

Segment Substitution of the French Rhotic /ʁ/ by Educated Edo-Bini French Bilinguals

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Abstract

The phonologies of first languages (L1) interfere with those of second languages (L2). Such interference triggers phonological processes such as substitution in the L2, as manifest among Educated Edo-Bini French Bilinguals (EEFBs) in the production of French voiced uvular approximant /ʁ/ mostly as Edo voiced alveolar trill /r/. In line with Chomsky and Halle's Generative Phonology (GP), the theoretical framework for this paper is hinged on the Distinctive Features (DF) of these segments. Fifty EEFBs, drawn by purposive sampling from University of Benin (36), Ambrose Alli University (10) and Delta State University (04) served as participants. Audio recordings were elicited from the participants. *Le Robert Micro* and Samsung online dictionaries served as native speaker baseline (NSB). Quantitative data were subjected to percentages while qualitative data were analysed using GP. 96% realised the phoneme as /r/, indicating that the voiced uvular approximant /ʁ/ that is [-high] but [+back] was realised as an alveolar trill that is [+ant] and [+cor] in an environment that is [+syll]. The paper thus concluded that it was a mother tongue-induced substitution and that the rhotic produced by EEFBs does not approximate considerably to Standard French.

Keywords: Segment, Phonologies, Rhotic, Substitution, Mother Tongue.

Introduction

It is not a new phenomenon that French has contacts with Nigerian languages, including Edo language which is the focus of this paper. In one of such, it was observed that the standard French rhotic which is the voiced uvular approximant /ʁ/ was realised as alveolar trill /r/ by EEFBs. Generally, the 'r' sound is realised in different ways in French: the voiceless uvular fricative [x], realised with a voiceless obstruent and at the end of a sentence; the Parisian voiced uvular fricative [R]; the standard plain voiced uvular approximant /ʁ/; the alveolar trill [r]; and the plain alveolar tap [r] (Fougeron et al, 1993; Iyiola, 2014; Asika, 2015; Faleye et al, 2022; Oimage, 2022). In as much as the realisation of the rhotic by EEFBs is part of the recognised dialectal submissions given above, it is pertinent to note here, that it is not acceptable in Standard French (SF). This paper is thus set to validate this assertion by empirically and phonologically analysing the speech tokens produced by the participants in line with the aforementioned theory.

Statement of Research Problem

The statement of the research problem of this paper is hinged on the fact that wrong segmental productions hinder the free flow of communication. If the speaker's production of the standard uvular approximant /ʁ/ is impaired, there will be a breakdown in mutual intelligibility, thereby causing a breach in understanding his message (Morley, 1996; Oimage, 2022).

Research Questions

1. What is the standard production of the French rhotic?
2. What are the quantitative and qualitative analyses of the rhotic realised by EEFBs?
3. Does the rhotic realised by EEFBs approximate considerably to Standard French?

Research Aim and Objectives

The aim of this paper is to bridge the gap created by the impaired production of the French rhotic /ʁ/ by EEFBs. The aim is embedded in the following objectives which seek to:

1. Establish the standard production of the French rhotic;
2. Analyse both statistically and theoretically the French rhotic produced by EEFBs; and
3. Ascertain their level of approximation to Standard French.

In order to substantially achieve the aim of this paper, the following pieces of literature will be reviewed: the French people, language and segmental space; the Edo-Bini people, language and segmental space; Standard French etc.

The French People, Language and Segmental Space

French people are descendants of Gaul and Belgae, western European Celtic peoples, as well as Italic people, Bretons, Aquitanians, Iberians, Ligurians and Greeks in southern France, mixed with the Germanic people arriving at the beginning of the Frankish Empire (Gailledrat, 1997; Garcia, 1997; Laurence, 2011; Dollingers, 2015; Soyoye et al, 2021). Most French people speak French as their mother tongue but other languages are spoken in certain regions. French is a Romance language and belongs to the Indo-European family, being the second-most widespread language after English and the fourth-most widely spoken mother tongue in the European Union (European Commission, 2011). Furthermore, it is used officially in 29 countries of the world which have membership with the French Commonwealth called *La Francophonie*.

