Esther Phubon CHIE
The University of Bamenda
phubonec@yahoo.com

Phonological adaptation of loanwords in three Central Ring Grassfields Bantu languages of Cameroon

Abstract

This paper investigates the phonological transformations that lexical borrowings undergo when integrated in the lexicons of Kom, Babanki, and Oku, three Central Ring Grassfields Bantu languages of the North-West Region of Cameroon. The discussion is based on a database of 200 lexical items, which occur in all three (or sometimes only two) of the languages under study collected from snowball and a random sample population of 60 participants with their ages ranging between 15 – 60+. To elicit the right pronunciation of the words in the languages, native speakers serving as language consultants were made to pronounce a list of words in isolation and in frames of phrases. The data was obtained from two sources; the primary source involved transcribed audio recordings of relevant corpus from the sampled native speakers of these languages, while the secondary source relied on the Kejom (Babanki) - English Lexicon (Akumbu & Blench 2008), Kom - English Provisional Lexicon, and Oku – English Provisional Lexicon (Blood & Davis 1999). The theoretical framework employed here is Optimality Theory (OT). The study examines how the English language and French loans are adapted to a new environment in these three Central Ring languages. The results show that the phonological changes which foreign words undergo when borrowed into Kom, Babanki, and Oku are evident in a range of phonological processes such as sound insertion, initial vowel deletion, coda simplification, cluster simplification, consonant fortition/strengthening, and syllable insertion/deletion. The application of the optimality framework to explicate the adaptations of French loanwords has shown that they emanate from a steady conflict between the faithfulness constraints, which condition the preservation of original input forms and the markedness constraints describing the Babanki, Kom, and Oku marked phonological systems.

Keywords: adaptation, loanwords, Optimality Theory (OT), phonological processes

Résumé

Le présent article étudie les transformations phonologiques que subissent les emprunts lexicaux lorsqu'ils sont intégrés dans les lexiques du kom, du babanki et de l'oku, trois langues bantoues de l'anneau central de la région du Nord-Ouest du Cameroun. Nos analyses s'appuient sur un corpus de 200 éléments lexicaux, présents dans les trois (et parfois uniquement deux) des langues étudiées, recueillis auprès d'un échantillon aléatoire de 60 participants âgés de 15 à plus de 60 ans. Pour obtenir la bonne prononciation des mots dans chacune des langues, nous avons eu recours à des locuteurs natifs qui ont servi de conseillers linguistiques et qui ont été amenés à prononcer une liste de mots pris isolément et intégrés dans des phrases. Les données ont été obtenues à partir de deux sources : la source principale comprenait des enregistrements audio transcrits du corpus pertinent des locuteurs natifs de ces langues, et la source secondaire s'appuyait sur le Kejom (Babanki) - English Lexicon (Akumbu & Blench 2008) et le Kom - English Provisional Lexicon, and Oku – English Provisional Lexicon (Blood & Davis 1999. Le cadre théorique utilisé ici est la théorie de l'optimalité (OT). Notre analyse examine l'adptation des emprunts à l'anglais et au français au nouvel environnement dans ces trois langues. Les résultats montrent que les modifications phonologiques subies par les mots étrangers qui doivent intégrer les langues kom, babanki et oku sont évidentes dans une série de processus phonologiques tels que l'insertion de sons, la suppression de la voyelle initiale, la simplification du code, la simplification du cluster, le renforcement de la consonne et l'insertion/la suppression de la syllabe. L'application de la théorie d'optimalité pour expliquer les mécanismes d'adaptation des mots empruntés au français montre qu'ils résultent d'un conflit constant entre les contraintes de fidélité, qui conditionnent la préservation des formes d'entrée originales, et les contraintes de marquage décrivant les systèmes phonologiques marqués des langues babanki, kom et oku.

Mots clés : adaptation, mots d'emprunt, théorie de l'optimalité (OT), processus phonologiques

1. Introduction

Phonologists are very interested in loanword phonology because of the additional light on the phonotactic constraints that languages portray (Wornyo, 2016). According to Davis (1993) "the first reason for which loanwords are of interest to phonologists lies in the fact that the way loanwords are produced and heard in the borrowing language is always distinct from how they are produced and heard in the lending" (p.1). The second reason is that the phonological features of loanwords are unique and this makes them distinct from the recipient language. When two languages come into contact, borrowing is likely to happen. Lexical borrowings, or

loanwords, are by far the most commonly attested language contact phenomenon. In loanword phonology, loans are required to conform to the host language's grammar and remain faithful to the donor language. It must agree with the segmental and phonotactic constraints of the host language. Language contact has a major impact on how languages form, transform, progress, and in some cases, regress. For example, from the early 1800s to the early 1900s, approximately 35 million people immigrated to the United States of America from numerous countries, including Germany, Italy, and Russia, all of them bringing with them their languages. As a result, all of these languages are affected and continue to affect each other. The more interaction and language contact between people from different linguistic backgrounds, the more a language is likely to undergo significant changes, often at a higher rate of speed than languages in which interaction and language contact are minimal. (Thomason and Kaufman 1988 & Thomason 2001). In Cameroon, however, the main factor affecting the Cameroonian languages is not constant interaction with people from different linguistic backgrounds, rather, it is the use of English-derived loans by native speakers of Cameroonian languages.

