consonant reduction at word final position and the insertion of epenthetic vowels in Nigerian English in different contexts. Gut (2004) identifies two simplification strategies for consonant clusters in Nigerian English, namely the reduction of word final consonant clusters by deletion of the last part as shown in *hand*, realized as [han], and the insertion of the epenthetic vowel [u] and [i] between word final syllabic consonant as demonstrated in *cattle*, realized as [katul]. In describing the phonotactics of English, Cruttenden (2001, p. 239) states that "English does not exploit, in the word and in the syllable, all the possible combinations of its phonemes. For instance, /e, æ, ʌ, ɒ/ do not occur finally; and the types of consonant cluster permitted are subject to constraints in both initial and final positions".

From the foregoing, it is obvious that the issue of syllable phonotactics in languages and English language varieties has been receiving considerable attention across the world. This study investigates the types of consonant cluster reduction in Educated Nigerian English, a variety of English already established in the literature (Awonusi, 1990; Jowitt, 1991; Udofot, 2003; Soneye, 2008; Fuchs, Gut & Soneye, 2013). Gut (2007, p. 348) observes that "no systematic studies have yet been carried out on consonant cluster production, the rate of deletion, the type of consonant clusters affected and the variation of deletion with phonetic context (...) in Nigerian English". Investigating the syllable phonotactics in ENSE lexicon will provide further insights into the phonological features in Nigerian

English syllable and especially the medial and coda patterning in the English spoken lexicon of educated Nigerians.

3. Syllable phonotactics of Nigerian languages

The phonotactics of English (BE) syllable structure differs significantly from that of any of the Nigerian languages. While English permits a complex syllable structure of up to three consonants at the onset (beginning) position of a syllable and a maximum of four consonants at the coda (ending), often summarized as (C^{0-3}) V (C^{0-4}), Nigerian languages do not. Yoruba and Igbo languages on the one hand have CV, V and N syllable structures. They both allow a maximum of two elements in a syllable. These elements are consonant and vowel (CV). Like English, they both allow syllables with zero onsets. In addition, Yoruba and Igbo allow syllables with a single syllabic nasal (N). However, the two do not allow consonant clusters, long vowels or diphthongs. The syllable structure of Hausa, on the other hand, permits up to three elements C, V, and X (CVX), where X can be either a vowel or a consonant; in addition to the aforementioned features, but significantly, it does not allow consonant clusters (Kraft & Kraft, 1973). It permits the use of long vowels and diphthongs because [au] and [ai] are present in the language. Cruttenden (2001) and Yavas (2011, p. 141-142) among several others have described the syllable phonotactics of Standard English, especially its consonant cluster pattern. However, descriptions of the phonotactics of the New Englishes, including Nigerian English, are rare. The current study is an effort geared towards examining data, especially, on double and triple consonant clusters at medial and coda positions in Nigerian English available.

4. The study

4.1. Research questions

In view of the syllable features of the three major Nigerian languages, namely Hausa, Igbo and Yoruba, which differ from that of English and the differences among the structures of these major indigenous languages, the research questions are:

1. What declusterization phenomena characterize the educated Nigerian spoken English variety?
2. In which phonological environments do these phenomena frequently occur?
3. What syllable medial and coda consonant cluster phonotactics are permissible in Educated Nigerian English?
4. Do these speech patterns lead to lack of understanding or misunderstanding?

4.2. Research methods

The study employed broadcast news, broadcast interviews and unscripted speeches, drawn from the spoken segment of the one million corpus of International Corpus of English (ICE), Nigeria, compiled at the University of Augsburg and the University of Münster, Germany between 2010 and 2013, respectively, and analyzed with ELAN which in our opinion is "large enough and sufficiently well-balanced to be reliable with excellent evidence for the behavior of common words" (Rundell, 2008, p. 23). The broadcast news, unscripted speeches and broadcast interviews were sourced for double (C_1C_2) medial and coda consonant clustered words, and triple ($C_1C_2C_3$) media and coda consonant clustered words (see Tables 1 to 4 for details) spoken by different educated Nigerians, aged between 18 and 70 years. The data was collected in Nigeria from 2010 to 2011. Annotations were done using ELAN (a speech analyzing software designed in Germany). The majority of the speakers in the corpus have Yorùbá as their first language. The spoken texts span across formal, semi-formal and informal contexts. Thus features were analyzed both perceptually and instrumentally. A total of 31 instances of triple medial and coda clustered ($C_1C_2C_3$) and 26 instances of double medial and coda clustered (C_1C_2) words were analyzed across the corpus, which gives a total of 57 English words. These words were also read aloud by 20 Nigerian postgraduate students of English in a Nigerian university for collaborative validation of the primary data.

