A Goverment Phonology Rendition of Nasal Prefixation,Segment Deletion, Consonant Epenthesis, Prothesis And Gliding As Nativisation Processess In Gichuka Loanwords.

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ABSTRACT: Lexical borrowing is one of the ways in which a language adds words into its vocabulary.Lexical Borrowing is inevitable in situations of language contact. Gichukahas come into contact with English and Kiswahili and borrowed lexical items from the two languages to cater for modern communicative needs.This paper looks at five of thephonological processes that have been used to nativise the borrowed lexical items using Goverment Phonology Theory in the analysis .These processsess are nasal prefixation,, segment deletionconsonant epenthesis, prothesis and gliding.The population of this study is all words borrowed from English and Kiswahiliby Gichuka and nativised using the five processess covered in this paper.Purposive sampling was used to analyse a few of the lexical items.Data was collected using guided interview shedules and a focussed group diccussion.The results show thatthe spreading analysis and domain intial empty onset parameter are adequate to explain the five processess in Gichuka loanword phonology.
KEYWORDS: Nasal Prefixation, Segment Deletion, Consonant Epenthesis,Prothesis, Gliding, Gichuka, Goverment Phonology Theory and Loanwords.

I. INTODUCTION

The commonest way in which words are added into a language is through borrowing. Borrowing occurs when one language adds a word or a morpheme from another language to its own lexicon. There are sociolinguistic motivations for borrowing such as need (where there exists a lexical gap in the receptor language), prestige and language contact. Gichuka has come into contact with English and Kiswahili and it has borrowed lexical items from these languages.

There are four important characteristics of borrowing (Aitchison, 1993). First, when lexical borrowing takes place, the detachable elements that will not affect the structure of the borrowing language are the ones that are taken over. Secondly, the adopted items tend to be changed to fit in with the structure of the borrower's language. The words are nativised through phonological and morphological processes, among others. Thirdly, a language tends to select for borrowing those aspects of the donor language which superficially correspond fairly closely to aspects already in its own structure. Finally, the borrowing language makes very small adjustments to the structure of its language at any one time. This has been called the 'minimal adjustment tendency' (Aitchison, 1993). The speakers of a language make phonological adjustment so that the borrowed word fits into the phonological system of the recipient language. Phonological processes are natural in language and they are found in every language. Some of the processes are more common than others and every language employs some of them (Abercrombie, 1967; Schane, 1972; Hyman, 1975). These processescan be divided into assimilatory processes and non-assimilatory processes (Massamba, 1996).

Assimilation occurs when two sounds are adjacent. One sound often moves partially or wholly in the direction of the other. Through omission, one sound sometimes gets left out in a group of sounds clustered together. The assimilatory processes include vowel nasalization, homorganic nasal assimilation, consonant vowel assimilation, vowel assimilation, and coalescence.

In homorganic nasal assimilation, a nasal consonant assimilates to the position of the adjacent consonant. Vowel nasalization is the process by which a vowel acquires some nasal features due to its being adjacent to a nasal sound. Consonant vowel assimilation can occur through palatalization. During this process, a non- palatal consonant acquires some palatal features in its articulation due to the following glide or vowel. This process is very common in Bantu languages (Massamba, 1996). Through the process of vowel assimilation, vowels assimilate to each other, that is, a vowel of one syllable may become more like the vowel of another syllable. In coalescence, two adjacent sound segments affect one another. This happens in two ways; each one

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of the two segments either changes its features or acquires extra features or the segment disappears (Aitchison, 1993).

The non-assimilatory processes include apocope, syncope, metathesis, rhotacism, prothesis and epenthesis. Apocope is the loss of final sounds. The commonest case of apocope is the dropping of final consonant sounds in words. Due to the human inability to close off the nasal cavity during the pronunciation of the sequence -an-, a weak spot is created which can be exploited leading to the drop of the final consonant. Final nasals at the end of a word are weak if no vowel follows and all consonants are weak if no vowel follows (Aitchison, 1993). Syncope refers to the loss of sounds from the middle domain in words. Metathesis occurs when two sounds change places. Prothesis is the introduction of an extra initial sound while epenthesis is the introduction of an extra medial sound. Through rhotacism, a strident fricative changes into a trill or vowels are pronounced with an 'r' sort of coloring (Massamba, 1996).

Other phonological processes occur in language because language has an instinct for self-preservation. It therefore has self-regulating devices which restore broken patterns and prevent disintegration. These adjustments are performed by speakers of a language in response to some innate need to structure the information they have to remember. Among them is the aligning of the consonants in pairs by matching of the voiceless sound with a voiced one. Front vowels tend to be paired with back vowels. Through analogy, irregular features in the grammar of a language are often influenced by its regular patterns. For example, the notion of 'plural' or 'past' should each be expressed by a single ending, not a great number of them (Crystal, 1997 & Aitchison, 1993). In Bantu languages, there is vowel harmony (Hyman, 1999).

Therapeutic changes (repair strategies) can trigger off a set of wholesale phonological shifts. Some of these shifts have been discovered by linguists, for example, Grimm's Law, Verner's Law and the Great Vowel Shift in English (Fromkinet al, 2003). The other law is Dahl's law. Dahl's law is a sound rule of North East Bantu languages, a case of voicing dissimilation. In the history of these languages a voiceless stop such as /p, t, k/ became voiced /b, d, g/ when immediately followed by a syllable with another voiceless stop.For example, the word 'Kikuyu' becomes 'Gikuyu' in which case the velar stop / g / becomes voiced (Schadenberg, 1999). Dahl's law has taken place in Kitharaka (WaMberia 2002, 2003, 2005; Uffman, 2013), in Kikuyu (Bennet, 1977) and in Gichuka (Kanana, 2011).
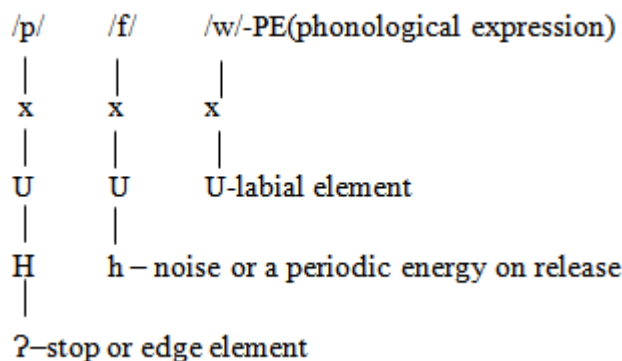
II. GOVERNMENT PHONOLOGY THEORY