Loanwords are considered to be words that are borrowed from one language to another. These borrowed words usually undergo "adaptation" processes to conform to the structural constraints of the borrowing language phonology. Such adaptation affects all facets of phonological structure, reflecting the segmental, phonotactic, suprasegmental, and morphophonological restrictions of the borrowing language. The patterns that emerge in loanword adaptation often reveal aspects of native speakers' knowledge that are not necessarily obvious in data of the native language and, as a result, loanword data can inform our analysis of the native phonology (Holden 1976; and Wetzels 2009). In this respect, loanword adaptation can be considered a real-life *Wug test* which can enable us to probe into the grammatical knowledge of speakers in ways that native data alone cannot. Conversely, however, such emergent patterns in loanword adaptation present a learnability puzzle if a loanword pattern is underdetermined by the native phonology, where does the pattern come from? Also, what type of representation does the adaptation process refer to as it searches for licit forms in the borrowing language that most closely match the foreign language input? Is it an abstract phonological representation, a detailed phonetic representation, or a combination of the two? Are there any universal preferences for certain types of repairs over others (e.g., epenthesis over deletion, or retention of a vocalic feature over a consonantal feature)? These are some of the major recurring questions in recent studies in loanword phonology and we will address them in this paper.

This paper discusses the phonological transformation that lexical loans undergo as they are integrated into Kom, Babanki, and Oku, three Central

Ring Grassfields Bantu languages, which form a sub-group of Grassfields Bantu (a branch of Benue-Congo and a sister of the Narrow Bantu languages) of the Northwest Region of Cameroon. Akumbu (2019) states that in previous studies, only five languages (Kom, Oku, Babanki, Mmen, and Bum) have been listed as Central Ring languages (Breton & Fohtung 1991, Watters 2003). However, it has now been proposed that Kuk and Kung also belong to this subgroup (Simons & Fennig 2017). The paper consists seven sections. Section one introduces the study, section two presents the overview of the phonology of the tree languages under study (Babanki, Oku and Kom), the third section reviews related literature in order to situate the gap of the study, section four discusses the theoretical framework used to analyse the data, section five presents the methodology, while sections six and seven analyse the data and concludes the study, respectively.

2. Overview of the phonology of the languages

This section of the work presents an overview of the phonologies of Babanki, Kom, and Oku.

2.1. Overview of Babanki Phonology

Babanki has 26 consonants which are: /b/, /t/, /d/, /k/, /g/, /ʔ/, /m/, /n/, /ɲ/, /ŋ/, /f/, /v/, /s/, /z/, /ʃ/, /ʒ/, /ɣ/, /pf/, /bv/, /ts/, /dz/, /tʃ/, /dʒ/, /l/, /j/ and /w/. Babanki lacks a voiceless counterpart /p/ to the voiced bilabial plosive /b/. Most consonants also appear in phonemic pre-nasalised, labialized and palatalized forms, although it remains ambiguous as to whether Babanki actually has these secondary articulations or if they are simply consonant clusters of simple consonants with placeless nasals, /w/, or /j/, respectively. The language has some allophonic palatalization before front vowels /i, e/. The velar plosives /k, g/ are realized as palatalized [kʲ, gʲ], respectively, and the labial-velar approximant /w/ is realized as a labial-palatal approximant [ɥ]. This variation also applies to labialized consonants (e.g. /kʷì/→[kᶣì] "up"), although labialized bilabials and labiodentals retain labial-velar secondary articulation. (Akumbu, 1999)

On the other hand, there are 8 vowel phonemes in the language. They include /i/ /e/, /ɨ/, /ʉ/, /ə/, /a/, /u/, and /o/. These vowel phonemes contrast in height, roundness, and backing. Length distinction and nasalisation also occur non-contrastively. Babanki is unusual in that it contrasts both the rounded and the unrounded close central vowels and the close and close-mid central unrounded vowels. In open syllables, vowels /e/ and /o/ are realized as close-mid [e] and [o], while in closed syllables they are realized as open-mid [ɛ] and [ɔ] (compare [àbé] "liver" and [bɛ̀ʔ] "snatch", [ə̀kó] "money" and [kɔ́ʔ] "chop").

For syllabification, the segments combine into the CV, CGV, CVC, and CGVC syllable structures, where G stands for glide. The six coda consonants

that are seen in Babanki are /m, n, ŋ, f, s, and k/. In this position, /k/ is realized as a glottal stop [ʔ]. Vowel length is not contrastive in this language. There are a few restrictions on the vowels that contrast before each of the six coda consonants.

As far as tone is concerned, Babanki has both lexical tone and grammatical tone. At the phonological level, the level tones are described as simply having a distinction between low /L, [̀], è/ and high /H, [́], é/ tonemes although a number of derived surface tonal sequences have been observed. Rarely, contour tones rising /R, [ᵛ], ě/ or falling /F, [^], ê/ can occur in non-derived environments. The downstepped high and mid tones are phonetically identical, but are otherwise distinct. the mid tone /M, [-], ē/ must precede a high tone and is restricted to a few specific environments while the downstepped high tone [ꜜH] occurs much more freely and creates a tone ceiling for successive high tones in the same tonal phrase. (Hyman 1979, Akumbu 1999, Chie 2014).

2.2 Overview of Oku Phonology

Oku has 21 consonant sounds, which include 7 stops, 4 affricates, 5 nasals, 1 lateral and 2 glides. They are /b/, /t/, /d/, /k/, /g/, /m /, /n/, /ŋ/; kw/, /gw/, /, /m̩/, /ɲ/, /f/, /s/, /ɣ/, /ɣw/, /tʃ/, /dʒ/, /l/, /y/ and /w/. It has 7 vowels with each having its long counterpart which are: /i, i:/ /ɛ, ɛ:/, /ɪ, ɪ:/, / ə ə: /, /a, a:/, /u, u:/, and /ɔ, ɔ:/.

