

VOWEL DOUBLING IN THE ADAPTATION OF ENGLISH LOANWORDS IN YORUBÁ REVISITED

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Abstract

Adaptation of English monosyllables, especially of the CVC type, in Yorubá remains an area of interest in Yorubá loanword phonology. The English CVC structure is adapted in Yorubá as CVVCV where the English singleton vowel is doubled and a paragodic vowel is introduced to open the closed syllable (e.g., *cup* /kʌp/ → [kɔ̀ɔ̀bù]). This pattern of nativization has created some divide between two schools of thought, particularly with respect to the motivation for the vowel doubling process. One school claim that Yorubá makes recourse to vowel doubling to stay faithful to the English falling contour (H*L%) that is realized on a coda-filled stressed syllable such that the falling contour is rendered as a sequence of H and L tones on the two vowels resulting from the doubling process. While rejecting this position, the other school argues that Yorubá employs vowel lengthening (doubling) so as to preserve the bimoraic prosodic structure of the English CVC. As its contribution to this fascinating debate, this study puts forward an alternative proposal in which the two opposing views are subsumed. The present study contends that both the need to stay faithful to the falling intonation pattern of English stressed syllable and the desire to preserve the prosodic structure of English syllable are just “by-products” of the vowel doubling process; the ultimate motivation for the process is tied to prosodic minimality which is parameterized in Yorubá on the basis of syllable-count. The analysis, couched upon the tenets of Optimality Theory, argues in favour of language-internal evidence rather than language-external considerations as an impetus to the nativization of foreign items in the recipient language. The data analyzed in the study were principally harvested from previous studies, but the method was supplemented by participant observation. A total of 42 English loanwords were selected for analysis.

Keywords: loanwords, prosodic minimality, prosodic parameterization, Optimality Theory, Yorubá, English

Àṣamò

Ìṣe iwádíí lórí ìṣe ifaramolé fún àwọn ọ̀rọ̀ àyálò èdè Gẹ̀ẹ̀sì onísílẹ̀bù kan, pàápàá jùlọ̀ àwọn tó ní bátààni CVC, nínú èdè Yorubá túbò ì tẹ̀síwájú. Ní pàtó, ọ̀rọ̀ èdè Gẹ̀ẹ̀sì oníhun CVC máa ń di CVVCV nínú èdè Yorubá látàrí ìṣe fàwẹ̀lì kan soṣo tinú èdè Gẹ̀ẹ̀sì di méjì, pẹ̀lú ìṣe àfíṣọ̀ fàwẹ̀lì ní'parí ọ̀rọ̀ bẹ̀cẹ̀ (fún àpẹ̀rẹ̀, *cup* /kʌp/ → [kɔ̀ɔ̀bù]). Ábá méjì ọ̀tọ̀ọ̀tọ̀ ní àwọn àṣewádíí tí gbé kalẹ̀ fún ìṣe ifaramolé fún irú àwọn ọ̀rọ̀ àyálò bẹ̀cẹ̀. Ní pàtó, àwọn ábá náà dá lórí ohun tó se okunfà ìṣe fàwẹ̀lì kan soṣo tinú èdè Gẹ̀ẹ̀sì di méjì nínú èdè Yorubá. Ábá àkókó so pe, Yorubá so fàwẹ̀lì náà di méjì látí rí í pé àtẹ̀mọ̀ isàlẹ̀ tó máa ń wà lórí ọ̀rọ̀ oníhun CVC tí èdè Gẹ̀ẹ̀sì di ohun òkè àti ohun isàlẹ̀ lórí àwọn fàwẹ̀lì méjéjì náà nínú èdè Yorubá. Ábá kejì so pé, Yorubá fa fàwẹ̀lì náà gùn (tàbí so ọ̀ di méjì) látí rí í pé móràà ('mora') méjì tó wà nínú ọ̀rọ̀ èdè Gẹ̀ẹ̀sì oníhun CVC kò yàtò sí èyí tó wà nínú èdè Yorubá. Ìṣe iwádíí yí dá sí àrìyànjiyàn yí nipa ìṣe àgbékalẹ̀ ábá miiran. Fún èmi o, àyabá lásán ní àwọn ábá méjéjì wònyí jẹ; ohun tó selẹ̀ gan ni wípé Yorubá so fàwẹ̀lì náà di méjì látí rí í pé àwọn ọ̀rọ̀ àyálò èdè Gẹ̀ẹ̀sì onísílẹ̀bù kan wònyen, ọ̀pọ̀lọ̀pọ̀ èyí tí í se ọ̀rọ̀-orúko, di ọ̀rọ̀ onísílẹ̀bù méjì nínú èdè Yorubá nitorí pé kò sí ọ̀rọ̀-orúko kankan nínú èdè Yorubá, yálá àṣẹ̀dà tàbí àìṣẹ̀dà, tí sílẹ̀bù rẹ̀ kéré sí méjì. Ohun tí ábá titun yí gùn lé lórí gan ni pé, èdè tó yá ọ̀rọ̀ ló máa ń rí í pé àwọn ọ̀rọ̀ bẹ̀cẹ̀ faramolẹ̀, kíi se pé ó fẹ́ kí wọn wà ní ibámu pẹ̀lú ihun tàbí bátààni tí wọn ní nínú èdè tí wọn tí ń bọ̀. Orí tíòrì optimálítì ní a gbé itupalẹ̀ tí a se nínú ìṣe iwádíí yí kà. Púpọ̀ nínú àkójo-èdè-fáyewò tí ó jẹyọ nínú pépà yí wà látí inu àwọn ìṣe iwádíí tí a ti se sáájú, a si gba èyí tó kù lenu àwọn aṣafọ̀ abínibí èdè Yorubá tí a ṣàyan. Ọ̀rọ̀ àyálò èdè Gẹ̀ẹ̀sì méjìlélógójì ní a ṣàyan fún itupalẹ̀ tí a se nínú ìṣe iwádíí yí.

Àwọn kókó ọ̀rọ̀: ọ̀rọ̀ àyálò, òfin ajẹmọ̀-àbùdà-atẹ̀rẹ̀rẹ̀, tíòrì optimálítì, Yorubá, èdè Gẹ̀ẹ̀sì

1. Introduction

Over the years, adaptation of English loanwords in Yorubá has enjoyed research attention so much that it appears there is nothing else to write on the phenomenon.¹ However, adaptation of English monosyllables, especially of the CVC type, in the language still remains an area of interest owing to the fact that the existing accounts of the phenomenon are not explanatorily adequate. By convention, the English CVC syllable structure is adapted in Yorubá as CVVCV where the English singleton vowel, either short or long, is doubled (analogous to lengthening in languages that exhibit contrastive vowel length) and a paragodic vowel is introduced to open the closed syllable because closed syllables are generally prohibited in Yorubá phonology. This is illustrated in (1).