Government Phonology (GP)(Kaye, Lowenstamm and Vergnaud, 1985; 1990; Kaye, 1990)is a theory that is also based on constraints. It replaces the rule component with a group of universal principles common to all linguistic systems in the world along with a series of parameters delimiting the nature of linguistic variation from one language system to another. It is a highly constrained theory in its view of phonological structure and different from Optimality Theory in its use of parameters and principles. In GP, the derivation of licensing constraints is language specific based on phonological processes in a language. It proposes a spreading analysis which is superior to a re-write rule. It is also closer to phonological reality because the elements that make up a phonological expression can spread and in this way the theory explains phonological processes in a way that is natural and close to reality than any other theory (Cyran, 1995).This is the theory that will be used to analyse phonological processes in the adaptation of Kiswahili and English loanwords in this study. The main precepts of GP are given in Chapter Four in order to lay a foundation for the analysis of phonological processes in Chapter Five and six. There are various versions of GP. The version used in this thesis is the one expounded on by Kula (2002). In Government Phonology Theory (GP) there are three recognized constituents: onset (O), nucleus (N) and rhyme (R). The three constituents attach on tier called P^0whichdominates a tier of timing slots called a skeleton as shown in 1.

(1)
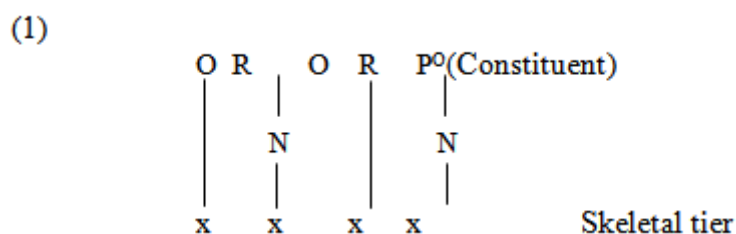
In (1) we see the three constituents in GP, (Onset, Nucleus, Rhyme) the constituent tier and the skeletal tier.
The smallestinterpretable units that combine to form sound segments or phonological expressions (PEs) in GP are elements.Up to nine elements (A I U R H L N h ʔ)can be employed for the purpose of representing the sound segments of a language depending on the version of GP being used (Kula, 2002). This is why the theory is highly constraining. Certain characteristicsare attributed to the elements and they are discussed in chapter

four. Elements are monovalent and they combine to form sound segments traditionally known as phonemes.PEs can be made up of only one element in which case they are simplex, for example, / a / is made up of element (A) or they can be made up of more than one element , in which case they are complex, for example, / p / (Ɂ H U) which is made up of three elements as illustrated in 2.

(2)

```
/p/      /f/      /w/-PE(phonological expression)
 |        |        |
 x        x        x
 |        |        |
 U        U        U-labial element
 |        |
 H        h – noise or a periodic energy on release
 |
 Ɂ–stop or edge element
```

In (2) / p / represents a complex element, / f / is also complex while / w / is simplex element. A simple PE (segment) is made up of only one element. The (H) element indicates voicelessness. The combination of elements to form phonological expressions (PEs)is regulated by the notion of licensing constraints (LCs). LCs are a set of restrictions that define the combination of elements in both the vocalic and consonantal systems of a language.LCs capture all and only those sound segments relevant to a particular language. They place restrictions on the possible phonotactic combinations in a language. They are derived from the phonological processes present in a language such as vowel harmony for vocalic elements.

According to the Minimalist Hypothesis in GP, phonological processes apply whenever their conditions are met (Kaye, 1992b). The primary mechanism of phonological change in GP is that spreading of elements. The elements are monovalent and can spread from one segment to another. The notion of spreading means sharing of features and not the total loss of an element in a feature. In a complex PE, one element is head. The other elements that assume a non-head position are called operators/ dependents. Heads rarely spread. Dependents are the ones that spread most. When heads spread, they do so with their dependents.

In analysingGichuka loanwords, I utilized two parameters, and the spreading analysis. The parameters are:

i) The parameter on domain-final empty nuclei (the final vowel must be realised ; the final vowel is not realised)
ii) The parameter on domain- initial empty onsets (words must start with an onset; words need not start with an onset)

3. Gichuka Consonant Inventory in GP

The derived consonants are in square brackets. Derived consonants are the variants and allophones in a language which occur in specified phonological environments. Nasal Clusters(NC's) (in Gichuka and Kiswahili) are included. The leftmost element in each expression is head. Simplex expressions are headed.

Stops   b (Ɂ.H U) t (Ɂ H R)   d (Ɂ R)   c (Ɂ. H I)   ɟ (Ɂ I)   k (Ɂ H)   g (Ɂ.)

Fricativesβ (h. U.)   ð (h. I.)   ɣ (h. H)   [ʃ (h. H. I)]   s [(h H R.)]   [ç (h. I)

Affricates [ʧ (Ɂ.H. I.)] [ʤ (h. I.]