The components of the phonological words in Oku are of three types: stems, obligatory affixes on nouns, and optional suffixes on verbs. Other parts of speech may also have concord markers (usually prefixes) when they agree with a noun. The most common syllable pattern in the Oku language is CVC. Other patterns are CV, VC, NCV, and N. Oku has an acute accent (á) to mark high tones, and a grave accent (à) to mark low tones. There is also a mid-tone and a falling tone, which are not always marked. (Kim, 1992).

2.3. Overview of Kom Phonology

Kom has 19 consonant sounds which are: /b/, /t/, /d/, /k/, /g/, /m/, /n/, /ɲ/, /ŋ/, /f/, /v/, /s/, /z/, /ɣ/, /tʃ/, /dʒ/, /l/, /y/ and /w/. The language has 6 vowels which are: /i/ /e/, /ɨ/, /ɑ/, /u/, and /o/. The major dialect of Kom is the Itaŋikon. There are certain features of Kom phonology that are worthy to note. Nasalization occurs at the syllable and word level, labialization takes place at the syllable, word, and phrase level, and palatalization occurs at the syllable and word level. There are a series of consonant clusters. Coalescence occurs at the syllable and phrase level. The free variation of certain phonetic segments is common. An interesting feature is the transformation of coronal consonants at the word level. There are 19

consonants and 6 vowel phonemes in the kom language all made with the pulmonic egressive airstream.

The syllable structure of Kom is composed of a nucleus, an optional initial margin, and an optional final margin. The nucleus may be simple (a single vowel) or complex (vowel offglide or vowel coalescence). The initial margin may be simply (a single consonant) or a complex (consonant cluster). The final margin is always filled by a single consonant. The most common patterns are CV. CVC, CCV, and CCVC. The phonological word can be composed of one to four syllables, although words with more than two syllables are rare. The most common word patterns are V, CV, V.CVC, CV.CVC, CCVC.CV, and CCV.CV. (Njuasi, 2020).

Just Babanki and Oku. Kom is a tonal language with 3 level tones High (H) Low (L), and Mid (M). It equally has 3 primary contour tones Low-Falling (LF), High-Low (HL) and High-Mid (HM). Other contour tones rarely occur as a result of tone modification within the phrase. Only Low and High-Low tomes are marked in the orthography. Vowel lengthening occasionally occurs in conjunction with a High-Low tone or an emphatic utterance. This is marked separately from the High-Low tone mark. (Shultz, 1993, 1997).

3. Review of related literature

There is no existing literature on the Lexical borrowings, or loanwords phonology in these three Central Ring Grassfields Bantu languages Kom, Babanki, and Oku. However, a large body of literature on loanword phonology in other languages exists and some are presented below.

Golston & Yang (2001) study the loanword phonology of White Hmong using OT. Their study reveals the following: exact borrowings which they attribute to the faithfulness constraints MAX and DEP (McCarthy & Prince 1995); structure preservation such as the replacement of French [ʁ] and English [ɹ] by Hmong [l]; satisfaction of the constraint 'ONSET' by the insertion of the glottal stop [ʔ]; satisfaction of NO CODA by consonant deletion.

Yip (2002) looks into the nature of Cantonese loanword phonology from an OT viewpoint. The paper has two sections. The first part reviews consonant adaptation, in which excess consonants are either salvaged by epenthesis or deleted. Yip adds MIMIC, a faithfulness constraint specific to loanword adaptation, to the usual OT view of loanword adaptation. MIMIC is the OT instantiation of active loan word incorporation, and enforces faithfulness to the percept (Yip, 2002:2). The second part of the paper looks at vowel adaptation, and explores to what extent acoustic similarity determines the choice of a vowel. Some of the findings include: [a:] or [e:] are found in the obligatorily long open output syllables and before nearly all

nasals. Before stops, the vowel is always short, and the reflex is usually [I], with one [ɐ] before the only [t]. There is also one [I] before [m].

Aziza & Utulu (2003), commenting on the phonological nature of Urhobo and Yoruba loanwords from English, identify vowel lengthening as a strategy through which Yoruba adapts English loans.

Oyebade (2006), using the OT framework, aligns with Aziza & Utulu's findings but reveals that the motivation for Yoruba's vowel lengthening in words of English provenance is the desire of Yoruba to preserve the prosodic structure of the syllable(s) of such word(s) as they come from their source (p.6-7).

Akinlabi's (2008) proposal on Yoruba loanword phonology has the following focal points of interest: The primary prosodic changes are onset simplification, coda simplification, and the syllabification of diphthongal glides as onsets. The strategies for these simplifications include cluster reduction, vowel epenthesis, and [h] epenthesis. In addition, codas are also deleted and diphthongs are "assimilated". Phonologically, the preference is for retaining the original place of articulation in consonants and changing the manner of articulation to conform to the Yoruba inventory. Stress is approximated to a falling tone, with the high tone on the stressed vowel and the following vowels bearing low tones. If stress does not occur on the initial syllable in the source word, all syllables before the stressed syllable may also be assigned low tones. From this review, it is very clear that OT can comfortably account for loanwords. It is, therefore, more acceptable than rule-based phonology.