¹ For a review of some of the previous notable studies on the adaptation of English loanwords in Yorubá, see Oyinloye (2020).

(1) English	Yorùbá	Gloss
/kʌp/	[kʰóḍbù] ²	cup
/fæn/	[fáànù]	fan
/bɪl/	[bîlì]	bill
/sa:m/	[sáàmù]	psalm
/bɔ:d/	[bṵḍḍù]	board

The pattern of nativization in (1) has generated some sort of divide between two schools of thought in the literature, particularly with respect to the motivation for the vowel doubling (VD) process. The first school (e.g., Ufomata 1991, 2004; Kenstowicz 2006) claims, albeit implicitly, that Yorùbá makes recourse to VD in order to stay faithful to the English falling contour H*L% that is realized on a coda-filled stressed syllable such that the falling contour is rendered as a sequence of High (H) and Low (L) tones on the two identical vowels resulting from the doubling process. The epenthetic vowel, proposed to be underlyingly toneless, takes on the tone of one of the identical vowels that is nearest to it (Akinlabi 2004; Ufomata 2004). The second school (notably Oyeade 2008), while opposing the first view, explicitly posits that Yorùbá employs “vowel lengthening” (or doubling) so as to preserve the prosodic (mora) structure of the English CVC syllable template. Arguing that the English monosyllabic word is bimoraic courtesy of the nucleus and the moraic coda, Oyeade analyzes the doubled vowels in the Yorùbá version as corresponding to the two moras associated with the English source; hence, the use of the term “prosodic structure preservation”. As its contribution to this fascinating debate, the present study puts forward an alternative proposal.

The convergent view in the literature on Yorùbá loanword phonology is that loanwords of English source are modified to conform to the syllable structure of the Yorùbá language (see *inter alia* Bamgbose 1990; Owolabi 2011; Bamisaye & Ojo 2015; Sanusi, Rafiu & Oyinloye 2016). While building on this general fact, this study intends to show that adaptation of English monosyllabic words in Yorùbá through the process of VD is principally driven by the need to satisfy prosodic minimality condition which structurally constraints all Yorùbá nouns.

It is important to point out that the argument pursued in the present study does not imply a rejection of the positions of the two schools of thought. However, I wish to argue that, although the two proposals are valid to some extent, the major motivation for VD lies elsewhere. Secondly, since the present study is OT-based, it offers a more robust explanation for how the loanwords are adapted using other processes, such as vowel epenthesis and consonant deletion, in addition to the core process of VD. Although Oyeade’s analysis is also carried out within the confines of OT, the proposal can be expanded further to account for a few oversights like the fact that all the winning candidates in his analysis flout the given constraint which he claimed to be responsible for the preservation of the English prosodic structure through doubling of the vowel in Yorùbá. Before going into the proposal of the present paper, a summary of the two existing positions suffices. This is taken up in the next section.

2. Faithfulness to English Intonation Falling Pattern vs Prosodic Structure Preservation

As stated earlier, two opposing views can be observed in the previous studies on why Yorùbá resorts to vowel doubling in its integration of English loanwords. As far as I know, the first view is held by Ufomata (1991, 2004) and Kenstowicz (2006),³ while the second is strictly associated

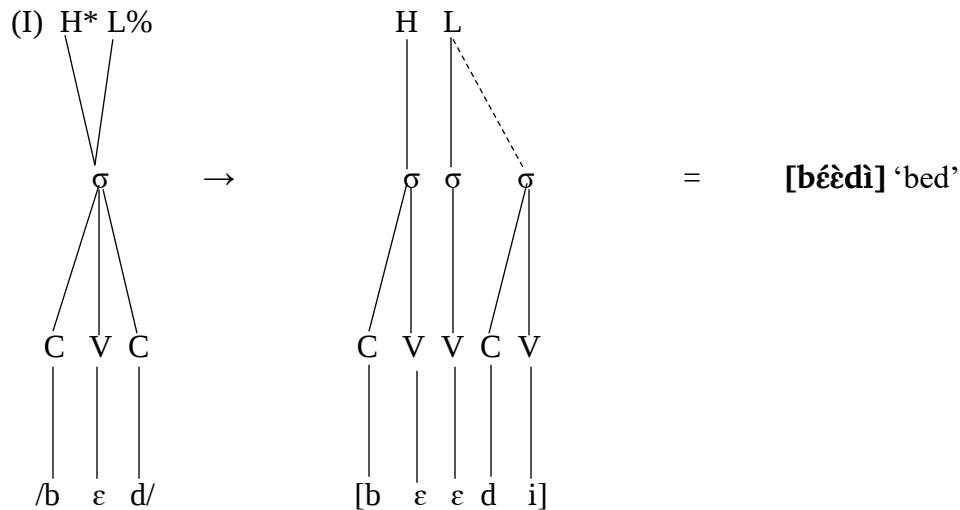
² The consonant [b] is substituted for /p/ because Yorùbá does not have the phoneme /p/ in its sound inventory. In place of /p/, what is attested in the language is /kp/.

³ Utulu (2019), although his analysis is based on English loanwords in Urhobo, appears to be in support of the position of the first school, at least going by the expression “...the current paper will argue that, though VD [vowel doubling] is driven by the English citation rise-fall intonational contour [italics mine], it seems likely that...” (p. 34). In fact, to further entrench his allegiance to this position, he makes reference to it in another article (Utulu 2023: 37), this time on English loanwords in Èwùlù. For this reason, Utulu may be categorized as also belonging to the first school.

with Oyeade (2008). For the first one, I present the following quotation from Ufomata (2004: 578):

