LOAN WORDS FROM ENGLISH AND ORMA LANGUAGES IN KIPOKOMO

BY

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DECLARATION

This thesis is my original work and has not been submitted for the purpose of the award of a degree in any other University.

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This work has been submitted for examination with my approval as the officially assigned supervisor for the candidate:

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Signature: …………………………………… Date: ……………………………

PROF. KITHAKA WA MBERIA

DEDICATION

I dedicate this work to:

My dear parents,

Mzee Shume and Mama Agnes Shume;

My lovely sisters and brothers,

Ken, Hope, Mark, Esther, Sharon, Lewis and Caleb;

My uncles,

Alistone Katana and Ngala Jillani.

ACKNOWLEDGEMENTS

ABSTRACT

This work is an attempt to describe the phonological adaptations of English and Orma loanwords into Upper Kipokomo within the Optimality Theory framework developed by Allan Prince and Paul Smolensky (1993, 2002). The study addressed the following research questions: (i) Which vowel processes are applied to English and Orma words as they are borrowed into Upper Kipokomo? (ii) Which consonants processes are applied to English and Orma words as they are borrowed into Upper Kipokomo? (iii) Has the phonology of Upper Kipokomo been affected by the repair strategies that operate on the loan words? The data was collected in Tana River County through questionnaires. The findings of the research have pointed out that vowel epenthesis is the most preferred repair strategy for illicit codas and consonant clusters in Upper Kipokomo. Secondly, most of the consonants from English and Orma into Upper Kipokomo proved to be faithful. Thirdly, English and Orma syllable structures are changed into CV syllables in Upper Kipokomo.

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LIST OF SYMBOLS

/ /	phonemic transcription
$\longrightarrow$	Is produced as/ is realised as/ becomes
.	Syllable boundary
*	Violation
!	Serious or fatal violation
☞	Optimal candidate
>>	Constraint dominance

LIST OF ABBREVIATIONS

Con   Constraint

Eval   Evaluator

Gen   Generator

OT   Optimality Theory

CHAPTER ONE

INTRODUCTION TO THE STUDY

1.1 Background to the study

This study on the Upper Kipokomo loan word phonology attempts to analyse the phonological adaptations of words borrowed from English and Orma within the Optimality Theory framework. This chapter gives a background to the study, statement of the problem, research questions, objectives of the study, justification of the study, scope and limitations of the study, definition of concepts, literature review, theoretical framework, research hypotheses and methodology and conclusion of the chapter.

Kipokomo is the language of study. The speakers of this language are called Wapokomo while one speaker is called Mupokomo. Kipokomo is among the East Africa Coastal languages, spoken along River Tana in the Tana River County. It is one of the Sabaki languages the other Sabaki languages are Kiswahili and Mijikenda.

The name Tana River County was derived from the river Tana. The Tana River County has an area of 35,375.8 square kilometres and a population of 240,075 according to the report given by Kenya National Population Census 2009. This population also comprises people who speak other languages such as Orma, Munyoyaya, Ilwana, Waata, Mijikenda and Wardei. According to Lewis, Gary and Charles in Ethnologue (2016), the population of Wapokomo is estimated at 95,000. Therefore, the Wapokomo are 39.6% of the total population of the people in Tana River County.

The Wapokomo are farmers and fishermen living along river Tana from its mouth at Kipini to Mbalambala, north of Garissa. They are divided into two distinct clusters: the Upper Kipokomo cluster who are referred to as 'wantu wa dzuu' 'people of up' and the Lower Kipokomo cluster who are referred to as 'Malanchini 'people of down'. The Upper Wapokomo occupies the area from Mnazini to Masabubu (south of Bura). The Upper Kipokomo consists, Gwano, Ndura, Ndera, Kinakomba, Zubaki and Milalulu. The Lower Kipokomo occupies the area from Kipini to Mnazini. Lower Kipokomo consists of, Mwina, Kulesa, Ngatana, Dzunza, Buu and Kalindi. This research will focus mainly on the Upper Kipokomo dialect.

New words enter into a language through borrowing. A language that is still alive (has a community that speaks it) is a product of change and continue to change as long as it is spoken. It is a convenient way of covering lexical gaps in a language, that is, the need to find words for new objects, concepts and places like ' hospital' from English, it is easier to borrow an existing term from another language than to make one up.

English is an official language in Kenya which is taught as a compulsory subject and is examinable in the Kenya Certificate of Primary Education and the Kenya Certificate of Secondary Education. Therefore, there has been a considerable period of contact between speakers of Upper Kipokomo and English language; this has led to borrowing from English to Upper Kipokomo. Upper Wapokomo and Orma are found in the same geographical area; as a result Upper Kipokomo has borrowed vocabularies from Orma.

Borrowed words undergo different changes from the source language to the recipient language. The changes can be phonological, morphological and semantic where changes exit in the two language systems. Loanwords often contain structures that violate phonological well-formedness constraints of the borrowing language. Thus, the recipient language modifies the new words with the existing structure of the language

In 2014, Bible Translation and Literacy (East. Africa) which is abbreviated as (BTL (E. A.)) did a study on the sound system of the Upper Kipokomo and developed orthography for the language. There is need to study the nativization of loanwords from English and Orma in Upper Kipokomo.

1.2 Statement of the Research Problem

As already stated partly in the background of the study, the Wapokomo live in an area that has speakers of other languages. The Upper Wapokomo are specifically surrounded by, Mijikenda, Ilwana, Waata and Orma. In addition, English which is an official language of Kenya, and has hence been used by the Upper Wapokomo, in the process it has loaned words to them. For example an English word 'hospital' has been borrowed into Upper Kipokomo 'sipitali' and the meaning has been maintained. There are many examples of borrowed words in this context. Most of the words are modified as they are borrowed. The modifications seem to involve sounds and syllables. However, there is no systematic study that has been carried out to investigate the exact nature of the modifications.

To the best of my knowledge there is no work which has been done on the Upper Kipokomo loanwords. This study will explore the language employing the Optimality Theory. The study will seek to analyse how loan words are phonologically integrated into Upper Kipokomo language from English and Orma within the Optimality Theory. Languages borrow lexical items from other languages. In the process of borrowing the recipient language often dictates the structure of loanwords to conform to its structure. Loanwords have to be integrated into the recipient language through various loanwords adaptation processes.

1.3 Research Questions

1. Which vowel processes are applied to English and Orma words as they are borrowed into Upper Kipokomo?
2. Which consonants processes are applied to English and Orma words as they are borrowed into Upper Kipokomo?
3. Has the phonology of Upper Kipokomo been affected by the repair strategies that operate on the loanwords?

1.4 Objectives of the Study

1. To identify and describe the various vowel processes involved in the adaption of English and Orma loanwords into Upper Kipokomo.
2. To investigate the various consonant processes involved in the adaption of English and Orma loanwords into Upper Kipokomo.
3. To find out how English and Orma syllable structures are adapted into Upper Kipokomo.

1.5 Justification of the Study

The present study of Upper Kipokomo loanwords from English and Orma within the Optimality Theory framework will be significant. First, it will add knowledge to lexicographers who will work in developing the Upper Kipokomo dictionary. Given that they focus on the meaning of words and borrowing is among the sources of new vocabulary adopted by language.

This study will provide information for those who will want to write books and articles dealing with Upper Kipokomo vocabularies. Teachers and Curriculum developers will find this work relevant as this research has dealt with how borrowed words are nativised in the Upper Kipokomo language. The study will also provide useful information to linguists who will be interested with studying the phonology of Upper Kipokomo language.

Moreover, translators and interpreters will benefit from this study since navitization is one of the strategies used in translation and interpretation. In 2015, BTL (E. A.) started translating the bible into Upper Kipokomo the translators will find the findings of the study useful.

 The Upper Kipokomo radio presenters in Tana fm radio station encounter new terminologies every day. The presenters will find the findings of this study relevant since the study will explain the mechanism involved in the navitization of loanwords of Upper Kipokomo.

1.6 Scope and Limitations of the study

Borrowing deals with different aspects like, phonology, morphology, semantics and sociolinguistics. This study will be limited to phonological aspect only. At the segmental level the research will focus on consonants and vowels and an aspect of suprasegmental which is syllable structure.

Upper Kipokomo has borrowed lexical items from other languages like Mijikenda, Ilwana, Kiswahili, Orma as well as English. However, since Mijikenda, Ilwana and Kiswahili are Bantu languages it is most likely that they share a lot with the Upper Kipokomo. It was considered that the loanwords from these languages will not provide a justifiable problem for the research. The choice of words will only be limited to Orma and English. Orma being a Cushitic language and English being an official language in Kenya has a major influence to the Upper Kipokomo.

This study has focused mainly on the Upper Kipokomo dialect and it is a synchronic study. The analysis of the data has been done within the framework of Optimality Theory which was developed by Prince and Smolensky in 1993 and the theory was updated in 2002.

1.7 Definition of Concepts

The definitions below are partly taken from McCarthy (2002) and Archangeli and Terence (1997: 11- 15).

Borrowing: It is the process of taking a lexical item or part of it from one language and adding it to another, either with its original, modified or new meaning. Borrowing is a result of contact between speakers of two or more languages.

Loan word: It is a lexical item that has been acquired into a language through the borrowing process.

Syllable: It is a phonological unit of utterance that constitutes an onset, nucleus and coda. Every syllable must have a nucleus which can be occupied by either a vowel or a syllabic consonant. The onset and the coda are optional and they are occupied by obstruent consonant(s).

Adaption: It is a process in which a borrowed linguistic item adjusts to conform to the pattern of the recipient language.

Adoption: It is a process in which a borrowed linguistic item enters into the recipient language with the pattern of source language.

Source language: It is the language from which a lexical item is acquired through borrowing.

This is the language that has donated the source word to the receiving language.

Constrain: It is a structural requirement that may either be satisfied or violated.

Evaluator: It is the process of evaluating all the possible candidates and selecting the optimal output.

Faithfulness: It is a constraint that requires some kind of similarity between the output form and its input form.

Generator: It is the process that generates a set of possible candidates analyses, based on the Universal well- formedness constraints.

Input: It is the original word in the donor language before it is phonologically modified.

Markedness: It is a constraint that requires that output forms meet some criterion of structural well- formedness.

1.8 Literature Review

This study has made reference to what has been done in the Bantu languages concerning loanwords and other works which will be relevant to this study will be used as a point of reference especially those that have used the Optimality Theory as their theoretical frame work.

Boen (2014) analysed the phonological and morphological adaption of loan words in Nandi from English and Kiswahili using the theoretical framework of Natural Generative Phonology and Generative CV-Phonology. Natural Generative Phonology was used to explain the phonological and morphological processes in borrowing while the Generative CV-Phonology was used to analyse the syllable structure. The study showed that vowel and consonant processes as well as syllable structure adaption processes were involved in the adaption of loan words in Nandi from English and Kiswahili languages. This study has benefited from Boen (2014) because English is one of the languages which our study has focused on.

Mutua (2013) carried out a constraint-based analysis of Kikamba nativised loanwords using the Optimality Theory framework. The study investigated the strategies used by the recipient system, Kikamba, to handle phonologically different words from English. The study sought to establish how the grammar of Kikamba resolves the conflict between markedness and faithfulness constraints in the selection of optimal output forms, namely the nativized words.

The study showed that the loanword phenomenon in Kikamba can be adequately accounted for using the Optimality Theory. My language of study is a Bantu language and it has used the same theory for analysis which Mutua (2013) applied.

Shidiavai (2015) discussed the phonological adaption of Kiswahili and English loanwords into Lwidakho within the Optimality Theory framework.

The study investigated the constraints responsible for the systematic adaption of English and Kiswahili consonant segments together with the syllable structures into Lwidakho. The study found out that substitution is the process by which foreign sound segments are adapted into Lwidakho, Kiswahili and English syllable structures are changed into CV syllables in Lwidakho and also vowel epenthesis as opposed to consonant deletion is the most preferred repair strategy for illicit codas and consonant clusters in Lwidakho. It is suspected that some of these findings have been relevant to the study of Upper Kipokomo language.

Mwaliwa (2014) studied the syllable structure of Standard Kiswahili loan words from the Modern Standard Arabic (MSA) using the Generative CV-Phonology theory. The research showed that, there were foreign syllable structures that were copied and adopted in Kiswahili. For example Kiswahili had only open syllables but when it came to contact with Modern Standard Arabic a closed syllable structure was introduced. The study also looked at the phonetic inventory of Kiswahili, the phonological processes which occur as a result of borrowing and the syllable structure. At the segmental level, changes in consonants and vowels are discussed. My study has benefited from this study because Kiswahili is a related language to Upper Kipokomo.

