

**PHONOLOGICAL ADAPTATION OF ENGLISH LOAN NOUNS IN PURKO
DIALECT OF THE MAA LANGUAGE IN NAROK NORTH SUB COUNTY**

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**A RESEARCH THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE
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Declaration and Approval

Declaration

I declare that this thesis is my original work which has never been presented to any examination body.

..... Signature Date.....

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Approval by the Supervisors

This Thesis has been submitted for examination with our approval as university supervisors.

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Dedication

I dedicate this work to my family.

Acknowledgement

I thank my Heavenly Father for His enormous grace and favour upon me to have given me such an opportunity to undertake my postgraduate studies. I do also thank my supervisors; Dr. Kenneth Odhiambo and Dr. Jane Ombati who tirelessly guided me through this work, may God bless you richly. I thank the key informants who assisted this research in data collection in whose generosity to give information will forever be recognized. I do thank my husband, David, our three sons, Makiell, Harell and Ronell, who continuously encouraged and challenged me to expedite this task, I specifically appreciate my husband, who supported me in paying my university fees and thesis expenses, God bless you great. My mother, who always asked, 'when will you graduate?' My pastor; Lemayian who faithfully prayed for and wished me greatness in my work. To my typist; Winnie, many thanks and to any other person who contributed to my success and wasn't mentioned here, allow me to register my appreciations to all of you and may our good Lord bless you all.

ABSTRACT

This research aimed at analyzing the phonological adaptation of the English loan nouns in Purko dialect of the Maa language in Narok North sub-county. Linguistic borrowing is inevitable in any linguistic contact. The Maa language has borrowed many nouns from the English language since the two languages co-exist through its speakers. The usage of English language among the Maa speakers is unavoidable due to its high status in Kenya; it is one of the official languages and also one of the languages of instruction in the Kenyan schools. Therefore, the borrowed nouns have been adapted phonologically into the Maa sound system for correct and acceptable pronunciation. This research was directed by the following objectives; to compare the Maa language and English language phonemic structure, to derive the phonotactic rules governing the adaptation of the English loan nouns in the Purko dialect and to describe the phonological processes employed in the adaptation of the borrowed English loan nouns in the Purko dialect in Narok North Sub- County. The study majored on the borrowed English nouns as used by the Maa speakers of the Purko dialect, this is because the noun class is the most borrowed class of words as it is used in naming of items not found in the borrowing language. Being a study of phonological adaptation, the CV- phonology theory Clements and Keyser (1983) and Lexical Phonology theory (LP) by Mohanan and Kiparsky(1980) were used. The CV-phonology was appropriate in comparing the phonemic structure of the English and Maa languages and also in deriving the phonotactic rules governing the adaptation of the loan nouns. LP theory was used in describing the phonological processes used in the adaptation of the loan nouns. This study used the qualitative approach where the descriptive and analytical research designs were used to describe and analyze the data. 150 Purko loan nouns which were sufficient for this research were purposively sampled from the Purko nouns. The data was collected using introspection and key informant interview methods of data collection. The collected data was described and analyzed using content analysis and the data presented in tables. This research found out that, the English and the Maa languages have some similarities and differences in their phonemic structure which necessitated the derivation of phonotactic rules such as, phonotactic rules of substitution, phonotactic rule of devoicing, phonotactic rule of vowel reduction, phonotactic rule of vowel epenthesis, phonotactic rule of assimilation and the phonotactic rule of nasalization. These rules governed the adaptation of the Purko loan nouns from the English language. Phonological processes of substitution, devoicing, vowel reduction, vowel epenthesis, assimilation and nasalization were involved in the adaptation. The results of this research will contribute to the studies on phonology especially phonological adaptation of loan nouns between languages. The results will also benefit the curriculum developers on the current Kenyan curriculum, CBC in getting content on the Maa sound system on loanwords.

