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**EXPLORING PLACE AND VOICING FEATURES OF THE ENGLISH FRICATIVES  
IN THE SPEECH OF YORUBA-ENGLISH BILINGUALS****Ojo George Adekunle, Ph.D.**Department of English and Literary Studies,  
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[george.ojo@eksu.edu.ng](mailto:george.ojo@eksu.edu.ng)**Abstract**

This paper examines place and voicing features of the English fricatives in the speech of Yoruba-English bilinguals. **The perceptual-similarity approach** which was introduced by Fleischhacker (2001) was adopted in the analysis of the data in the study. Findings show that contrasts in place and voicing features of fricatives are more perceptible than contrasts in manner features. It was also discovered from the findings that in the adaptation of foreign fricatives, manner feature of the output demonstrates partial flexibility, while place and voicing features are resistant to change.

**Keywords:** Fricatives, Phonemes, Foreign words, Recipient language, Adaptation**Introduction**

Various investigations of foreign word phonology have revealed that the original foreign pronunciation of borrowed words undergo different systematic processes of nativization. The end product of such phonological processes has always shown obvious conformity to the local phonology of the recipient language and the same attempted as much as possible to be similar to the source form. Phonological processes of foreign words entail various levels of phonological structures, such as segmental features, phonotactic rules and prosodic patterns (Weinreich 1968; Campbell 1998). Many studies on foreign word phonological processes have been carried out in different local languages. For example, investigations into these issues have been carried out in a large array of languages, including Cantonese (Silverman 1992, Yip 1993), Yoruba (Salami 1969; Ufomata 2004; Kenstowicz 2010), Japanese (Itô & Mester 1995), to mention a few.

Findings from various languages show that the output of loanword processes is generally a native form that demonstrates minimal changes from its foreign origin. On

the segmental level, the principle of minimal modification functions through phoneme substitution, by which foreign sounds are replaced by their closest match available in the native inventory (Kenstowicz 2010). Phonotactic adjustments aim to adapt foreign syllable structures that are incompatible with the native phonology. Lastly, nativization with respect to prosodic (or suprasegmental) patterns may involve mapping of stress or tone from the donor language to the borrower language (e.g. Silverman 1992, Davidson & Noyer 1997, Broselow 1999, 2005, Kenstowicz 2007).

This study examines words that are borrowed from English into Yoruba language. Some of these borrowed words have no substitutes in Yoruba language. Different phonological studies of foreign words have shown that segmental features of phonemes manifest different variables. In other words, pattern of feature and voicing change in segmental mapping is noticeable. This pattern of feature change and voicing has been reported in various studies, such as loanword processes (Broselow 1999), errors in speech perception (Bond 1999), production of improper puns (Zwicky 1976) and phonological processes in general (Steriade 2002, Fleischhacker 2001,

2002). This pattern of featural change in respect of consonants is discussed in detail in this paper. The changeability in consonantal features is specific to voicing and place features which are more flexible than manner features. This study considered the distinctive features of consonants as spelt out by Spencer (1996: 105-145) below:

Distinctive Features of Consonants:

i) Manner [ $\pm$  cons] (consonancy)

[ $\pm$  strid] (stridency)

[ $\pm$  son] (sonorancy)

[ $\pm$  lat] (laterality)

[ $\pm$  approx] (approximancy)

[ $\pm$  cont] (continuancy)

[ $\pm$  nas] (nasality)

ii) Place [ $\pm$  lab] (labiality)

[ $\pm$  cor] (coronality)

[ $\pm$  dors] (dorsality)

iii) Voicing [ $\pm$  voiced] (voicing)

The focus of this paper is on place and voicing features of the English fricatives in the speech of Yoruba-English bilinguals. Place and voicing of foreign fricatives are mapped onto Yoruba contrasts. In this regard, the paper discusses the segmental mappings from English fricatives to Yoruba fricatives in detail, their faithful and deviant mappings and those factors that contribute to the deviation.