Nasals   m (L .U)n (L R)   ɲ (L I)   ŋ (L.)   nd (Ɂ. L. R)   mb (Ɂ. L.U)   ng (Ɂ L)   nj (Ɂ L I)

Voiceless Nasals   nð(h L H I)   nc (Ɂ. L H I).   nt (Ɂ.L H R) nk (Ɂ. L.H)

Liquid   r (R)   l [R]

Glides   w (U)   j (I)

4. English Consonant Inventory in GP
Stops   p (ʔ. H. U.)   b (ʔ. U) k (ʔ. H)   g (ʔ.) t (ʔ. H .R)   d (ʔ. U)
Fricatives   s (h. H. R.)   ʃ (h. H. I.)   v (h. U)   f (h. .H. U) z (h R)θ (h H R)   ð (h R)   h (h H)
Affricatives   ʧ (ʔ H I)   ʤ (ʔ I)
Nasals   m (L U)   n (L R) ŋ(L)
Glides   w (U) j (I)
Liquids l (R)   r (R)

5. Kiswahili Consonant Inventory in GP
Kiswahili phonemes have been taken from Kiswahili Dictionary, (Said, 2013).
Stops   p (ʔ. H U)   b (ʔ U.)   k (ʔ H)   g (ʔ.)   t (ʔ. H   R)   d (ʔ R)
               ɟ (ʔ. I.)
Fricatives   s (h. H R.)   ʃ (h. H. I) v (h. U.)   f (h. H U) z (h R) (h. H. R)   ð (h. R.)   h (h.. H)   x   (h.)
ɤ (h. H)

Affricativesʃ (ʔ. H I.)

Nasals   m (L. U)n (L. R) ɲ (L. I) ŋ (L)   mb (ʔ. L. U) nd (ʔ. L. R)   mz (h. L. R)   nj (ʔ. L.I)   ng (ʔ.
L.) mv (h. L. U)
        nz (h. L. R)   mm (L. U)   m ð (h L R) md (ʔ L R) mg (ʔ. L)   mj (ʔ L I.U)   ml
(L R U.)   mr (L R U)
Voiceless nasals mh (L. H. U) mf (h. H.L. U) mk (ʔ. H.U)   mh (L. H. U) mp (ʔ. H. U) ms (h. H L R.)
               mt (ʔ. H. L.R) nʧ (ʔ L H.I).
Glides   w (U)   y (I)
Liquids l (R.)   r (R.).

        Gichuka constituent strutures have been presented in this paper as non-branching in GP.Consonant Glides CG clusters are represented as heavy diphthongs with the consonant on a nucleus slot and the glide on a contour segment. This representation allows any consonant to occur with a glide. NC clusters are represented as sequenses other than units on two onset slots separated by an empyty nucleus. The two onsets contract an inter-onset goverment. Long vowels and diphthongs are represented on two adjacent nuclei separated by a contentful onset which is licensed under p-licensing as an onset in an inter-nuclei domain.

6.   Objective of the Paper
To analyse the phonogical processes of nasal prefixation, segment deletion,consonant epenthesis and prothesis and glidingin Gichuka loanwords using Goverment Phonology Theory.

7.   Population
The target population of this study is all lexical items Gichuka has borrowed from English and Kiswahili and which have been nativised using the four processes that are discussed in this paper.

8.   Sampling Procedure and Sample Size
        Purposive sampling was used to get the sample for this study. The researcher selected social domains which were identified based on previous research, that naturally experience language change in cases of language contact (Mutua, 2013; Mwaniki, 2013) and also based on personal observation. These domains are representative of all lexical changes have that occurred in Gichuka and they include:education, health, administration, agriculture, electrical goods and technology, household goods, food, religion, clothing, animals, trade and industry. Naming, and kinship terms were also included in order to take care of lexical items that are in the domain of culture.
        Purposive sampling wasalso used to select informants. The researcher identified native speakers who are aged seventy years and above and have lived /worked in the location of the study for most of their active life. Informants over seventy years are able to tell the lexical items that were not there in the Gichuka language but are now a part of the Gichuka lexicon and also identify and explain obsolete lexical items with ease. The people in this age bracket have experienced the changes that have occurred in the language as well as other social changes that may have impacted on lexical changes.
        Purposive sampling was further used to reduce the informants to seven who would become members of a focused group discussion; three from Magumoni Division and four from Chuka Division based on the population in the Divisions. Three informants (agedtwenty nine, forty and fifty two years); one from Magumoni

Division and two from Chuka Division were added to the remaining seven informants to form a focused group discussion. This is because focused group discussions are effective if they comprise 7-10 members (Kasomo, 2006). The younger members were added to take care of different age groups, and to verify the obsolete items (they confirmed that the items were not familiar to them) and the usage and pronunciation of borrowed lexical items In the analysis of phonological processes, the researcher usedpurposive sampling to select specific lexical items for analysis.

9. Research Instruments
The researcher collected data using guiding cards by engaging the respondents in a conversation.

10. Validity and Reliability
The informants who were used in the data collection were native speakers of Gichuka. The native speakers of a language have intuition about the well-formedness of language structures.(Radford, 1988). This means that a native speaker has the ability to make judgments about whether a structure is correct or incorrect. In phonology, native speakers have strong intuitions about phonological structure and phonotactics, that is, intuitions about what are possible and impossible sound sequences in a language

11. Data Collection Procedure
The first phase of data collection involved interviewing respondents on each semantic field. To take care of ethical considerations, the respondents were given all the facts about the research in order to decide whether to participate or not. In total, twelve informants were involved in the data collection. Four informants were from Magumoni Division and eight from Chuka Division. This number is in proportion to the population in each of the Divisions. The informants were engaged in a near- natural conversation by the researcher to extract data on new lexical items

The second phase involved subjecting the data collected through interviews to a focused group discussion. Every lexical item was verified during the discussion for inclusion in the final data and only those items that were accepted were included in the final data. The justification for using focused group discussions is that they are inexpensive, data rich, flexible, stimulating, recall-aiding, cumulative and elaborative (Punch, 2005; Morgan, 1988). This cannot be achieved through the normal interview where only one person is engaged.

The focused group discussion enabled the researcher to work with a maximum of ten people simultaneously as a moderator and not an interviewee as such. The researcher was facilitating, moderating, monitoring and recording group interaction. The group discussion was also used to come up with any lexical changes that may have been missed out in the interviews, participant observation and secondary data collection procedures and to confirm the pronunciation of the words. The age of the group members was spread from 29 to 90 years. This accounted for the different generations in the last one hundred years. This spreading wasnecessary because lexical borrowing is a process that takes place over a period of time.