Abbreviations

CBC -Competency Based Curriculum

CMU – Carnegie Mellon University

CV – Consonant, vowel

LP - Lexical phonology

MSA – Modern Standard Arabic

NSSC -Negative Syllable Structure Conditions

PSSC- Positive Syllable Structure Conditions

VSO - Verb, Subject, object

Symbols of Phonotactic Rules

// phoneme

[] phonetic change

/ in the environment

_ the place of the affected segment

→ becomes or changes to

word boundary

#_ change occurs at the word initial position

-#- change occurs at the word middle position

_# change occurs at the word final position

∅ → inserted

→ ∅ deleted

{ } occurs in more than one environment

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CHAPTER ONE

INTRODUCTION

1.0 Introduction

This chapter gives the background information of the study, phonological adaptation, English language in Kenya, background of the Maasai people and the Maa language in Kenya, statement of the problem, purpose of the study, research objectives, research questions, significance of the study, scope and limitations of the study and the conclusion of the chapter.

1.1 Background of the study

English and Maa languages co-exist through its speakers, due to this language contact, borrowing of words between the two languages is unavoidable. Thomas and Kaufman (1988) state that language contact can and often does, lead directly to linguistic changes; donations of some aspects from one language to the other is inevitable. English language has donated some nouns to Maa language. Therefore, it is important to understand the phonological adaptation of the loan nouns, the background of the English language in Kenya and also the background of the Maasai people and their Maa language.

1.1.1 Phonological adaptation

Wiese (2006) says that, phonology is a section of language which contains the systematic and functional qualities of sound in a language. Phonology gives and describes the sounds that are in a language and how the sounds are joined into words. Phonology is language specific; that every language has its sound system that is well known by its speakers. Phonology also has rules that often apply to the natural classes of sounds which are

described by distinctive features in consonants and vowels and also in the position of the tongue during articulation. In the case of borrowing, a borrowed word must be adopted into the phonological system of the receiving language for proper articulation.

The world today has become a global village, Robbie (2004) states that interconnectedness is inevitable and it has been made possible by the advanced communication. Language is one of the most powerful tools of communication globally, hence, speech communities that have a common purpose have to come up with ways to ease their daily interactions. One of the common ways to ease the communication is by getting loanwords from one language to another especially where there are things to be named or described and are missing in one of the languages in contact.

Li-na (2016) defines a loanword as a word taken from a source language and included into the receiving language without translation. These words are also called borrowed words or borrowing. Borrowing of words normally happens when two languages come into contact. Loanwords are the clearest indicators of language contact.

Thomason and Kaufman (1988) state that, whenever two languages come in contact, the first things to be exchanged between the two languages are words. Haspelmath and Tadmor (2009) state that, no language in the world is entirely devoid of loanwords. The Maa language has interacted with the English language therefore causing the loanwords in the Maa language.

Loanwords are studied in different sub fields of linguistics since they occupy a crucial position in linguistics, such as; in phonetics, phonology, morphology, semantics,

sociolinguistics and historical linguistics. This study explored the field of Phonology, Oduma and Odhiambo (2006) state that loanwords whose structural appearance is not similar to that of the receiving language, the syllable formation has to be rearranged in order to suit into the recipient's language patterns. Loanwords are normally not returned to the source language but rather are incorporated to the vocabulary of the recipient language. Therefore, a borrowed word is permanently adopted from the source language to the receiving language. Borrowing of words can go in both directions between the two languages in contact however, in most cases the dominant language which has more prestige and power lends more words than it borrows. So, the process of exchange is usually asymmetrical. This research analyzed phonological adaptation of English loan nouns in Purko dialect of the Maa language.

Paradis and Lacharite (2011) noted that researching on loanwords exposes more on the receiving language on its hidden rules that would remain concealed due to lack of input that would stimulate such rules. Paradis and Lacharite (2005) also posit that loan phonology is a window to the native phonology that provides phonologists with new insights into the borrowing language. Studies on phonological adaptation on loanwords are very important for linguists as they help to know how borrowed words adapt to the sound system of the receiving language. The Maa language has its sound system that governs the pronunciation of the words, it has a clear phonemic structure and phonotactic rules that are observed by the Maa speakers. The English loanwords are therefore adapted into the Phonology of the Maa language. This research therefore, was geared to, first comparing the English language and Maa language phonemic structures, second, deriving the phonotactic rules governing the adaptation of the loan nouns and finally describing the

phonological processes that were involved in the adaptation of the English loan nouns in the Purko dialect of the Maa language in Narok North sub county.