4.3. Findings and discussion

In answering research questions 1 and 2, the data analysis showed that ENSE users deployed two strategies in declusterizing syllables that have triple and double consonant cluster codas. These strategies were identified as deletion and substitution. It was, however, observed, that deletion was the major strategy employed by the respondents. It involved the deletion of /k/ voiceless velar plosive and voiced alveolar lateral /l/sounds in different phonotactics combinations and positions. The deletion of phonemes in different combinatory phonotactics coda clusters are presented under the following sub-headings

4.3.1. Syllables with triple and double consonant coda clusters /-kts/, /-kst/ and /-kt/

Data analysis revealed that the triple consonant coda clusters /-kts/ and /-kst/ rarely occurred in educated Nigerian English (ENE). Table 1 illustrates the pattern of cluster reduction of triple consonants at the coda (ending) position. Analysis of the data showed that grapheme 'k', pronounced as the voiceless velar plosive /k/ in English words with deep orthographic structure, was often elided.

Some words in this category included *next* /nekst/, (bnews_02) and *text* /tekst/ (Unsp_03), which Cruttenden (2001, p. 240) describes as "monomorphemic" This was also true of the word *affects*.

Table 1. Triple consonant clusters at coda position in ENSE

Data Type	Words	BE	ENSE
bnews_02	Next	/nekst/	/nest/
bnews_06	Results	/rɪˈzɒlts/	/rɪzɒts/ [rɪsɒts]
Unsp_03	Attempt	/aˈtempt/	/atemt/ [aˈtemt]
	Text	/tekst/	/test/
unsp_07	Helped	/helpt/	/hepd/
unsp_08	affects	/aˈfekts/	/afets/
bint_03	Against	/əˈgenst/	/əˈgens/

Key: bnews– Broadcast News Unsp – Unscripted Speeches, bint – Broadcast Interview

Table 2. Patterns of triple coda cluster reduction via /k/ deletion in ENSE

Words	BE	ENSE	Words	BE	ENSE
Next	/nekst/ CVCCC	/nest/ CVCC	Subject (N)	/ˈsʌb.dʒɪkt/,/-dʒekt/ CVCCVCC	/ sɒb.dʒet / CVCCVC
Text	/tekst/ CVCCC	/test/ CVCC	Fact	/ fækt / CVCC	/fat/ CVC
Affects	/aˈfekts/ VCVCCC	/afets/ VCVCC	Complex	/ˈkɒm.pleks/ CVCCCVCC	/kɒm.ples/ CVCCCVC
Interact (V)	/ˌɪn.təˈ.ˈækt/ VCCVCVCC	/ɪn.ta.rat/ VCCVCVC	Dialect	/ˈdɑɪə.lekt/ CVCVCC	/dɑ:let / CVCVC
accept, construct	/ əkˈsept / VCCVCC / kənˈstrʌkt / CVC.CCCVCC	/ a.sept / VCVCC / kɒn.srɒt / CVC.CCVC	Relax	/ rɪˈlæks / CVCVCC	/ rɪˈlɑs / CVCVC
Reflect,	/ rɪˈflekt / CV.CCVCC	/ rɪ.flet / CVCCVC	Aspect respect	/ˈæs.pekt / VCCVCC / rɪˈspekt/	/ ɑs.pet/ VCCVC /respet/ CVCCVC
Project (N)	/ˈprɒdʒe.kt/ CCVCVCC	/ pro.dʒet / CCVCVC	Six	/ sɪks / CVCC	/sɪs / CVC

The double consonant coda clustered English words which end in /kt/ abound in Table 2. Examples of these words are *construct* /kənˈstrʌkt/ (Unsp_02), *reflect* /rɪˈflekt/, (Unsp_02), *subject* /ˈsʌb.dʒɪkt/ (Unsp_02), *interact* /ˌɪn.təˈ.ˈækt/ (bnew_08), *project* (N) /ˈprɒdʒe.kt/, (Unsp_04), *fact* /fækt/Unsp_06), *dialect* /ˈdɑɪə.lekt/ (Unsp_11), *aspect* /ˈæs.pekt/ (Unsp_14), and *respect* /rɪˈspekt/ (bint_02).