Hashemi and Kambuziya (2014) examined the phonological adaptation of Arabic loanwords in Persian with a focus on consonants. They gathered about 700 Arabic loanwords from Persian dictionaries, which constituted the main data of the study. The results of the optimality theory analysis revealed that the places of articulation that are inactive articulators in the Persian language as; pharyngeal, interdental, and bilabial glide was replaced by the closest consonants in terms of place of articulation. Thus, the Arabic loanwords were adapted to fit the phonemic inventory of the Persian language. In almost a similar study, Alqahtani (2018) found that Arabic complex clusters that seem to violate the sonority sequencing of the Salzevaril Persian were the main motive or epenthesis and metathesis. Accordingly, the loanwords were adapted to match the syllable structure of the borrowing language.

In another study, Aloufi (2016) provided a deep analysis of English loanwords in the Urban Hijazi dialect. To satisfy the aim of the study, the researcher opted for two theoretical frameworks: the Theory of Constraints and Repair Strategies Loanword Model (TCRSLM) proposed by Paradis and LaCharité (1997) and Optimality Theory (OT). The analysis of the different

phonological processes revealed that OT theory accounts better for the analysis of loanwords though the CRSL model relies on Autosegmental analysis.

Ugwuona, (2020) explored linguistic borrowing and translanguaging in the super-diverse Obollo region using translanguaging and linguistic borrowing theory. Data from Obollo through semi-unstructured oral interviews and participial observation were analyzed descriptively. The article identified core and cultural borrowing, code-meshing, and translanguaging. The study contributes to translanguaging and linguistic borrowing literature and provides relevant information for education and research into contemporary language use in multilingual contexts.

Chie (2021) employed Optimality theory to analyse loans in Babanki with the following objectives: 1) to examine how loanwords are adapted to a new environment in Babanki, 2) to investigate how conflicts between faithfulness and markedness constraints are resolved and in what ways through OT grammars, and 3) finally, to contribute to the literature of loan phonology in OT since there has not been any literature on English loanwords in Babanki within the recent theoretical framework of Optimality Theory. The study revealed that the constraints that require the output material to be independent of input are ranked higher than the constraints that require structure to be faithful to loan words. In other words, markedness constraints outrank faithfulness constraints as far as loans are concerned in the language. The empirical literature reviewed above portrays the gap for the present study.

4. Theoretical framework

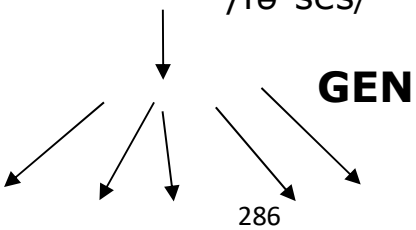
While employing the Optimality Theory OT, the study examines how the English language, Cameroon Pidgin English (CPE), and French loans are adapted to a new environment in Babanki, Kom, and Oku. Kenstowicz (2012) argued that with the advent of constraint-based frameworks like the Optimality Theory (OT), the study of loanwords from a phonological perspective has received renewed interest. According to Kenstowicz (2012), OT theory helps explain loanwords adaptation through the conflict between the faithfulness constraints which necessitate the segments to rest faithful to the lending language, and the markedness constraints that impose adaptation to the loanwords to fit the phonotactic constraints of the recipient language.

This paper uses the Optimality Theory (OT) framework propounded by Prince & Smolensky (1993) and later expanded by McCarthy and Prince (1995), Kiparsky (1982), and McCarthy (2002), to investigate the phonology of loanwords in Babanki, Kom, and Oku. OT presents a very different view of phonological studies and is now also used in the study of syntax and language acquisition. This is a Constraint-Based Approach as a replacement

for the Derivational Approach as inaugurated by Chomsky and Halle (1968) in the Sound Pattern of English (SPE). The Derivational Approach normally takes the form "X becomes Y in the context of Z" (X→Y/-Z). According to McCarthy (2002), "Optimality Theory is the circulation of grammatical well-formedness which is accomplished by the optimalization of a set of constraints on structures and input-output disparity, instead of through serial application of rule subject and filtering constraints." The fundamental ideas of optimality theory are, firstly, that there are no rules; everything is being done by constraints. Secondly, all constraints are allowed to be violated. It is not the violation as such that fails a candidate's output but the ranking. If one constraint is more important, and highly ranked than another, then any candidate that violates that one is rejected and the remaining candidate may be acceptable even if it goes on to violate the lower ranked constraints. Accordingly, constraints are universal but their ranking is language specific.

OT is a model of input-output mapping that formalizes the resolution of conflicting forces driving the input towards specific output targets. This seems to be a better and suited model to this aspect of linguistic competence than the ordered-rule framework of traditional Standard Generative (rule-base) Phonology. In adapting a loanword to a language, speakers converge on a repair strategy, which often lacks a precedent in the native grammar or sometimes even contradicts native processes raising serious learnability problems. The Optimality Theory is seen to handle some of these problems as discussed in this paper. In terms of repair strategies, the lowest ranked faithfulness constraints indicate what motivates Babanki, Kom, and Oku to have consonant adaptation. MAX-I0, DEP-I0, and IDENT-I0 (place) reveal that segmental deletion, insertion, and replacement on the place of articulation are employed to deal with marked structures, respectively. The two lines of approaches (Positional Faithfulness and Positional Markedness) have been examined for segments and the findings have shown that both approaches can be employed to achieve the same result. The basics of optimality are not restricted to constraints, but rather as McCarthy (2007) claimed involve evaluator (EVAL) and generator (GEN). He contends that GEN is capable of generating an infinite number of outputs and the EVAL function is to select the most harmonious candidate that violates the least ranked constraints. At this juncture, it is worth claiming that loanwords in Babanki, Kom, and Oku would be better discussed under the umbrella of the optimality framework in the paper. The roles of GEN, EVAL, and CON are illustrated schematically below using the word /fə̀-sés/ 'pepper' in Babanki.