Mbonankira (2004) studied the accommodation of Kiswahili and English loanwords into Kinyarwanda within an eclectic theoretical framework. In his study it was found that epenthesis was useful in repairing illicit consonant structures from Kiswahili and English loanwords. Upper Kipokomo has benefited from Mbonankira (2004) since Upper Kipokomo and Kinyarwanda are both Bantu languages.

Iribe (2008) Morphophonology of Standard Kiswahili did a study on the phonological processes that vowels and consonants in standard Kiswahili undergo and the environments that occasion the sound changes in standard Kiswahili. This study is very vital to our work because Kiswahili is closely related to Upper Kipokomo and they are both Bantu languages.

Bakari (1985). Did a Study of the Morphophonology of the Kenyan Swahili Dialects. Using the Natural Generative Phonology Theory. In the study, Bakari investigates the consonantal systems of the different Kenyan Swahili dialects and goes on to describe the phonological processes they undergo and formulate their rules.

Some of the processes discussed in Bakari's study are palatalization, vowel deletion, vowel insertion and assimilation. It is suspected that some of these processes have been relevant to the study of Upper Kipokomo language.

Wa Mberia (1993) studied Kitharaka segmental morphology using Natural Generative Phonology. As part of the study, Wa Mberia discussed some borrowed words in Kitharaka, he points out that the source words came into contact with Kitharaka in their surface or phonetic forms. Substitution, deletions and insertions are some of the borrowing processes discussed. In Kitharaka words emanating from the foreign source words are assigned morphemes and morpheme boundaries similar to those of the native words. Upper Kipokomo and Kitharaka are both Bantu languages, and some of the processes found in Kitharaka will be discussed in Upper Kipkomo.

McCarthy (2002) states that the Optimality Theory was first introduced as a course taught in 1991 at the University of California. The people who developed the theory were Allan Prince and Paul Smolensky. In 1993 the theory was worldwide received by scholars and it grew from its initial application in phonology to morphology, sociolinguistics, semantics, syntax and psycholinguistics. My study will benefit from this work because it will apply this theory in analysing its data.

Guo (2001) analyses Mandarin Loanwords phonology within the Optimality Theory framework. The paper successfully demonstrates that a constraint based approach is sufficient in accounting for the modification of consonant clusters and illicit codas in Mandarin. It also identifies deletion, epenthesis and feature change as the repair strategies that are adopted in the adaption of Mandarin words borrowed from English. In spite of the differences between Mandarin Chinese and Upper Kipokomo, there are a few notable similarities. The corpus data which comprised of transliterated American state names and typhoons used in the analysis of Mandarin Chinese loanword phonology pointed to the fact unlike Upper Kipokomo, Mandarin does allow nasals at the syllable end position. It also demonstrates that epenthesis was the most common repair strategy for illicit consonant clusters in preserving the borrowing language's syllable structure.

Upper Kipokomo to a greater extent employs epenthesis as a repair strategy in the nativization of illicit consonant clusters in borrowed words.

1.9 Theoretical Framework

Optimality Theory (OT) is a theory developed by Allan Prince and Paul Smolensky in 1993. It was later expanded by Prince and McCarthy in 2002. The theory is considered as a development of Generative Grammar. OT consists of constraints which are universal, violable, ranked and in conflict out of which specific grammars are generated. The grammar of a particular language is thus considered a hierarchy of ranked and violable constraints that evaluate the well-formedness of output forms.

The main idea of OT is that the observed forms of a language come up from the interaction between conflicting constraints. Kager (1999: 9) defines a constraint as a 'structural requirement that may either be satisfied or violated by an output form'.

A form satisfies a constraint if it fully meets the structural requirement, while any form not meeting this requirement is said to violate it. Constraints are typically conflicting in the sense that to satisfy one constraint implies the violation of the other constraints.

In OT abstractness is limited by characterising rule based theories as it only has the input and output levels. Input deals with the un-adapted English, and Orma words into Upper Kipokomo, while output includes all the possible candidates generated by the Upper Kipokomo grammar.

Example 1

English input: spirit /spɪrɪt/

Upper Pokomo output: sipiriti /sipiriti/

Table 1: /spɪrɪt/ ⟶ /sipiriti/ 'spirit'

Input /spɪrɪt/	COMPLEX*	NOCODA	DEP-V
a. /si.pi.rit/		*!	
b. /spi.ri.ti/	*!		
c. ☞ /si.pi.ri.ti/			**

Candidate c. is the optimal candidate since it only violates the low ranked constraint by inserting vowel /i/. The consonant cluster has been broken and the coda has been dealt with. COMPLEX* means that no consonant cluster is allowed within a syllable structure in the Upper Kipokomo. NOCODA indicates that a syllable must not have a coda, only open syllables are allowed in Upper Kipokomo. DEP-V means that an output vowel must have an input vowel correspondent, vowel insertion is not allowed. The optimal candidate in Upper Kipokomo has violated this constraint. (*) an asterisk has been used to refer to a constraint that has been violated. (!) An exclamation mark signifies a fatal violation of a constraint. A blank cell indicates a satisfaction of a constraint while a shaded cell indicates the irrelevance

of the constraint.   ☞   It is a symbol used to point the winning candidate.

Table 2: Input English: net /net/
     Output Upper Kipokomo: neti /nɛti/

Input /net/	NOCODA	DEP-V
☞ a. / nɛ.ti/		*
b. /net/	*!	

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Candidate a. inserts a vowel in order to deal with the banned coda thus violating DEP-V (which means no vowel epenthesis). Candidate b. is faithful since it does not insert a segment but it seriously violates NOCODA (which means syllable must not have codas). The two constraints interact and eventually candidate a. is selected as the optimal output form since it does not violate a high-ranked constraint in Upper Kipokomo.

Example 2

Table 3: Input Orma /haɟila/   'name of a person'

Output Upper Kipokomo /haɟira/   'name of a person'

Input /haɟila/	IDENT (manner)	IDENT (voice)	IDENT (place)
☞ /ha.ɟi.**r**a/			
/ha.ɟi.**l**a/	*! [₊ appr]		

The interpretation of the table above is:

IDENT is the abbreviation of Identical.

IDENT (manner) indicates the manner of articulation.

IDENT (voice) indicates the state of the glottis which can be either voiced or voiceless.

IDENT (place) indicates the place of articulation of sounds which can be bilabial, labiodental, dental, alveolar, palatoalveolar, palatal, velar and glottal sounds.

Table 4: Input Orma jarsa 'old person'
       Output Upper Kipokomo jarisa 'old person'

Input jarsa	COMPLEX	DEP-V
a. ☞ ja.ri.sa		*
b. jar.sa	*!	

Candidate a. inserts a vowel in order to deal with the banned coda thus violating DEP-V (which means no vowel epenthesis). Candidate b. is faithful since it does not insert a segment but it seriously violates COMPLEX (which means no consonant cluster is allowed within a syllable). The two constraints interact and eventually candidate a. is selected as the optimal output form since it does not violate a high-ranked constraint in Upper Kipokomo.

1.9.1 Principles of Optimality Theory

There are three principles in OT which are **GENERATOR**, **EVALUATOR** and **CONSTRAINT.** They are usually written in capitals but for the sake of uniformity, lower case will be used where they appear as titles.

1.9.1.1 Generator

In this theory GENERATOR is abbreviated as GEN, which is responsible for associating each input with a set of output candidates. It is universal, meaning that the candidates generated by GEN for a given input are the same in every language, applying all linguistic operations freely and sometimes repeatedly. Given an input GEN generates a set of possible candidates based on the universal well-formedness constraints.

For instance, in example 1 above, English input 'hospital' GEN can generates three possible candidates in Upper Kipokomo which are /hɒspɪtəl/, /si.pi.tɑl/ and /si.pi.tɑ.li/.

In example 2, the Orma input /hɑɟilɑ/ 'name of a person' GENcan generate two possible inputs which are /hɑɟilɑ/ and /hɑɟira/.

1.9.1.2 Evaluator

EVALUATOR is abbreviated as EVAL in this theory; it filters the output candidates and orders them based on how well they satisfy a particular ranking of the constraints. Constraints represent demands that are satisfied whenever possible and violated in a particular language only to avoid violation of some higher-ranked constraints. EVAL selects a candidate from the ones generated by GEN to be the actual output of the grammar.

 It evaluates all the candidates using some constraints hierarchy, and selects it's most optimal or harmonic candidate as the output of the grammar.

For instance, in example 1 above /si.pi.tɑ.li/ is the optimal candidate which is selected by EVAL at the expense of /hɒ.spɪ.təl/ which violates both constraints of COMPLEX and NOCODA and /si.pi.tɑl/ violates the constraint of NOCODA.

1.9.1.3 Constraint

CONSTRAINT is abbreviated as CON, it has some similarities with the principle GEN. CON is characterised by universal constraint, and every language uses the same constraints the constraints apply cross-linguistically. Each language needs to identify its set of inputs and an appropriate ranking of CON this is called the constraint hierarchy. Markedness and faithfulness are the characteristics of CON in OT.

Faithfulness constraints require that the output candidate should be identical to the input candidate under the EVAL principle. Without faithfulness constraints, all distinctions made by input forms would be reduced to some least marked output. Markedness occurs when the higher ranked constraint indicate the ways in which the language is unmarked while lower ranked constraint indicate the ways in which the language is marked. Without markedness constraints, there would be no way to account for languages differing systematically in the structures they permit. The interaction between faithfulness and markedness constraints is a key element of any OT analysis. For example, Upper Kipokomo does not neither allow certain consonant clusters, nocodas are not allowed completely.

The MAX is the abbreviation for maximise the input and DEP is the abbreviation for output depends on input fall under the faithfulness constraint. Every type of phonological structure like features, segments and prosody are relativized to the constraint of MAX and DEP.

According to McCarthy (2002:14), in MAX the output should express the input maximally. Conversely, DEP is to the effect that the output is dependent on the input.

MAX constraint insists that the input should be maximised consequently demanding the properties of the input to correspond to those of the output. The DEP constraints, on the other hand, entail that output depends on input implying that the output should correspond to the input. For example in Table 1, Upper Kipokomo does not permit consonant clusters in a syllable. Therefore, the input / hɒspɪtəl/ which is well formed in English is adapted to the Upper Kipokomo phonological structure via vowel epenthesis to/ si.pi.tɑ.li/. This violates the lowly ranked constraint DEP which advocates for deletion instead of vowel epenthesis.

The input /hɒspɪtəl/ in Example 1,Table 1 above is adapted to Upper Kipokomo via vowel epenthesis to /sipitali/. This violates the lowly ranked constraint DEP which advocates for deletion instead of vowel epenthesis.

McCarthy (2002: 14), points out that markedness constraints evaluate the structures of the output. These constraints are exclusively based on the output structure in assigning violation-marks to a candidate disregarding similarity to the input. Markedness constraint as a set of constraints with an inclination for the unmarked configuration. Unmarked configurations like ONSET and PEAK or bar marked configuration like NOCODA and COMPLEX are demanded by these markedness constraints.

Figure 1: Illustration of the Mechanism of Input and Output
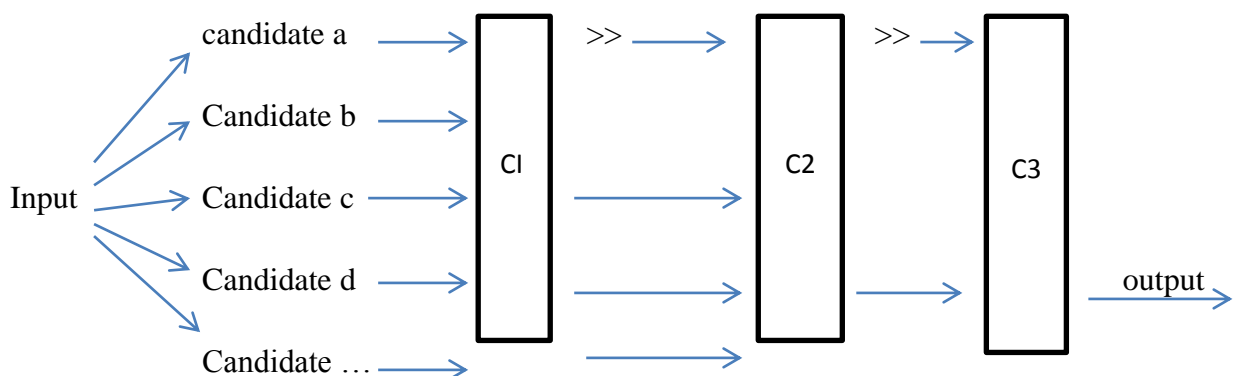
Input-output mechanism in OT (Kager, 1999:8) cited in Mutua (2013: 38).