All these words are often pronounced in educated Nigerian Spoken English (ENSE) without the /k/. Consequently, *fact* /fækt/ sounds like *fat* /fæt/ (see Table 2).

4.3.2. Patterns of double and triple medial consonant cluster reduction via /k/ deletion in ENSE

As evident in Table 2, the voiceless velar plosive /k/, which is in the deep orthographic structure of some English words, was elided in Educated Nigerian English. Further findings revealed that 70% of the graduate students used for the validation test pronounced those words without the /k/sound. This finding corroborated the results from the ICE corpus and further validated the assumption implied in the research questions that phonotactics of Educated Nigerian Spoken English (ENSE) did not have triple coda consonant clusters with the voiceless velar plosive. This same sound /k/ was not articulated in ENSE at medial positions in both double and triple consonant clustered words, such as *experiment*, /ɪkˈsper.ɪ.mənt/, *textbook* /ˈtekst.bʊks/ and *sixty*/ˈsɪk.sti/. These words in Educated Nigerian spoken English were pronounced as /esper.ɪ.ment/, /tes.bʊks/ and /sɪsti/, respectively. The deletion is systematic in that whenever C[1] is /k/ in a triple consonant cluster coda environment, the /k/ is always deleted (see Table 2).

Table 3. Double consonant clusters in word-coda position in ENSE

Data type	Words	BBC	ENSE
Bnew_03	Thousand	/ˈəaʊ.zᵊnd/, /-and/	/taʊ.zan/
bnews_07	Rushed	/rʌʃt/	/rɔʃd/
news_08	Interact (V)	/ɪn.təʳ.ˈækt/	/ɪn.ta.rat/
unsp_02	Accept, Construct	/ək.ˈsept/ /kən.ˈstrʌkt/	/a.sept/ /kɒn.srɒt/
unsp_03	Reflect, Subject (N)	/rɪ.ˈflekt/ /ˈsʌb.ʤɪkt/,/-ʤekt/	/rɪ.flet/ /sɒb.ʤet/
unsp_04	Project	/ˈprɒʤe.kt/, -ɪkt/	/ pro.ʤet/
unsp_05	Examples	/ɪgˈzampᵊlz/,/eg-ɪkˈsa:m/, ek	/eza:m.pus/
unsp_06	Fact	/fækt/	/fat/
unsp_08	Complex	/ˈkɒm.pleks/	/kɒm.ples/
unsp_11	Dialect	/ˈdɑɪə.lekt/	/dɑ:let/
unsp_13	Relax, Absolve	/rɪˈlæks/, /əbˈzɒlv/	/rɪˈlɑs/, /ɑbzɒf/
unsp_14	Aspect	/ˈæs.pekt/	/ ɑs.pet/
bint_01	Six	/sɪks/	/sɪs/
bint_02	Difficult, Respect	/dɪf.ɪ.kᵊlt/ /rɪˈspekt, /rə-/	/dɪf.ɪ.kɔt/ /respet/

Substitution of consonants in clusters which is another declusterization strategy is rarely employed in the data. This phenomenon occurred only in the articulation of the words *rushed* /rʌʃt/ (Table 3, bnews_07,) in which the voiceless

alveolar plosive /t/ was substituted with its voiced form /d/ and the word was pronounced as /rɔʃd/. Words like *exercise* /ˈek.sə.saɪz/ and *exactly* /ɪgˈzækt.lɪ/ (Table 4, bnew_04 and Unsp_02) also have the alveolar fricative /z/ devoiced.