The language has 37 segments in all: 12 oral vowels and four nasal vowels; 18 consonants and three semi-vowels. Moreover, it is notable for its uvular ‘r’ in speech, nasal vowels and three processes affecting word-final sounds: liaison, elision and resyllabification (*enchainement*) (Iyiola, 2014). The language also has phonological processes which affect segment production such as labialisation, palatalisation, nasalisation, deletion etc. This paper concentrates only on the substitution process imposed by the different place and manner of articulation of the segment under investigation. The French sounds systems are given in the figures below:

The IPA French Vowel Chart

		Front		Central	Back
		Unrounded	Rounded		
Close	Oral	i	y		u
Close-mid		e	ø	ə	o
Open-mid		ɛ	œ		ɔ
	Nasal	ɛ̃	œ̃		ɔ̃
Open					ɑ̃
	Oral	a			ɑ

Adapted from Fougeron et al, 1993; Iyiola, 2014; Omaye, 2022.

The French consonant chart is given below:

The IPA French Consonant Chart

		Labial	Labio-dental	Alveolar	Palatal	Velar	Uvular
Nasal		m		n	ɲ	ŋ	
Plosive	Voiceless	p		t		k	
	Voiced	b		d		g	
Fricative	Voiceless		f	s	ʃ		(x)
	Voiced		v	z	ʒ		ʁ
Approximant	Plain			l	j		
	Rounded				ɥ	w	

Adapted from Fougeron et al, 1993; Omaye, 2022.

From the table above, it can be observed that the rhotic /ʁ/ navigates between fricative and approximant. This paper adopts it as an approximant.

Standard French

Stanfield (2011), a Parisian French Language coach posited that in reality what everybody calls “Parisian” French is to be accepted as meaning “standard”, “without accent”, “academic”. The reason, she said is because in Paris the language evolved on its own and it is not exactly academic. But having the knowledge of the standard language may give you the leverage to adjust to any accents or variations (varieties) of the language around the world.

Standard French, referred to variously as *le français institutionnel*, *le français normalisé*, *le français standardisé*, *le français universel*, *le parler chocobi*, *le gros français* (the toubalous French, the school French, the white man’s French, posh French) is the standardized variety, the quintessential form of the French language, the academic norm which was originally middle-class, used in Northern France but which is now accepted as the official language of the Hexagon (France) and as the pan-regional French that is spoken by the educated elite (Ade-Ojo, 2002; Omaye, 2022). Its grammatical forms, vocabulary and pronunciations are the ones that are acceptably described in textbooks. Apart from offering the spoken and written variety, Standard French, just like Queen’s English or Standard English, is also the form that is used in serious media presentation, in official circulars and circles as well as in books and in formal institutions. It is policed by the French Academy, imposed by legislation and official circulars and defended by the purists (Ade-Ojo, 2002; Omaye, 2022).

In practical terms when the language is subjected to usage by any user or speaker who normally finds it humanly impossible to disengage himself from such individualised variables as his geographical origin, social class, ethnic group, age, sex, level of education, mood, tastes, it shall be seen that a single version of French that is identical to everybody is indeed a myth – there is no one single French language that is uniformly used – but rather, several varieties of French. The ideal, perfect or uniform French language exists only in books and in theory (Ade-Ojo, 2002).