The OT grammar is an input-output mechanism that pairs an output form to an input form such that each output has only one input.

OT assumes that an output form is optimal in that it is the least violated constraint. In a given recipient language generates and evaluates an infinite set of output candidates.

Evaluation takes place through a set of hierarchically ranked constraints (con1>> con2>> con3 in the Figure 1 above), each eliminates some candidates output, until only one candidate remains. The symbol (>>) indicates that the constraint on the left side is dominating the constraint on the right side, C1 is dominating C2, and C2 is dominating C3.

Figure 2: **A Summary of Input- Output Mechanism**
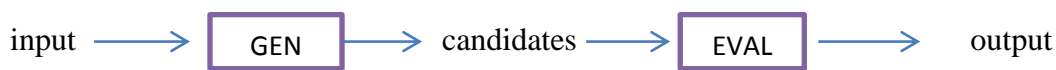
Basic OT architecture (McCarthy 2002: 10)

Figure 3 below illustrates how an input candidate goes through the three constraints in the Optimality Theory to generate all the possible candidates and select the best output.

Figure 3: The Application of OT to Language Grammar
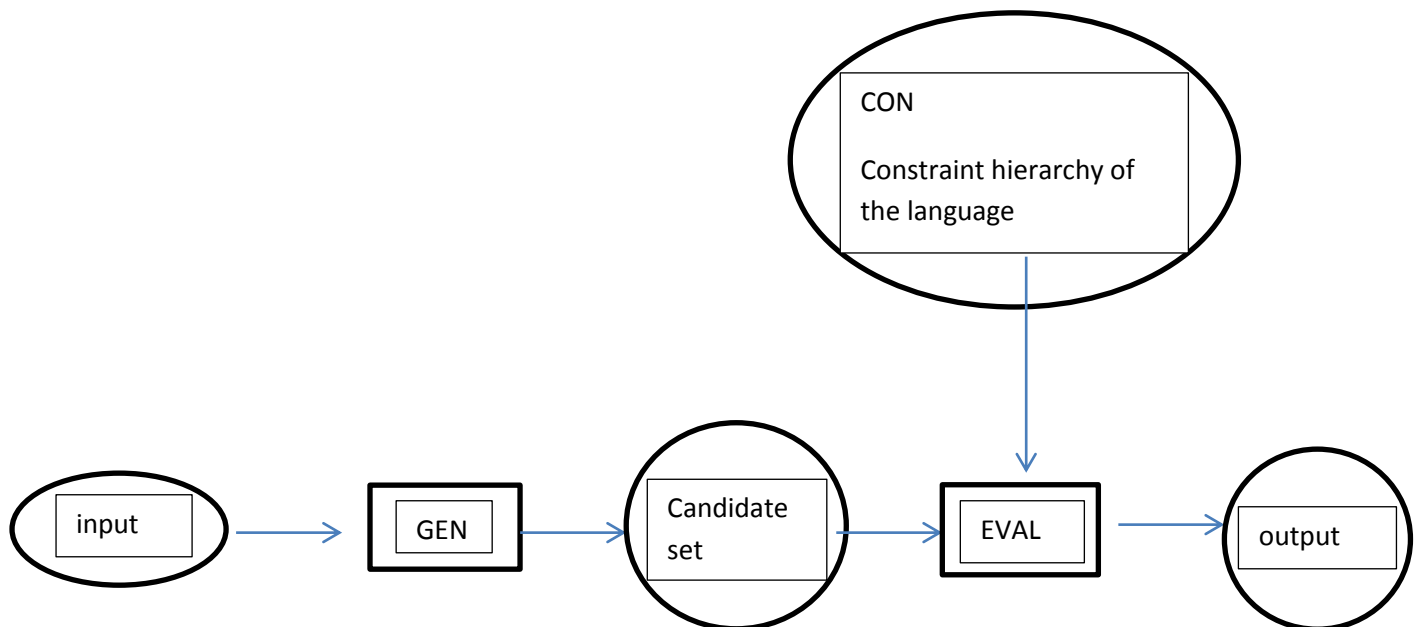
Adapted from Archangeli (1999: 534)

Key:

Oval: grammar of language (LG)

Box: Universal Grammar (UG)

Circle: derived by interaction of UG and LG

1.10 Research Hypotheses

1. The most common vowel process involving loanwords from English and Orma into Upper Kipokomo is epenthesis.
2. English and Orma consonants are adapted into Upper Kipokomo by substitution.
3. CV is the most likely syllable structure that is adapted into Upper Kipokomo loanwords.

1.11 Methodology

This subsection provides information on how the data used in the study of Upper Kipokomo loan word phonology was collected and analysed.

1.11.1 Data Collection

The present study took place in Tana River County specifically within Hola town since both Upper Wapokomo and Orma people are found there. The data collection was conducted within one week in the month of June 2017. Elicitation method was employed. This method involves the researcher getting informants who are native speakers of Upper Kipokomo language cluster to provide data. This is the only method which was used since the researcher is not a native speaker of the language. In this study, 70 loanwords from each of the languages- English and Orma -were be collected. The researcher used 10 informants as the sample, aged between 30 and 55 years because people who are in this age bracket are competent in the language. The researcher picked the informants randomly. Primary data collection was employed; in that questionnaire was be used.

The researcher explained to the informants how foreign words enter into a particular language and also gave examples of borrowed words in Kiswahili from English. The informants provided many words as possible where they wrote them down in the questionnaire. The glosses of the words were indicated in English.

The informants read aloud one by one the words they had written down and the researcher recorded using a mobile phone. The recording helped the researcher during data analysis especially in transcribing the words. The researcher cross checked the data with two native speakers out of the 10 informants.

1.11.2 Data Analysis

The researcher was involved in transcribing the loan words collected orthographically and phonetically. The transcription of the loan words from English and Orma into Upper Kipokomo were done separately. The orthographic transcription is presented in the appendix section of this study. The data is composed of seventy Upper Kipokomo loan words from English and seventy loan words from Orma. Vowel processes involved in the words adapted from English and Orma into Upper Kipokomo were discussed. The researcher analysed the consonant processes involved during adaption of English and Orma into Upper Kipokomo. Lastly, the syllable structures of the adapted words from English and Orma into Upper Kipokomo were discussed.

1.12 Conclusion

This chapter has introduced the topic under study, that is, a phonological analysis of Upper Kipokomo loan words from English and Orma. A background study of Kipokomo language has been given, Kipokomo is a Bantu language. The background on the subject loan word phonology and the aim and significance of the study has been tackled with research questions and possible hypotheses to be tested. The theoretical framework of Optimality Theory as proposed by Prince and Smolensky 1993 has been introduced demonstrating how the constraint based approach adequately explains the segmental and phonotactic adaptations of loan words in Upper Kipokomo. Lastly, the methodology used in the collection and analysis of data was also presented.

CHAPTER TWO

PHONEMIC INVENTORIES OF UPPER KIPOKOMO, ENGLISH AND ORMA SOUNDS

2.1 Introduction

This chapter gives a description of Upper Kipokomo, English and Orma phonological parameters. Whereas Upper Kipokomo is a Bantu language, English is an Indo European language while Orma is a Cushitic language. It is therefore expected that their phonological systems are very different. This chapter covers the sounds, both consonants and vowels found in each of the three languages. Their syllable structures are also described briefly. This chapter is divided into different sections, section 2.2 analyses Upper Kipokomo sound system, section 2.3 analyses English sound system and section 2.4 analyses Orma sound system. The summary of the chapter is given in section 2.5.

2.2 Upper Kipokomo Sound Inventory

Upper Kipokomo has got thirty four consonants. The consonants phonemes are found in word initial and word medial positions. The consonants cannot be found in word final position because Upper Kipokomo does not allow closed syllable structures.

2.2.1 Upper Kipokomo Consonants

In this section, Upper Kipokomo consonants are discussed according to their manner of articulation. In other words they are classified in terms of being plosives, fricatives, nasals, liquids, approximants, dentals, ejectives and implosives.

Upper Kipokomo has nine plosives. These plosives are bilabial /p, b/, dental /t̪, d̪/, alveolar /t, d/, palatal / ɟ/ and velar /k, g/. They all appear as the initial consonant in a syllable, and they may appear word-initially and word-medially. Orthographically, the plosives are written as 'p, b', 'tt, dd','t, d', 'j' and 'k, g', respectively.

There are ten fricatives in Upper Kipokomo. Five of them are voiced while the remaining five are voiceless. The voiced fricatives are /β, v, z, ð, ɣ/, and the voiceless fricatives are /ɸ, f, s, ʃ, h/.

These fricatives only occur syllable initially, and they are seen word-initially and word-medially. Orthographically, the voiced fricatives are written as 'bh, v, z, dh, gh', while the voiceless ones are written as 'ph, f, s, sh, h' respectively.

There are three nasal phonemes in Upper Kipokomo namely bilabial /m/, alveolar /n/ and palatal /ɲ/. All are seen in syllable initially and can occur word-initially and word-medially. The orthographic representations of these sounds are 'm', 'n', and 'ny', respectively.

Upper Kipokomo encompasses lateral approximant, trill and tap, which are /l/, /r/ and /ɾ/, respectively. All can occur word-initially and word-medially. Orthographically, they are represented as 'l', 'r' and 'rh', respectively.

There are two glide consonants in Upper Kipokomo namely the bilabial /w/ and palatal /j/. Both may occur syllable initially. They are also found word-initially and word-medially. In orthography, they are written as 'w' and 'y', respectively.

Upper Kipokomo has three voiceless ejectives which are /p'/, /c'/ and /k'/and three voiced implosives which are /ɓ/, /ɗ/ and /ʄ/. All occur syllable initially and are also found word-initially and word-medially except /p'/ which occurs word-medially only. Orthographically, they are written as p', ch', k' and b', d', and j', respectively.

Upper Kipokomo language has the voiced dental fricative /ð/ while the voiceless dental fricative /θ/ does not exist in the language. Upper Kipokomo has got pre-nasalized consonants, though the pre-nasalized consonants are not captured in the Table 1 below. The pre-nasalised consonants are composed of a nasal and a voiced plosive sharing the same place of articulation with the nasal. They are /mb/, /nd/ and /ŋg/.

The Upper Kipokomo consonants are summarised in the Table 5 below.

Table 5: Upper Kipokomo consonants

	Bilabial	Labio-dental	Dental	Alveolar	Palato-alveolar	Palatal	Velar	Glottal
Plosive	p b		ṱ ḓ	t d		ɟ	k g	
Ejective	p'					c'	k'	
Implosive	ɓ					ʄ	ɠ	
Nasal	m			n		ɲ		
Trill				r				
Tap/ Flap				ɾ				
Fricative	ɸ β	f v	ð	s z	ʃ		ɣ	h
Affricate					tʃ			
Approximant	w					j		
Lateral approximant						l		

Table 6 below shows the IPA and orthographic representation of the Upper Kipokomo consonants and examples of words where they occur.

Table 6: IPA and Corresponding Orthographic symbols of Upper Kipokomo consonants

IPA symbol	Grapheme	Example	Gloss
b	b	Alibama /ɑlibɑmɑ/	toadpoles
b	bh	Bhibhi /βiβi/	A heap of cut branches

ɓ	b'	b'ahari /ɓahɑri/	sea
tʃ	ch	Chumuria /tʃumuriɑ/	bruise
c'	ch'	ch'ara /c'ɑrɑ/	shout
d	d	Diema /diɛmɑ/	good
ð	dh	Kiadha /kiaðɑ/	real
ɖ	dd	Ddaba /ɖabɑ/	Touch
ɗ	d'	d'uma /ɗumɑ/	End
f	f	Finina /finimɑ/	Spring
g	g	Guba /gubɑ/	dry land
ɣ	gh	Gharo /ɣarɔ/	last time
h	h	Hezi / hɛzi/	Time
ɟ	j	Jungu /ɟuŋgu/	Pumkin
ʃ	j'	j'uma /ʃumɑ/	Week
k	k	Kaya /kayɑ/	sit down
k'	k'	k'ela /ƙɛlɑ/	Crack
l	l	Lala /lɑlɑ/	Honeycomb
m	m	Mapemba /mɑpɛmbɑ/	maize
n	n	Nange /naŋgɛ/	Necklace
ɲ	ny	Nyaya /ɲɑyɑ/	Finger nails
ŋg	ng	Ngazu /ŋgɑzu/	Clothes
p	p	Pasa /pɑsɑ/	Cut
ɸ	ph	Phiha /ɸihɑ/	Walk
p'	p'	rhip'o /riɓɔ/	Riddle

r	r	Reza /rɛzɑ/	Look
ɾ	rh	Rhigha /ɾiɣɑ/	Grind
s	s	Sambi /sɑmbi/	Now
ʃ	sh	Shona /ʃɔnɑ/	Sew
t	t	Tea /tɛɑ/	Loose
ṯ	tt	Ttipu /ṯipu/	Full
v	v	Viko /vikɔ/	Stairs
w	w	Wachama /wɑtʃɑmɑ/	Open
j	y	Yeha /jɛhɑ/	Bring
z	z	Zuka /zikɑ/	Worse
mb	mb	Mbaja /mbadʒa/	A very small fish
nd	nd	Makanda /makanda/	peels

2.2.2 Upper Kipokomo Vowels

There are five vowels in Upper Kipokomo, namely /a/, /ɛ/, /i/, /ɔ/ and/u/. All of these vowels appear word initially, medially and finally. They can also pair up with any consonant in a syllable. Orthographically, these vowels are written using the graphemes a, e, i, o and u, respectively. Table 7 below summarises the Upper Kipokomo vowels.