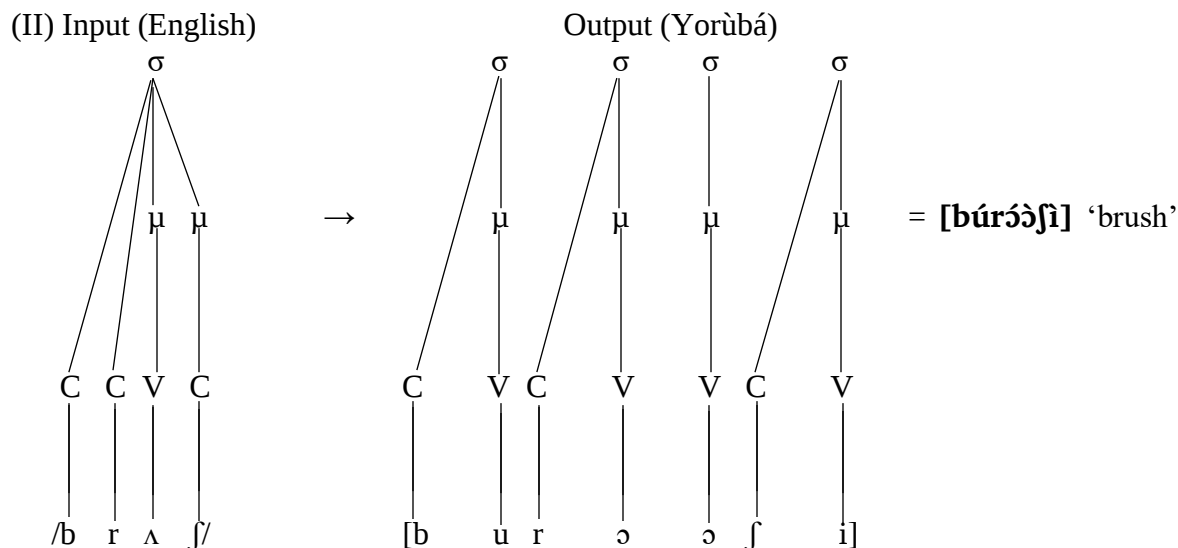
With monosyllabic English words...and words that end in closed syllables,...the monophthong (long or short) is doubled and the resulting two vowels take the tonal pattern HL. Diphthongs are realized as a sequence of two vowels and they take on the same pitch pattern.

The structural representation of the above claim is presented in (I).



The schema in (I) shows that the English stressed monosyllable ‘bed’ is pronounced with a rise-fall pitch pattern; the rising part is represented as H* and the falling part, as L%. Consequent upon its importation into the lexicon of Yorùbá, the word’s singleton vowel ‘e’ is doubled and the pitch contour is adapted as a sequence of High and Low tones realized on the two identical vowels: [éé]. Observe that the epenthetic vowel [i], which is underlyingly toneless (Akinlabi 2004; Ufomata 2004), derives its tone through spreading of the Low tone of the preceding syllable. Quite similarly, Kenstowicz (2006) interprets the doubling of the vowel as an adaptation strategy that is used to realize both components of the falling F0 contour of the stressed syllable of the English source. According to him, the “lengthening” only occurs in reflexes of English final stressed syllables; hence it is plausibly interpreted as a strategy to reflect both the peak H* and the final L% that comprise the citation contour of the English source.

For the second view on the discussion at issue, the following quotation, taken from Oyeade (2008: 43), suffices: “...lengthening in Yorùbá words of English provenance is motivated by the desire of Yorùbá to preserve the prosodic structure of the syllable(s) of such word(s) as they come from their source.” He cites an example of a monosyllabic word, /brʌʃ/, which has a bimoraic structure and is changed to [búrɔ́ʃì] upon its arrival in Yorùbá. The adapted form is tetrasyllabic indicating preservation of the prosodic structure of the input syllable, subject to the ban of complex onset and prohibition of an arresting coda in the syllable structure of Yorùbá. To summarize, Oyeade proposes that the lengthening (or doubling) of the vowel is motivated by the need to preserve the prosodic structure of the input syllable from English, and not to stay faithful to the pitch pattern of stressed syllables in the language, as previously claimed by scholars like Kenstowicz (2006). Consider the structural configuration characterizing Oyeade’s (2008) proposal in (II).



As demonstrated in (II), the English bimoraic monosyllable /brʌʃ/ is changed to the output [búrɔ̀ɔ̀ʃì] in Yorùbá through an interaction of VD and epenthesis. The vowel nucleus ‘ʌ’ in the input is doubled as [ɔ̀ɔ̀] in the output and vowels [u] and [i] are epenthesized into the structure to break up the onset cluster ‘br’ and open the closed syllable, respectively. Oyeade’s opinion with respect to the above configuration is that the bimoraic (heavy) syllable structure of the English form is preserved when the word is nativized in Yorùbá, and this preservation is made possible by the VD process, which he calls “lengthening”. The second of the identical vowels supplies, by default, a mora that somewhat compensates for the delinked mora originally associated with the English coda consonant /ʃ/ that is now re-syllabified in Yorùbá as an onset to the following syllable after vocalic paragoge. In other words, the lengthening or doubling of the vowel results in bimoraicity; hence, preserving the underlying mora structure of the word.

Following the foregoing, it can be deduced that, whereas the first proposal addresses how an English stressed syllable is tonally adapted in Yorùbá, the second one is mainly concerned about how the mora structure of the English words is syllabically adapted in the language. The point of convergence between these two positions is that the same process, VD, accounts for both the stress-to-tone adaptation and the preservation of the mora structure of the source word.

As evinced by the position of both schools, considerations for VD in Yoruba are obviously premised on “language-external considerations” – they are tied to the prosodic system of English. Recall that Kenstowicz and Ufomata strongly argued that the singleton vowel of the English monosyllables is doubled in Yorùbá so that the adapted form would be tonally consistent with the English falling contour (H*L%) which is adapted as H-L sequence on the two identical vowels; and the crux of Oyeade’s proposal is that Yorùbá resorts to VD in order to maintain the bimoraic (heavy) structure of the English monosyllable. The question is: Do borrowing languages assign priority to the features of the donor language at the expense of their native resources when they subject foreign items to adaptation? The central aim of this paper is the provision of a convincing answer to support my position that borrowing languages fundamentally prioritize their native resources over preserving the donor language’s features in the modification of loanwords.

3. Methodology

Being a re-examination of the phenomenon of English loanwords in Yorùbá, this study drew the larger chunk of its data from existing literature (e.g., Bamgbose 1990; Ufomata 1991; 2004; Owolabi 2011; Utulu 2019; and Oyinloye 2020). Deploying the tool of participant observation, data were also sourced from native speakers of Yorùbá at different contexts of communication such as homes, football viewing centers, during church services and commercial transactions. In each of the aforementioned domains of Yorùbá language use, the natural conversations of the

interlocutors were digitally documented with the aid of Zoom-H1n audio recorder. Before participating in the study, the target informants were briefed about the purpose of the research, and their informed consent was sought amicably before they willingly agreed to have their conversations recorded. Other sets of data were supplied by the researcher since his first language is Yorùbá. From the corpus harvested across the various aforementioned sources, 94 loanwords of English origin, the majority of which reflect vowel doubling, were identified. In the end, 42 items were randomly selected for analysis in this study. The data were analyzed using the descriptive methodology, grounded on the principles of Optimality Theory (OT). The choice of a constraint-based theory, namely OT, in this study was informed by the fact that adaptation of foreign items is governed by the need to make those items bow to certain constraints in the native grammar of the borrowing/recipient language. The assumption is that Yorùbá resorts to vowel doubling in the data under analysis because there is a grammatical *force* (constraint) within its system that must be respected, and OT constitutes an apt tool to give a principled account of the phenomenon.

