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Syllabic nativization of EkeGusii loanwords from English: An Optimality Theory approach

George Morara Anyona
Kisii University.

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ABSTRACT

This paper discusses the processes that English loanwords into EkeGusii undergo in the process of being accommodated into the EkeGusii phonological system. The data used in the paper is from native speakers of EkeGusii and Optimality Theory (here after OT) is used in the analysis of the data. This paper is different from most papers of the kind in that it uses a constraint based theoretic framework unlike others which either do not use any theoretical framework (Mberia, 2004 among others) or use rule based theories when they do (Zivenge 2009 among others). The paper focuses on re-syllabification, i.e. syllabic change. For example, the paper discusses whether EkeGusii Phonology maintains the CV syllable structure when nativizing EkeGusii loaned words from English with consonant clusters C_nV (where n = 2, 3 or 4 consonants), given that EkeGusii language does not allow consonant clusters. For instance, the English word 'tractor' -/trə.ktə/ is realized as ekeragita [e.ke.ra.ɣi.ta], with a V.CV.CV.CV.CV syllable form. Thus, for the English word 'tractor' to be accepted into the phonological system of EkeGusii, it has to undergo syllable re-adjustment. Notice that in the English form, the word has two syllables, which are CCV.CCV, while in EkeGusii they are five, the first one being V, while the rest are CV.CV.CV.CV. Other adjustments include vowel epenthesis which breaks the consonant clusters /tr/ and /kt/.

1. Introduction

This paper deals with English and EkeGusii languages. EkeGusii language "is an East Nyanza Bantu Language (Guthrie' classification E.42) spoken by at least one million people beyond the level of dialectal variations. It is closely related to other Bantu languages of the region, namely, to Kuria, Mfungano and Suba" (Cammenga 2002).

The paper analyzes how EkeGusii loaned words from English are nativized by the borrowing language (EkeGusii). In particular, the paper shows how EkeGusii language deals with foreign syllable structures from English using constraints interaction.

2. Theoretical Background

Analysis in this paper is based on OT (Prince & Smolensky 1993) whose central idea is that surface forms of language reflect resolutions of conflict between competing constraints. That is to say that a surface form is 'optimal' if it incurs the least serious violations of a set of constraints, taking into account of their hierarchical ranking (Karger, 1999). The core principles of OT according to Smolensky and McCarthy (1993) include:

- Violability – Constraints are violable
- Ranking – Constraints are ranked on a language specific/particular basis; the notion of minimal violation is defined in terms of this ranking.
- Inclusiveness – The constraint hierarchy evaluates a set of candidates that are admitted by very general considerations of structural well formedness.

The following constraints are used in analyses in this paper

Constraint	Interpretation
*COMPLEX C	No complex margins/ no consonant clusters
*COMPLEX^{vow}	No strings of vowels
Faith C	The consonants in the input are the same as the consonants in the output
Faith V	The vowels in the input are the same as the vowels in the output
IDENT-IO (F)	The specification for the features of an input segment must be preserved in its output correspondent
INDENT-IO(place)	The specification for place of articulation of an input segment must be preserved in its output correspondent
Max- IO	output segments must have input correspondents (no addition)
DEP- IO	Input segments must have output correspondents (no deletion)
MAX-V	Input vowels must have output correspondents(no deletion)
NOCODA	Syllables are open
ONSET	Syllables are closed(must be open)

Adapted from Prince and Smolensky (1993)

Before discussing phonological nativization of EkeGusii loaned words from English, a brief description of the phonological structure (syllable, phoneme) of EkeGusii language is made as follows.

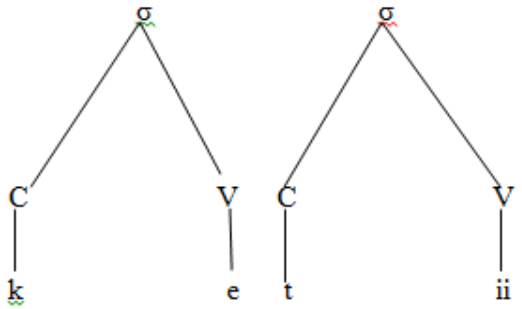
Syllable Structure

Generally, Ekegusii has a CV syllable structure (Cammenga, 2002), as illustrated by (1).