Table 7: Upper Kipokomo Vowels

	Front	Centre	Back
High	i		u
Mid	ɛ		ɔ
Low		a	

Table 8 shows the IPA and orthographic representation for Upper Kipokomo vowels.

Table 8: Orthographic and IPA representation of Upper Kipokomo Vowels

Phoneme	Grapheme	Example	Gloss
a	a	Abera /ɑbɛrɑ/	Great grandchild
ɛ	e	Geri /gɛri/	Aside
i	i	Jaliza /jɑlizɑ/	Fill a gap
ɔ	o	Oga /ɔgɑ/	Fear
u	u	Uha /uhɑ/	Rainbow

2.3 English Sound Inventory

This section presents the English consonants and vowels sound system. English has twenty four consonants whereas Upper Kipokomo has thirty four of them.

2.3.1 English Consonants

Table 9 below presents English consonants.

Table 9: English Consonants (taken from Roach (2002:62))

	Labial	Labiodental	Dental	Alveolar	palatoalveolar	Palatal	Velar	Glottal
Plosive	p b			t d			k g	
Nasal	m			n			ŋ	
Fricative		f v	θ ð	s z	ʃ ʒ			h
Affricative					tʃ dʒ			
Lateral				l				
Approximant	w				r	j		

2.3.2 English Vowels

The English vowel system is characterised by both pure vowels to diphthongs. Table 10 below presents the pure vowels of English.

Table 10: The pure vowels of English

	Front	Central	Back
High	iː ɪ		ʊ uː
Mid	e	ə ɜː ʌ	ɔː
Low	æ		ɒ ɑː

According to Roach (2000: 14) states that the English vowel system is composed of six short vowels namely /ɪ/, /e/, /æ/, /ʌ/, /ɒ/, /ʊ/ and a central vowel known as shwa /ə/, five long vowels namely /iː/, /ɜː/, /ɑː/, /ɔː/ and /uː/, eight diphthongs namely /ɪə/, /eə/, /ʊə/, /aɪ/, /əɪ/, /ɔɪ/, /əʊ/ and /əʊ/ and five triphthongs namely /eɪə/, /aɪə/, /ɔɪə/, /əʊə/ and aʊə/ .

Diphthongs are sounds which consists of a movement or glide from one vowel to another. In diphthongs the first part is much longer and stronger than the second part. A pure vowel is a vowel which remains constant and does not glide. The most complex English sounds of the vowel type are the triphthongs. A triphthong is a glide from one vowel to another and then to a third, all produced rapidly and without interruption.

Table 11 below presents examples of diphthongs and triphthongs.

Table 11: **English diphthongs and triphthongs**

IPA symbol	Example
ɪə	Beard /bɪəd/
eə	hair /heə(r)/
ʊə	Tour /tʊə(r)/
eɪ	Pain /peɪn/
aɪ	Time /taɪm/
ɔɪ	Void /vɔɪd/
əʊ	Home /həʊm/
aʊ	Gown /gaʊn/
eɪə	Layer /leɪə(r)/
aɪə	Fire /faɪə(r)/
ɔɪə	Loyal /lɔɪəl/
əʊə	Lower /ləʊə(r)/
aʊə	Hour /aʊe(r)/

There is a variation between Upper Kipokomo and English sound inventory. Upper Kipokomo has thirty four consonants while English has twenty four. Upper Kipokomo has got dental plosives which do not exist in English. Upper Kipokomo, unlike English, has got ejective /p', c', k'/ and implosive /ɓ, ʄ, ɠ/ which are not present in English. Another distinction is in the affricates, English has both voiced and voiceless affricates /tʃ/ and/dʒ/ while Upper Kipokomo has got only the voiceless affricate /tʃ/. Upper Kipokomo has got pre-nasalized consonants, namely /mb/, /nd/, and /ŋg/and a flap /ɾ/ which is not available in English.

2.4   Orma Sound Inventory

The consonant and vowel sounds of Orma are discussed below.

2.4.1 Orma Consonants

Orma has twenty seven consonant phonemes represented in Table 12 below.

Table 12: **Orma Consonants (taken from Hoskins(2011:21))**

	Bilabial	Labiodental	Alveolar	Palatoalveolar	Palatal	Velar	Glottal
Plosive	p b		t d			k g	
Ejective	pʼ		tʼ			kʼ	
Implosive			ɗ				
Affricate				dʒ			
Ejective				çʼ			
Fricative		f	s	x			h
Nasal	m		n				
Trill			r				
Lateral			l				
approximant	w				j		

Table13 shows the IPA representation for Orma consonants.

Table 13: **Orthographic and IPA symbols of Orma consonants (taken from Hoskins (2011:37))**

IPA symbol	Grapheme	Example	Gloss
b	b	Barç'uma /barç'uma/	stool
ç'	ç'	ç'alaallu /çalla:llu/	shell
d	d	Dibble /dibble/	lizard
ɗ	d'	D'addo /ɗaddo/	porcupine
f	f	faç'o /faç'o/	panga
g	g	Gorfo /gorfo/	basket
h	h	hare diida /hare di:da/	zebra
dʒ	j	Jaarsā /dʒa:rsą/	old man
k	k	Kurro /kurro/	calabash
k'	k'	k'ori /k'ori/	firewood
l	l	Lukku /lukku/	chicken
m	m	Mina /mina/	hut
n	n	neekk'a /ne:kk'a/	lion
p	p	pikipiki /pikipiki/	motor bike
p'	p'	p'iipp'a /p'i:pp'a/	Water tank
r	r	roopp'i /ro:pp'i/	hippopotamus
s	s	Sa /sa/	cow
x	x	Xunnuulā /xunnu:lą/	Fishing trap
t	t	Tattawwe /tattawwe/	giraffe
t'	t'	t'iyyā /t'ijją/	arrow
w	w	Worseessā /worse:ssą/	Rhino`
j	y	Yaak'a /ja:k'a/	baobob

2.4.2 Orma Vowels

Orma has five vowels. These vowels may be long, short or voiceless. Voiceless vowels only occur word finally. These vowels are represented in Table 14.

Table 14: **Orma vowels (taken from Hoskins (2011**: **23))**

		Front	Central	Back
High	voiceless	i̥		u̥
	voiced	i		u
Mid	voiceless	e̥		o̥
	voiced	e		o
Low	voiceless		ḁ	
	voiced		a	

Table 15 shows the IPA and orthographic representation for Orma vowels.

Table 15: **Orthographic and IPA presentation of Orma Vowels**

IPA symbol	Grapheme	Example	Gloss
a	a	Miya /mija/	Sweetness
aː	aa	Oaati /oaːti/	To shout
ą	ā	Biyyā /bijją/	Sand
e	e	Ke /ke/	Your
eː	ee	Jaeessā /dʒaeːssą/	Sixth
ę	ē	Ijoollē /idʒoːllę/	Wow
i	i	Adi /adi/	White
iː	ii	Mii /miː/	Luggage
į	ī	Asī /asį/	Until
o	o	Saafo /saːfo/	Afternoon
oː	oo	Dooya /doːja/	Spy
ǫ	ō	Borō /borǫ/	Tomorrow
u	u	biiftu /biːftu/	Sunrise
uː	uu	Fuulā /fuːlą/	face
ų	ū	Bullukū /bullukų/	Porridge

Both Upper Kipokomo and Orma have five vowels,the vowels in Orma can also be voiceless.
Upper Kipokomo has open-mid front unrounded vowel /ɛ/ and open-mid back rounded vowel
/ɔ/, while Orma has close-mid front unrounded vowel /e/ and close-mid back rounded vowel
/o/.

Upper Kipokomo has thirty four consonants while Orma has twenty seven consonants. Upper Kipokomo has voiced and voiceless dental plosive /t̪/ and /d̪/ and a voiced palatal plosive /ɟ/, these sounds are not found in Orma. Orma has one implosive sound which is /ɗ/, while Upper Kipokomo has three implosive namely /ɓ/, /ʄ/ and /ɠ/. Both languages have three voiceless ejectives namely /p'/, /c'/ and /k'/, trill /r/, tap /ɾ/ and lateral /l/. Orma language has voiced and voiceless palate-alveolar affricate /tʃ/ and /dʒ/, while Upper Kipokomo has only the voiceless palate-alveolar affricate /tʃ/. Lastly, Orma has six fricatives namely /f/, /s/, /z/, /ʃ/, /x/ and /h/, while Upper Kipokomo has ten fricatives namely /ɸ/, /β/, /f/, /v/, /ð/, /s/, /z/, /ʃ/,/ɣ/ and /h/.

2.5 Conclusion

This chapter has presented the sound segments of Upper Kipokomo, English and Orma. The consonants and the vowels of the three languages have been discussed. The variations between the languages have been pointed out.

It was established that Upper Kipokomo has the highest number of consonant phoneme at thirty four. English has twenty four consonant phonemes and Orma has twenty two consonant phonemes.

There were some differences noted in the vowel system of the three languages. Upper Kipokomo has five vowels, English has twenty vowels; it indicated the highest number of vowels among the three languages and Orma has five vowels.

Lastly, the chapter has demonstrated that Upper Kipokomo, English and Orma differ in terms of vowels and consonants. However, the three languages have some similar sound segments in particular areas. Considering that borrowed words from other languages usually come with the phonemes from the source language to the borrowing language, it is the phonological system of the borrowing language that dictates which sounds are retained and which ones are replaced. The analysis of the sounds will help us know which sounds from the source language will be replaced by which sounds in the recipient language.

CHAPTER THREE

PHONOLOGICAL PROCESSES INVOLVED IN THE ADAPTION OF LOANWORDS

3.1 Introduction

This chapter discusses the Upper Kipokomo loan word adaptation in line with the objectives of this study. The first section deals with phonological processes that both vowels and consonants in loan words undergo in order to be adapted in the recipient language. The recipient language is Upper Kipokomo while the source languages are English and Orma. The processes are discussed within the framework of Optimality Theory. Much focus on the phonological processes is on epenthesis and deletion because these two processes are the major ones observed in the adaptation process. Whereas the phonological processes involving loan words from English are discussed in 3.2, those from Orma are in section 3.3.

3.2 Upper Kipokomo Loan Words from English

In this section, both vowel and consonant processes are discussed. The vowel processes discussed are epenthesis, monophthongization and shortening. The consonant processes are substitution.

3.2.1 Vowel processes

The vowel processes in this section include epenthesis, monophthongization and vowel shortening.

3.2.1.1 Vowel epenthesis

Vowel epenthesis refers to the insertion of a vowel in a word. Some of the words that underwent epenthesis are:

/pɪn/ ⟶ /pin**i**/

/bɒks/ ⟶ /bɔk**isi**/

/klɪnɪk/ ⟶ /**ki**linik**i**/

The arrow indicates that the word is realised as. Epenthesis violates faithfulness as the inserted vowel in the output does not have an input correspondent. However, it satisfies the open syllabicity requirement (NOCODA does not allow codas within the syllable boundary) and helps to break consonant clusters hence achieving the unmarked syllable structures.

Epenthesis violates Faithfulness in Optimality Theory, because the inserted vowel in the output does not have a correspondent from the input.

The constraints used in discussing epenthesis are NOCODA >> COMPLEX >> DEP-V.

NOCODA indicates that no codas are allowed within the syllable boundary.

COMPLEX illustrates that onset clusters are generally prohibited.

DEP-V illustrates that output vowels must have input correspondents (no vowel insertion).

Some illustrations of Upper Kipokomo loan words from English are given below.