Input: /fə̀-sés/



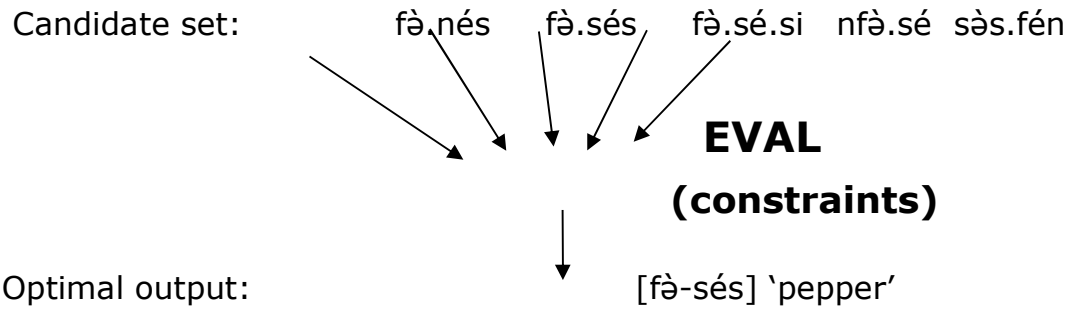


Fig. 1: Source: Researcher's fieldwork, 2024

5. Methodology

The central informant of the data is first, the author who is a native speaker of Babanki, one of the languages under scrutiny. In this study, the researcher employed unstructured oral interview, elicitation of information through interactive techniques, and analysis of the observed ways speakers borrow and use language in its social context, and in their day-to-day interaction. Three major steps were taken in carrying out this research. They include data collection, transcription, and analysis. For data collection, the researcher used a tape recorder, a wordlist, and lexicons of over two-hundred English, Cameroon Pidgin English, and French loans in Babanki, Kom, and Oku. to elicit the required data. The snowball and simple random sampling techniques selected consultants whose consent were sought. The researcher employed a simple random technique as it enables one to draw a genuine sample population, which must be thoroughly representative of all parts of the population and completely unbiased. They were 60 in number, 20 from each language community, and their ages ranged from 15 – 60+. They were requested to produce the forms of the borrowed words, while their productions were recorded. After tape recording, the data was transferred into the computer for transcription and analyses. The data was transcribed in accordance with the International Phonetic Alphabet (IPA) sounds since the languages no not have generally accepted orthographies. After transcription, the data was analysed was analysed using the tenets of the Optimality Theory, considering the roles of GEN, EVAL, and CON.

6. Data presentation and analysis

This section of the work presents the data collection, and the analysis of the data.

Table 1: Vowel Change

S/N	Source form	Babanki, Kom and Oku forms	Donor language	English gloss
1.	/təˈmɑːtəʊ/	[tòmátò]	English	'tomato'
2.	/ˈkæməl/	[kámèl]	English	'camel'
3.	/kəmˈpjuːtə/	[kòmpjútà], [kòmbjútà]	English	'computer'
4.	/ˈkɒfi/	[ˈkòfí]	English	'coffee'
5.	/ˈpɔːpɔː/	[bòbó]	English	'pawpaw'
6.	/ˈməʊ.tə/	[mútù]	English	'motor'

Source: Researcher's fieldwork, 2024

Let's present data with consonant change so the sound change can be discussed at once.

Table 2: Consonant Change

S/N	Source form	Babanki, Kom and Oku forms	Donor language	English gloss
1.	/ˈruːm/	[lúm]	English	'room'
2.	/ˈpeə/	[bíjè]	English	'avocado/pear'
3.	/aˈviõ/	[àfljón]	French	'airplane'
4.	/ˈdet/	[dèb]	English	'debt'
5.	/ˈlʌvə/	[lóbà]	English	'lover'
6.	/ˈstəʊv/	[sìtúf]	English	'stove'
7.	ˈkærət	[kálòt]	English	'carrot'
8.	/ˈfaɪv/	[faɪf]	English	'five'
9.	/rõdeɪvuː/	[lan.devuː]	French	'meeting at a particular place and time'

Source: Researcher's fieldwork, 2024

What seems interesting in tables 1 and 2 is that in an attempt to preserve the phonology of Babanki, Kom, and Oku, the phonemes of the loanwords that are lacking in the languages' phoneme inventories are replaced with the ones that exist in the languages under study. That is, Babanki, Kom, and Oku preserve their phonological structures by preserving their consonants and vowels than receiving the donor language's sounds. Even the tonal patterns of the words in these languages match the stress patterns of the words in the donor language. The high tone occurs where the syllable is stressed and the low tone occurs where the syllable is unstressed.

Notwithstanding, there are exceptions as seen in the word /ˈpɔːpɔː/ 'pawpaw' where the first syllable is stressed in English whereas high tone is on the second syllable in /pòpó/ in the three languages.