Tele:
E-mail address: kaonianyona@yahoo.com

1) EkeGusii syllable structure
   a) CV. CV. /ke.tii./ [ɣetii] ‘field’
   b) /βa.na./ [βana] ‘predict/fore-tell;
   c) /tɛ.rɛɛ.ra./ [tɛ.rɛɛ.ra] ‘sing for’

Illustration (1a) is presented on syllable nodes in (2).



(2) EkeGusii syllable nodes for |ke.tii|→/ɣe.tii /

These syllable structures generally presuppose two constraints: ONSET and FAITH C. That syllables should have onsets; and that the consonants in the input are the same as the consonants in the output respectively (Smolensky and McCarthy, 1993). Of the two constraints, ONSET is higher ranked than FAITH C. This is presented as: ONSET >> FAITH C. In OT theoretic terms, these syllable structures is panalyzed in the tableau in (3).

Input: /ɣe.tii/

Input: / ɣe .tii /	**ONSET**	**FAITH C**
a) ☞ ɣe .tii		
b) e.tii	*!	
c) ɣ.ii	*!	

3) Tableau for EkeGusii [ɣe.tii]

The optimal candidate here is (a) which violates neither of the constraints. The rest of the outputs violate ONSET, a relatively high ranked constraint in EkeGusii. Violating FAITH C as they do in the tableau has no serious consequence in determining the output.

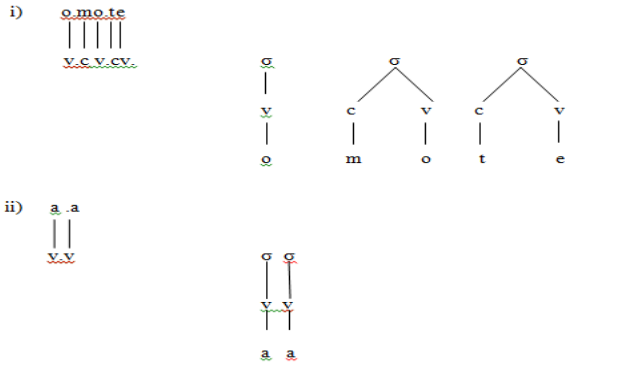
Single Vowel Syllables

Ekegusii, however, has cases of ONSET violation, i.e. where a vowel begins in a word, especially in noun number and class marking prefixes and some single vowel words as (4) below illustrates.

4) a) i) Omo-te ‘tree’ ii) eme-te ‘trees’
   3 -tree (sing.) 4 - tree (pl.)

   b) aa ‘pluck’ (vegetables etc.)

The prefix ‘omo-‘ in (4a i) marks the class of the noun ‘tree’, i.e. class 3 and number i.e. singular, while the prefix ‘eme-‘ marks class four and plurality. (4a i and b) above are presented on a syllable node as in (5).



5) EkeGusii syllable nodes for [omote] ‘tree’ and [aa], ‘pluck’

In cases of single vowel syllables as in (5 ii) above, OT will represent them as in (6) below.

Input: /aa/	**NOCODA**	**ONSET**
a. ☞a.a		*
a. aar.	*!	
b.	*!	
c. ar.la		

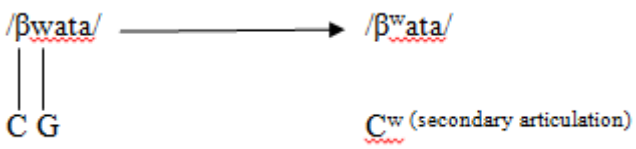
6) Tableau for EkeGusii input /a.a/

In this tableau, the ranking of the constraints is: NOCODA >> ONSET. The optimal output in the tableau is (a) because it does not violate the highly ranked constraint (NOCODA). The other two outputs violate it, explaining why they are not optimal.

According to Hyman and Katamba (1999) and Oden and Oder (1999), there are two main issues of interest in Bantu phonology pertaining to the syllable structure i.e. the syllable status of consonant clusters and resolution of vowel hiatus. This paper briefly interrogates the former. The question we seek to answer is: does EkeGusii language have obvious consonant clusters? According to phonologists, Hymen and Katamba (1999), there are generally no consonant clusters in Bantu languages aside from nasal Consonant (hereafter NC), Consonant Glide (hereafter CG) and Nasal Consonant Glide (hereafter NCG). This is the position adopted in this paper (i.e. EkeGusii does not have obvious consonant clusters).