4. An Alternative Proposal

I argue in favour of language-internal evidence as the motivating factor for VD in Yorùbá loanword phonology. I would like to think that it is more logical and natural for a borrowing language to ‘scan’ for internal mechanisms to nativize foreign items than doing so for the sake of conserving the alien features of the donor or source language. In fact, the usual consensus in most literature on loanword phonology is that loanwords are nativized by making them conform to the preferred morpho-phonemic structure of the borrowing or recipient language (Kang 2010; Moses & Ekiugbo 2014; Bamisaye & Ojo 2015; Aloufi 2016; Utulu 2019; Ghorbanpour, Kambuzi, Dabir-Moghaddam & Agha-Golzadeh 2019; Kessar & Mahadin 2020; Lee & Hlungwani 2020; Ukaegbu, Odeh & Nwosu 2022, among many others). Therefore, if Edo/Bini, Urhobo and Emai, for example, would resort to their low-toned prothetic and anaptyctic vowels (*è, ì, ù*, etc.) to adapt consonant-initial and coda-filled borrowed words (Aziza & Utulu 2006; Utulu 2019; Ukaegbu, Odeh & Nwosu 2022), and Yorùbá would deploy its epenthetic vowels (typically *i* and *u*) in the simplification of complex onsets and opening of closed syllables in borrowed words (Bamgbose 1990; Akinkabi 2004; Owolabi 2011; Sanusi, Rafiu & Oyinloye 2016), it is quite logical to assume that language-internal mechanisms override language-external factors when borrowing languages assimilate foreign linguistic items.

The central point of this paper is that Yorùbá opts for VD, in conjunction with some other phonological processes, ultimately to satisfy prosodic minimality and this is achieved by what I would call *prosodic parameterization* whereby an individual language parameterizes the empirical operation of a given universal prosodic target so as to make it conform to the language’s prosodic requirements. For example, while a language like English prosodically subscribes to mora-count to achieve prosodic minimality, Yorùbá subscribes to syllable-count to achieve the same target. In particular, VD is invoked in Yorùbá to ensure that the adapted form is minimally a disyllabic foot structure based on two crucial, inter-connected facts. First, all Yorùbá nouns, both underived and derived, are at least disyllabic, as exemplified in (2).

(2) Yorùbá native nouns

Underived		Derived	
bàbá	‘father’	ìkú	‘death’
ìyá	‘mother’	ìfẹ	‘love’
ọmọ	‘child’	òkú	‘corpse’
ìṣu	‘yam’	àlọ	‘going’
bàtà	‘shoe’	egbé	‘charm for disappearance’
òṣùpá	‘moon’	àìjẹ	‘not eating’
kókóró	‘key’	òṣéré	‘actor’
lábálábá	‘butterfly’	ayàwòrán	‘artist’
garawa	‘bucket’	àgbàlagbà	‘an aged person’
àgádágodo	‘padlock’	alààánú	‘the merciful’

Second, the majority of the English lexical items loaned into Yorùbá are nouns (Ufomata 1991: 49; 2004: 591; Utulu 2019: 34). It, therefore, logically follows that the nativization of those words would necessarily produce a structure that conforms to the prosodic shape of the native nouns of Yorùbá, at least considering the fact that phonological adaptation of borrowed words is generally targeted at making the words conform to the phonology of the recipient language more than preserving the phonological structure of the donor language.

There are cases where verbs, rather than nouns, are loaned from English into Yorùbá, yet the speakers make recourse to VD despite the fact that Yorùbá native verbs are typically monosyllabic. The question is: Why do the speakers resort to the same process when there is no internal motivation for such, unlike the case of native nouns? My answer is that, when monosyllabic verbs of English origin are imported into Yorùbá, the speakers intuitively perceive such verb loans as nouns and they equally make recourse to the same process – VD (or diphthong decomposition, as the case may be) – in order to render the monosyllabic verbs at least as disyllabic following the language-internal minimality condition which the language imposes on all of its native nouns. The fact that the majority of those verb loans can equally function as nouns, albeit depending on the context of use, makes for a conclusion that the Yorùbá speakers presumably perceive them as nouns; hence, subjecting them to the same nativization strategy that nouns undergo is quite expected. Consider a sample of such words in (3).

(3) English	Yorùbá	Gloss	Word Class
/kɔ:l/	[kɔ̀ɔ̀lù]	call	verb/noun
/pʊʃ/	[púùʃì]	push	verb/noun
/nɔk/	[nɔ̀ɔ̀kì]	knock	verb/noun
/fi:l/	[fíìlì]	feel	verb/noun
/keɪdʒ/	[kéèdʒì]	cage	verb/noun

Following (3), one could speculate that Yorùbá generally has the proclivity to import nouns from other languages at the expense of words belonging to other lexical categories. Of course, special “attraction” to noun loans is not peculiar to Yorùbá loanword vocabulary; it is a universal tendency in language contact, as evidence from virtually all the existing studies on borrowing has shown that nouns are more prone to being borrowed than words of other syntactic categories.

5. Beyond Prosodic Structure Preservation

I would like to further argue, this time with specific reference to Oyeade’s position, that the adaptation of English loanwords in Yorùbá specifically with regard to the VD operation goes beyond prosodic structure preservation, both on empirical and theoretical grounds. On the one hand, if Yorùbá’s core intention behind doubling the vowel is to preserve the bimoraic (heavy) syllable structure of English, as strongly argued by Oyeade, then it is logical to conclude that the language is under no grammatical obligation to change the phonological structure of those words in the first place since the words are originally bimoraic from English. For example, if the word /brʌʃ/ is already bimoraic in English and the main goal of adapting it in Yorùbá is to maintain its moraic structure, then there is no need to resort to VD. To my mind, true preservation entails “keeping the borrowed material exactly as it is” in the source language without adding to or subtracting from it. This, however, is not the case in Yorùbá, as almost all of the integrated forms end up having additional moras – for example, bimoraic /kʌp/ and /brʌʃ/ transform to trimoraic [kɔ̀ɔ̀bù] and tetramoraic [búɔ̀ɔ̀ʃì], respectively. By having more than one syllable or two moras, the original prosodic structure of these words has been radically altered rather than retained. In a nutshell, Yorùbá deploys VD as a strategy of maintaining its permissible prosodic structure, not preserving that of the English language. This position is further affirmed by evidence of additional moras in several instances as shown in the data below:

(4) English	Yorùbá	Gloss
/fɔ:k/	[fɔ̀.ɔ̀.kì]	fork
/bɔ:l/	[bɔ̀.ɔ̀.lù]	ball

/bɛlt/	[bé.lí.ì.tì]	belt
/wɪg/	[wí.ì.gì]	wig
/fu:d/	[fú.ù.dù]	food (baby's meal packed in a tin can)
/skə:t/	[sí.ké.è.tì]	skirt
/fəʊn/	[fó.ò.nù]	phone
/slɛt/	[sí.lé.è.tì]	slate
/ɟʌg/	[ɟɔ́.à.gì]	jug
/tæg/	[tá.à.gì]	tag

The empirical evidence presented in (4) clearly shows that the goal of VD is beyond preserving the prosodic materials of English. Rather, the main motivation conceals in making the loanwords conform to the minimal word condition governing all Yorùbá nouns since virtually all the loanwords are nouns, while the few that are verbs are those that can equally be used as nouns.