Table 4. Double consonant cluster at word-medial position in NE

Data type	words	BE	ENSE
bnew-04	exercise	/ek.sə.saɪz/	/e.sa.saɪz/,/e.sa.saɪs/
bnew-05	Submit succesful	/səb.mɪt/ /səkˈsesfəl/, -ful/	/ sɒ.mɪt/ /sɒsesful/
bnew-08	welfare	/welfeə/	/wefɪa/
unsp-02	accept	/əkˈsept/	/asept/
	exactly	/ɪg.ˈzækt.lɪ/	/ ezat.lɪ/, /esat.lɪ/
	etcetera	/ɪt.ˈset.ᵊr.ə/,/-et/	/ese.tɪ.ra/, /-et/
bint-03	exodus	/ˈek.sə.dəs/	/ e.so.dɒs/

4.3.3. Deletion of the alveolar lateral /l/ in triple and double coda clustered English words in ENSE

There are no existing phonological rules that explain coda cluster reduction in ENSE. However, we found in the current data that in a cluster of consonants at the coda/medial positions in English words in ENSE, the voiced alveolar lateral /l/ is usually deleted when it occurs at post-vocalic, pre consonantal positions in a cluster of sounds which are usually alveolar, bilabial or dental. The phonological environments are usually characterized by /l/ occurring before any of /t/, /p/ and /v/ sounds. Examples of words illustrating this phenomenon are shown in Table 5. The words *results* /rɪˈzɒlts/ and *helped* /helpt/, for instance, both have three consonants, each at the final (coda) position. In the two words, only the /l/is deleted, although, the /t/ in *helped* was substituted with/d/.

Table 5. Patterns of triple coda and medial cluster reduction via /l/ deletion in NESE

Words	BE	Pattern	NE	Pattern
results	/rɪˈzɒlts/	CVCVCCC	/rɪzɒts/	CVCVCC
Helped	/helpt/	CVCCC	/hepd/	CVCC
Absolve	/əbˈzɒlv/	VCCVCC	/ɑbzɒf/	VCCVC
Difficult	/dɪf.ɪ.ˈkəlt/	CVCVCVCC	/ dɪfɪkɔt/	CVCVCVC
Welfare	/welfeə/	CVCCV	/wefɪa/	CVCV
Culprit	/ˈkʌl.prɪt/	CVCCCVC	/kɔprɪt/	CVCCVC
examples	/ɪgˈzɑ:m.pəlz/,/eg-,/ɪk-/	VCCVCCVCC	/ezɑ:m.pus/	VCVCCVC

In addition, in words with double consonant clusters at coda position, such as *absolve* /əbˈzɒlv/ and *difficult* /dɪf.ɪ.ˈkəlt/, the first of the consonant clusters /l/ was deleted the same way it occurred in words with triple consonant clusters. The only likelihood here was the rejection of voice in the company of the voiceless sounds. All the words (see Table 5) tested were succeeded by voiceless sounds except for the words *absolve* and *examples*. Even in these words the voiced sounds /v/ and /z/ following the /l/ were devoiced.

4.3.4. Medial triple consonant clusters /str-/ in ENSE

As shown in Table 1, this study has established that the CCC pattern in BE is rarely permissible in ENSE. A common noticeable feature is the CV pattern. Similarly, this study discovered that the insertion phenomenon rarely occurs in Southwest Nigerian Educated English. Table 6 shows that a cluster of alveolar /str-/ at the medial-word position which is a common feature of British English is not permissible in ENSE. Examples of this are *registration* (bnew_02), *restrictions* (bnew_03), *extractor* (unsp_04) and *infrastructure* (bint_02). All of them were pronounced by the respondents in ENSE without the /t/.