12. Data Analysis and Presentation
Qualitative method of data analysis were used in this study. The lexical items were categorized according to the phonologicalprocesses used in the nativisation process. The phonological processes areanalysed using Government Phonology Theory.

III. RESULTS AND DISCUSSION
The phonological processes are presented starting with nasal perfixation , then segment deletion, next is consonsnt epenthesis , prothesis followed by gliding.

13.1 Nasal Prefixation in English Loanwords
This process involves the formatiom of a Nasal Consonant(NC) cluster in the adaptation where there was a single consonant in the lexical item in English. Examples are given in (3).
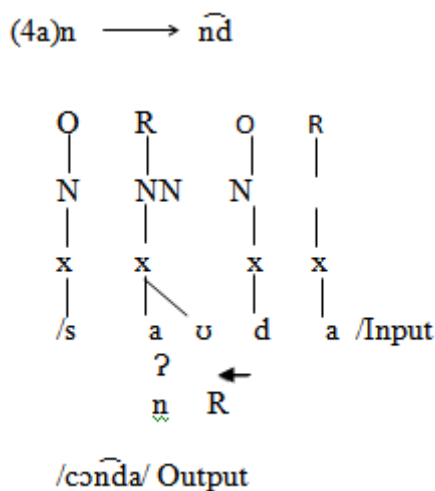
(3) Input	Output	Gloss
a. /soda/	/con͡da/	Soda
b. /blæŋkit/	/morɛngɛiti/	Blanket
c. /bʊk/	/m͡buku/	Book
d. /dɒkta(r)/	/n͡daɣetare/	Doctor

The formation of the nasal clusters can be summarised as follows:
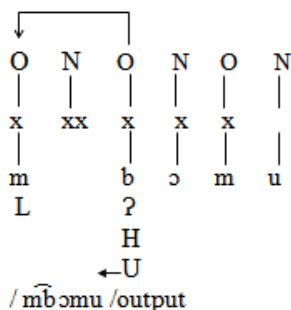
d ⟶ n͡d
b ⟶ m͡b

ŋ ⟶ n͡g

The prefixation of a nasal to form an NC cluster is enabled by an uderlying nasal type prefix which may vary from one language to another and this is an area that requires further research in Gichuka. In the examples provided, only the spreading of elements is shown and it is adequate for the porposes of this study in 4a, 4b and 4c

(4a)n ⟶ n͡d

```
    O    R       O    R
    |    |       |    |
    N    NN      N    |
    |    |       |    |
    x    x       x    x
    |     \      |    |
    /s    a  ʊ   d    a   /Input
          ?      ←
          n      R
```

/cɔn͡da/ Output

In the output 4 (a), the place element of the governing head /d/ (R) is imposed on governee (nasal) by a spreading operation. This leads to the prefixation of the coronal nasal. The stop is the governor rather than the nasal so the nasal loses its ability to specify its own place of articulation. The NC /nd / has the elements (? L R).
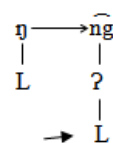
(4b)bm͡b⟶

   a. Input / bʊm /

```
        O   N   O   N   O   N
        |   |   |   |   |   |
        x   xx  x   x   x   |
        |       |   |   |   |
        m       b   ɔ   m   u
        L       ?
                H
               ←U
```

/ m͡bɔmu /output

In 4 (b), through the leftward spread of the place element (U) from the stop / b /, prefixation of the nasal / m / takes place. The place element of the governing head /b/ (U) is imposed on governee (nasal) by a spreading operation. The stop is the governor rather than the nasal so the nasal loses its ability to specify its own place of articulation. The NC /mb / acquires the stop element as head and is made up of the elements (? L.H. U) while / m / is made up of the elements (L U). In the represetation of substitution of PE / ŋ / with / ng /, only the relevant PEs are shown in (4c).

(4c) /blæŋkit/   /morɛn͡gɛiti/

```
                        ŋ ⟶ n͡g
                        |    |
                        L    ?
                             |
                          ⟶  L
```

In the element geometry, velars are represented without a place element. In the substitution of the velal nasal/ ŋ / with another velar NC cluster / ng / is the spread of the nasal element (L) from the velar nasal to the NC cluster.

13.2 Nasal Prefixation in Kiswahili Loanwords

This is the replacement of a single consonant with an NC cluster as illustrated in (5).

(5)	Input	Output	Gloss
a.	/pɛtɛ/	/m͡bɛtɛ/	Ring
b.	/diriʃa/	/n͡dirica/	Window

The process of nasal prefixation is illustrated using the lexical item /pɛtɛ/.
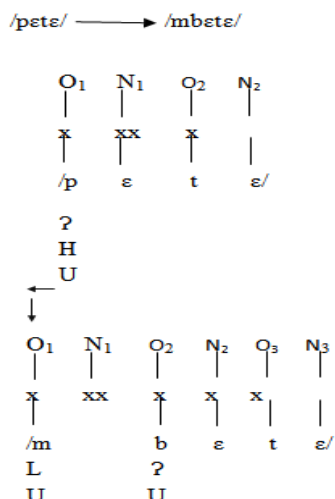
The PE / p / has the elements (ʔ. H. U) and the PE / m / in Gichuka has the element (L U). The prefixation of /m/ is the spread of the place feature (labial element), (U).This is the same case with the segment / d / which has the elements (ʔ. L. R). and /n / in Gichuka has the elements (L. R). The formation of the NC cluster (nd-) is the spread of the coronal element (R).