According to Hyman and Katamba (1999), two kinds of consonant clusters have a central status in Bantu phonology: homorganic NC sequences, often referred to as pre-nasalized consonants and consonant glide sequences (CG). These categories can overlap to yield tri-consonantal nasal consonant glide (NCG) sequences as illustrated by (7) below.

7) EkeGusii nasal consonant glide
EkeGusii: mbwate ‘hold me’



The argument here is that, instead of treating a sequence as consonant glide (CG), it is occasionally treated as secondary articulation on single consonants [βʷa.ta]. Thus, the consonant here is one (the primary one which is accompanied with a secondary one (which is a semi vowel). Similar arguments have been advanced by Hargus and da Conceicao (1999) who

propose that Ronga language has distinctively labialized consonants e.g. [n^{w}ala] 'fingernail', rejecting a cluster analysis on the grounds that there are no any other onset clusters in the language. Similarly, Otterloo (2011) treats Fuhiru language's potential clusters of the type [Pj, Kw] as violating secondary articulated palatalized and labialized consonants [P^{j} and K^{w}] respectively. These arguments are supported by OT markedness constraint of *COMPLEX C –which bans complex margins/consonant clusters are allowed in the given languages as illustrated by the tableau in (8)

Constraint ranking: *COMPLEX >> FAITH V

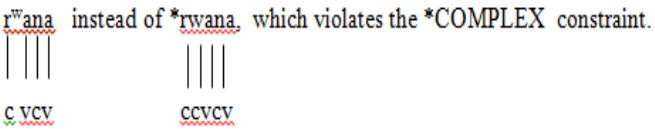
Input: /βwata/	*COMPLEX	FAITH V
a) βwa.ta	*!	
b) βwet.a	*!	*
c) ☞ β^{w}a.ta		*

8) Tableau for EkeGusii input [βwata]

Candidate (c) is optimal in the tableau because it violates neither the highly ranked constraint (*COMPLEX C) nor the relatively low ranked constraint (FAITH V). Following these observations, I argue in support of the view that EkeGusii language does not have consonant clusters. Instead it has secondary articulations in cases of CGs as the data in (9) further illustrates.

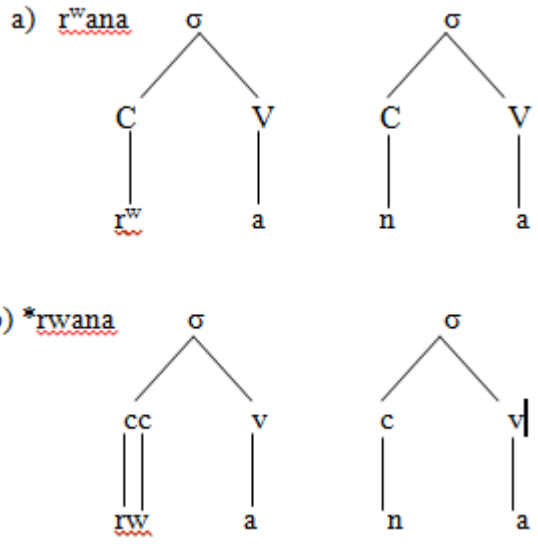
9) Ekegusii consonant glides as secondary articulations
a) rwana 'fight'
b) kwani 'greet'
c) chweri 'saw'

(9a) can be represented as follows:



This is further represented on syllable nodes as in (10) below.

10) EkeGusii CG syllabic nodes for r^{w}ana and *rwana



On the NC sequence, there are two issues. Firstly, is the sequence a single segment or a cluster? Secondly, if it is a cluster, how are the components syllabified? A basic reason to treat NC (e.g. [nt, nd]) as bi-segmental is that they are frequently bi-morphemic, and arise by cancatenation of an autonomous nasal with another consonant. For example, in Matumbi language, [mb] in the word [mbajite] "I said", derives from "nitbajite" which is optionally realized as [nimbajite] (Herbey, 1986 and Downing, 2005).