Table 16: /rɪŋ/ ⟶ /riŋgi/ 'ring'

Input /riŋ/	NOCODA	COMPLEX	DEP-V
a. ☞ ri.ŋgi			*
b. riŋ	*!		

Three constraints have been used in the selection of an optimal candidate a. candidate a. has been selected the optimal candidate because it has an open syllable, closed syllable is not permitted in Upper Kipokomo. Candidate b. has highly violated the first constraint.

Table 17: /rɪm/ ⟶ /rimu/ 'rɪm'

Input /rɪm/	NOCODA	COMPLEX	DEP-V
a. ☞ ri.mu			*
b. rim	*!		

Vowel /u/ has been inserted at the output level in order to satisfy the rule of the Upper Kipokomo language that no closed syllables are allowed.

Candidate a. emerges the winner though it has violated the low ranked constraint DEP-V which does not allow vowel insertion. Candidate b. loses because it has highly violated the highly ranked constraint. The symbol ! shows fatal or high violation.

Table 18: **/desk/⟶ /desiki/**   **'desk'**

Input /desk/	NOCODA	COMPLEX	DEP-V
a. ☞ de.si.ki			*
b. de.ski		*!	
c. de.sik	*!		

To break the consonant cluster [sk], /i/ has been inserted between /s/ and /k/. Coda has been dealt with by inserting /i/. Candidate a. has been selected as the winner since it incurs the minimal violation of the candidates.

Table19: **/spɪrɪt/⟶ /sipiriti/**   **'spirit'**

Input /spɪrɪt/	NOCODA	COMPLEX	DEP-V
a. ☞ si.pi.ri.ti			**
b. spi.ri.ti		*!	
c. si.pi.rit	*!		

Candidate a. is the optimal candidate since the consonant cluster [sp] has been broken by the insertion of /i/ between /s/ and /p/ and the coda has been dealt with by inserting /i/. The optimal candidate which is shown by ☞ has double violated the lower ranked constraint DEP-V. A double violation is indicated by two asterisk ** it indicates that the output candidate has inserted vowels twice.

Table 20: /bʌlb/⟶ /balibu/ 'bulb'

Input /bʌlb/	NOCODA	COMPLEX	DEP-V
a. ☞ ba.li.bu			**
b. ba.lib	*!		
c. ba.lbu		*!	

There is insertion of two vowels in the output word. /i/ has been inserted to break the consonant cluster /l/ and /b/, and /u/ to illicit coda.

Candidate a. does violates DEP-V but it fulfils the requirement of NOCODA constraint which does not allow codas within a syllable boundary and COMPLEX constraint which does not allow consonant clusters, thus emerges the winning candidate among the set of three candidates.

Table 21: /freɪm/⟶ /furemu/ 'frame'

Input /freɪm/	NOCODA	COMPLEX	DEP-V
a. ☞ fu.re.mu			**
b. fre.mu		*!	
c. fu.rem	*!		

The input has generated three candidates /fu.re.mu/, /fre.mu/ and /fu.rem/; three constraints NOCODA>>COMPLEX>>DEP-V have been used to evaluate the candidates in order to select the optimal candidate. /u/ has been inserted between /f/ and /r/ to deal with the consonant cluster and also to deal with the coda. Candidate b. and c. are the losers while a. is the optimal candidate.

Table 22: /breɪk/⟶ /bureki/ 'break'

Input /breɪk/	NOCODA	COMPLEX	DEP-V
a. ☞ bu.re.ki			**
b. bu.rek	*!		
c. bre.ki		*!	

The consonant cluster [br] is not allowed in Upper Kipokomo, and also no coda is allowed in the language.

The cluster has been broken by inserting /u/, the coda is dealt with by inserting /i/. The winning candidate is a, though it has violated the low ranked constraint by inserting the vowels. In DEP-V the output vowels should correspond to the input vowels.

Table 23: /næpkɪn/⟶ /napukini/ 'napkin'

Input /næpkɪn/	NOCODA	COMPLEX	DEP-V
a. ☞ na.pu.ki.ni			**
b. nap.ki.ni		*!	
c. na.pu.kin	*!		

The optimal candidate is a. although it violates DEP-V twice since two vowels have been inserted. It emerges the optimal candidate since it does not violate the highly-ranked constraint. /u/ has been inserted between /p/ and /k/ to break the cluster and at the end /i/ has been inserted to deal with the coda. Candidate b. highly violates the COMPLEX constraint and candidate c. highly violates the NOCODA constraint thus making them losers.

From the analysis of the Upper Kipokomo loan words from English, it can be noted that all vowels in Upper Kipokomo can be epenthesized. Vowel /i/ is commonly inserted while /ɛ/, /a/and /ɔ/ are rarely inserted as seen in Table 24 below.

Table 1 below shows the frequency of the insertion of each vowel.

Table 24: Frequency of vowel epenthesis

Vowel Inserted	Frequency of Insertion	Percentage of insertion
a	3	3%
ε	3	3%
i	79	81%
ɔ	1	1%
u	12	12%
Total	98	100%

The table above shows that the most common epenthetic vowel in Upper Kipokomo is the close front unround vowel /i/ which has 81%, while vowel /ɔ/ has the least percentage 0%.

3.2.1.2 Monophthongization

This is a situation where a diphthong in the input changes to a monophthong in the output. Monophthongization involves violation of MAX-V = input vowels must have output correspondents. However through monophthongization, *COMPLEX ^{vow} =no string of vowels within a syllable is satisfied. The markedness constraint, *COMPLEX ^{vow}, dominates the faithfulness constraint, MAX-V. Five constraints have been used to select the optimal candidate.

NOCODA>>COMPLEX>>DEP-V>>MAX-V>>COMPLEX^{vow}

The following are some illustrations of monophthongization.

Table 25: /blaʊz/ ⟶ /bilauzi/   'blouse'

Input /blaʊz/	NOCODA	COMPLEX*	DEP-V	MAX-V	COMPLEX^{vow}
a. ☞ bi.la.u.zi			**	*	
b. bla.u.zi		*!			
c. bi.lauz.i	*!				*!

Candidate b. is not the optimal candidate because it has a consonant cluster thus violating COMPLEX* constraint. Candidate c. has a string of vowels within a syllable and a thus highly violates COMPLEX ^{VOW} and NOCODA. The optimal candidate is a. though it violates the DEP-V by inserting /i/ between /b/ and /l/ and MAX-V constraints. The diphthong /aʊ/ in the input has been broken by insertion of a pure vowels /u/.

Table 26: /taɪt/ ⟶ /taiti/ 'tight'

Input /taɪt/	NOCODA	COMPLEX*	DEP-V	COMPLEX ^{VOW}	MAX-V
a. ☞ ta.i.ti			*		*
b. Tait	*!				

Candidate a. emerges the winner though it has violated DEP-V which requires that the output vowel must have an input correspondent and MAX-V constraint by deleting the diphthong /aɪ/. The input has a diphthong. To avoid violation of COMPLEX ^{VOW}, monophthong has been used to satisfy this COMPLEX ^{VOW} constraint.

Table 27: /geɪm/ ⟶ /gemu/   'game'

Input /geɪm/	NOCODA	COMPLEX ^{VOW}	DEP-V
a. ☞ ge.mu			*
b. geim	*!		
c. gei.mu		*!	

The diphthong in the input /eɪ/ has been monophthongized in order to satisfy COMPLEX ^{VOW} which does not diphthongs. The optimal candidate is a. The shaded cells indicate that the constraints have become irrelevant due to the fatal violation happening in the constraint that is before it.

Table 28: /taʊn/──►/tauni/ 'town'

Input /taʊn/	NOCODA	COMPLEX ^{vow}	DEP-V
a. ☞ ta.u.ni			*
b. tau.ni		*!	
c. taun	*!		

The input has a diphthong /aʊ/. To avoid violation of COMPLEX ^{vow}, the diphthong changes into a monophthong by inserting a pure vowel /u/. Candidate a. becomes the winner. Candidate b and c. are losers because b. highly violates COMPLEX ^{vow}constraint and c. highly violates NOCODA.

Table 29: /paɪp/──►/paipu/ 'pipe'

Input /paɪp/	NOCODA	DEP-V	MAX-V	COMPLEX^{vow}
a. ☞ pa.i.pu		*		
b. pa.ip	*!			
c. pai.pu		*	*	*!

Candidate a. is the optimal output since it has satisfied COMPLEX^{VOW} constraint by monophthongizing it. Candidate b. has a coda which is not allowed in the Upper Kipokomo language and candidate c. has highly violatedCOMPLEX^{VOW}and violated constraints DEP-V and MAX-V.

Table 30: /waɪə(r)/ ──► /waja/ 'wire'

Input /waɪə(r)/	COMPLEX^{vow}	DEP-C
a. ☞ wa.ja		*
b. Waia	*!	

Two constraints, COMPLEX $^{\textbf{vow}}$ and DEP-C interact in the selection of the optimal candidate. COMPLEX $_{\text{vow}}$ does not allow string of vowel within a syllable and DEP-C requires that the output consonant must have input correspondent. We note that the input has a triphthong which violates COMPLEX $^{\textbf{vow}}$. The insertion of /j/ is, therefore, necessitated by the need to break the string of vowels in the input /waiə/. The optimal candidate is a.

Table 31: **/taʊəl/** ⟶ **/taweli/** **'towel'**

Input /taʊəl/	NOCODA	COMPLEX $^{\textbf{vow}}$	DEP-V
a. ☞ ta.we.li			*
b. taue.li		*!	
c. taw.li	*!		

The optimal candidate in Table 16 is shown by ☞ symbol. Candidate b. highly violates COMPLEX $^{\textbf{vow}}$ by having a string of vowels in a syllable which it is not allowed in Upper Kipokomo language. Candidate c. has a coda which is not allowed in Upper Kipokomo.

3.2.1.3 Vowel Shortening

In sound systems, certain types of structures are universally favoured over others. For instance, short vowels are unmarked as compared to long vowels since marked structures are avoided by all languages. Upper Kipokomo language endeavours to shorten long vowels in borrowed words. This violates the faithfulness constraint IDENT-IO (F) which indicates that the specification for the feature of an input segment must be preserved in its output correspondent.

The following are some cases of vowel shortening identified in Upper Kipokomo.

Carpet /kɑːpɪt/ ⟶ **kapeti /kapeti/**

Curtain /kɜːtn/ ⟶ **kateni /kateni/**

Metre /miːtə(r)/ ⟶ **mita /mita/**

Garage /gærɑːdʒ/ ⟶ **gereji /geredʒi/**

Guitar /gɪtɑ:/ ⟶ **gita /gitɑ/**

Tube /tjuːb/ ⟶ **tyubu /tjubu/**

Solution /səluːʃn/ ⟶ **sulusheni /suluʃeni/**

Table 32 below illustrates the frequency of the vowel processes in Upper Kipokomo loan words analysed from English.

Table 32: Frequency of vowel processes

Vowel processes	Frequency of processes	Percentage
Epenthsis	98	75%
Monophthongization	13	10%
Vowel shortening	19	15%
Total	130	100%

Table 32 shows that the common vowel process in Upper Kipokomo language is epenthesis which has a percentage of 75% and the least process is monophthongization which has a percentage of 10%.

3.2.2 Consonant processes

The consonant processes in this section include substitution

3.2.2.1 Substitution

Velar nasal in English words entering Upper Kipokomo language are replaced by prenasalized consonant. Specifically, /ŋg/ takes the place of /ŋ/. Some illustrations are given below.

Table 33: /kredɪt/ ⟶ /kirɛɗiti/   'credit'

Input /kreɗɪt/	IDENT (manner)	IDENT (place)	IDENT (voice)
a. ☞ ki.rɛ.**ɗi**.ti			
b. ki.rɛ.**di**.ti		*!	
c. ki.rɛ.**ti**.ti			*!

The optimal candidate is a. since it does not violate any constraint. Candidate b. violates the IDENT (place) and candidate c. violates IDENT (voice).

The constraint definitions under consideration in Table 17 are listed below:

IDENT is an abbreviation of Identical.

 IDENT (manner) indicates that the manner of articulation constraints is [$^+$- nas], [$^+$- cons], [$^+$- cont], [$^+$- approx] and

 [$^+$- son].

IDENT (place) illustrates that the place of articulation as bilabial, labiodental, dental, alveolar, palatoalveolar, palatal, velar, and glottal sounds.

IDENT (voice) it shows that the state of the glottis is described as either voiced or voiceless.

Table 34: /bæŋk/ ⟶ /ɓɛŋg/   'bank'

Input /bæŋk/	IDENT (manner)	IDENT (place)	IDENT (voice)
a. ☞ ɓɛ.ŋgi			
b. bɛ.ŋgi		*!	