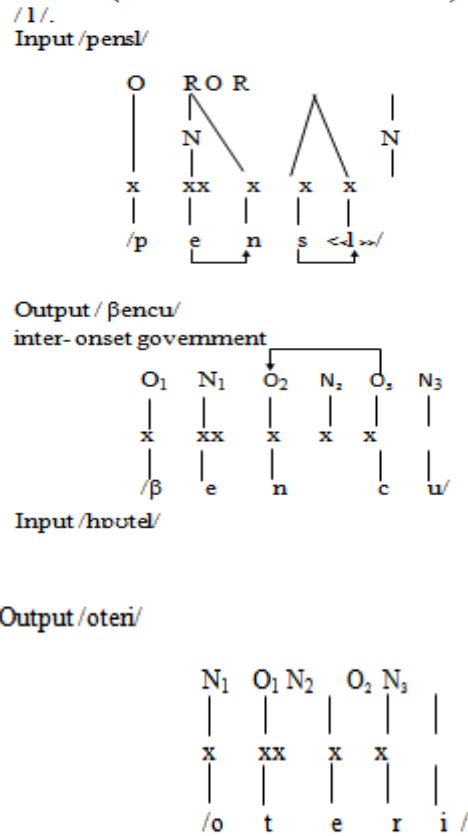**13.3 Segment Deletion in English Loanwords.**

The process occurs in the following English loanwords:

(6)	Input	Output	Gloss
a.	/ hɒspitl /	/ cibitare /	Hospital
b.	/həʊtel	/oteri/	Hotel
c.	/pensl/	/ βencu/	Pencil

The segment / h / is deleted when it is in word initial position in English loanwords (6a and b). Segment deletion in word initial position is referred to as aphaeresis. Deletion of a segment from the middle-position of a word is refferred to as synocope. The segment / l / is also deleted at the end of a word (6c). The deletion of a segment at the end of a word is referred to as apocope.

The process of deletion will be treated as suppression of segments. Suppression in GP is a process that allows elements not to be submitted to the speech signal in the course of phonological processing (Harris & Lindsey, 1992). The PEs / h / and / l / (which are deleted) have the features + sonorant and + continuant. They share these features with vowels. In English , the PE / h / is always followed by a vowel (Roach, 2003). The PE / h / is not in the Gichuka consonant inventory and that is why it is suppressed. In (6c) the last consonant must be followed by a vowel to set the parameter on domain-final empty nuclei which is OFF in Gichuka (the final nuclei must be realised). This then leads to the suppression of the segment / l /.

Input /pensl/

/ 1 /.
Input /pensl/

```
        O    R O R              R
             |    \            |
             N     \          N
             |      \         |
   x        xx   x   x   x    x
   |         |   |   |   |    |
  /p         e   n   s  <l ɔ/
```

Output / βencu/
inter- onset government

```
        O₁   N₁   O₂   N₂   O₃   N₃
        |    |    |    |    |    |
        x    xx   x    x    x    |
        |    |    |         |    |
       /β    e    n         c    u/
```

Input /hʊʊtel/

Output /oteri/

```
     N₁   O₁ N₂    O₂ N₃
     |    |  |     |  |
     x    xx x     x  |
     |    |  |     |  |
    /o    t  e     r  i /
```

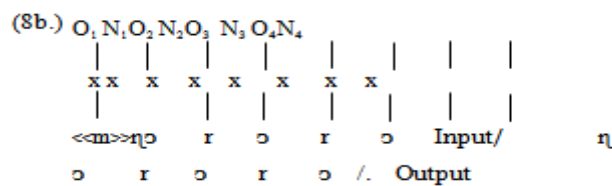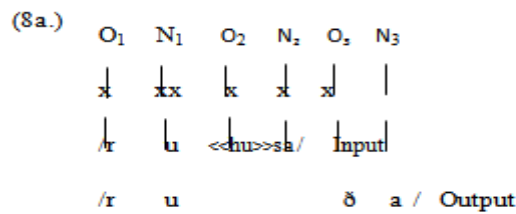**12.4Segment Deletion in Kiswahili Loanwords**

Segment deletion involves the elision of a PE(s) from a borrowed lexical item. In Kiswahili loanwords, this process occurs in the lexical items in (7).

(7)

a.	/ ruhusa/	/ ruða /	Leave/permission
b.	/ mʃhara /	/ mocara /	Salary
c.	/ sahani /	/ thani /	Plate
d.	/ mnyororo /	/ ɲɔrɔrɔ /	Chain

In (7a-c), / h / is deleted when it occurs in the middle of a word (synocope). In (7d) / m / is deleted from the initial word position when it is prefixed to / ɲ / to form the consonant cluster /mɲ /. This process of deletion is referred to as aphaeresis. The NC / mɲ /is not in the Gichuka consonant inventory. As in English loanwords, the process of elision will be treated as suppression of elements as illustrated in 8 (a) and (b).
(8a.) (8b.)

```
(8a.)  O₁   N₁   O₂   N₂   O₃   N₃
       |    |    |    |    |    |
       x    xx   x    x    x    |
       |    |    |         |    |
      /r    u  <<hu>>sa/   Input
      /r    u           ð  a /  Output


(8b.)  O₁ N₁ O₂ N₂ O₃  N₃ O₄ N₄
       |  |  |  |  |   |  |  |
       xx x  x  x  x   x  x
       |  |  |  |  |   |  |  |
    <<m>>ɲɔ  r  ɔ  r   ɔ  Input/      ŋ
       ɔ     r  ɔ  r   ɔ /.  Output
```

In 8 (a) / h/ and / u / are suppressed and 8 (b), / m / is suppressed

13.5 Consonant Epenthesis in Enlish Loanwords

Consonant Epenthesis involves the insertion of /r / in domain-final position in the adaptation of two English loanword 'tyre' and 'doctor'. The process occurs more in adapting Kiswahili loanwords than in adapting English loanwords. It is also found in Kikamba and surprisingly involves the same item 'tyre.' In Gichuka, it is adapted to /taeri / and in Kikamba it is adapted to /taeli /. The Gichuka loanwords from English are presented in which consonant epenthsis occurs are provided in (9).

(9)

	Input	Output	Gloss
a.	/taiə (r)/	/ taeri /	Tyre
b.	/ dɒkta(r) /	/ ndaɣetare /	Doctor

To explain the process of consonant epenthesis, there is need to review the binality of features in Generative Phonology. The concept of binarity is based on the assumption that every sound segment is characterized by the presence or absence of a feature. For that reason, the presence of a feature is represented by a plus sign and the absence of a feature is represented by a minus sign (Massamba, 1999). The feature [+back] is found among the following English phonemes / u, ʊ. a, ʌ , ɔ./. The segments that have a [+back] feature are produced with the dorsum of the tongue bunched and retracted slightly to the back of the mouth. In English / l / triggers 'backing' after / a / in words such as 'all' and 'ball'.