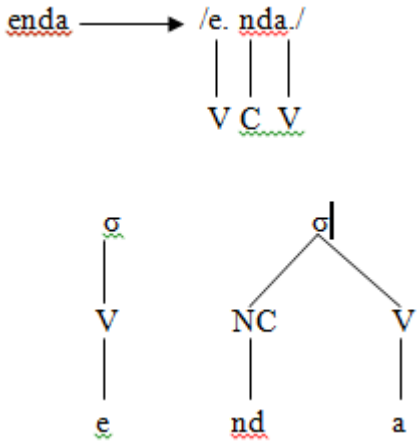
The reason not to treat the NC clusters as bi-segmental is that this would endow Bantu languages with a typology of uncommon syllable structure with onset clusters, which violate the sonority sequencing principle (Sievors, 1981 and Clements, 1990). Similarly, NC clusters will, in OT theoretic terms, violate *COMPLEX constraint explained above. Sometimes linguists employ the term "prenasalised stop" to refer to the NC sequence (Heath, 2003). According to Hearth, Makaa (a Bantu language) has twenty-two simple consonants and eight prenasalized stops. Equally, Alnet (2009) lists a series of pre-nasalized consonants in Shimaore language. Following these observations, we argue that EkeGusii language has pre-nasalized stops and other consonants and therefore no NC clusters in its syllable structure. (11) below gives the four pre-nasalized consonants in EkeGusii.

11) EkeGusii prenasalised consonants

Consonant	Example of word
a) /mb/	engombe [ɛŋɔmbɛ]'cow'
b) /nd/	enda [enda] 'stomach'
c) /nt/	ekento [eɣento]'thing'
d) /nk/	inka [inga] 'home'
	egechanga [eɣetʃanga]'wire'

This means that the NC 'clusters' (underlined) serve as one consonant. In other words, there are no consonant clusters in in essence. For example, (11b) can be represented syllabically as (12) below.

12) Nasal consonant syllabification in EkeGusii



The first syllable is made up of only the syllable nucleus, which is allowable in this language as in many other Bantu languages. The second syllable is made up of a pre-nasal consonant; a consonant proper (and not two consonants) and a vowel. Thus, it has an onset, with *COMPLEX C as the tableau in (12) below shows.

Input: /e.nda/ 'stomach'

Constraints and their ranking: *COMPLEX C >> FAITH C

Input: /enda/	*COMPLEX C	FAITH C
a) ☞ e.nda.		*
b) e.kda	*!	
c) efd.a	*!	
d) e.pd.a.	*!	

12) Tableau for Ekegusii input /e.nda/

Output (a) is optimal because the nasal plus consonant in the output is treated as a single consonant and therefore does not violate the highly ranked *COMPLEX constraint.

Frequently, there is vowel lengthening before NC clusters as shown in (13).

13) Ekegusii vowel lengthening before NC clusters

a) /omoonto/ 'person'
b) /eβaando/ 'maize'
c) /ɛngoombe/ 'cow'
d) /ejaaŋga/ 'dress

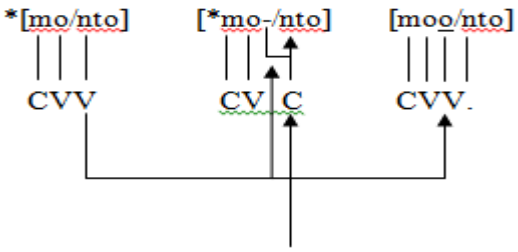
According to Clements (1978), such lengthening regularly holds in many Bantu languages: Yao, Hehe, Kikuyu, Kuria, Sukuma, Luhyia etc. The assumption, according to Clements is that a pre-consonantal nasal has a special prosodic status that is dominated by a vowel rather than a consonant. This normally results in syllabification of the nasal into the coda of the preceding syllable, but the fact that words should not have codas (Prince and Smolensky1993) is taken to argue against posting nasals in the coda position, hence the fatal violations of the NOCODA constraint in the tableau in (6) above. The syllable is therefore syllabified in the onset of the following syllable, which leads to compensatory lengthening of the preceding vowel by re-association of the standard timing unit as illustrated in (14) below.