Table 6. Triple consonant cluster at medial word position in ENSE

Data type	Words	BE	ENSE	Medial deletion
bnew_02	Registration	/ˌredʒ.ɪˈstreɪ.ʃən/	/redʒɪsreʃɒn/	/t/
bnew_03	Restrictions	/rɪˈstrɪk.ʃənz/	/rɪsrɪkʃɒns/	/t/
bnews_04	Extension	/ɪkˈsten. t ʃən/	/estenʃɒn/	/k/
bnews_05	Expiration	/ˌek.spɪˈreɪ.ʃən/	/espɪré.ʃɒn/	/k/
bnews_08	Postgraduate	/ˌpəʊstˈgrædʒ.u.ət/	posgradʒ.u.ét	/t/
	Culprit	/ˈkʌl.prɪt/	/kɒ.prɪt/	/l/
unsp_01	Express	/ɪkˈspres , ek-/	/espres /	/k/
	Construct	/ˈkɒn.strʌkt/	/kɒn.srɒt/	/t/
unsp_03	Experiment	/ɪkˈsper.ɪ.mənt/	/esper.ɪ.ment	/k/
	Assumption	/əˈsʌmp .ʃ ə n/	/asɒm.ʃɒn/	/p/
unsp_04	Textbooks	/ˈtekst.bʊks/	/tes.bʊks/	/K/, /t/
	Extractor	/ɪkˈstræk.tə/,/ek-/	/eˈsrak.tɒ/	/K/, /t/
unsp_o6	Explains	/ɪkˈspleɪn/, /ekˈ-/	/eˈsplén/	/K/
	Exclusively	/ɪksˈklu:.sɪv/,/eksˈ-/	/esˈklu:sɪv/	/k/
unsp_10	Explanation	/ˌek.spləˈneɪ.ʃ ə n/	/espləˈneɪ.ʃɒn	/k/
	Exchange	/ɪksˈtʃeɪndʒ/ , /eksˈ-/	/esˈtʃéndʒ/,eksˈ-	/k/
	Exactly	/ɪgˈzæktlɪ/	/esatlɪ/	/k/
	Experience	/ɪkˈspɪə.ri.ənts/, /ek-/	/espɪ.riens/	/k/
unsp_11	Abstract	/ˈæb.strækt/	/ab.srat/	/t/
	Expose	/ɪkˈspəʊz/, /ek-/	/espoz/ , ek-	/k/
	External	/ɪkˈstɜ:.nəl/, /ek-/	/esta:nal/ , ek-	/k/
unsp_13	Sixty	/ˈsɪk.sti/	/sɪs.ti/	/k/
bint_02	Infrastructure	/ˈɪn.frəˌstrʌk.tʃə/	/ɪn.fraˌsrɒk.ʃɒ/,/tʃɒ/	/t/
bint_06	Symptoms	/ˈsɪmp.təms/	/sɪm.toms/	/p/

The /kst-/ cluster in words like *next* and *sixty* is also rarely permissible. The triple coda cluster /-lts/ in the word *results* /rɪˈzɒlts/ is also generally not permissible in educated Nigerian Spoken English, as discussed earlier in this study. Several of the diphthongs are realized as monophthongs. For example, in (bnews_05) *expiration* /ˌek.spɪˈreɪ.ʃən/ and (unsp-11) *Expose*/ɪkˈspəʊz/, the closing diphthongs /eɪ/ and/ əʊ/ were realized as [é] and [o] respectively (see Akinjobi, 2006). The reduction or deletion of consonant clusters, coupled with those of the vocalic elements, has over time given Nigerian English its distinctness when put side by side British English.

4.3.5. Permissible medial and coda phonotactics in ENSE

In response to research question 3 on the permissible syllable medial and coda cluster phonotactics in ENE, the data analysis revealed that certain consonant clusters at the coda and medial positions were permissible in the subjects' renditions.

Complex coda clusters in Educated Nigerian Spoken English

(i) Complex triple coda [-kst] with the syllable structure $C_1+C_2+C_3$ in the environment of words like *next* /nekst/and *text* /tekst/ were not permissible in ENSE (see Table 2, for details). It was realized as [-st] instead of [-kst] with the articulation of $C_{2+}C_3$. A systematic deletion of C_1 was observed, thereby reducing the triple codas to double codas, as shown in the following words *text* [test] and *next* [nest]. Thus [-kts] was realized as [-st], which can be represented as:

[-kst] becomes {-st}

(ii) Complex triple coda [-lts], [-lpt] and [-kts] were not also permissible in ENSE. Instead they were realized in words like *results*, *affects* and *helped* as [rɪzɒts], [afets] and [hepd], with the deletion of C_1, in all three cases. The permissible double coda clusters of [ts] and [pd] are thus represented as:

[-lts] becomes [-ts]
[-lpt] becomes [-pd]
[-kts] becomes [-ts]

This means that in ENSE [voiceless stops] + {s, d} is permissible, whereas in British English *helped* is pronounced /helpt/ with the *-ed* morpheme, articulated as /t/, a voiceless sound in the environment of another voiceless /p/.

(iii) Complex triple codas [-nts] in *against* [agents] and [-mpt] in *attempt* [atempt] were equally not permissible. Instead, they were realised as [agens] and [atemt], respectively. The permissible coda structure is thus shown with the deletion of the final coda, C_3 /t/ in *against* and C_2 /p/ in *attempt*.