### Methodology

The data for this research are a corpus of English foreign words that entered into Yoruba during the colonial era. The data were gathered from Yoruba-English speakers who employed English loanwords

in their day-to-day linguistics activities. A total number of 221 words were compiled and collated through unscheduled oral interviews and dialogues. The data which was recorded with a cell phone was later played back for analysis. **The perceptual-similarity approach** which was introduced by Fleischhacker (2001) was adopted in the analysis of the data in the study. The approach assumes that foreign word processes tend to maximize the perceptual similarity between the adapted form and the foreign input. Table 1 below reveals the summary of the data collected for the purpose of this study.

**Table 1: Summary of Adaptation of Fricatives**

Position	Phoneme	English	Output		%	
			Yoruba			
			Faithful	Deviation	Faithful	Deviation
Onset	/f/	50	50	0	100.00%	0.00%
	/v/	21	0	21	0.00%	100.00%
	/θ/	8	0	8	0.00%	100.00%
	/ð/	1	0	1	0.00%	100.00%
	/s/	94	93	1	98.94%	1.06%
	/z/	3	0	3	0.00%	100.00%
	/l/	19	19	0	100.00%	0.00%
	/ʃ/	1	0	1	0.00%	100.00%
	/h/	26	3	23	11.54%	88.46%
	<b>Total</b>	<b>221</b>	<b>165</b>	<b>56</b>	<b>74.66%</b>	<b>25.34%</b>
Coda	/f/	14	13	1	92.86%	7.14%
	/v/	6	0	6	0.00%	100.00%
	/θ/	4	0	4	0.00%	100.00%
	/ð/	1	0	1	0.00%	100.00%
	/s/	102	94	8	92.16%	7.84%
	/z/	4	0	4	0.00%	100.00%
	/l/	10	10	0	100.00%	0.00%
	/ʃ/	1	0	1	0.00%	100.00%
	/h/	N/A	N/A	N/A	N/A	N/A
	<b>Total</b>	<b>142</b>	<b>117</b>	<b>25</b>	<b>82.39%</b>	<b>17.61%</b>

Table 1 above is the summary of the data collected for this study.

**Analysis and Discussion**

In segmental mappings, foreign fricatives are expected to be matched to their closest corresponding phonemes in Yoruba. There is a difference between the fricatives of both languages in that some of the fricatives attested in English are not present in Yoruba. In view of this difference, it is assumed that the faithful substitute for a foreign fricative will be a Yoruba fricative of the closest place and voicing features.

Summary of data shows that fricatives are faithfully realized because most of the phonemes make up the highest proportion of faithful outputs in the adaptation as this can be seen in table 1. Take for instance, in the adaptation of /f/, the frequency of faithful mappings (i.e. /f/ [f]) is <sup>50</sup>/<sub>50</sub> (100%) in the onset and <sup>13</sup>/<sub>14</sub> (92.86%) in the coda.

Meanwhile, there is a slight difference in the adaptation of onset /h/ where the faithful outputs contribute <sup>3</sup>/<sub>26</sub> (11.54%) instances,

which is lower than the deviant forms of <sup>23</sup>/<sub>26</sub> (88.46%).

Deviant outputs of fricatives can be viewed from two perspectives: fricatives that are

different from the faithful substitute in place and fricatives that are different from the faithful substitutes in voicing (i.e fricative-fricative and fricative-plosive). For example, the English /θ/ has three alternative substitutes in Yoruba, two of which deviate from the faithful output of voice feature. The phoneme /θ/ behaves differently in different positions. For instance, in the word-initial position, it could be substituted with /t/ such as in “thick” /tiiki/, /θ// → [t] (fricative-plosive). If the phoneme occurs word-medially, it could also be adapted as /t/ as in “bathroom” /betirúùmù/ but if it occurs word-finally, it behaves

differently from the two other word environments. For instance, in the word “bath” /bààfù/, /f/ is adapted as a substitute phoneme (/θ/ → [f], fricative-fricative) and resyllabified through vowel insertion. There is also the tendency that the English /v/ which is expected to be replaced by Yoruba [f] behaves differently when it occurs in the coda. For example, the English /v/ in “valve” in the coda is replaced with [b] (i.e /vælv/ → [fáàbù]).