14) Compensatory lengthening of vowels in EkeGusii in [omoonto]

i) *moon.to nasal as Coda
ii) moo.nto nasal as Onset
iii) *moo.n.to nasal as syllabic consonant

It is (14 ii) which necessitates compensatory lengthening. This argument depends on the assumption that the nasal in the vowel NC sequence must be in non-linear analysis (Clements, 1986). (14) shows that, the pre-NC lengthening is treated as compensatory lengthening coming from the fact that the nasal is deprived of its vowel slot because it is moved into the onset slot and so a vowel must come in to fill the empty vowel space left by the nasal as (15) below demonstrates.

15) EkeGusii vowel lengthening



C (which is onset having moved from coda position leaving behind an empty slot necessitating vowel lengthening).

The phonological evidence in support of the fact that the nasal in NC combination is Onset is that no syllable ends in a consonant (NOCODA), even a nasal.

3. Loaned word syllable nativization in EkeGusii

EkeGusii loanword nativization at the phonological level is governed by the syllable structure of the borrowing language. This is to say that a borrowed word when being nativized normally violates some constraints of syllable well formedness of the borrowing language. The borrowing language then tries to avoid the structure of the loaning language. It is this avoidance that leads to conformity, because the foreign structure is avoided at the expense of the native one, hence nativization. For example, many languages avoid cluster consonants and onsets. EkeGusii uses a number of avoidance strategies to repair the nonconforming syllables of the English loanwords. Vowel insertion and Phoneme Feature Change are among the many of these avoidance strategies.

3.1 Vowel insertion (epenthesis)

Insertion is a case where a "new segment may appear from zero in formerly unoccupied positions in the word or morpheme, or previously abutting segments. The general term for such insertion is epenthesis (Katamba, 1989). As has already been pointed out, the syllable structure of English is generally a CVC one while that of EkeGusii is generally a (V) CV one. Any English word loaned into EkeGusii with a CVC syllable structure therefore is re-syllabified as shown in (16) below.

16) Rre-syllabification of English in EkeGusii

English (source)	**EkeGusii**
school /skʊl/	sukuru /sukuru/
stage /seitʃ/	sitechi /sitetʃi/
tax /tæks/	tagisi /ɣisi/ta
drink /driŋk	turungi /turiŋgi/
credit /crɛdit/	kiretiti / kiretiti/

Each of the English words in (16) contains a consonant cluster. On the contrary, their nativized forms do not have any consonant cluster.

Data set (16) indicates that the nativized words have avoided all the consonant clusters in the source word forms by inserting a vowel between the consonant clusters. This involves a violation of the faithfulness constraint, MAX IO (output segments must have input correspondents- no addition), because the inserted vowel (segment) lacks a counterpart in the input. However, this insertion satisfies the markedness constraint *COMPLEX C. Thus, the constraint *COMPLEX C is higher ranked as compared to MAX IO in EkeGusii language (i.e. *COMPLEX C >> MAX IO). This is demonstrated by the tableau in (17) below.

Input: /sitetʃi/
/steidʒ/ → [sitetʃi]

Input: /steidʒ/	***COMPLEX**	**MAX-OI**
a) steidʒ	*!	
b) ☞si.te.tʃi	*!	
c) stedʒ	*!	

17)Tableau for EkeGusii input

The winning Candidate in the tableau is (b) since it does not violate the serious constraint in EkeGusii language ranking (i.e. *COMPLEX). The MAX-OI constraint that the output violates is lowly ranked in EkeGusii language comparatively, and therefore has little consequence in stopping it (the output) emerging as the optimum or winner.