Candidate a. is the optimal candidate since it does not violate any constraint. Candidate b. highly violates IDENT (place) thus becoming a loser.

Table 35: **/ʃɪlɪŋ/** ⟶ **/ʃiliŋg/** 'shilling'

Input /ʃɪlɪŋ/	IDENT (manner)	IDENT (place)	IDENT (voice)
a. ☞ ʃi.li.**ŋg**i			
b. ʃi.li.**ŋ**i			

Candidate a. is the optimal candidate. Candidate b. is a loser because the sound /ŋ/ does not exist in the Upper Kipokomo language.

3.2.3 Cluster Tolerance

Upper Kipokomo does not admit consonant clusters. However, from the data collected, four loanwords were found to have retained consonant clusters in the borrowed English words. These are:

Christ /kraist/ ⟶ **kristo /kristɔ/**

Campaign /kæmpeɪn/ ⟶ **kampeni /kampeni/**

Pumpers /pæmpe(r)/ ⟶ **pampazi /pampazi/**

Pump /pʌmp/ ⟶ **pampu /pampu/**

3.3 Upper Kipokomo Loan Words from Orma

In this section, vowel processes are discussed. The vowel processes discussed are epentheis and voicing.

3.3.1 Vowel processes

The vowel processes in this section include epenthesis and vowel voicing.

3.3.1.1 Vowel epenthesis

Vowel epenthesis involves insertion of a vowel in a word either to break a consonant cluster or to deal with a coda.

Table 36: /ɾoƙ/ ⟶ /ɾɔka/   'tamarind'

Input /ɾoƙ/	NOCODA	COMPLEX	DEP-V
a. ☞ ɾɔ.ka			*
b. ɾɔk	*!		

NOCODA is not permitted in Upper Kipokomo thus candidate b. has seriously violated the highly ranked constraint in Upper Kipokomo NOCODA. The optimal output form is candidate a.

Table 37: /bines/ ⟶ /binesɑ/   'beast'

Input /bines/	NOCODA	DEP-V
a. ☞ bi.ne.sa		*
b. bi.nes	*!	

Two constraints NOCODA and DEP-V have interacted in the selection of the optimal output form. The insertion of /a/ is done to deal with coda. Candidate a. emerges the optimal candidate.

Table 38: /dʒaːlal/ ⟶ /dʒalala/   'love'

Input /dʒaːlal/	NOCODA	COMPLEX	DEP-V
a. ☞ dʒa.la.la			*
b. dʒa.lal	*!		

/a/ has been inserted to deal with the coda. Candidate a. only violates DEP-V so it incurs the least violation and it is selected as the optimal output form.

Table 39: /dʒarsạ/ ⟶ /dʒarisa/ 'an old man'

Input /dʒarsạ/	NOCODA	COMPLEX	DEP-V
a. ☞ dʒa.ri.sa			*
b. dʒars.a		*!	
c. dʒa.ris	*!		

The winning candidate is a. candidate b. and c. violates high ranked constraints in Upper Kipokomo so none of them is selected as the optimal candidate.

Table 40: /ɗamsạ/ ⟶ /ɗamisa/ 'message'

Input /ɗamsạ/	NOCODA	COMPLEX	DEP-V
a. ☞ ɗa.mi.sa			*
b. ɗam.sa		*!	
c. ɗa.mis	*!		

The consonant cluster [ms] is not permitted in Upper Kipokomo hence the epenthesis of /i/ to break it. Although, candidate a. violates DEP-V, it is selected as the optimal output as it does not incur any fatal violation.

Table 41: /bilbilị/ ⟶ /bilibili/ 'cowbell'

Input /bilbilị/	NOCODA	COMPLEX	DEP-V
a. ☞ bi.li.bi.li			*
b. bilb.i.li		*!	
c. bi.li.bil	*!		

The optimal candidate is a. To avoid the consonant cluster [lb], /i/ has been epenthesized between /b/ and /l/ to break the cluster.

Table 42: /galtamạ/ ⟶ /ɡɑliṱɑmɑ/ 'virgin girl'

Input /galtamạ/	NOCODA	COMPLEX	DEP-V
a. ☞ ɡɑ.li.ṱɑ.mɑ			*
b. ɡɑlṱ.ɑ.mɑ		*!	
c. ɡɑ.li.ṱɑm	*!		

Candidate a. is selected as the optimal as it has no consonant cluster which is preferred in Upper Kipokomo language. Candidate b. seriously violates COMPLEX constraint and c. seriously violates NOCODA.

Table 43: /mor/ ⟶ /mɔrɔ/ 'no'

Input /mor/	NOCODA	COMPLEX	DEP-V
a. ☞ mɔ.rɔ			*
b. mɔr	*!		

Candidate a. violates DEP-V but it is still selected as the optimal output form. /ɔ/ has been inserted to deal with coda.

Table 44: /hulkạ/ ⟶ /hulukɑ/ 'unseen'

Input /hulkạ/	NOCODA	COMPLEX	DEP-V
a. ☞ hu.lu.kɑ			*
b. hul.kɑ		*!	
c. hu.luk	*!		

The optimal candidate is a. although it has violated DEP-V; it satisfies NOCODA, and COMPLEX constraints. /u/ has been inserted between /l/ and /k/ to break the consonant cluster.

From the analysis of the Upper Kipokomo loan words from Orma, it can be noted the vowels which can be used for epenthesis are /ɑ/, /i/, /ɔ/ and /u/. Table 30 below illustrates the frequency of the insertion of each vowel.

Table 45: Frequency of vowel epenthesis

Vowel Inserted	Frequency of Insertion	Percentage of insertion
ɑ	4	36%
ɛ	0	0%
i	5	46%
ɔ	1	9%
u	1	9%
Total	11	100%

Table 45 shows that the common epenthetic vowel in Upper Kipokomo is the close front unrounded vowel /i/ which has a percentage of 46%, while vowel /ɛ/ has the least percentage 0%.

3.3.1.2 Vowel voicing

In vowel voicing, vowels in the loan words are substituted with those found in the recipient language. In the nativization process, some voiceless segments that are not found in the sound inventory of the recipient language are voiced. In this case, Orma has got voiceless vowels which occur at final position; in Upper Kipokomo voiceless vowels are not permitted.

The voiceless vowels /ą, ę, į and ǫ/ in Orma are substituted with /ɑ, e, i and ɔ/ in Upper Kipokomo. Some of the vowel voicing identified in Upper Kipokomo loan words from Orma are:

/hulką/ ⟶ /huluka/ 'unseen'

/dʒidʒirą/ ⟶ /dʒidʒirɑ/ 'exchange'

/ɗùkọ̀/ ⟶ /ɗùkɔ/ 'deaf'

/buṯị̃/ ⟶ /buṯị/ 'type of a snake'

3.4 Conclusion

The data collected have been analysed in this chapter. The main phonological processes used in the nativization of loanwords in Upper Kipokomo have been identified and described within the Optimality Theory. The vowel processes which have been discussed in this chapter are epenthesis, monophthongization vowel shortening and vowel voicing. The data has shown that insertion is the most productive processes used in loan words nativization in Upper Kipokomo. The consonant process which have been analysed is substitution, some words from English have maintained their consonant clusters, though most of the consonants have proved to be faithful.

The analysis has shown that the loan words can be accounted for using Optimality Theory. The constraints that governed the adaptation were NOCODA >> COMPLEX* >> DEP-V. The main phonological process used in the adaptation of Upper Kipokomo loan words from English is insertion, while in Orma is vowel voicing. The constraints of OT have systematically guided the adaptation of loan words from English and Orma into Upper Kipokomo.

CHAPTER FOUR

THE SYLLABLE STRUCTURE ADAPTATION OF LOAN WORDS IN UPPER KIPOKOMO

4.1 Introduction

This chapter discusses Upper Kipokomo syllable structure adaptation of the loan words using the Optimality Theory. The English and Orma syllable structure have been discussed in order to see the differences on the permissible phonemes making a syllable. Furthermore, to investigate into the preferred repair strategy where there exist differences in the syllable structure between the donor and recipient languages. The English syllable properties are covered in 4.2, the syllable properties of Orma are expounded in 4.3, the Upper Kipokomo syllable properties are discussed in 4.4, the syllable structure adaptation in Optimality Theory will be covered in section 4.5and Section 4.6 covers the summary of this chapter. Briefly, syllable structures of English and Orma are discussed in this chapter in order to show clearly the changes which occur when words from this two languages are adapted into Upper Kipokomo.

Laver (1994: 39) defines syllable as 'a complex unit made up of nucleus and marginal elements'. Nucleus elements are the vowels or syllabic consonants; marginal elements are the consonants or non-syllabic segments. The syllable structure varies from one language to another. A syllable consists of an onset, a nucleus and a coda. An onset is the part of a syllable that occurs before the vowel. The onset is represented by 'O'. The nucleus is a vowel and it is the core of the syllable, it is represented by 'N'. The coda is a consonant following the vowel it is represented by 'C'. Rhyme is the combination of a nucleus and a coda it is represented by 'R'.

4.2 The English Syllable Structure

The only obligatory element of a syllable in English is a nucleus, the onset and the coda are optional. The first syllable type is V. This type of a syllable structure comprises a vowel only. Consider the example /aɪ/ 'eye'. Figure 4 illustrates the structure.

Figure 4: **Syllable Structure for [aɪ]**

```
                σ
              /   \
            O       R
            |      / \
            |     N   C
            |    / \  |
            ∅   a  ɪ  ∅
```
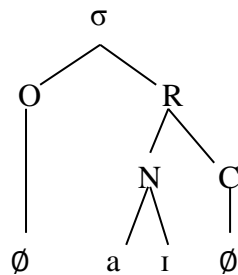
The figure 4 indicates that the syllable is made up of a nucleus only.

Secondly, English also allows syllables consisting of onset + nucleus 'CV'. This type comprises a consonant which is an onset and a vowel which is the nucleus. Consider the example /kɑ:/ 'car'. Sometimes the onset may be complex, which means it can have more than one segment, for instance /skaɪ/ 'sky'. Figure 5 illustrates the structure for /kɑ:/

Figure 5: **Syllable Structure for [ka:]**

```
                σ
              /   \
            O       R
            |      / \
            |     N   C
            |    / \  |
            k   a  a  ∅
```
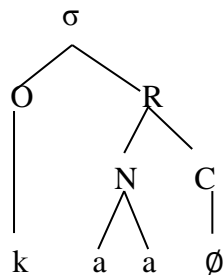
Figure 5 shows that the onset is made of /k/and the nucleus /a:/.

Figure 6 shows a structure where the onset is complex.

Figure 6: **Syllable Structure for [skaɪ]**

```
                 σ
               /   \
             O       R
            / \     / \
           /   \   N   C
          /     \ / \  |
          s   k  a ɪ  ∅
```
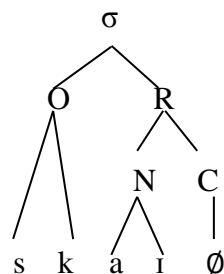
Figure 6 indicates that the onset has more than a single segment /s/ and /k/.

The third syllable structure consists of nucleus + coda 'VC', sometimes the coda may be complex. Consider the words /ʌp/ 'up' and /ækt/ 'act'. Figure 7 shows the structure for [ʌp].

Figure 7: **Syllable Structure for [ʌp]**

```
                σ
              /   \
            O       R
            |      / \
            |     N   C
            |     |   |
            Ø     ʌ   p
```
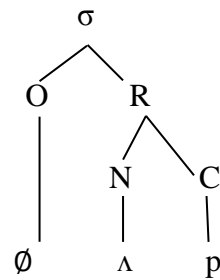
Figure 7 indicates that the nucleus is /ʌ/ while the coda is /p/.

Figure 8 shows the structure for /ækt/ which is considered to have a complex coda.

Figure 8: **Syllable Structure for [ækt]**

```
                σ
              /   \
            O       R
            |      / \
            |     N   C
            |     |   / \
            Ø     æ  k   t
```
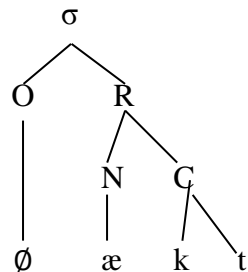
The figure above shows that the coda has two consonant segments. These are /k/ and /t/.

The fourth syllable structure found in English is onset + nucleus +coda 'CVC', where both onsets and codas may be simple or complex, for example, /mæt/ 'mat', /hænd/ 'hand' and /prɪnt/ 'print'. Figure 4.13 illustrates the structure for [mæt].