In borrowed words, fricatives can occur word-initially, word-medially but when they occur word-finally, they are resyllabified with vowel epenthesis. Faithful adaptations of fricative consonants are variously demonstrated in Table 2 below.

It is observed in the above table that when foreign voiceless labio-dental fricative is mapped with its counterpart in Yoruba, they both share the same articulatory region. This same articulatory region has been referred to IDENT (MajorArtic) (Miao 2005; Broselow 2001). However, there is an instance of the

adaptation of voiceless labio-dental fricative that deviates in the data. When this phoneme

is borrowed into Yoruba, it behaves differently from the original source: the differences are manifested in voicing, place and feature manners. The foreign source is voiceless labio-dental fricative while resultant form is voiced bilabial plosive (/f/ > /b/) as in 'handcuffs' /hændk f̥s/ > [ánkɔɔbù].

Table 2: Faithful mappings of /f/

Received Pronunciation	Yoruba-English Rendition	Word Position	Voice	Gloss
/faɪl/	[fáìlì]	Initial	-	File
/əfɪsə/	[ɔfɪsà]	Medial	-	Officer
/fɪlm/	[fùmù]	Initial	-	Film
/ska:f/	[síkàáfù]	Final	-	Scarf
/ʃelf/	[ʃéèfù]	Final	-	Shelf
/fri:/	[fírì]	Initial	-	Free
/pɜ:fju:m/	[kpàfùùmù]	Medial	-	Perfume
/fæn/	[fáànù]	Initial	-	Fan
/kɜ:fju:/	[kɔfù]	Medial	-	Curfew
/rʌf/	[rɔɔfù]	Final	-	Rough
/əfɪs/	[ɔfɪsì]	Medial	-	Office
/tʌf/	[tɔɔfù]	Final	-	Tough
/freɪm/	[fùremù]/[feremu]	Initial	-	Frame
/græf/	[gíràáfù]	Final	-	Graph
/trəfɪ/	[tùrɔfì]	Medial	-	Trophy

**Table 3: Faithful mappings of /s/**

Received Pronunciation	Yoruba-English Rendition	Word Position	Voice	Gloss
/æʃɪd/	[áʃídi]	Medial	-	Acid
/skɜ:t/	[síkéèti]	Initial	-	Skirt
/pɜ:s/	[pɔɔsi]	Final	-	Purse
/skeɪl/	[síkéèli]	Initial	-	Scale
/bɪskɪt/	[bísikítì]	Medial	-	Biscuit
/pa:s/	[páàsì]	Final	-	Pass
/sɪk/	[síiki]	Initial	-	Sick
/əfɪsə/	[ɔfɪsà]	Medial	-	Officer
/stəuv/	[sítóòfù]	Initial	-	Stove
/ska:s/	[síkáàsì]	Final	-	Scarce
/sɪstə/	[sísítá]	Medial	-	Sister
/raɪs/	[ráisi]/[iresi]	Final	-	Rice
/nɜ:s/	[nɔɔsi]	Final	-	Nurse
/bæskɪt/	[básíkéèti]	Medial	-	Basket
/seɪf/	[séèfù]	Initial	-	Safe

Since foreign voiceless alveolar fricative is permitted in English and Yoruba, when it is mapped with the local counterpart, they demonstrate IDENT (MajorArtic) as it can be seen in the examples in the above table.