Table 3: Cluster simplification

S/N	Source form	Babanki and Oku forms	Donor language	English gloss
1.	/ˈklɑːs/	[kìlás]	English	'class'
2.	/ˈfriː/	[fîlì]	English	'free'
3.	/ˈstəʊv/	[sìtúf]	English	'stove'
4.	/dɪˈgriː/	[dìgìlí]	English	'degree'
5.	/ˈklʌb/	[kùlób]	English	'club'
6.	/ˈsteɪ.ʃn/	[sìtéʃòn]	English	'station'

Source: Researcher's fieldwork, 2024

In table 3 above, consonant clusters are rescued by vowel insertion in just two of the three languages, which are Babanki and Oku. Vowels are inserted to break up consonant clusters in the loans. This is because these languages make use of co-articulated consonants: (affricates e.g, /pf/, /bv/, /ts/, /dz/, /tʃ/, and /dʒ/, homorganic nasal assimilation and prenasalized consonants e.g, /nd/, /nt/, /ndz/, /nts/, /mb/, /mp/, /mbv/, /mpt/, and /ŋg/), but not clusters as used in the English language. When these loans are borrowed and used in the language, the clusters which occur either at the onset or coda positions of a syllables are salvaged by vowel insertion to keep the phonological structures of Babanki and Oku. This phenomenon does not hold for Kom because Kom allows consonant clusters.

Table 4: Sound deletion

S/N	Source form	Babanki, Kom and Oku forms	Donor Language	English gloss
1.	/ˈgəʊld/	[gól]	English	'gold'
2.	/fəˈment/	[fèmén]	English	'ferment'
3.	/anaˈnas/	[nánás]	French	'pineapple'
4.	/ˈplæŋk/	[bəláŋ]	English	'plank'
5.	/ɔːtəˈmætɪk/	[òtòmátì]	English	'automatic'
6.	/ˈlæmp/	[lâm]	English	'Kerosene lamp'

Source: Researcher's fieldwork, 2024

In some loanwords, it is observed that Babanki, Kom, and Oku delete some sounds or even syllables while trying to adapt the word to these languages. This deletion could be at the initial, medial, or final positions of the words. Sounds and syllable deletion in the languages' loanwords are evident in table 4 above.

Table 5: Sound/syllable insertion

S/N	Source form	Babanki, Kom and Oku forms	Donor Language	English gloss
1.	/kəˈnuː/	[ŋkànúʔ]	English	‘canoe’
2.	/ˈsəʊldʒə/	[súgìjèʔ/súgèy]	English	‘soldier’
3.	/ˈmæŋgəʊ/	[fəŋgwòlè]	English	‘mango’
4.	/ˈbiːp/	[bípə̀], [bíbə̀]	English	‘to beep’
5.	/ˈteɪbl/	[tébùlù]	English	‘table’
6.	/ˈbrʌʃ/	[bùlóʃì]	English	‘brush’
7.	/ˈfɑːməsi/	[nfàmàsí]	English	'Pharmacy'

Source: Researcher’s fieldwork, 2024

Just in the same manner in which Babanki, Kom, and Oku delete some sounds or even syllables while trying to adapt the loans to the languages, some words have sounds or syllables inserted into existing ones to match the phonology of the languages. This insertion could also be seen to take place at the initial, medial, or final positions of the words. Sounds and syllable insertion in Babanki loanwords can be seen in table 5 above.

Table 6: Naming and structure preservation

S/N	Source form	Babanki, Kom and Oku forms	Donor language	English gloss
1.	/ˈestə/	[ésítà]	English	Esther
2.	/ˈbrɪdʒɪt/	[bílídʒét]	English	‘Bridget’
3.	/ˈbrendə/	[biléndà]	English	‘Brenda’
4.	/bəˈlɪndə/	[bìlíndà]	English	‘Belinda’
5.	/ˈkæθrɪn/	[kàtàlájn]	English	‘Catherine’
6.	/krɪˈstiːnə/	[kìlìtínà]	English	‘Christina’
7.	/ˈwɪnɪfrɪd/	[wínífìlèd]	English	‘Winifred’
8.	/ˈdebrə/	[dìbólà]	English	‘Deborah’
9.	/ˈpætrɪk/	[bátílík]	English	‘Patrick’
10.	/ˈɑɪvə/	[ábò]	English	ˈIvor’

Source: Researcher’s fieldwork, 2024

Table 6 shows how English names borne by Babanki, Kom, and Oku indigenes are adapted to the phonology of the languages. It is realized that all the phonological processes which have already been discussed above are seen to occur with the borrowed names. These processes include vowel change e.g., /ábò/ for /ˈɑɪvə/, consonant change e.g., dìbólà for /ˈdebrə/, cluster simplification e.g., kìlìtínà for /krɪˈstiːnə/, sound/syllable insertion, e.g., kàtàlájn for /ˈkæθrɪn/, and pátílík for ˈpætrɪk, etc.

7. Constraint-Based Account of Loanwords in the languages

This study adopts a constraint-based approach, Optimality Theory because the constraints that comprise the native phonology can be used to understand how loanwords are nativized. This paper, therefore, assumes the following constraints:

1. *P [-voice]>> ONSET>> IDENT-IO[Voice]
2. *F [-voice]>> ONSET>> IDENT-IO[+/-Voice]
3. *F [-voice]>> ONSET >>IDENT-IO[+/-continuant**]**
4. Unpack Nasal V>> ONSET>> MAX-V̰-IO>> Integrity
5. *COMPLEX-ONS-CODA>>MAX-V-IO>>DEP-V-IO (Kessar & Mahadin, 2020).

7.1. Voicing

Needless to say, Babanki, Kom, and Oku inventories lack the voiced bilabial plosive [p]. Many studies have demonstrated that when a loanword includes an unvoiced bilabial stop [p] it is usually reproduced in Arabic dialects as [b] (Sayahi, 2005; Al-Saqqaf, 2006). This confirms the claim held by Paradis (1996) that when a segment is not preserved, its closest phoneme would be adapted. The following examples illustrate how Babanki, Kom, and Oku substitute the voiceless bilabial plosive [p] with its closest counterpart voice bilabial plosive [b] as seen in table 7 below.