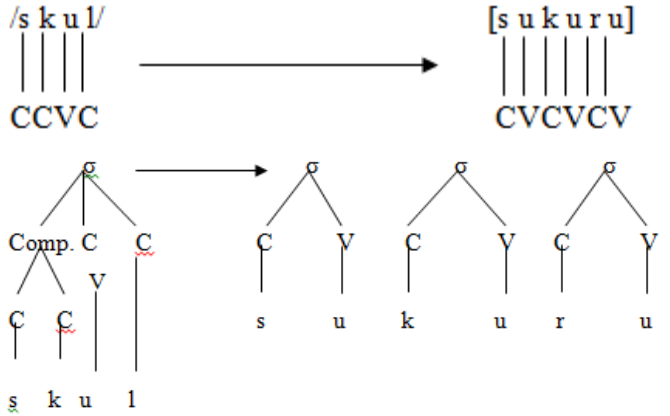
Vowel epenthesis according to Batibo (1968) is by far the most common method of consonant cluster nativization strategy in most Bantu languages. EkeGusii language is so faithful to the *COMPLEX C constraint that no English loanword with complex consonant cluster maintains the cluster series in their new environment. That is why, as it was argued early in this paper, the NC sequences are not treated as consonant clusters. Consonant clusters in loanwords do not "survive" in this language. Epenthesis therefore helps to break up such clusters of the borrowed words in order for them to fit into the language's phonotactics.

Besides breaking up consonant clusters in order to avoid *COMPLEX C, epenthesis is also used in EkeGusii to avoid NOCODA (i.e. closed vowels). To a very large extent, English is a closed syllable system (CVC), while EkeGusii is largely

an open syllable structure (CV). This therefore means that borrowed words from English with closed syllables will require vowel epenthesis as a strategy of avoiding NOCODAS. The words /skul/, /steɪdʒ/, and /drɪŋk/ in (16) are examples of monosyllabic English words, which become polysyllabic upon nativization into EkeGusii due to avoidance of the NOCODA constraint as illustrated by (18) below.

18) coda avoidance through epenthesis in the EkeGusii loaned word school /sku:l/

English Syllables Ekegusii syllables



All the syllables in the nativized word are of a CV (open type), while the single syllable of the source word is a CVC (closed type). In OT theoretic terms, these two forms are presented in the tableaux in (19) and (20).

English /sku:l/

Input: /sku:l./

Ranking: MAX OI >> *COMPLEX >> NOCODA

Input: /skul/	MAX –IO	*COMPLEX	NOCODA
a) ☞ sku:l		*	*
b) sukul	*!		
c) skulu	*!		

19)Tableaux for the English input /sku:l/

ii) EkeGusii [sukuru]

Input: /sukuru/

Output: [sukuru]

Ranking: *COMPLEX >> NOCODA >> MAX-IO

Input: /skol/	*COMPLEX	NOCODA	MAX-IO
a) skul	*!	*	*
b) sukur		*!	*
c) ☞ sukuru			*

20) Tableaux for EkeGusii input /sukuru/

The optimal candidate in (19) is (a) which violates the relatively lowly ranked constraints in English, viz; *COMPLX and NOCODA. This is because English tolerates these constraints. In (20), the optimal candidate is (c). Unlike English, EkeGusii ranks the Constraints *COMPLEX C and NOCODA highly, meaning that no candidate with complex margins (consonant clusters) and codas will emerge as winners. MAX –IO constraint, in as far as borrowed words are concerned, is of little consequence in EkeGusii language, it is lowly ranked and therefore will not stop a candidate from emerging the winner.

4. Conclusion

This paper has analyzed nativization of EkeGusii loanwords from English using the OT theoretic framework. The data used include EkeGusii loanwords from English collected in the *Authoritative Ekegusii Dictionary, Endabaro, Endabasia Y' Ekegusii* (2013) and as used by native speakers in various contexts including radio stations, local churches, funerals, markets etc. The paper has focused on re-syllabification as one of the major means by which EkeGusii nativizes EkeGusii loaned words from English. It has been realized that EkeGusii loaned words from English have cases of ONSET (consonant) violation. This, it has been realized, is as a result of EkeGusii having a pre-prefix (augment) before the prefix per-se in the prefix structure, especially as noun class and number markers. It has also been established that EkeGusii does not have consonant clusters. Existing consonant glide (CG) 'formations' have been treated as secondary articulations and not consonant clusters. The next point the paper has established is that EkeGusii has pre-nasalized stops and not nasal consonant clusters. Finally, the paper has also shown that Optimality Theory can be effectively used to analyze nativization of loanwords without having to employ rule based phonological rules. This has been done by examining the relationship between the two contrasting constraints: Faithfulness and markedness in the syllable repair and phoneme change processes.

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