On the other hand, the constraint encoding the preservation of the loanwords' prosodic structure, namely *IDENT (SYL): I, O* which Oyeade (2008) proposed is violated by all the adapted (optimal) loanwords which he presented in his analysis. If the main goal of opting for VD is to preserve the loanwords' moraic structure, the constraint enforcing such operation should be highly ranked in Yorùbá to the extent that only a few (not all!) of the optimal forms would violate it, and if there were violation by any optimal candidate, such an infraction must be minimal. Another problem, which surprisingly was pointed out by Oyeade himself, is that the constraint *IDENT (SYL): I, O* cannot adequately account for some adapted forms, particularly those arising from variation and/or optionality. To tackle this residual problem, Oyeade resorts to the principle of "constraint-suppression" in which *IDENT (SYL): I, O* is suppressed so as to produce the intended results. As a matter of fact, weakening the effect of a previously active constraint to address recalcitrant forms is not necessary. As will be shown later in this study, there is a markedness constraint in the grammar of the language that can adequately account for all instances of English loanwords, whether they are monosyllabic or polysyllabic, including those arising from variability and optionality.

The third theoretical issue with Oyeade's proposal is that it contravenes the classic axiom of OT with respect to the interaction of faithfulness (F) and markedness (M) constraints in the grammar. OT assumes that F and M are intrinsically in conflict: F requires that the input structure or feature be maintained or preserved in the output; M enforces change to the input so that the output structure would be well-formed. True phonology is when phonological changes, such as VD, are enforced regardless of the input structure, and such changes ultimately target well-formedness, a fact which OT is essentially designed to formally capture. In particular, the canonical architecture of the theory is that the input is transformed so as to obey some M which necessarily ranks higher than some F that prohibits such transformation. The *IDENT (SYL): I, O* constraint that was used by Oyeade is an F. It, therefore, seems counter-intuitive to claim that VD which logically induces structural change to the input structure with a view to satisfying some M is motivated by the desire to satisfy *IDENT (SYL): I, O* which Oyeade (2008, p. 47) posits to be the constraint that "enforces structure preservation". This is obviously confusing in that VD must be invoked towards satisfying a markedness, rather than a faithfulness, constraint. Little wonder, the given constraint is violated by all the optimal forms. The surprising result simply implies that the motivation for the VD strategy lies beyond prosodic structure preservation; rather, it is geared towards satisfying a highly ranked markedness constraint in the Yorùbá language. Even if one accepts Oyeade's proposal that the adapted forms in Yorùbá tend to preserve the English prosodic (morai) structure, his claim that VD is motivated by the desire to satisfy *IDENT (SYL): I, O* is implausible. I present a formal analysis of my proposal as follows.

6. Formal Analysis

That words of a language have certain prosodic structures is a long-standing phonological fact in many phonological research particularly those pursued within the premise of prosodic frameworks, e.g., Prosodic Morphology and Metrical Phonology. According to Kager (1999: 143-144):

Languages may require content words to have some minimum size, for example two syllables, or a single heavy syllable. This ‘minimal word’ typically equals a single foot, a rhythmic unit consisting of two syllables or two moras (length units). Languages may actively reinforce a binary word minimum by prosodically expanding any word that would otherwise fall below the minimum, by adding an augment of a mora or vowel to a subminimal word.

Kager (1999: 166) characterizes *word minimum* as “the requirement that a word have minimally two moras or syllables.” In other words, a word must be equal to or more than two moras or syllables. Similarly, McCarthy (2006: 183) says that the combined operation of the prosodic hierarchy and foot binarity, defined in A and B respectively, gives rise to the key notion of minimal word.

(A)	Prosodic Hierarchy	
	Phonological/Prosodic Word	PWd/PrWd
	↑	
	Foot	Ft
	↑	
	Syllable	σ
	↑	
	Mora	μ

- (B) Foot Binarity
Feet are binary under syllabic or moraic analysis.

Since every instance of phonological word must contain at least one foot and every foot must be bimoraic or disyllabic, a phonological word, which is the *minimal word*, must contain at least two moras or two syllables (McCarthy 2006).

Speaking further, Kager (1999: 166) avers that, “A word minimum can be enforced in various ways, for example by ‘subminimal lengthening’, or by the epenthesis of a vowel into a monosyllabic word, making it disyllabic.” For example, Levantine Arabic invokes vowel lengthening to turn monomoraic words to their bimoraic counterparts, whereas Iraqi Arabic and Mohawk resort to vowel epenthesis to augment monosyllabic words to become disyllabic (Kager 1999: 144 & 166).⁴ A similar scenario is reported in Zezuru, a dialect of Shona, where the use of an initial epenthetic vowel [i] augments monosyllabic words to their disyllabic counterparts because all words in the dialect are minimally disyllabic (Mudzingwa 2014).

For Yorùbá, vowel doubling (analogous to subminimal lengthening in Levantine Arabic) is employed to augment an English monosyllabic loanword so that it becomes at least disyllabic. Note, however, that the language may additionally employ vowel epenthesis if the target word has a coda or complex onset. Whether long or short, the vowel is doubled, and if the word contains complex onset and coda, a vowel is inserted to split the onset cluster and render the closed syllable open. In place of VD, the language resorts to diphthong splitting or decomposition if the nucleus of the monosyllable is a diphthong.⁵ These processes are licensed by language-internal factors. A singleton short vowel is doubled to achieve euphony which is inherently connected with the melodic pattern of all Yorùbá words; a singleton long vowel becomes doubled (hence, reanalyzed as a sequence of two identical vowels) because long vowels are completely absent in the vowel inventory of Yorùbá; a diphthong is decomposed or simplified to a monophthong followed by doubling (as the case may be) also because diphthongs are not recognized in the phonological system of Yorùbá; a vowel is inserted to simplify complex onset and undo coda because both phonotactic features are unattested in the native grammar of the language.