Figure 9: Syllable Structure for [mæt]

```
                σ
              /   \
            O       R
            |      / \
            |     N   C
            |     |   |
            m     æ   t
```
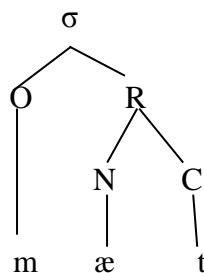
The figure 9 above illustrates the CVC structure. Where [m] is the onset, [æ] is the nucleus and [t] is the coda.

Figure 10 illustrates the structure for [prɪnt].

Figure 10: **Syllable Structure for [prɪnt]**

```
              σ
            /   \
           O      R
          / \    / \
         /   \  N   C
        /     \ |   / \
        P     r ɪ  n   t
```
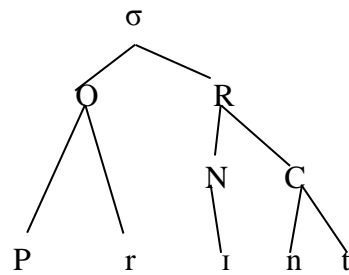
Figure 10 shows that both onset and coda have complex segments. The Onset consists of /p/ and /r/ and the coda consists of /n/ and /t.

Generally English has a maximum of three consonants in the onset and then a vowel followed by a maximum of four consonants in the coda.

4.3 The Orma Syllable Structure

Orma is a Cushitic language unlike Upper Kipokomo and English, there are many differences that characterize its syllable structure. The common Orma syllable types are discussed below. There are four syllable types in the Orma language namely V, VC, CV and CVC.

The first syllable type is CV. This type consists of a consonant and a vowel. For instance, /**g**a.**r**a/ 'stomach'. Figure 11 illustrates this structure.

Figure 11: **Syllable Structure for [ga]**

```
             σ
           /   \
          O      R
          |     / \
          |    N   C
          |    |   |
          g    a   Ø
```
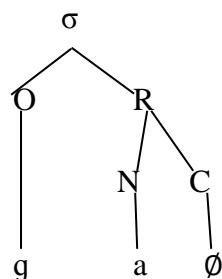
Figure 11 shows that the first syllable is made up of an onset /g/ and a nucleus /a/.

Secondly, the V syllables type. Orma allows zero onset and the V is occupied by a vowel. Consider /**o**.nạ̃/ 'abandoned settlement'. Firure 12 illustrates this structure.

Figure 12: **Syllable Structure for [o]**

σ
├── O
└── R
    ├── N
    └── C

Ø   o   Ø
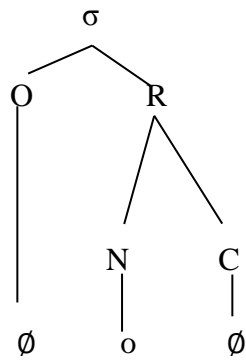
Figure 12 shows that the syllable is made up of a single vowel which is the nucleus. The onset is not present.

The third type is the VC which is a closed syllable type. This syllable comprises a vowel and a coda. For instance,

/**aɾ**.ba/ 'elephant'. Figure 13 illustrates the structure

Figure 13: **Syllable Structure for [aɾ]**

σ
├── O
└── R
    ├── N
    └── C

Ø   a   ɾ
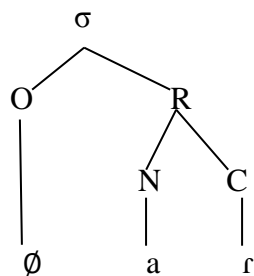
Figure 13 show that the syllable is made up of a vowel which is the nucleus and a consonant which is the coda.

The forth syllable type is also a closed syllable type CVC. This type comprises an onset, a nucleus and a coda. Consider /**bi**:**f**.tu/ 'sunrise'. Figure 14 illustrates the structure.

Figure 14: **Syllable Structure for [bi:f]**

σ
├── O
└── R
    ├── N
    └── C

b   i   i   f
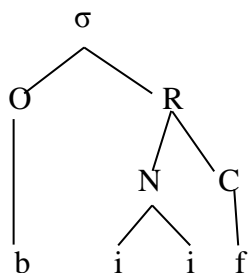
The figure above shows that the syllable is made up of an onset [b], a nucleus [i:] and a coda [f].

Generally the syllable structure in Orma are V, VC, CV and CVC.

4.4 The Upper Kipokomo Syllable Structure

Upper Kipokomo is a Bantu language, like all other Bantu languages, all syllables in Upper Kipokomo are open syllables, there are no codas in Upper Kipokomo syllables. The Upper Kipokomo syllable types are presented below.

The first Upper Kipokomo syllable type is CV. Just like it is the case with many languages, Upper Kipokomo is characterised with this syllable type consisting of a consonant and a vowel. For instance /**la**.la/ which means 'honey comb'. Figure 15 illustrate this structure.

Figure 15: **Syllable structure for [la]**
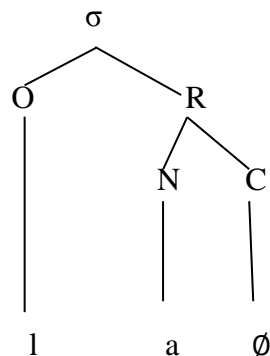
Figure 15 shows that the first syllable is made up of an onset /l/ and a nucleus /ɑ/. This CV syllable type is the most common in Upper Kipokomo.

Secondly, Upper Kipokomo also has the V syllable type. The V place is occupied by a vowel. Consider /ɛ**.**ndɑ/ which mean 'go'. Figure 16 illustrates this structure.

Figure 16: **Syllable Structure for [ɛ]**

```
                    σ
                   / \
                  /   \
                On     R
                |     / \
                |    /   \
                |   N     Co
                |   |     |
                |   |     |
                Ø   ɛ     Ø
```
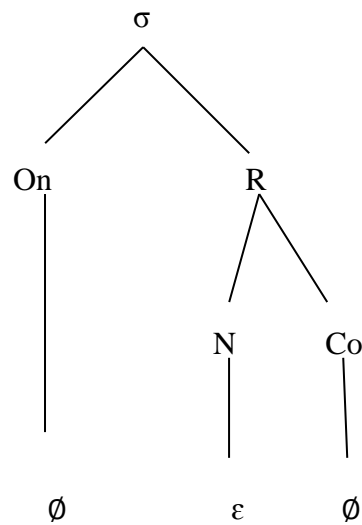
Figure 16 shows that the syllable is made up of a single vowel which is the nucleus. The syllable does not have an onset.

Lastly, Upper Kipokomo also has the CCV syllable type. It mostly consists of a consonant in the onset followed by a palatal approximant or a bilabial approximant. For instance /tju.bu/ 'tube'. Figure 17 illustrates this structure.

Figure 17: **Syllable Structure for [tju]**

```
                    σ
                   / \
                  /   \
                 O     R
                / \   / \
               /   \ N   C
              t    j  |   |
                     u   Ø
```
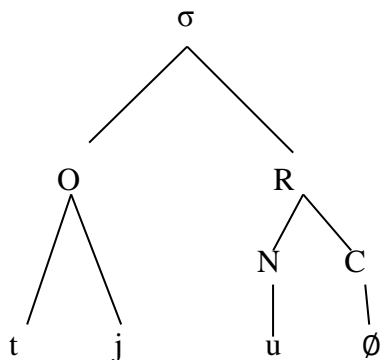
The onset of the first syllable in the word /tju.bu/ 'tube' is made up of a plosive /t/ and a glide /j/.

4.5 Upper Kipokomo Syllable Structure Adaptation in Optimality Theory

Basing on the analysed data, most of the adaptation strategies employed in Upper Kipokomo are vowel epenthesis, monophthongization and substitution.

In the derivation of upper Kipokomo constraint ranking, we begin with the markedness constraint governing the syllable structure. In Section 4.4 demonstrates that the only onset consonant clusters allowed in Upper Kipokomo are those consisting of a combination of a consonant and a glide. Moreover, codas are not allowed in the Upper Kipokomo syllable structure. The Upper Kipokomo constraint hierarchy is thus expressed as follows:

The following are some of the examples of syllable structure adaptation in Upper Kipokomo loan words.

Table 46: /peg/ $\longrightarrow$ /pɛgi/   **'pɛgi'**

Input /peg/	COMPLEX*	NOCODA	DEP-V
d. ☞ pɛ.gi			*
e. pɛg		*!	

The optimal candidate is a. because it has an open syllable, closed syllable is not permitted in Upper Kipokomo. Candidate b. has highly violated the NOCODA constraint.

Table 47: /klɑːs/ $\longrightarrow$ /kilɑsi/   **'class'**

Input /klɑːs/	NOCODA	COMPLEX*	DEP-V
a. ☞ ki.lɑ.si			*
b. ki.las	*!		
c. klɑ.si		*!	

Candidate a. emerges the winner since it has inserted vowel /i/ between /k/ and /l/ to break the consonant cluster, because consonant clusters are not permitted in Upper Kipokomo. /i/ has been inserted at the end of the word to deal with the coda. Candidates b and c. are losers because b. has a coda and c. has a consonant cluster.

Table 48: /breɪk/ ⟶ /burɛki/   'break'

Input /breɪk/	NOCODA	COMPLEX*	DEP-V	COMPLEX ᵛᵒʷ
a. ☞ bu.rɛ.ki			**	
b. bu.rɛk	*!			
c. bre.ki		*!		
d. bu.reɪk				*!

The optimal candidate is a, vowel /u/ has been inserted between /b/ and /r/ to break the cluster. The diphthong has been dealt with by inserting a pure vowel, /i/ has been inserted at the end of the word to deal with coda.

Table 49: /blæŋkɪt/ ⟶ /ɓilaŋgiti/   'blanket'

Input /blæŋkɪt/	NOCODA	COMPLEX*	DEP-V	MAX-IO	DEP-IO
a. ☞ ɓi.lɑ.ŋgi.ti			**	*	*
b. ɓi.lɑ.ŋgit	*!				
c. blɑ.ŋgi.ti		*!			

Candidate b. seriously violate NOCODA and candidate c. seriously violate COMPLEX* constraint so their chances of being optimal are very minimal. /i/ has been inserted to deal with the coda and also to break the consonant cluster.

Though this section is concerned with loan word adaptation there are few words which were borrowed into Upper Kipokomo but retained their syllable structures.

In other words there was no syllable structure adaptation. Some examples of the words are indicated in the table 49below

Table 50: **Words that retain their syllable structures**

English			Upper Kipokomo		
Orthography	IPA	Syllable structure	Orthography	IPA	Syllable structure
Christ	/krɪst/	ccvcc	kristo	/kristɔ/	ccv.ccv
Campaign	/kæmpeɪn/	cvc.cvc	kampeni	/kɑmpɛni/	cvc.cv.cv
Pump	/pʌmp/	cvcc	pampu	/pɑmpu/	cvc.cv

4.6 Conclusion

This chapter discussed the syllable structure of English, Orma, Upper Kipokomo and syllable structure adaptation in Optimality Theory. The general observation was that English had the most number of syllable types unlike Upper Kipokomo and Orma. In all these instances the nucleus is obligatory and may be considered to be the head of the syllable. Vowel epenthesis is the process which has been used mostly in syllable structure adaptation in Upper Kipokomo.

Upper Kipokomo only has the open syllable type (C) V, the vowel is an obligatory element of the syllable while the consonant is optional. Consonant clusters are not allowed in Upper Kipokomo, the only onset consonant clusters allowed are those consisting of a consonant and a glide. Orma and English do permit both closed and open syllable structures.

English shows a lot of flexibility on the consonant clusters allowed in the onset position than Upper Kipokomo and Orma. English also permit coda clusters. For example

Example 3

   a. strap /stræp/ (CCCVC)
   b. prompts /prɒmpts/ (CCVCCCC)

Using the findings on the syllable structure and preferred repair strategy the constraints used were NOCODA >> COMPLEX* >> DEP-V >> MAX-IO >>DEP-IO.

The NOCODA constraint ensured that no coda clusters were permitted. The COMPLEX* constraint ensured that the optimal candidates conformed to the syllable structure of Upper Kipokomo by breaking consonant clusters. DEP-V ensured that output vowels have input correspondents. MAX-IO constraint ensured that every segment in the input have a correspondent in the output. DEP-IO ensured that every segment in the output have a correspondent in the output.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of Findings

This study has found that in the vowel processes, vowel epenthesis mainly operate in the Upper Kipokomo loan words adaptation. Vowel epenthesis had 75%, monophthongization 10% and vowel shortening 15%. Furthermore, it has been established that /i/ is the mainly inserted vowel in the Upper Kipokomo loan words adaptation. In the Optimality Theory epenthesis violates faithfulness, because the inserted vowel in the output does not have a correspondent from the input. The constraints used in discussing epenthesis are:

NOCODA >> COMPLEX >> DEP-V.