It is also worthy of note that the deviations from Standard French are the inevitable aspects of human communication and of life. The deviations from the norms of Standard French which constitute the multifarious manifestations of the French language owe their origins to the users of the language as well as the uses to which it is put. These and the environment in which the language functions affect writing as opposed to speech, formal as opposed to informal contexts, planned and message-oriented discourse as opposed to spontaneous, unprepared and listener-oriented discourse. Each one of these contexts or uses has its own code(s), peculiarities or styles. Each variety used comes out

as the French of everyday, the working French language which is responsive to the dynamics of modernism, to usages and to the contexts in which the language is used. Each variety used, identified as *le français réel*, *le français commun*, *le français ordinaire* varies from one region to the other, from one country to another, from one speaker to the other, from one peer or social group to the other. Each variety is also part of a bigger variety, which in turn falls within such varieties as the many regional varieties of French within the Hexagon and those of countries in which French has been adopted as a language of communication.

The Edo-Bini People, Language and Segmental Space

The Edo-Bini people are divided into a number of sub-units each of which speaks a patois of the Edo stem-language. The people whose principal base is Benin-City the ethnic rallying point of the Edo race, is one such sub-units. The people constitute the indigenes of the Great Benin Kingdom whose land is co-terminus with the present Oredo, Ovia (both North-East and South-West), Orhionmwon and Uhunmwode local government areas of Edo State. The Bini man never calls himself by the name 'Bini'. Rather, he refers to himself as *Ovbi Edo* (Edo's offspring) or *Ovbiẹn Oba* which translates as 'the king's subject' and not 'king's slave' as the literal translation goes. To be more specific and candid, the Bini man speaks of himself as a child of his village or of the region of the kingdom where he resides. The prominent regions defined by the Edos in terms of the main rivers are *Iyeke-Ikpoba* (Trans-Ikpoba), *Iyeke-Orhionmwon* (Trans-Orhionmwon), *Iyeke-Ogba* (Trans-Ogba), *Iyeke-Uselu* (Trans-Uselu) and *Iyeke-Ovia* (Trans-Ovia).

Edo language has four dialects within the afore-mentioned local governments and they are the *Usen*, *Iyekorhionmwon*, *Oza Nogogoro* and *Oke* dialects with Edo being the standard variety as regards literary heritage. This standard variety is the one used in this paper. It is a member of the Edoid family which belongs to the (new) Benue-Congo group of languages. This Benue-Congo constitutes a main branch of the Niger-Congo languages (Greenberg, 1966; Elugbe, 1989; Williamson & Blench, 2000; and Evbuomwan, 2016)

Studies in Edo Phonology (Erhahon, 1995; Amayo, 1976; Agheyisi, 1986; Omozuwa 1990, 2010, 2012) show that the language has a 27-consonant system (22 oral consonants and five nasal consonants), a seven-vowel system and a five-nasal-vowel system, making a total of thirty-nine segments. Below is the Edo consonant chart:

	Bilabial	Labio-Dental	Alveolar	Palatal	Velar	Labial-Velar	Glottal
Nasal	m	ɱ	n	ɲ		ŋ ^w	
Plosives	p b		t d		k g	k ^w g ^w	
Fricatives	β	f v	s z		x ɣ		h
Approximants			ɹ	j		w	
Trills			r				
Lateral			l				

Adapted from: Omozuwa, 2010; Evbuomwan, 2016.

Below is the Edo vocalic chart:

		Front	Back
High	Oral	ɪ	ʊ
	Nasal	ĩ	ũ
Mid-High		e	o
Mid-Low	Oral	ɛ	ɔ
	Nasal	ẽ	õ
Low	Oral	a	
	Nasal	ã	

Adapted from Omozuwa, 2010; Evbuomwan, 2016.

Methodology

The participants used in this paper were 50 Educated Edo-Bini French Bilinguals (EEFBs) composed of penultimate and final year students, graduate and post-graduate students drawn by purposive sampling from University of Benin, Ambrose Alli University and Delta State University. The choice of universities was informed by the concentration of EEFBs there while paucity of EEFBs informed the number. Audio recordings made up of a number of lexical items in French words, sentences and a passage, and containing the uvular approximant /ʁ/ were elicited from participants, taking into consideration word-initial, word-medial and word-final positions of the phoneme in order to ascertain if segment position in a word affects its realisation. *Le Robert Micro* and Samsung online dictionaries served as native speaker baseline. Quantitative data were subjected to percentages while qualitative data were analysed by applying the Generative Phonology framework.