1.1.2 English language in Kenya

English is a West Germanic language of the Indo-European language family. Grimes (1996) states that, English has its roots in England and it is the dominant language of the United States, the United Kingdom, Canada, Australia, Ireland, New Zealand and various Island nations in the Caribbean Sea and Pacific Ocean. It is also an official language in India, the Philippines, Singapore and many countries in Sub-Saharan Africa including South Africa. In Kenya, English is one of the official languages. It is estimated that, about a third of the world's population, some two billion persons, now use English. It is definitely a global language being the second most spoken after Chinese language. The English language has a very rich vocabulary base it has borrowed words largely from other languages such as French, German, Italian, Spanish, Chinese, Russia and Japanese. Similarly, so many other languages have borrowed words from English. In Africa, most nations have made English one of their official languages making it possible for the indigenous languages to borrow from it. English came to Kenya towards the end of the 18th century. It was brought by the Christian missionaries and the British Colonists. Furaha (2007) notes that, between 1920-1963, the British colonial administration used the indirect rule, they colonized the existing political structure and gained control over the Kenyans. There was an introduction of the British Education System where some Kenyans were trained in English and later became trainers of other fellow Kenyans. More colonial schools were established and more Kenyans were trained. Learning of English became very

attractive since those who knew the language were employed as teachers and others got clerical jobs. With the aim of employment, many Kenyans enrolled in the British Education System. At the present Kenya, English has an elevated status as it is used in schools, courts, in religious gatherings, in business among many other areas.

This has made the Kenyan indigenous languages to borrow widely from the English language, Maa language being one of the beneficiaries of the borrowed words.

1.1.3 Maasai people and the Maa language in Kenya

Maasai is a Nilotic ethnic group living in the Northern central and Southern Kenya and Northern Tanzania. Their language is known as the Maa language, a member of the Nilotic language family. Except for some elders living in rural areas, most of the Maasai people speak the official languages of Kenya and Tanzania; Swahili and English. The Maasai population has been reported as numbering 1,189,522 in Kenya according to 2019 Kenya population and Housing Census. Meitamei (2020) notes that, in Kenya, the Maa language is spoken in parts of Samburu, Baringo, Nakuru, Narok, Trans Mara and Kajiado. In Tanzania, it is spoken in Moshi, Tanga, Arusha, Dodoma, Morongo and Iringa. The research also identified 22 dialects in the Maa language: Sampur, Siria, Ilaitayiok, Iltiamus, Wuasin kishu, Matapato, Loodokilani, Dalalekutuk, Lkeekonyokie, Ildamat, Kaputiei, Serenket, Ilarusa, Baraguyu, Ilaitokitok, Ilkisonko, Sikirrarri, Purko, Iparakuo, Ilmotanik, and Loitai. All these dialects have borrowed several loanwords from the English language, mostly from the school environment and from the new inventions from technology that are getting entry to the Maa language. Narok county has speakers from the following dialects; Purko, Lkeekonyokie, Ildamat, Wuasin Kishu , Siria and Loitai. Narok North Sub- County

is one of the six sub counties in Narok County, the Maa speakers in this sub county are from the Purko dialect which will be of interest to this study. The Purko dialect has its grammar, vocabulary and pronunciation that is distinct from the other Maa dialects. The Maasai worship a single Deity called Enkai. They are also divided into five major clans namely; Ilmakesen, Ilaiser, Ilmolelian, Iltaarosero and Ilukumai. The five clans are further subdivided into sub-clans or sections distinguished by their cattle brands. The Maasai deep-rooted culture is learned through learning of the Maa language. Maa language has an elaborate linguistic system; the syntax, semantics, morphology, phonology and phonetics that is well known to its native speakers which is expressed in their speech. Meaningful words in the Maa language are combined in the order of VSO (verb, subject, object) to form sentences that are articulated correctly by the natives.