4.3.6. Non-permissible complex medial clusters in ENSE

The study identified some non-permissible complex medial clusters in ENSE. Such included [-kstr-] and [-kstb-] in words like *extractor* /ɪkˈstræk.tə/and *textbook* /'tekst.bʊks/. They were rendered as [e-sra-] and [-sb-] (see Table 6, for details). The permissible medial clusters are thus summed up:

$$[s] + \begin{Bmatrix} r \\ p \\ b \end{Bmatrix}$$

Further analysis revealed that complex medial clusters, such as [kspl] and [kskl] in *explain* [ɪkˈspleɪn] and *exclusive* [ɪksˈkluːsɪv], were realized as [esplén] and [esklu:sɪv]. Consequently, [kspl] and [kskl] medial clusters were simplified with the deletion of C_1 [k] in the cluster to form [-spl-] and [skl], respectively. The permissible medial clusters can thus be represented as:

[s] + {voiceless plosive} + {l}

4.3.7. Feature diffusion in Educated Nigerian Spoken English

Deletion of consonants in triple clustered English words was a prominent feature in ENSE among the majority of the respondents in this study who are from southwest Nigeria. Also, there is the possibility for the manifestation of this phenomenon among northerners in the light of Simo Bobda's (2003, p. 30) observation that "features of an accent generally move across regional or national borders along with the migrants". There is currently heavy migration of Nigerian northerners to the southern parts of Nigeria as a result of the Boko Haram saga and high rate of terrorism with its attendant linguistic implications.

In addition, the observable accent uniformity in the subjects' manifestation of deletion or substitution of consonant clusters at medial and coda positions may be attributed to some other social factors. One of them is what Faleye (2011) describes as the disruption of the routinized social behaviors of Nigerians with their attendant linguistic behaviors. He states further that after the amalgamation of the Southern and Northern protectorates by Lord Lugard in 1914, Nigerians,

who hitherto remained in the enclaves of their regions and communities, began to move from there in greater proportion than was the case before this event. Moreover, the social mobility of Nigerians, especially those that are educated, from one part of the country to another to seek employment in various government establishments across the nation, such as the National Railway Corporations (NRC), Federal Universities, Federal Unity Schools, Federal Colleges of Education and Civil Service Commissions, has encouraged the transfer of people from their natural environment to those where they encounter people exhibiting different linguistic behaviors. Again, the introduction of the National Youths Service Corps (NYSC) by the then Federal Military Government led by General Yakubu Gowon, which mandated all graduates under 30 years of age to serve their nation for a year, facilitated language contacts. The media, especially the Nigeria Television Authority (NTA), Radio Nigeria and other private stations, like Channels Television and African Independent Television (AIT), have continued to play an important role in bringing about accent convergence in Nigeria. All this has some residual diffusion effects on the general listeners who see these broadcasters as models. Cruttenden (2001, p. 247) confirms the insertion of a short intrusive or epenthetic vowel in some double and triple onset words, especially in non-native adult and children English. Empirical investigation is required for further validation in this regard. However, insertion does not seem to be a common phenomenon in Educated Nigerian English that is spoken especially in southwest Nigeria, as evident in this study.

4.3.8. The possible effect of consonant cluster reduction via deletion in ENSE

Our final response is with regard to the fourth research question concerning whether the above speech patterns could lead to lack of understanding or misunderstanding. Karlsson and Sullivan (2005, p. 2) found that "both cluster reduction and cluster simplification" are capable of leading to different productions and culminate in wrong perceptions. Citing examples from Swedish, they explain that "the case of the target word [spɑk] (lever) when reduced to [sɑ:k], by application of the process of cluster reduction, may be perceptually identical to another potential target word [sɑ:k] (thing)".

In Educated Nigerian spoken English, cluster reduction is likely to potentially lead to misunderstanding or lack of understanding. A word like *next* /nekst/, often articulated as /nest/ in ENSE, could lead to misunderstanding in the sentence *Bring the next inside* as it could sound as *Bring the nest inside*. Also, the question *Do you have a text (manuscript) to show?* could be misunderstood as *Do you have a test (examination) to show?* The word *access* (an entrance) and *assess* (evaluate) are often pronounced the same way as a result of the velar

deletion /k/ from *access*. The statement *Fact (actuality) is necessary* could be misconstrued as *Fat (plumpness) is necessary*. In some cases, Nigerians depend on context in order to deduce meaning because of mispronunciation. Such lack of understanding or occurrence of communication breakdowns might even be intense between a second language speaker of English (Nigerian) and a British native speaker of English.