Table 7 Voicing: /P/ → [b]

S/N	Source form	Babanki, Kom and Oku forms	Donor language	English gloss
1.	/ˈplæŋk/	[bəláŋ]	English	‘plank’
2.	/kəmˈpju:tə/	[kòmbjútà]	English	‘computer’
3.	/ˈpɔːpɔː/	[bòbó]	English	‘pawpaw’
4.	/ˈpeə/	[bíjè]	English	‘avocado/pear’
5.	/ˈbi:p/	[bípə̀], [bíbə̀]	English	‘to beep’
6.	/ˈpætrɪk/	[bátílík]	English	‘Patrick

Source: Researcher’s fieldwork, 2024

According to the examples in table (7), three constraints are in conflict. The first is the markedness constraint *P [-voice] which prohibits voiceless bilabial stop **(**Baayen, 2003). The second markedness constraint is Onset which disallows onsetless syllables. The last constraint is the faithfulness constraint DENT-IO [Voice] which does not permit changes. These constraints conflict. It follows that the markedness constraint *P [-voice] is higher ranked in the languages and it is satisfied by violating the least ranked faithfulness constraint IDENT-IO [Voice]. This latter is also dominated

by ONSET which militates against onsetless syllables, hence deleting the [p] sound is not allowed. ***P [-voice]>> ONSET>> IDENT-IO[Voice]**

Table 8: The optimal output for plank /ˈplæŋk/ → [bəláŋ]

Input /plæŋk/	***P [-voice]**	**ONSET**	**IDENT-IO[Voice]**
a) plæŋk	*!		
☞ b) bəláŋ			*
c) əlæŋk		*!	*
d) aplæŋki	*!	**	**

Source: Researcher's fieldwork, 2024

According to table (8), candidate (a) is excluded as it violates the higher-ranked constraint

*P [-voice] by preserving the voiceless bilabial [p] sound. Likewise, candidate (c) is ruled out since it leads to creating an illicit syllable (onsetless syllable). Candidate (d) is also ruled out because it violates all three constraints. Hence, (b) wines the competition as it violates only the lower ranked constraint IDENT-IO [Voice].

7.2 Devoicing and Stopping ([v] Sound)

In Babanki, Kom, and Oku the voiced labiodental fricative [v] sound "is often replaced by [f] (its voiceless counterpart)" or by [b] (its plosive counterpart). The following examples demonstrate the various attested adaptations of [v] the languages. ***F [-voice]>> ONSET>> IDENT-IO[+/-Voice]**

Table 9: Devoicing: /v/ → [f, b]

S/N	**Source form**	**Babanki, Kom and Oku forms**	**Donor language**	**English gloss**
1.	/ˈɑɪvə/	[ábò]	English	ˈIvor'
2.	/ˈstəʊv/	[sìtúf]	English	'stove'
3.	/ˈfaɪv/	[faɪf]	English	'five'
4.	/aˈviõ/	[àfljóŋ]	French	'airplane'
5.	/ˈlʌvə/	[lóbà]	English	'lover'
6.	/ˈgɪvə/	[gíbà]	English	'giver'

Source: Researcher's fieldwork, 2024

Essentially, the devoicing of the English labiodental [v] can be explained within the optimality the framework through the interaction between the markedness constraints *F [+/-voice] which prohibits voiced labiodental fricatives (Baayen, 2003), and the faithfulness constraint IDENT-

IO [Voice]. Given the fact that the markedness constraint *F [+/-voice] cannot be violated in the phonology of the Babanki, Kom, and Oku, it must be ranked higher than the faithfulness constraint IDENT-IO [Voice] as is illustrated in the hierarchy: ***F [-voice]>> ONSET >>IDENT-IO[+/-continuant]**

Table 10: The optimal output for giver /ˈgɪvə / → [gíbà]

Input /gɪvə/	***F [-voice]**	**ONSET**	**IDENT-IO[+/-continuant]**
a) gɪvə	*!		
☞ b) gɪba			*
c) ɪvə		*!	

Source: Researcher's fieldwork, 2024

In table (10), two candidates /givə / and/ gibà/ display options for the adaptation of [v]. The first candidate is not the optimal one since it violates the higher-ranked markedness constraint *F [+voice]. Candidate (b) is the most harmonious one as it incurs the least costly violation of the constraint IDENT-IO[+/-Voice]. Candidate (c) on its part violates the ONSET constraint because the first syllable does not have an onset.

As for the adaptation of ([v] > [b]), it can be explained regarding the competition between the markedness constraint *F [+voice] and the faithfulness constraint IDENT-IO[+/-continuant] as it is shown below.

Table 11: The optimal output for lover /ˈ lʌvə / → [lóbà]

Input / lʌvə /	***F [-voice]**	**ONSET**	**IDENT-IO[+/-continuant]**
a) lʌvə	*!		
☞ b) lóbà			*
c) ʌvə		*!	

Source: Researcher's fieldwork, 2024

Table (11) indicates that candidate (b) is the optimal candidate as it is the most harmonious with constraint hierarchy, violating only the lower ranked IDENT-IO[+/-continuant]. Candidate (a) is excluded as it violates *F [+voice] by preserving the /v/ sound. Candidate (c) on its part violates the ONSET constraint because the first syllable does not have an onset.