1.2 Statement of the problem

Linguistic borrowing is a prevalent phenomenon in any language, since languages do not exist in a vacuum. The borrowing of words from one language to another is inevitable due to the need of communication to ease daily transactions among people of different speech communities. Any borrowed word has to suit into the phonological system of the borrowing language. Phonology is a major branch in linguistics that deals with the sound system of any language, the borrowed words have to adapt to the sound system of the receiving language for correct utterances by the natives.

The dialects of the Maa language have borrowed extensively from the English language bearing in mind that English is one of the official languages in Kenya and a language of instruction in the Kenyan schools. In the Purko dialect, much work is yet to be done on

phonological adaptation of loanwords. Therefore, this research was geared to studying the phonological adaptation of the English loan nouns in Purko dialect of Maa language in Narok North constituency.

1.3 Purpose of the study

The main reason of this research was to analyze the phonological adaptation of the English loan nouns in Purko dialect of the Maa language in Narok North Sub- County.

1.4 Research objectives

This research was guided by the following objectives:

1. To compare the Maa language and English language phonemic structures.
2. To derive phonotactic rules governing the adaptation of the English loan nouns in the Purko dialect.
3. To describe the phonological processes employed in the adaptation of English loan nouns in the Purko dialect.

1.5 Research questions

This research attempted to answer the following questions;

1. What are the similarities and differences in the phonemic structure of the Maa and English languages?
2. What are the phonotactic rules governing the adaptation of the English loan nouns in the Purko dialect?

3. Which phonological processes are involved in the adaptation of English loan nouns in the Purko dialect?

1.6 Significance of the study

The field of phonology and especially on loanwords adaptation has more and new knowledge to be researched on in specific languages that have something in common. This is due to language growth and language change. Languages that are in contact are constantly lending words to each other, this is evident through the new loanwords exchanged between different speech communities. The findings of this research therefore, provide important information to phonologists who undertake studies on phonological adaptation of loanwords especially loan nouns between languages, more so to those who will analyze loan nouns from the English language.

The results also provide important information to linguists and writers of publications on the Maa language such as Maasai books on sound system and dictionaries that contain Maa language transcriptions. In addition, the results also shed more light on the Maa language and unveil phonological rules that are followed by the Maasai speakers in their utterances.

To curriculum developers on the current Kenyan education system of CBC, the results of this study will help them in getting content on the Maa sound system and on loanwords.

The results will also be a point of reference to students and teachers who might be interested in studying language phonology.

1.7 Scope and limitations of the study

Maa language has borrowed nouns not only from English but also from Kiswahili, Sheng and Kikuyu languages. This research has only handled the loan nouns from the English language and not from the other mentioned languages as it would have been very broad for this single study. This research was also bounded to only nouns since nouns are the broadest category used in naming the borrowed items into the Maa language. Therefore, other word classes in English such as verbs, adjectives and adverbs were not handled in this research.

The Maa language has 22 dialects both in Kenya and in Tanzania, this research aimed at analyzing the adaptation of loan nouns from English in the Purko dialect in Narok North Sub-County and not loan nouns from the other 21 Maa dialects. The study was also limited to the field of phonology and not other linguistic fields such as morphology, semantics or syntactic fields. The researcher noted that, much work still needs to be done in detail on phonological adaptation of Maasai loanwords from English. This research limited itself to only two phonological theories that were sufficient in getting the results of the findings, the theories were the CV phonology by Clements and Keyser (1983) and the Lexical phonology theory propounded by Mohanan and Kipasky (1980).