The Generative Phonology Theoretical Framework

Generative Phonology, also referred to as Classical Phonological Model started in the 1960s following the works of Chomsky and Halle published in 1968 as *The Sound Pattern of English (SPE)*. Developed as part of Generative Grammar, it argues that the taxonomic approach of Classical Phonemics was not adequate enough to address appropriately the phenomenon of human speech. As a way of tackling the above, GP proposes a two-level representation: the Underlying Representation (UR) or the phonemic level and Surface Representation (SR) or phonetic level. These two-level representations are mediated by phonological rules which add, delete or permute segments (Oyebade 1998, 2008). To corroborate the above, Evbuowman (2016) posits that GP is based on the assumption that a phoneme is not an indivisible form but can be further analysed into a number of features of which it is made up. These features are useful in specifying the difference between any two or more segments; hence they are called distinctive features.

Distinctive Features (DF)

As part of Generative Phonology, Chomsky and Halle (1968) introduced these sets of features to analyse segments in phonology and these features are present in all grammars. Okolo et al (1999) defines a distinctive feature as referring to a minimal contrastive unit recognised by some linguists as a means of explaining how the sound system of a language is organised. To corroborate this, Oyebade (2008), while citing Halle and Clements (1983) defines DF as a set of articulatory and acoustic features sufficient to define and distinguish one from the other, the great majority of the speech sounds used in the languages of the world. GP proposes 20 features which are explained in Halle and Clements (1983) and grouped into categories according to the natural classes of sounds they describe, as presented in Oyebade (2008) below:

- i. Major class features [±syll(abic)], [±cons(onantal)], [±son(orant)].
- ii. Place features [±ant(erior)], [±cor(onal)], [±lab(ial)].
- iii. Manner feature [±cont(inuant)].
- iv. Lip feature [±round]
- v. Tongue body features [±high], [±low], [±back], [±ATR], [±tense]
- vi. Acoustic feature [±strid(ent)]
- vii. State of glottis feature [±voice], [±spread], [±constr(icted)]
- viii. Others [±nasal], [±lat(eral)], [±distr(ibuted)]

Generative Phonology exploits the polarity phenomenon of the Binary Principle (BP) which indicates whether a segment possesses the distinctive feature under investigation or not (Schane, 1973). As shown above, the presence of a feature is indicated by the matrix + while its absence is – (Durand, 1990). These features will be used to analyse data in the next phase.

Data Analysis

Due to the limited number of pages allowed for this paper, a portion of data from a long list elicited from the EEFB participants will be analysed both quantitatively and qualitatively. The data are shown in the table below:

Quantitative analysis of a portion of data collated

Production of /ʁ/ by 50 participants				
Phoneme	Word initial	Word medial	Word final	Frequency
/ʁ/	robe	parler	super	/ʁ/ as /ʁ/ = 4% (30 out of the 750 tokens taken).
	rêve	grotte	terre	
	revue	français	peintre	/ʁ/ as /r/ = 96% (720 out of the total 750 tokens).
	rose	travail	sœur	
	rond	professeur	venir	

Sourced from *Omage*, 2022.

From the table A above, only 4% of the entire tokens for the standard segment /ʁ/ were realised appropriately while 96% produced it as [r]. Some deleted it completely, especially in the word-final position of some words like *soeur* and *super* but was ignored, as it was not part of the aim.