7.3 Unpacking of Nasal Vowels

Phonetically speaking, Babanki, Kom, and Oku vowel inventories lack nasal vowels and the same applies to colloquial dialects in Arabic as pointed out by (Chebchoub, 1985; Kenstowicz & Louriz, 2009). Consequently, the nasal vowels contained within loanwords either have their nasality feature deleted ([ṽ] [v]) or systematically yield a [VN] sequence. The results of the present study have shown that when French nasal vowels are introduced in

Babanki, Kom, and Oku, they get repaired by being decomposed rather than deleted. Data bearing on this situation are presented below.

Table 12: Unpacking of Nasal Vowels

S/N	Source form	Babanki, Kom and Oku forms	Donor language	English gloss
1.	/aˈviõ/	[àfljón]	French	‘airplane’
2.	/rõdeɪvuː/	[lan.devuː]	French	'meeting at a particular place and time'

Source: Researcher’s fieldwork, 2024

An optimality description of this vowel breaking requires bringing three constraints into prominence. The markedness constraint Unpack Nasal V: “decomposition of a nasal vowel into a vowel and nasal-C sequence ([V˜] → [VN])” (Orie, 2014 and 2018). This constraint is highly ranked since the nasal vowels were decomposed; hence it dominates the faithfulness constraint Integrity which prohibits unpacking. The latter is also predominated by MAX-V˜-IO: input nasal vowels must have output correspondent; no nasal feature deletion. The constraints hierarchy together with Table 1 elucidates the interaction between markedness and faithfulness constraints in selecting the optimal output for /aˈviõ/. **Unpack Nasal V>>MAX-V˜-IO>> ONSET>>Integrity**

Table 13: The optimal output for airplane /ˈaˈviõ / → [àfljón]

Input / ˈaˈviõ /	Unpack Nasal V	MAX-V˜-IO	ONSET	Integrity
a) aviõ	*!		*	
b) àfljó		*!	*	
☞ c) àfljón		*	*	*
d) vion		*!	*	*

Source: Researcher’s fieldwork, 2024

Among the candidates provided in Table 13, candidate (a) is prone to lose the competition as it averts a fatal violation of the top-ranked constraint Unpack Nasal V. Candidate (b) generates a wrong output and this represents the sole reason for its elimination. Accordingly, candidate (c) (pointed at by the index) wins the race by violating only the least ranked constraint Integrity.

7.4 Vowel insertion

Syllable structures vary appreciably from one language to another. Unlike the English, French Pidgin, and English languages wherein the onset

and coda can contain clusters of two to four consonants, Babanki, Kom and Oku do not allow these clusters in these environments. Thus, when loans are adapted to these languages, vowels are inserted to split the consonants.

Table 14: Vowel insertion

S/N	Source form	Babanki and Oku forms	Donor language	English gloss
1.	/ˈklɑːs/	[kìlás]	English	'class'
2.	/ˈfriː/	[fîlì]	English	'free'
3.	/ˈgəʊld/	[gól]	English	'stove'
4.	/dɪˈgriː/	[dìgìlí]	English	'degree'
5.	/fəˈment/	[fèmén]	English	'ferment'
6.	/ˈbrendə/	[biléndà]	English	'Brenda'

Source: Researcher's fieldwork, 2024

Seemingly, the clustered syllables did not surface in the Babanki, Kom, and, Oku grammars. Rather, vowel epenthesis is employed to militate against initial CC- or -CC syllables. An optimality description of this process requires the domination of the markedness constraint *COMPLEX-ONSET (a syllable must not have CC onset) and *COMPLEX-CODA (a syllable must not have CC coda) over the faithfulness constraint MAX-V-IO, which necessitates vowel input segments to have output correspondents (no deletion). Additionally, since epenthesis takes place, this entails also the outranking of DEP-IO (no insertion) over MAX-V-IO. The following constraint hierarchy together with Table 15 accounts for the foregoing interaction. ***COMPLEX-ONS-CODA>>MAX-V-IO>>DEP-IO.**

Table 15: The optimal output for class /ˈklɑːs/ → [kìlás]

Input /ˈklɑː s/	***COMPLEX-ONS-CODA**	**MAX-V-IO**	**DEP-IO**
a) klɑːs	*!		
☞ b) kìlás			*
c) klɑːst	**!	*	*

Source: Researcher's fieldwork, 2024

Among the candidates proposed in Table 8, candidate (a) is the most harmonious one because it incurs the least costly violation of the constraint MAX-IO. Candidate (b) is eliminated from consideration because it violates the top-ranked constraint Onset. Likewise, candidate (c)generates a wrong output by violating the second higher constraint DEP-IO, hence it loses the competition.

9. Conclusion

This research unearths the fact that the English, French, and Pidgin English loanwords undergo some phonological processes to conform to the phonology of Babanki, Kom, and, Oku namely: voicing, devoicing, and stopping ([v] Sound), unpacking of nasal vowels, and vowel insertion. These processes were attributed to the phonemic inventory and phonological constraints of Babanki, Kom and, Oku which differ from their English, French and, Pidgin English counterparts. To put it in optimality terms, the high ranking of some markedness constraints in the languages under scrutiny were used to straightforwardly account for the adaptation of English, French, and, Pidgin English loanwords.

Findings also reveal that the younger generation and the middle age speakers of these languages will not pronounce these borrowed words as the older generation will. This is due to modernity and their levels of education. Most of the speakers who use these borrowed words are more than 55 years and are not educated and have spent most of their lives in the villages where these languages are spoken.

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