1.8 Conclusion

This chapter has given background information on phonological adaptation, the background of the English language in Kenya, the background information of the Maasai people and the Maa language in Kenya, statement of the Problem, purpose of the study, research objectives, research questions, significance of the study, and the Scope and limitations of the research.

CHAPTER TWO

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.0 Introduction

This chapter reviews the literature related to this study and also describes the theoretical framework that the researcher used in describing and analyzing the results of the findings. The chapter begins by reviewing literature on phonological studies done on the Maa language, then reviews literature on the phonemic structure, literature on the phonotactic rules and literature on the phonological processes used in the adaptation of the loan nouns. The chapter also gives the theories used in describing and analyzing the results of the findings.

2.1 Phonological studies done on the Maa language

There are some studies on phonology that have been done on the Maa language by some scholars. Chege (2009) researched on the morphophonological alterations of Maa loanwords taken from English and Kiswahili. The data used was collected specifically from the Maa language spoken in Kajiado county. The work used the Optimality theory of Constraints and Repairs and outlined the Maasai phonemic inventory, the syllable structure and the tone. It also outlined the morphological and phonological processes of adaptation of both English and Kiswahili loanwords in Maasai. The present research differs slightly since it uses the CV-Phonology theory and the Lexical Phonology and doesn't handle tone. However, the research benefited in getting the Maasai phonemic structure and some of the phonological processes used in the adaptation of the English loan nouns in Maa language among the Purko dialect in Narok North sub county.

Meitamei (2020) studied the phonological processes causing variations in nouns across Maasai dialects. He identified the noun parallels in 22 dialects and analyzed various rules in charge of the phonological processes accountable for the presence of noun dissimilarity across the dialects. The research used the Natural Generative Phonology and concluded that various Maa dialects use different words for the same meaning and that noun parallels were different from each other on the basis of phonological processes. The researcher interviewed Maasai speakers from Kenya and Tanzania. The study was comparative in nature of the Maasai dialects. This research benefited from the research especially on the phonological processes. Nonetheless, the present research only handled the phonological adaptation of English loan nouns in the Purko dialect of the Maa language in Narok North sub county and not in the other 21 dialects. This research used the CV-Phonology and Lexical phonology theories and concentrated only in Narok North sub county.

Munke (2018) in his book 'The Maasai language: An introduction,' analyzed the Maa vowels and consonants, their pronunciation and how they appear in words. This study largely benefitted from this work especially on the Maa phonemic structure.

Payne (2008) explored the Maa language, in this study, some of the work done that were instrumental to this study were, the Maa language family tree and the Maa sounds where 25 consonants and 9 distinct vowels were analyzed. The results of this research were very instrumental to this study especially in comparing the Maa and English phonemic structures.

2.1.2 Phonemic structure

A phoneme being the smallest unit of speech distinguishes one word from the other, each language has its own phonemes that are different with those of other languages. Some studies have been done concerning the phonemic structures of specific languages.

Yang (2016) studied on the phoneme disposition and syllable anatomy of entry words in CMU (Carnegie Mellon University) dictionary; a machine-readable pronunciation dictionary for North American English. The dispensation of consonants and vowels was examined using an internal functional 'table' in R script. The results showed that, the figure of syllables from the dictionary was 286773. That figure was compatible to the total figure of vowels, while the figure of consonants was 446803. The frequency ratio of vowels to consonants is approximately 4:6. consequently, someone can summarize that, English words normally constitute more consonants than vowels. Of importance from this research is the fact that English has more consonants than vowels, similarly, monophthongs appear regularly than diphthongs. Therefore, this research focused to be aware of the ratio of consonants to vowels in the Maa language. On the contrary, this study did not use the machine-readable pronunciation dictionary to collect data but rather, the researcher used introspection and key informant interviews to collect data and used tabular method of data presentation.