Laterals have a secondary place of articulation referred to as dorsal. According to Roach (2003) the realisation of 'l' found before vowels sounds is different from that found in other contexts. Clear 'l' will never occur before consonants or before a pause, but only before vowels; a dark 'l' never occurs before vowels. The dark 'l' has a quality similar to a [u] vowel with the back of the tongue raised.

In the articulation of 'r' the lips tend to be slightly rounded. Massamba (1996) refers to the process of rhotacism in which vowels are pronounced with an 'r' sort of coloring by some American English speakers. This occurs in words like beard, bared, bard, board and fur. All this points to the presence of [+ back] feature in the pronunciation of 'r' and 'l'. This feature is evident in certain environments such as is the case of vowel epenthesis in Gichuka loanwords from English and Kiswahili. The GP element representing backness is the element (U). Consonant epenthesis will be treated as the spreading of the element (U) (in the secondary sub-gesture according to the element geometry), from the vowel / a / as shown in (10).

(10) Input /taɪə(r) /
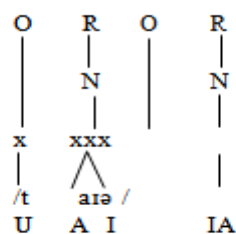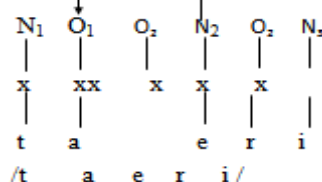
13.6. Consonant Epenthesis in Kiswahili Loanwords

Consonant epenthesis involves the insertion of the consonant / r/ as illustrated in (11).

| (11)Input	Output	Gloss
a. /kitungu:/	/ ɣetongoro /	Onion
b. / kitoweɔ/	/ɣetɔwerɔ /	Fried food with mixed ingredients
c. / kiʧanjo/	/ ɣecanori /	Comb
d. /maka:/	/ makara /	Charcoal
e. / jikɔ /	/ kerikɔ /	Stove

| f. | / kijatu / | / kerato / | Shoe |
| g. | / tʃɔ: / | / keɔrɔ / | Pit latrine |

Consonant insertion is effected as an adaptation process where there is a long vowel (11a, d, g), a glide and a vowel (11f, c) and even a single vowel (11e), or a diphthong (11b) in domain-final position. The consonant /r / is inserted to break the long vowel or the vowel-glide combination. The insertion of /r / is explained in the adaptation of English loanwords inSection 13.5 as the spreading of the element (U) which is shared by laterals and some vowels. The element (U) spreads from the vowel into the empty onset position created under the ECP (Empty Category Principle). The spreading of the (U) element to enable the consonant epenthesis is shown in (12 a-c).

(12a) / maka: / ⟶ /makara /

b) / kitɔweɔ / ⟶ /yetɔwerɔ /
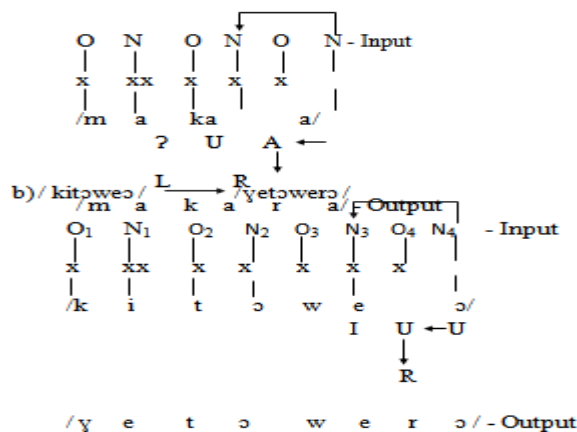
c) / kitʃnijɔ / ⟶ / yecanori /
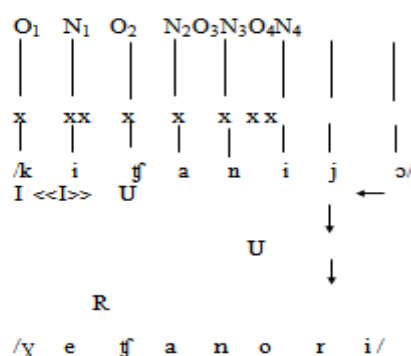
In 12 (a-c) the consonant / r / is epenthesised through the spread of the element (U).(I) is suppressed.

13.7 Prothesis in English Loanwords
This is the insertion of a vowel in the initial position in a word (Massaba, 1996). In both English and Gichuka this parameter is ON (that is a vowel can be inserted). However, a deeper investigation reveals that the insertion of a vowel in the domain-initial position in Gichuka is morphologically motivated. The vowel is inserted as a morpheme to indicate number, that is, singularity. The insertion is evident in the words presented in 13(a-c).

(13).Input	Output	Gloss
a. / tæŋk /	/etaⁿgi /	Tank
b. / kaʊt /	/egɔti /	Coat
c. / blæŋkit /	/ morɛⁿgɛti /	Blanket

The insertion of vowels is enabled by the domain-nitial empty onset which is ON in Gichuka. This is illustrated using the words 'tank.'and 'coat' respectively.
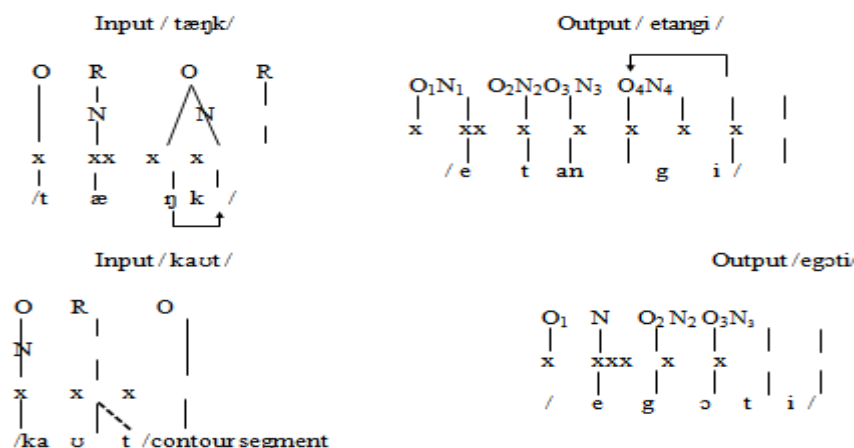
The parameter on domain-initial empty nuclei is ON in both English and Gichuka. In Gichuka, the parameter enables the insertion of the singular prefix morpheme for class 5 nouns. The plural of 13(a) and 13 (b) would be /matangi, magɔti / respectively. The plural of/ morɛngɛti/ (13c) would be / merɛngɛti/. Thus the prefix mo- in 'mũrengeti' is also a noun class marker.