**Table 4: Faithful mappings of /ʃ/**

Received Pronunciation	Yoruba-English Rendition	Word Position	Voice	Gloss
/ʃʊgə/	[fúgà]	Initial	-	Sugar
/geɪʃə/	[geʃà]	Medial	-	Geisha
/brʌʃ/	[búrɔɔfi]	Final	-	Brush
/flʌʃ/	[fúlɔɔfi]	Final	-	Flush
/tɪʃu:/	[tífù]	Medial	-	Tissue
/ʃɜ:t/	[fèèti]	Initial	-	Shirt
/pɒlɪʃ/	[pɔlìfi]	Final	-	Polish
/ʃɔp/	[fɔɔbù]	Initial	-	Shop
/kəʃɪə/	[kafíà]	Medial	-	Cashier
/ʃaʊə/	[fáwà]	Initial	-	Shower
/skələʃɪp/	[síkoláfíikpù]	Medial	-	Scholarship
/kæʃ/	[káàfi]	Final	-	Cash
/ʃu:/	[fùù]	Initial	-	Shoe
/pærɪʃ/	[párfífi]	Final	-	Parish
/bɪʃɔp/	[bífɔbù]	Medial	-	Bishop

Voiceless palato-alveolar is attested in both languages, hence, there is no difference in place manner when adapted into a local language as revealed in the instances in Table 4 above.

**Table 5: Faithful mappings of /h/ Yoruba-English**

Received Pronunciation	Yoruba-English Rendition	Word Position	Voice	Gloss
/h <sub>l</sub> ɛlm/	[h <sub>l</sub> éémù]	Helm		
/h <sub>l</sub> ɪbrʊ:/	[h <sub>l</sub> ébérù]	Hebrew		
/h <sub>l</sub> enrɪ/	[h <sub>l</sub> énrɪ]	Henry		
/h <sub>l</sub> ɔɪdeɪ/	[h <sub>l</sub> ɔɪude]	Holiday		
/h <sub>l</sub> ɔspɪtɪl/	[h <sub>l</sub> ɔsɪbitu]	Hospital		
/hɔ:l/	[<>ɔlù]	hall C Del		
/hɜ:n/	[<>ɔnù]	horn C Del		
/hæt/	[<>áàti]	hat C Del		

Our data revealed that when fricative occurs in borrowed words, it is usually retained, especially, in the word-initial position because it is permitted in both English and Yoruba. However, there are three instances, as revealed in the above table, in which the phoneme is deleted when adapted into Yoruba in the word-initial position.

Furthermore, deviations in the mapping of both voiced and voiceless foreign fricatives are noticeable in the data for this study. These deviations are the instances of fricative-fricative mappings, fricative- plosive mappings, absolute deletion of fricatives e.t.c.

**Table 6: Deviant Adaptation of /v/**

Received Pronunciation		Yoruba-English Rendition		Gloss	Process
/vɪdɪəʊ/	+voice	[fɪdíò]	-voice	Video	(fricative-fricative)
/vəwel/	+voice	[fáwéli]	-voice	vowel	(fricative-fricative)
/vælv/	+voice	[fáábù]	-voice	valve	(fricative-plosive)// Del
/vɔlterɪdʒ/	+voice	[fótéédʒɪ]	-voice	voltage	(fricative-fricative) // Del

The above table reveals the manifestation of the absence of foreign voiced labio-dental fricative in Yoruba. Moreover, when it is borrowed into a local language where the phoneme is illicit, it is substituted with the closest match (i.e /v/ > /f/).

**Table 7: Deviant Adaptation of /θ/**

Received Pronunciation		Yoruba-English Rendition		Gloss	Process
/θɪətə/	-voice	[tíátà]	-voice	theatre	(dental fricative-alveolar plosive)
/θʌg/	-voice	[tɔɔgɪ]	-voice	thug	(dental fricative-alveolar plosive)
/feɪθ/	-voice	[fèèti]	-voice	faith	(dental fricative-alveolar plosive)
/θəməstət/	-voice	[támósfáàti]	-voice	Thermosta	(dental fricative-alveolar plosive)
/θɪk/	-voice	[tíki]	-voice	thick	(dental fricative-alveolar plosive)

It is shown in the above table that /θ/ is adapted as /t/. Though the two phonemes are voiceless, they differ in both manner and place features. While /θ/ is dental fricative, /t/ is alveolar plosive.