⁴ As Kager acknowledges, the Levantine and Iraqi Arabic cases are due to Broselow (1995) while the Mohawk case is due to Piggott (1995).

⁵ The process of undoing diphthongs in English loanwords is a complex one. I do not pursue such analysis here, since there is already an article on it – Oyinloye (2020).

The overall argument being made here is that Yorùbá subjects English monosyllables, including, of course, others that are more than one syllable, to the changes discussed above so that the words can sound like Yorùbá native nouns by being minimally disyllabic since the majority of the borrowed words are nouns. See example (5) for further empirical illustration.

(5) Words of English origin borrowed into Yorùbá

English	Yorùbá	Gloss
/ti:/	[tí.ì]	tea
/ki:/	[kí.ì]	key
/ka:/	[ká.à]	car
/brə/	[bí.à]	beer
/feə/	[fí.à]	fair
/pɒt/	[pó.ò.tù]	pot
/bɒm/	[bó.m.bù]	bomb
/faɪn/	[fá.ì.nì]	fine (a sum of money paid as a punishment)
/kəʊt/	[kó.ò.tù]	coat
/ka:d/	[ká.à.dì]	card
/ʃə:t/	[ʃé.è.tì]	shirt
/blɒk/	[bú.ló.ò.kù]	block
/bred/	[bú.ré.dì]	bread
/bleɪd/	[bú.lé.è.dì]	blade
/traɪ/	[tí.rá.(j)ì]	try
/drʌm/	[dú.ró.ò.mù]	drum
/klɪə/	[kí.lí.à]	clear
/kla:s/	[kí.lá.à.sì]	class
/gəʊld/	[gó.ò.lù]	gold
/fi:ld/	[fí.ì.dì]	field

Given the data in (5), English monosyllabic loanwords are modified in Yorùbá via an operation of three independent phonological processes: monophthong doubling, diphthong decomposition and vowel epenthesis. Depending on the prosodic structure of the word with respect to the kind of nucleus it is composed of, whether it accommodates consonant cluster, or whether it contains a coda, the adaptation involves either one of the three operations at a time, e.g., monophthong doubling (as in /ti:/ → [tí] ‘tea’) or diphthong decomposition (as in /brə/ → [bíà] ‘beer’), or a combination of them in one fell swoop (as in /bleɪd/ → [búlèèdì] ‘blade’). The point here is, Yorùbá resorts to augmentation, with particular reference to VD, to enforce *word minimum* which generally constrains the prosodic shape of all nouns in the language. This condition is expressed in (C) in the form of a markedness constraint.

(C) WORD MINIMALITY (WD-MIN)

Words are minimally bimoraic or disyllabic (after Kager 1999; McCarthy 2006).

One could observe that all English monosyllabic nouns satisfy *word minimum* by having two moras realized by either the presence of a long vowel (e.g., *tea* /ti:/) or a diphthong (e.g., *beer* /brə/) on the one hand, or a combination of a singleton vowel and a coda consonant (e.g., *pot* /pɒt/) on the other hand. This being the case, the question, therefore, is: Isn’t it gratuitous that Yorùbá resorts to augmentation? I would say ‘No’ because of the principle of *prosodic parameterization*. Given the conceptualization of the notion *word minimum* by Kager (1999) or *minimal word* by McCarthy (2006), it could be inferred that languages enforce it either on mora-count basis or on syllable-count basis, depending on a number of factors, such as stress versus tone system, foot template, and syllable weight distinction. Typologically speaking, mora-based enforcement of *word minimum* is peculiar to stress languages, languages with moraic foot structure (e.g., iamb or trochee) and quantity-sensitive languages; whereas tonal languages, languages that subscribe to

syllable-based foot template and languages that are quantity-insensitive are more prone to enforce the condition by virtue of syllable-count. English and Yorùbá belong to the two opposing categories of such languages: the former's satisfaction of *word minimum* is defined by the presence of two moras while the latter parameterizes it by the creation of at least two syllables.

Ola (1995a, 1995b) had proposed that the foot structure inventory of Yorùbá comprises two templates: FOOT-BINARITY (Syllable) and FOOT-BINARITY (Nucleus). Thus, the difference in the prosodic structures of English (E) and Yorùbá (Y) with respect to the interpretation of *word minimum* is that a word in E satisfies the condition if it has two moras while a word in Y satisfies it if it has two syllables or nuclei. On this premise, Y converts the E monosyllabic words to, at least, their disyllabic counterparts via a conspiracy of the three processes discussed earlier, the chief of which being VD. Of course, adaptation of some other words may involve additional processes, such as consonant deletion, e.g., /gəʊld/ → [gòólù] 'gold' and sound substitution, e.g., /tʃɜːtʃ/ → [ʃɔ́ʃí] 'church'. The crux of the matter is, whatever the process(es) in operation, the goal is "syllable augmentation" particularly when the loans are monosyllabic. Therefore, by virtue of prosodic parameterization, the constraint WD-MIN is parameterized in Yorùbá, as in (D) below, and this explains the reason why the monosyllabic forms in English are prosodically ill-formed in Yorùbá. In order to be well-formed, they must be adapted through doubling of the nuclear vowel for the purpose of satisfying the parameterized constraint.

(D) WORD MINIMALITY (WD-MIN_[σ σ]): Words are minimally disyllabic.

Following the foregoing discussion, I argue that the adaptation of English monosyllables in Yorùbá is collectively enforced by three crucial markedness constraints: *COMPLEX-ONSET (Onsets must not be composed of consonant clusters), NO-CODA (Syllables must not have codas), and WD-MIN_[σ σ]. Satisfaction of these constraints definitely comes at some cost. For instance, satisfaction of WD-MIN_[σ σ] through vowel doubling incurs violation of OCP_[v] (Two similar, contiguous vowels are banned)⁶, and satisfaction of *COMPLEX-ONSET and NO-CODA through vowel insertion violates DEP (Do not insert). Depending on the eventual syllable structure and segmental composition of the adapted optimal word, other constraints that may be violated include NO-HIATUS (Two contiguous vowels linked to different sets of features are banned), IDENTITY_(seg) (Input and output segments must be identical) and MAX (Do not delete). Whereas *COMPLEX-ONSET and NO-CODA cater for the syllable structure, WD-MIN_[σ σ] addresses the syllable quantity of the words.

The conspiratorial behaviour of the augmentation processes which Yorùbá employs to enforce prosodic well-formedness of English monosyllables is theoretically justified in itself. One of the motivations for the development of OT in the first place was hinged on the observation that grammatical operations or processes normally "conspire" to produce output configurations, but phonological conspiracy is a phenomenon that cannot be formally explained by input-based rules but by output-oriented (that is, markedness) constraints.⁷ In this connection, the earlier position of this paper that the adaptation of English monosyllables in Yorùbá has a collective goal of complying with the demands of three markedness constraints is consistent with the premises of OT, an output-oriented theory.