5. Conclusion

This study has investigated four main issues. It highlighted the characteristics of educated Nigerian spoken English variety in terms of syllable phonotactics. It also identified the phonological environments in which consonant cluster deletions thrive. It further explained the syllable medial and coda consonant cluster phonotactics permissible in Educated Nigerian Spoken English (ENSE). Finally, it brought to the fore the implications of cluster reductions for comprehension and effective communication. The study concluded that coda cluster patterns in ENSE contribute significantly to the distinctiveness of Nigerian English within the purview of world Englishes.

References

Akinjobi, A. (2006). Vowel reduction and suffixation in Nigeria. *English Today,* 85, 10-17.

Awonusi, S. (1990). Coming of age: English in Nigeria. *ELTT*, *22*, 31-36.

Bamisaye, T., & Ojo, G. A. (2015). Phonotactic adjustments in Yoruba adaptation of English syllable structures. *Open Journal of Modern Linguistics, 5,* 379-388.

Cruttenden, A. (2001). *Gimson's pronunciation of English* (6th ed.) New York: Oxford University Press.

Faleye, J. O. (2011). A sociolinguistic study of word stress patterns in the English pronunciation of selected Nigerian teachers, Unpublished PhD Thesis. Obafemi Awolowo University, Ile Ife, Nigeria.

Fuchs, R, Gut. U., & Soneye, T. (2013). We just don't even know the usage of the pragmatic focus particles *even* and *still* in Nigerian English. *English World Wide, 34,* 123-145.

Gut, U. (2004). Nigerian English phonology. In E. W. Schneider, K. Burridge, B. Kortmann, R. Mesthrie, & C. Upton (Eds.), *A handbook of varieties of English* (pp. 813-830). Berlin: Walter De Gruyter.

Gut, U. (2007). First language influence and final consonant clusters in the new Englishes of Singapore and Nigeria. *World Englishes, 26,* 346-359.

Huber M. (2004). Ghanaian English phonology. In B. Kortmann & E. W. Schneider (Eds.), *A handbook of English Varieties* (pp. 843-865). Berlin: Walter De Gruyter.

Jibril, M. (1979). Regional variation in Nigerian Spoken English, In E. Ubahakwe (Ed.), *Varieties and functions of English in Nigeria* (pp. 78-93). Ibadan: African Universities Press.

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

Karlsson, F., & Sullivan, K. P. H. (2005) /sP/ consonant clusters in Swedish: Acoustic measurements of phonological development. *Special Issue of Leiden Papers in Linguistics, 2,* 1-12. (www.ulcl.leidenuniv.nl).

Kraft, C. H., & Kraft, M. G. (1973) *Introductory Hausa*. Berkely and Los Angeles: University of California Press.

Rundell, M. (2008). The corpus revolution revisited. *English Today, 93,* 23-27.

Schneider, E. W. (2003). The dynamics of new Englishes: From identity construction to dialect birth. *Language, 75,* 233-281.

Sibuya, Y., & Erikson, D. (2010). Consonant cluster production in Japanese learners of English. (http://www.gavo.tu-tokyo.ac.jp/).

Simo Bobda, A. (1995). The phonologies of Nigerian English and Cameroon English. In A. Bamgbose, A. Banjo, & A. Thomas (Eds.), *New Englishes: A West African perspective*. (pp 248-268). Ibadan: Mosuro Publishers.

Simo Bobda A. (2007). Some segmental rules of Nigerian English phonology. *English World-Wide, 28,* 279-310.

Soneye, T. (2008). Accentual variation in educated Nigerian English Varieties and its implications for standardization. *Ibadan*: *Journal of English Studies, 2,* 402-413.

Szigetvari, P. (2007). Branching onsets and syncope in English. *Language Sciences, 29,* 408-425.

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

Yavas, M. (2011). *Applied English phonology* (2nd ed.). London: Blackwell.