**Table 8: Deviant Adaptation of /ð/**

Received Pronunciation		Yoruba-English Rendition		Gloss	Process
/fa:ðə/	+voice	[fadá]	+voice	Rev Father	(dental fricative-alveolar plosive)
/weðə/	+voice	[wédà]	+voice	weather	(dental fricative-alveolar plosive)
/fa:ðin/	+voice	[fádí]	+voice	farthing	(dental fricative-alveolar plosive)
/leðə/	+voice	[lédà]	+voice	leather	(dental fricative-alveolar plosive)

The data in Table 8 above shows that /d/ replaces /ð/ in the recipient language. Both sounds are voiced phonemes but they differ in manner and place features (i.e dental fricative > alveolar plosive). In other words, their manners and places of articulation are not identical. Therefore, this can be postulated as -IDENT (MajorArtic).

**Table 8: Deviant Adaptation of /s/**

Received Pronunciation		Yoruba-English Rendition		Gloss	Process
/skul/	-voice	[fùkùrù]	-voice	school	(fricative-fricative)
/trausəs/	-voice	[tírcsà]	-	trousers	(C-Del word-finally)
/məsis/	-voice	[mósè]	-	Moses	(C -Del word-finally)
/plars/	-voice	[púlájà]	-	pliers	(C -Del word-finally)
/ba:raks/	-voice	[báraàki]	-	barracks	(fricative-vowel)
/pa:tɪkjuləs/	-voice	[pàtikúlà]	-	particulars	(C-Del word-finally)

Adaptation of /s/ demonstrates two major different manifestations. It is either replaced or deleted through syllabification. For example in the table above, /s/ is replaced with / / in “school” (/skul/ > [fùkùrù]); deleted in “Moses” (/mə s s/ > [mósə]); deleted and resyllabified in “barracks” (/ba:raks/ > [báraàki]).

**Table 9: Deviant Adaptation of /z/**

Received Pronunciation	Yoruba-English Rendition	Voice	Gloss	Process
/zu:/	[sùù]	+	zoo	(fricative-fricative)
/zip/	[sípù]	+	zip	(fricative-fricative)
/zəmbi:/	[sonbí]	+	zombie	(fricative-fricative)
/nəzl/	[nɔ̀sù]	+	nozzle	(fricative-fricative)

The table above shows a simple replacement of /z/ with /s/ when /z/ is borrowed into a local language. This is because /z/ is not attested in the inventory of Yoruba consonant sounds. The two phonemes are IDENT (MajorArtic) because they share the

same articulatory region. But they differ in terms of voicing: while /z/ is voiced, /s/ is voiceless.

Moreover, there is an instance of the adaptation of / / in the data. When the sound is borrowed, it is substituted with approximant /j/ as in 'measure' (/me\_ / > [méj ] ). This is the replacement of palato-alveolar fricative with palatal approximant. The two sounds share the same voicing feature. They are voiced consonants. Also in the data are two instances of deviant adaptation of /h/. Though the sound is permissible by English and Yoruba but in some foreign words, they are completely deleted. This is obvious in 'hose' (/h us/ >[ ósi]) and 'hotel' (/h utel/ > [ t́é li]). These two instances demonstrated C-Del word-initially.

### Conclusion

Place and voicing of foreign fricatives are mapped to Yoruba contrasts. In the case of faithful adaptations, a [+/-voice] fricative is substituted with a Yoruba [+/-voice] fricative phoneme but when an output deviates from the expected substitute, the change largely involves a variance of both place and voicing features for fricatives and deviations in manner occurred some cases, such as: /θ/ > /t/; /ð/ > /d/; / / > /j/ ; /v/ > /f/; /z/ > /s/; /s/ > / / . Based on these observations, I assume that contrasts in place and voicing features of fricatives are more perceptible than contrasts in manner features.

In the adaptation of foreign fricatives, manner feature of the output demonstrates partial flexibility, while place and voicing features are resistant to change. This type of constrained place and voice changeability in Yoruba conforms to Broselow's (2001)

observation that preservation of the major articulatory regions enjoys higher priority than preservation of other features in the phonological processes of foreign words.

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