Qualitative analysis of data: The GP model

Given the GP model, it was observed that participants produced /ʁ/ as [r] as shown in the words in i below:

i. FRENCH	ENGLISH	UR	SR
robe	dress	/ʁɔb/	[ɔb]
grotte	cave	/gʁɔt/	[grɔt]
professeur	teacher	/pʁɔfɛsœʁ/	[prɔfɛɛ]

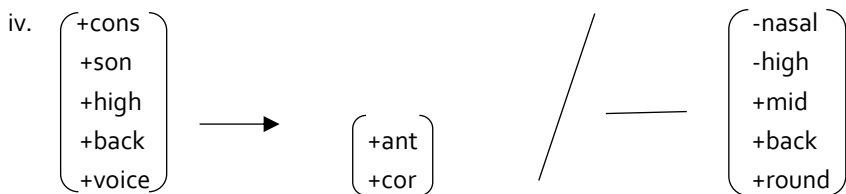
From the list of words given above, an appropriate phonological rule in a prose statement is given in ii below:

- ii. The voiced uvular approximant is realised as alveolar trill when it comes after a rounded mid-close back oral vowel.

The statement rule in ii above is given in a formal notation in iii below:

- iii. /ʁ/ → [r] / __ [ɔ]

Applying the distinctive features criterion, the rule above is stated as:



From the features in iv above, it is observed that a consonantal segment that is [+back] and [+high] was realised as [+cor] and [+ant] in the same syllabic environment that is both [+back] but [-high]. This shows that the structural change was place-feature induced. Explicitly, the focus A to the left of the arrow defines the input. The distinctive features to appropriately distinguish it from any other segment are clearly stated. The matrix B, which is in the middle and to the right of the arrow, indicates the feature change introduced by the rule. It can be observed that all its features were not stated but just a few that differentiate it from the input, as allowed in GP. The features of the accompanying environment located after the vertical slant and the dash or underscore were all given in order to find a correlation between the matrix and the environment, though some scholars argue that just a feature, consonantal or syllabic, suffices.

In another instance, the uvular approximant was produced as an alveolar trill in another environment from the tokens given in v below:

v.

FRENCH	ENGLISH	UR	SR
rêve	dream	/ʁɛv/	[rɛv]
terre	earth	/tɛʁ/	[tɛr]

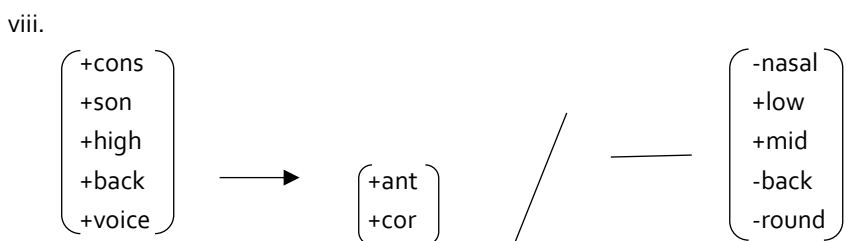
Taking cognisance of the word *rêve* in v above, a phonological rule is given below to formalise the substitution process:

- vi. The uvular approximant is produced as an alveolar trill when it comes before an unrounded mid-open front pure vowel.

The formal segmental notation is seen in vii below:

- vii. /ʁ/ → [r] / __ [ɛ]

The substitution above is accounted for by the features representation given in viii below:



The features rule in viii above corroborates the one in iv as seen. The feature that makes the difference in articulation is the [-back] feature.

In yet another instance, the approximant is realised in yet another environment as a trill in the following words:

ix. FRENCH	ENGLISH	UR	SR
travail	work	/tʁavaj/	[travaj]
parler	to speak	/paʁle/	[pa(r)le]

The appropriate phonological rule in prose form is stated below, taking cognisance of the word *travail*:

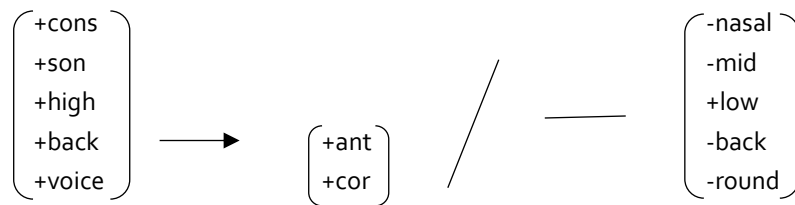
- x. The uvular approximant is produced as an alveolar trill when it comes before an unrounded front low pure vowel.