An important point is worth clarifying here. The fact that Yorùbá opts for augmentation to satisfy WD-MIN_[σ σ] does not imply that the constraint is undominated (or inviolable) in the entire grammar of the language. Indeed, it is violated by weak pronouns (e.g., *Mo* 'I' and *A* 'we'), simple verbs (e.g., *kú* 'die' and *rà* 'buy'), simple prepositions (e.g., *sí* 'to' and *ní* 'at/in'), complementizers (e.g., *tí* 'that/who/whom/which/whose' and *pé* 'that') and some other particles such as the focus marker *ní* and the perfective or possessive marker *tí*. These instances show that, although the given markedness constraint is absolutely "respected" by all Yorùbá nouns, both native and borrowed,

⁶ *V: (Avoid long vowels), in spirit of McCarthy (2008), may be used in place of OCP_[v], but since Yorùbá generally lacks long vowels, OCP_[v] is used in this paper for appropriateness's sake.

⁷ See Kager (1999: 55-56) and McCarthy (2008: 1-3) for some comments on the notion of 'conspiracy' as a context for the evolution of OT.

and both derived and underived, it must be ranked below some higher-ranked markedness constraints in Yorùbá since it is violable in the language's grammar, as empirically illustrated above. This justifies the ranking, proposed in (E), in which WD-MIN_[σ σ] is ranked below *COMPLEX-ONSET and NO-CODA.⁸ The present study assumes that the given ranking can account for all cases of the data under analysis, and can, in fact, be expanded to account for all other types of English loanwords in Yorùbá (e.g., disyllabic, trisyllabic, etc.) that employ VD, with(out) other processes, in their adaptation process. A few words are selected from the relevant data provided so far and analyzed in the three Tableaux presented afterwards.

(E) *COMP-ONS, NO-CODA >> WD-MIN_[σ σ] >> IDENT_(seg) >> OCP_[v], NO-HIATUS, DEP, MAX

Tableau 1: /brʌf/ → [búrɔ̀ɔ̀fɪ] ‘brush’; /klɪə/ → [kílíà] ‘clear’⁹

	*COMP-ONS	NO-CODA	WD-MIN _[σ σ]	IDENT _(seg)	OCP _[v]	NO-HIATUS	DEP	MAX
/brʌf/								
a. brʌf	*!	*	*					
→ b. búrɔ̀ɔ̀fɪ				*	*		**	
c. burʌf		*!					*	
d. brɔ̀ɔ̀fɪ	*!			*	*		*	
/klɪə/								
a. klɪə	*!		*					
b. kɪə			*!					*
→ c. kílíà				*		*	*	

Two forms are presented in Tableau 1 – /brʌf/ and /klɪə/. For the first, the second candidate wins the contest because it performs better than its fellow contestants on the given hierarchy, having satisfied the three highly ranked constraints – *COMP-ONS, NO-CODA and WD-MIN_[σ σ] by splitting the consonant cluster, undoing the coda consonant, and turning the monosyllabic input into its tetrasyllabic counterpart through doubling of the input's vowel and epenthesis. The closest challenger to the winner, **búrɔ̀ɔ̀fɪ**, is *burʌf (candidate (c)) which satisfies WD-MIN_[σ σ] vacuously even without VD. It, however, loses out for keeping the coda intact. This justifies the earlier claim that the overall well-formedness of the adapted forms is a combined effect of *COMP-ONS, NO-CODA and WD-MIN_[σ σ].

On the other hand, the form /klɪə/ is adapted in Yorùbá as [kílíà] through diphthong splitting and vowel epenthesis. On empirical ground, the diphthong is split because such type of vowel is lacking in the phonological system of Yorùbá,¹⁰ and on theoretical ground, it is split so as to satisfy the markedness constraint WD-MIN_[σ σ] since such process naturally leads to creation

⁸ *COMPLEX-ONSET and NO-CODA are undominated in the entire native grammar of Yorùbá because the language generally bans complex onsets and codas in its syllables.

⁹ For the sake of simplicity, an arrow, rather than a pointed finger or a thumbs up, is used in this paper to indicate the optimal candidate in all the Tableaux. This is a style after McCarthy (2008).

¹⁰ In optimality theoretic parlance, avoidance of diphthongs in Yorùbá is driven by the constraint *DIPH which is highly ranked in the language. I have deliberately left it out of the proposed ranking because the central focus of this paper is the motivation for the vowel doubling process. The motivation for the diphthong splitting is not pursued here, as it is the crux of Oyinloye (2020), as I previously said. Interested readers may consult the given reference for details.

of more syllables. Observe that, refusal to split the diphthong would imply a violation of WD-MIN_[σ σ] (cf. candidates (a) and (b)), and the epenthetic vowel serves to break the ‘kl’ onset cluster; hence, a satisfaction of NO-CODA by the winning candidate (c).

Tableau 2: /ki:/ → [kî] ‘key’; /ka:/ → [káà] ‘car’

	*COMP-ONS	NO-CODA	WD-MIN _[σ σ]	IDENT _(seg)	OCP _[v]	NO-HIATUS	DEP	MAX
/ki:/								
→ a. kî				*	*			
b. ki:			*!					
/ka:/								
a. ka:			*!					
→ b. káà				*	*			

Tableau 2 presents the perfect picture of this paper’s proposal, namely that the input’s singleton vowel is doubled to create an additional syllable so that the adapted form will be minimally disyllabic since all Yorùbá native nouns are at least prosodically disyllabic. In other words, the English monosyllabic noun upon its entry into Yorùbá becomes prosodically deficient. In order to make it resemble a native noun in Yorùbá in terms of syllable quantity, its vowel must be doubled. Failure to do so incurs a fatal violation of WD-MIN_[σ σ], a highly ranked markedness constraint in Yorùbá which requires every word to be minimally disyllabic. As mooted earlier in this paper, the input satisfies WD-MIN in English but not so in Yorùbá for a reason: satisfaction of WD-MIN in English is based on mora-count whereas the satisfaction of the constraint in Yorùbá is based on syllable-count. Thus, its parameterization as WD-MIN_[σ σ].