In the consonant processes, substitution has been identified in some words but most of the consonants proved to be faithfully adapted into Upper Kipokomo. The research has shown that Upper Kipokomo avoids codas and consonant clusters, but some loan words from English have maintained their consonant clusters in Upper Kipokomo.

It was observed that English and Orma syllable structures were adapted into Upper Kipokomo through conversion into CV syllables. There were some instances where Upper Kipokomo maintained the syllable structure from the donor language especially in the words which maintained the consonant clusters. The change into CV syllables structure was attained through vowel epenthesis. The constraint hierarchy that guides the adaptations at the syllable level is expressed as follows:

 NOCODA >> COMPLEX >> DEP-V >> MAX-IO >> DEP-IO.

5.2 Conclusion

This study has achieved its objectives as it has established that the vowel processes, the consonant processes and CV conversion in the syllable structures are involved in the adaptation of loan words in Upper Kipokomo language.

In the vowel processes, epenthesis is the mainly used process in the nativization of Upper Kipokomo loan words from English, while in the Upper Kipokomo loan words nativization from Orma, vowel voicing is the mainly used process. In the consonant processes, substitution process has been identified in some few loan words from English.

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Most of the consonants from English and Orma have shown to be faithful when borrowed into Upper Kipokomo. The study adopted the Optimality Theory framework in analysing the processes and also in the syllable structure adaptation of loan words in Upper Kipokomo.

5.3 Recommendations for further study

This study has focused on Optimality Theory to study loanwords in Upper Kipokomo. The study has provided a platform for the study of other language phenomena in Upper Kipokomo using OT. We, therefore suggest that further research be carried out in other areas like suprasegmental and morphological changes of Upper Kipokomo.

Lastly, the research has only focused on the nativization of Upper Kipokomo loan words from English and Orma. Upper Kipokomo has also borrowed lexical items from other African languages. Further research on how Upper Kipokomo adopts words from other languages should be carried out.

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APPENDIX 1

UPPER KIPOKOMO LOAN WORDS FROM ENGLISH

English	IPA	Upper Kipokomo	IPA
Spanner	/spænə(r)/	Supana	/supɑnɑ/
Ring	/rɪŋ/	Ringi	/riŋgi/
rim	/rɪm/	Rimu	/rimu/
solution	/səluːʃn/	sulusheni	/suluʃɛni/
tube	/tjuːb/	tyubu	/tjubu/
room	/ruːm/	rumu	/rumu/
pin	/pɪn/	pini	/pini/
bulb	/bʌlb/	balibu	/bɑlibu/
frame	/freɪm/	furemu	/furɛmu/
nut	/nʌt/	nati	/nɑti/
guitar	/gɪtɑː(r)/	gita	/gitɑ/
grease	/griːs/	girisi	/girisi/
skirt	/skɜːt/	sikati	/sikɑti/
blouse	/blaʊz/	bilauzi	/bilɑuzi/
tight	/taɪt/	taiti	/tɑiti/
short	/ʃɔːt/	shoti	/ʃɔti/
doll	/dɒl/	d'oli	/ɗɔli/
bangle	/bæŋg/	b'angili	/ɓɑŋgili/
break	/breɪk/	bureki	/burɛki/
game	/geɪm/	gemu	/gɛmu/
budget	/bʌdʒɪt/	bajeti	/bɑdʒɛti/
apple	/æpl/	epuli	/ɛpuli/
garage	/gærɑːdʒ/	gereji	/gɛrɛdʒi/
gear	/gɪə(r)/	gea	/gɛɑ/
peg	/peg/	pegi	/pɛgi/
grease	/griːs/	girisi	/girisi/
metre	/miːtə(r)/	mita	/mitɑ/

shilling	/ʃɪlɪŋ/	shilingi	/ʃiliŋgi/
class	/klɑːs/	kilasi	/kilɑsi/
bank	/bæŋk/	b'engi	/ɓɛŋgi/
pipe	/paɪp/	paipu	/pɑipu/
shirt	/sɜːt/	shati	/ʃɑti/
court	/kɔːt/	koti	/kɔti/
bicycle	/baɪsɪkl/	b'asikili	/ɓɑsikili/
gas	/gæs/	gasi	/gɑsi/
egg	/eg/	igi	/igi/
glass	/glɑːs/	gilasi	/gilɑsi/
campaign	/kæmpein/	kampeni	/kɑmpɛni/
crown	/krʊn/	kirauni	/kirɑuni/
spade	/speɪd/	sipedi	/sipɛdi/
blanket	/blæŋkɪt/	b'ilangiti	/ɓilɑŋgiti/
curtain	/kɜːtn/	kateni	/kɑtɛni/
desk	/desk/	desiki	/dɛsiki/
napkin	/næpkɪn/	napukini	/nɑpukini/
solar	/səʊlə(r)/	sola	/sɔlɑ/
credit	/kredɪt/	Kired'iti	/kirɛɗiti/
ribbon	/rɪbən/	riboni	/ribɔni/
duster	/dʌstə(r)/	dasita	/dɑsitɑ/
petrol	/petrəʊ/	petiroli	/pɛtirɔli/
jacket	/dʒækɪt/	jaketi	/dʒakɛti/
stool	/stuːl/	situli	/situli/
box	/bɒks/	bokisi	/bɔkisi/
pumpers	/pæmpə(r)/	pampazi	/pɑmpɑzi/
speaker	/spiːkə(r)/	sipika	/sipikɑ/
fridge	/frɪdʒ/	furiji	/furidʒi/
wire	/waiə(r)/	waya	/wɑjɑ/
nurse	/nɜːs/	nasi	/nɑsi/
towel	/taʊəl/	taweli	/tɑwɛli/
carpet	/kɑːpɪt/	kapeti	/kɑpɛti/
town	/taʊn/	tauni	/tɑuni/

dish	/dɪʃ/	dishi	/diʃi/
crane	/kreɪn/	kirini	/kirini/
stove	/stəʊv/	sitovu	/sitɔvu/
plaster	/plɑːstə(r)/	palasita	/pɑlɑsitɑ/
pump	/pʌmp/	pampu	/pɑmpu/
spring	/sprɪŋ/	sipiringi	/sipiriŋgi/
spirit	/spɪrɪt/	sipiriti	/sipiriti/
clinic	/klɪnɪk/	kiliniki	/kiliniki/
judge	/dʒʌdʒ/	jaji	/dʒadʒi/
plastic	/plæstɪk/	pulasitiki	/pulɑsitiki/

APPENDIX 2

UPPER KIPOKOMO LOAN WORDS FROM ORMA

Orma	IPA	Upper Kipokomo	IPA	Gloss
Dded'ā	/ɗeda̰/	Dded'a	/ɗedɑ/	Stare at
D'ubanā	/ɗubana̰/	D'ubana	/ɗubanɑ/	Congested
Weyumā	/wejuma̰/	Weyuma	/wejumɑ/	Slowly recovery from sickness
Hiribhā	/biriβa̰/	Hiribha	/hiriβɑ/	Deep sleep
D'ibā	/ɗiba̰/	D'iba	/ɗibɑ/	One hundred
J'edhā	/ɟeða̰/	J'edha	/ɟeðɑ/	Grazing
Mattabulā	/mat̪abula̰/	Mattabula	/mat̪abulɑ/	Council of very old men
Bulittō	/bulut̪o̰/	Bulitto	/bulit̪o/	greeting
Bonā	/bona̰/	Bona	/bɔnɑ/	drought
Jilā	/jila̰/	Jila	/dʒilɑ/	feast
Amō	/amo̰/	Amo	/ɑmɔ/	but
Garbittī	/garbit̪ḭ/	Garabitti	/gɑrabit̪i/	A young woman with 3 kids
K'uufā	/ƙuːfa̰/	K'ufa	/ƙufɑ/	satisfaction
Fufud'amā	/fufuɗama̰/	Fufud'ama	/fufuɗamɑ/	Craving for food (Orma) Breathing with difficulty (Upper Kipokomo)

D'amanā	/ɗamaną̊/	D'amana	/ɗamɑnɑ/	Bid farewell to one another
Jijirā	/dʒidʒirą̊/	Jijira	/dʒidʒirɑ/	exchange
Soddē	/soḏ̥e/	Sodde	/sɔḏ̥e/	Brother in law
Ch'irā	/tʃˀirą̊/	Ch'ira	/tʃˀirɑ/	Shave hair
Ddarā	/ḏarą̊/	Ddara	/ḏarɑ/	Lack of clothing
Galā	/galą̊/	Gala	/gɑlɑ/	Go back
D'amsā	/ɗamsą̊/	D'amisa	/ɗamisɑ/	message
Ch'umā	/tʃˀumą̊/	Ch'uma	/tʃˀumɑ/	Waste from animal intestine
Mamattā	/mamaṯ̥ą̊/	Mamatta	/mɑmɑṯ̥ɑ/	think
Ddubī	/ḏubi̥/	Ddubi	/ḏubi/	case
Bittī	/biṯ̥i̥/	Bitti	/biṯ̥i/	Something to be sold
Ddurā	/ḏurą̊/	Ddura	/ḏurɑ/	In the beginning
D'ukō	/ɗukǫ̊/	D'uko	/ɗukɔ/	deaf
Ch'isā	/tʃˀisą̊/	Ch'isa	/tʃˀisɑ/	Lie down
Ddubattā	/ḏubaṯ̥ą̊/	Ddubatta	/ḏubɑṯ̥ɑ/	Expert in handling disputes
Balā	/balą̊/	Bala	/bɑlɑ/	blind
Garagarā	/garagarą̊/	Garagara	/gɑrɑgɑrɑ/	Differently

D'abhō	/ɗaβo̥/	D'abho	/ɗaβɔ/	Time to meet a dear one (Orma)
				Beginning (Upper Kipokomo)
Buttī	/but̪i̥/	Butti	/but̪i/	Type of snake
Ttumī	/t̪umi̥/	Ttumi	/t̪umi/	A castrated animal
Fununā	/fununḁ/	Fununa	/fununɑ/	nosebleed
Kulisā	/kulisḁ/	Kulisa	/kulisɑ/	Call one loudly from a distance
Marattū	/marat̪u̥/	Marattu	/mɑrɑt̪u/	Mad person
D'ukē	/ɗuke̥/	D'uke	/ɗuke/	dust
Ttottō	/t̪ot̪o̥/	Ttotto	/t̪ot̪o/	A mat made from papyrus
Jibā	/dʒibḁ/	Jiba	/dʒibɑ/	hate
Jamā	/dʒamḁ/	Jama	/dʒamɑ/	Swear (Orma)
				Love (Upper Kipokomo)
Baryedhā	/barʲeðḁ/	Baryedha	/barʲðɑ/	Clan name
D'ukubhā	/ɗukuβḁ/	D'ukubha	/ɗukuβɑ/	disease
Ddirā	/ɖirḁ/	Ddira	/ɖirɑ/	Make a queue
Hagalī	/hagali̥/	Nagalani	/nɑgɑlɑni/	Am coming back
Gombisā	/gombisḁ/	Gombisa	/gɔmbisɑ/	cover
Fayuma	/fajuma/	Fayuma	/fɑjumɑ/	Good health

Buk'isā	/buƙisa̧/	Buk'isa	/buƙisɑ/	An abrupt movement
Ddubhā	/ɖuβa̧/	Ddubha	/ɖuβɑ/	so
Addō	/ad̪o̧/	Addo	/ad̪ɔ/	please
Harigilanī	/harigilani̧/	Harigilani	/harigilɑni/	glass
Daarā	/daːra̧/	Ddara	/ɖarɑ/	Poverty of clothes
Fulā	/fula̧/	Fula	/fulɑ/	face
Galtamā	/galtama̧/	Galittama	/galit̪amɑ/	Virgin girl
Mor	/mɔr/	Moro	/mɔrɔ/	no
Hulkā	/hulka̧/	Huluka	/hulukɑ/	unseen
Rhok'	/ɾoƙ/	Rhoka	/ɾɔkɑ/	tamarind
Bines	/bines/	Binesa	/binesɑ/	beast
Jarsā	/dʒarsa̧/	Jarisa	/dʒɑrisɑ/	An old man
D'amsā	/ɗɑmsa̧/	D'amisa	/ɗɑmisɑ/	message
Bilbilī	/bilbili̧/	Bilibili	/bilibili/	cowbell
Jaalal	/dʒɑːlɑl/	Jalala	/dʒɑlɑlɑ/	love