Bantu noun classes have several singular-plural pairings. The noun classes participate in a concordial agreement system, where nominal modifiers, pronouns and the verb all agree with the head noun in terms of its class features (Schadelberg, 1999). For the purpose of discussion, I have come up with a tentative grouping of Gichuka noun classes. The classes are by no means a final list but only for the purposes of illustration in this study. An investigation of Gichuka noun classes needs to be carried out in a separate study which would explore existing literature on noun classes, group Gichuka lexical items into noun classes and show how loanwords are assigned noun classes. Due to the limitations in terms of scope, it is not possible to cover all that in this study. The following are the suggested noun classes in Gichuka in (14).

(14)

Class	Singular Prefix	Example	Gloss	Class	Prulal Prefix	Example	Gloss
1.	mũ-	mũntũ	Person	2.	a-	antũ	people
3.	mũ-	Mũtĩ	Tree	4.	mĩ-	mĩtĩ	Trees
5.	ĩ-	Ĩgege	Tooth	6.	ma-	magego	Teeth
7.	kĩ-	K ĩura	Frog	8.	ci	ciũra	Frogs
9.	nyũ-	Nyũmba	House	10	nyũ-	nyũmba	Houses
11.	rũ	Rũkũ	firewood	12.	-	ngũ	Firewood
13.	ka-	Kabiũ	Knife	14.	tũ-	tũbiũ	Knives
15. 16. 17. 18.	- ku- ba- gu	ũkũrũ Verbal Location-near Location-far	-	-			
19.	ga / ka	dimunitive/ derogative					

When loanwords enter a Bantu language, they are assigned a noun class. 13 (a) and.13(b) have been assigned to class 5 nouns. This is made possible by the parameter on domain initial empty onset which in Gichuka is ON meaning it may or may not be realised. In this case it is realised allowing for nominal class marking. / morɛngɛti /' whose plural is/ merɛngɛti / which is assigned to class 3/4. Most of the loanwords are assigned the neutral class 9/ 10 based on agreement patterns. Thus the motivating factor in vowel prothesis is morphological. The assignment of loanwords into nominal classes is a wide area of study that will not be explored any further in this paper.

In the nativisation of English loanwords in Kikamba, vowel prothesis is also used (Mutua, 2013), as illustrated in (15). Mutua also notes that the process is motivated by morphological reasons These similarities among Bantu languages here and in the foregoing examples is due to the fact that Bantu languages share similar structures and some are mutually intelligible. Examples from Kikamba are shown in 15 (a-d).

(15)

Input	Output	Gloss	
a. / treila /	/etilɛla /	'trailer'	
b. / kaʊt /	/ekoti /		'coat'
c. / bʊks /	/eɸuku /	'book'	
d. / bɔks /	/eɸɔkisi /		'box'

13.8 Vowel Prothesis in Kiswahili Loanwords

During this process, a vowel is inserted in domain-initial position. This process occurs in the lexical items given in (16).

((16) Input		Output	Gloss
a.	/rinda/	/erinda/	Dress
b.	/jembe/	/ecembe/	Jembe (EAE)
c.	/nanasi/	/enanaci/	Pineapple
d.	/hema/	/eɣema/	Tent

Just as in the adaptation of English loanwords, the process of vowel prothesis is motivated by morphological reasons. The vowel / e / that is inserted in initial position is a singular morphological marker for class 5 and 6 nouns. The plural morpheme for all of them is (ma-). as mentioned earlier, loanwords are assigned a nominal class in the adaptation. The insertion of the vowel is represented in GP as a structure with a domain-initial empty onset. The domain-initial empty onset is parameterized across languages. In Gichuka the parameter on domain-initial emmpty onset is ON. The empty onset is shown in (17).

(17)
Input   Domain-initial onset is filled

Output-Domain-initial onset is empty.
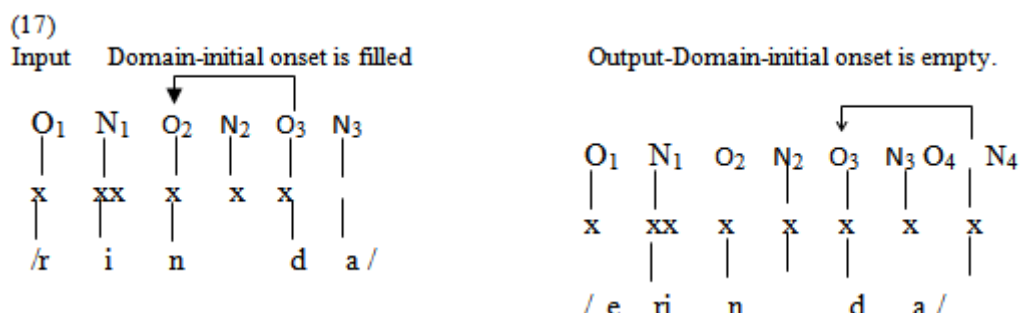
The domain-initial empty onset as shown in (17), allows prothesis to take place as is shown in the output.