Tableau 3: /gəʊld/ → [góòlù] ‘gold’; /fi:ld/ → [fîdî] ‘field’

	*COMP-ONS	NO-CODA	WD-MIN _[σ σ]	IDENT _(seg)	OCP _[v]	NO-HIATUS	DEP	MAX
/gəʊld/								
a. góòld		*!		*	*			
b. gəʊld		*!	*					
→ c. góòlù				*	*		*	*
/fi:ld/								
a. fi:ld		*!	*					
→ b. fîdî				*	*		*	*
c. fîd		*!		*	*			*

In Tableau 3, the adapted forms of /gəʊld/ and /fi:ld/ are [góòlù] and [fîdî], respectively. As far as /gəʊld/ is concerned, retaining the input form from the source language implies a fatal violation

of NO-CODA as well as WD-MIN_[σ σ] (cf. candidate (b)). Although candidate (a) doubles the vowel to obey WD-MIN_[σ σ], it retains the (complex) coda; hence, a violation of the markedness constraint NO-CODA. This rules it out in favour of candidate (c) which gets rid of the coda via deletion of ‘d’ and insertion of vowel ‘u’, in addition to doubling the input’s vowel to satisfy WD-MIN_[σ σ].

For the second form in Tableau 3, which is /fi:ld/, the first candidate preserves the input hundred percent, a move that culminates in violation of highly ranked constraints NO-CODA and WD-MIN_[σ σ]. For this reason, it is ruled out of the competition. Candidate (c), notwithstanding its satisfaction of WD-MIN_[σ σ] by doubling the input’s vowel, is equally ruled out for flouting NO-CODA due to its accommodation of the final ‘d’. The second candidate wins the competition for complying with the given hierarchy in the best way even though it is not perfect itself.

The foregoing analysis reveals that the proposed ranking in (E) is capable of deriving all categories of English loanwords in Yorùbá under analysis. Overall, the vowel of the source form is doubled to satisfy WD-MIN_[σ σ]. However, complete well-formedness of the adapted form is a combined function of *COMP-ONS, NO-CODA and WD-MIN_[σ σ] considering the fact that any borrowed form which accommodates complex onset and coda must be repaired, in addition to being rendered disyllabic if it has a monosyllabic structure in the donor language. As expected, none of the optimal forms in the three Tableaux is perfect; they incur violations on lower-ranked constraints such as IDENT_(seg), OCP_[v], etc. This result is a corroboration of one of the axioms of OT that constraint violation is permissible, only that it must be minimal. Since the constraints they violate are lowly ranked in the hierarchy, the violations are inconsequential to the outcome of the competition, as they all obey *COMP-ONS, NO-CODA and WD-MIN_[σ σ]. The next question is:

7. How Valid Are the Existing Proposals?

The two previous proposals can be deemed as valid only if we assume that staying faithful to the English falling intonation contour and preserving the language’s bimoraic structure are just “by-products” of the vowel doubling operation, and not the ultimate goal. The two outcomes only show up as “specters” during the nativization process; the target outcome is to ensure that the English monosyllables conform to Yorùbá prosodic minimality condition which forces all of its nouns to be at least disyllabic in terms of syllable quantity. Put in another way, while the speakers of Yorùbá ultimately target making the borrowed English monosyllables to bow to the minimality condition by doubling the vowel when they verbally render those loanwords, the underlying intonational contour as well as the underlying moraic structure of the words is preserved, again with the aid of phonological materials that are internal to Yorùbá: the H and L tones of Yorùbá are used as substitutes for the English H*L% contour, and the identical sequence of the corresponding Yorùbá vowels are used to represent the two moras in the English forms.

Rather than an outright rejection, the two previous positions can be subsumed within the one put forward in this study in the following way: Words of English origin are nativized in Yorùbá by making them to conform to the native properties of the language, and in doing so, the feature or structure of English is preserved. This proposal is consistent with the position of Mensah and Mensah (2014) in their analysis of how English loanwords are adapted in Efik. They submit that “though the pattern of borrowing is tailored to agree with the phonological system of the source language, some of the changes are however, as a result of *indigenous* [italics mine] innovations or prosodic patterns” (p. 38). It equally bears some resemblance with the claim of Kenstowicz and Suchato (2006; as cited in Mensah & Mensah 2014: 39) who argue that loanword adaptation implies that speakers will show faithfulness to the source words and at the same time try to make loanwords conform to their “native” [quotation mine] segmental inventory, phonotactic constraints and morphological systems. In short, it is absolutely rare for speakers of the recipient or borrowing language to strictly stay faithful to the features and/or structure of the donor language without employing the internal devices of their language when nativizing the loaned items.

8. Conclusion

This paper has contended that both the need to stay faithful to the falling intonational pattern of stressed syllables in English loanwords and the desire to preserve the prosodic structure of the

loanwords are just “by-products” of vowel doubling when the words undergo the process of integration in the Yorùbá language. The ultimate motivation for the process is tied to the universal principle of prosodic minimality which is parameterized on a language-particular basis depending on the prosodic template which individual languages subscribe to. For instance, whereas languages such as English, Latin and Mwaghavul satisfy prosodic minimality via mora count (see Hayes 1989; Oyinloye & Fwangwar 2023), languages such as Ibibio, Urhobo and Yorùbá make recourse to syllable count to satisfy this principle (see Akinlabi 1995; Ola 1995a & b; Aziza & Utulu 2006; Utulu 2019). All Yorùbá native nouns (either basic or derived) are at least disyllabic, and the majority of the English lexical items loaned into Yorùbá are nouns. Therefore, every English monosyllabic word loaned into Yorùbá must be rendered at least as disyllabic by doubling the singleton vowel or decomposing the diphthong, as the case may be. Although the monosyllables vacuously satisfy prosodic minimality in English by having two moras, they still have to be nativized in Yorùbá through VD (in conjunction with some other phonological processes, chiefly vowel epenthesis) due to prosodic parameterization which licenses syllable-based satisfaction of WD-MIN in the language.

In consonance with Oyeade’s (2008) position, one may alternatively argue that the desire of Yorùbá to satisfy prosodic minimality is more or less connected to preserving the prosodic structure of the English loanwords which satisfy the principle by default since the Yorùbá’s two syllables, defined by two vowels, roughly correspond to the English’s two moras. As desirable as this view seems, it is more plausible to argue in favour of the observation that borrowing languages place more priority on using cues from their native or indigenous properties while adapting foreign items than solely conserving the features of the source language. This is exactly what Yorùbá does by creating more syllables to satisfy prosodic minimality, a condition that strictly governs all its native nouns, both basic and derived. On this basis, it is apposite to conclude that language-internal evidence takes precedence over and above language-external considerations when borrowing languages subject borrowed items to phonological integration.

Abbreviations

COMP-ONS	Complex Onset
DEP	Dependency
IDENT	Identity
MAX	Maximality
OCP	Obligatory Contour Principle
OT	Optimality Theory
VD	Vowel Doubling
WD-MIN	Word-Minimality

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