The segmental notation is formally given as:

xi. /ʁ/ → [r] / __ [a]

The distinctive analysis of features is shown below:

xii.



Lastly, the approximant was also substituted in the word *français*, as shown below:

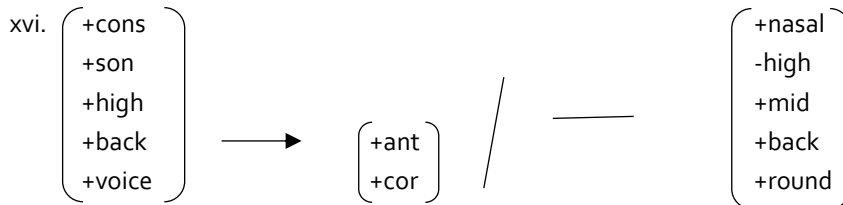
xiii. FRENCH	ENGLISH	UR	SR
français	french	/frɑ̃sɛ/	[frɔ̃sɛ]

From the word given, a suitable prose statement is formulated and this is:

- xiv. A uvular approximant is realised as an alveolar trill when it comes before a rounded low nasal vowel. The segmental rule is thus given in xv as:

/ʁ/ → [r] / __ [ɔ̃]

The features to describe the environment are distinctly given below:



It can be deduced from xvi above that the change was place-induced as was common in all the four analyses so far.

In summary, a rule that conflates all the vocalic environments in this analysis is necessary in order to spot the common feature(s) inherent in the four vocalic segments and this is given below in xvii:

xvii. The voiced uvular approximant is produced as an alveolar trill when it comes before or after a mid or low vowel.

The conflated segmental rule is thus stated in the brace notation in xviii below:

xviii.

$$/ʁ/ \rightarrow [r] \text{ / } \left. \begin{array}{c} \text{ɔ} \\ \text{ɛ} \\ \text{a} \\ \text{ɔ̃} \end{array} \right\}$$

The distinctive features formalise the rule thus:

xix.

$$\left(\begin{array}{c} +\text{cons} \\ +\text{son} \\ +\text{high} \\ +\text{back} \\ +\text{voice} \end{array} \right) \rightarrow \left(\begin{array}{c} +\text{ant} \\ +\text{cor} \end{array} \right) \text{ / } \left(\begin{array}{c} +\text{syll} \\ +\text{mid} \\ +\text{low} \end{array} \right)$$

To account for the production of the voiced uvular approximant /ʁ/ as alveolar trill [r], the rule in xix above becomes invaluable. The vocalic environment was either [+low] or [+mid], based on the study carried out here.

Conclusion

Given that the French voiced uvular approximant is not attested for in Edo language, the EEFB participants substituted it with the more convenient alveolar trill [r] inherent in their mother tongue, except for a few of about 4% who realised it appropriately probably due to exposure to the French world or to some natural phenomenon. In line with the Generative Phonology framework which relies on the distinctive features of the segments, this paper presents the issue since Standard French, like its English counterpart, commands some form of prestige and class, justifying the saying: your accent is your asset. Most of the change features are place-induced, meaning that the uvular became 'alveolarised'. This 'alveolarisation' evidently reveals the fact that the substitution was mother tongue-induced. This paper thus concluded that the (French) rhotic produced by Educated Edo-Bini French Bilinguals does not approximate considerably to Standard French.

Recommendations

In line with the result and conclusion of the research above, this paper therefore, recommends the following:

- Second language speakers (L2) of French could make frantic efforts in producing the standard rhotic by paying more attention when speaking and also, by listening to native speakers more often for better results.
- Since this work is rooted in applied linguistics, more researches could be focused on other linguistic methods and theories in researching on learning and speaking French as a foreign language (FLE).

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