13.8Gliding in English Loanwords

The subsitution of a vowel for a glide occurs when a vowel is phonetically realised as a glide in the loanword. Some of the examples are given in (18).

| (18)	Input	Output	Gloss
a.	/ waɪə (r)/	/waja/	Wire
b.	/kwaɪə (r) /	/kwaja/	Choir
c.	/səveɪə(r) /	/ caβeja /	Surveyor
d.	/səsaɪəti /	/ cacajate /	Society

Gliding occurs in lexical items where there is a triphthong / aɪə /. GP theory is silent on the representation of triphthongs. I propose the representation of a triphthong as long vowel other than a contour segment (the representation of a diphthong) because it allows for gliding which is an almost similar process to consonant epenthesis and it has heavy phonetic content. The glide 'y' results from the process. Roach (2003) describes a triphthong as as a glide from one vowel to another and then to a third, all produced rapidly and without interruption. There are two options that can be used to represent a diphthong, one is branching nuclei with a light diphthong structure on the first x slot of the nucleus and the schwa on the second x-slot and the other option is an empty onset in between the first diphthong and the following schwa. Both are presented in (19).

(19a) Braching nuclei Structure   (19b) Empty onset Structure

I opt for the representation with an empty onset (19b) because it allows for consonant epenthesis. Consonant epenthesis occurs in triphthongs in Gichuka. In Gichuka loanwords, gliding is the spread of the element (I) as shown in (20) and will be treated as setting the parameter on branching and non-branching structure.

(20) Output: Gichuka:/waja / (Non-branching)
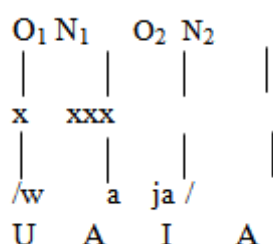
Gliding results when three vowels (triphthongs) are present. It results from the spreading of the (I) element which is present in all the triphthongs where gliding occurs (18a-d). Triphthongs are not found in Gichuka vocalic inventory. Partly also, gliding occurs in order to set the non-branching structure of Gichuka.

IV. CONCLUSION

REFERENCES

[1]. Abercrombie, David. (1967). *Elements of General Phonetics*. Edinburgh: Edinburgh University Press.
[2]. Aitchison, Jean. (1993). *Language Change: Progress or Decay? (*3rd Ed.) Cambridge: Cambridge University Press
[3]. Bennet, Partrick R. (1977). *Dahl's Law and the Thagicu*. In African Language Studies Vol. vii, pp 127 – 159.
[4]. Crystal, David(1997). *The Cambridge Encyclopedia of Language*. (2nd Ed.) Cambridge: Cambridge University Press.
[5]. Cyran, Eugeniusz (1995). *Resonance Elements in Phonology*: *A Study in Munster Irish.*Eolium: Lublin.
[6]. Fromkin, Victoria.; Rodman, Robert&Hyams Nina. (2003). *An Introduction to Language* (7th Ed.) Massachusetts: Henle Thomson.
[7]. Harris, John. (1995). The Elements of Phonological Representation. In Durand, J. And Katamba, F. (Eds*.). Frontiers of Phonology*: Atoms Structures, Derivations 34 – 79
[8]. Harris, John. & Lindsey, Geoff. (1992). *Segmental Decomposition and the Signal.* In W. U. Dressler, Prinzhorn, M. & J. R. Rennisos (eds.).Phonologica 1992. Proceedingof the 11th International Meeting. Torino: Rosenberg and Sellier, 96-106.
[9]. Hyman, Larry. M. (1975). *Phonology: Theory and Analysis*. New York, Richart and Winston.
[10]. Kanana, FridahErastus. (2011). *Dialect Convergence and Divergence: A Case of Chuka and Imenti.* In Eyamba G. Bokamba*etal* (Eds.). Selected Proceedings of the 40th Annual Conference on African Linguistics Somerville, MA Cascadillia Proceedings Project.
[11]. Kasomo, Daniel. (2006). *Research Methods in Humanities and Education*. Egerton University Press: Egerton University.
[12]. Kaye, Jonathan. D. (1990). *'Coda' Licensing*. Phonology 7. 301 – 330
[13]. Kaye Jonathan, Lowenstamm Jean, & Vergnaud, Jean-Roger. (1985). *The Internal Structure of Phonological Elements. A Theory of Charm and Government*. Phonology Yearbook 2. 305 – 328.

[14]. Kula, NancyChongo. (2002). *The Phonology of Verbal Derivation in Bemba*. The Netherlands: LOT Publishers.
[15]. Massamba, David. (1996*). Phonology Theory*. Dar-es-Salaam: Dar-es-Salaam University.
[16]. Morgan, David. L. (1988).Focus *Groups as Qualitative Research* .Newbury   Park: CS: Sage.
[17]. Mugenda, Olive M. &Mugenda, Abel. G. (1999). *Research Methods.*Nairobi: Acts Press.
[18]. Mutua, BernardNdambuki. (2013). A Constraint – Based Analysis of Kikamba Nativised Loanwords. Unpublished MA Thesis, Kenyatta University.
[19]. Mwaniki Isaiah,Ndun'gu. (2013). *The Underlying Reality of Phonological Simplification of Loan Words by Speakers of Gikuyu:* International Journal of Education and Research Vol. No. 8
[20]. Punch, Keith. (2005). *Introduction to Social Research: Quantitative and Qualitative Approaches.* London: Sage Publications Limited.
[21]. Radford, Andrew. (1988). *Transformational Grammar.* Cambridge: Cambridge University Press.
[22]. Roach, Peter. (1983). *English Phonetics and Phonology*. Cambridge: Cambridge University Press.
[23]. Schadeberg, Thilo.C. (1999). *Bantu Orthography Manual.* SIL: SIL International.

[24]. Schane, Sanford. A. (1972). Natural Rules in Phonology. In R. P. Stockwell and R. K. S. Macauley (Eds.). *Linguistic Change and Generative Theory.* Bloomington*:* Indiana University Press pp. 199 – 229.
[25]. Uffman, Christian. (2013). *Set the Controls for the Heart of the Alteration: Dahl's law in Kitharaka.*http://creativecommons.org/licences/licensesby-nc/3.0./ retrieved 14.10.2013