Mukulo (2016) used the CV-phonology theory to analyze phonological adjustment of English loanwords in Lukabras. The study compared the phonemic structure of Lukabras and English languages. The results revealed that, English has 12 pure vowels, 8 diphthongs and five triphthongs while Lukabras has 5 pure vowels only. English has 24 consonants

with two semi-vowels and that there are some English consonants that are absent in Lukabras, they include; the dental fricatives, the labio-dental fricative, the voiced palatal alveolar affricate, the voiced alveolar stop, the voiced velar stop, the voiced alveolar fricative and the voiced palatal alveolar. The current research similarly used the CV-phonology theory as one of the theories of reference which is a syllable-based theory in comparing the English and Maa phonemic structure. The researcher also checked if there are English consonants and vowels that do not occur in the Maa language.

Fatchul Mu'in (2017) researched on the phonemic involvement of indigenous language in oral English. The researcher did a comparison of the phonemic structure of Banjarese and English language. Following the investigation, some of the results showed that, Banjarese and English have major differences in terms of phonemes. Banjarese has only three vowels while English has twelve vowels. Banjarese has eighteen consonants while English has 24 consonants. Banjarese has three diphthongs while English has nine diphthongs. These results aided this research in noting the differences in the sum total of vowels, consonants and diphthongs in English and Maa languages. It also checked whether there was interference of the Maa language on the English loan nouns in the phonemic systems hence some differences.

Nakajima (2017) studied on English Phonology and Acoustic Language Universal. The study revealed that, there are three prevalent classifications of the English phonemes; The vowels, the sonorant consonants and the obstruents. Vowels and obstruents were conspicuously independent while the sonorant consonants occupied an area in the middle. The analysis showed that, sonorant consonants occasionally perform identical functions to

those of vowels in the sense that, some of them can be syllable nuclei in English. However, they cannot be nuclei of stressed syllables. The present study benefited from these results by investigating whether the Maa language has sonorant consonants.

Muhammad and Maria (2019) in their study of the phonemic juxtaposition of English and Punjabi languages concentrated on comparing the consonant sounds of the two languages. The likeness and variations were evaluated and estimated in figures. The English phonemic inventory and Punjabi inventory were plotted on tables for the relative analysis through the bodywork of Levenshtein algorithm. After the analysis, the results showed that there were 24 consonant sounds in the English language and 32 consonants sounds in Punjabi. 20 consonant sounds were found in the two languages and they had the same manner and place of articulation. Nevertheless, there are 14 consonant sounds in both languages which were contrasting in terms of their manner and places of articulation. This research also followed this process of comparing the phonemic inventory of the Maa and English languages so as to identify the differences and similarities in their phonemic structures.

Shume (2017) compared the phonemic Inventory of Orma, Kipokomo and English languages in her study of loanwords from English and Orma languages in Kipokomo. The study used the Optimality theory which differs from the theories that this study used. It also employed questionnaires to collect data collection unlike this research which used introspection and key informant interview methods of data collection. The study revealed that, Kipokomo has the highest number of consonant phonemes at 34 and 5 vowels. English had 24 consonant phonemes and 20 vowels. Orma had 22 consonants and 5 vowels. The study however, notes that, the three languages contain similar sound components in

particular areas. Having in mind that loanwords routinely come with the phonemes from the source language to the borrowing language. Hence, the phonological system of the borrowing language imposes which sounds are preserved and which ones are displaced. This analysis helped the current research knowing which sounds from the source language were replaced or retained by which sounds in the Maa language.

2.1.3 Phonotactic Rules

Zsiga (2014) explicates phonotactic rules as the limitations on the types of sounds that are permitted to appear close to one another or in specific positions in the word, that is, what sound sequences are possible and which are not possible in words of any given language. Sang (2009) researched on the phonological adjustments of English loanwords in Nandi using Feature Specification and optimality theories to explain the adjustment of vowel and consonant phonemes from English into Nandi and the modification of restrictions undergirding the Nativization of English loanwords in Nandi. The study posited that epenthesis was prevalent to deletion in the adjustments of unaccepted consonant groupings. The current research differed slightly on the theory, since it used the CV-phonology theory in deriving the phonotactic rules used in phonological adaptation of the loan nouns among the Maa Purko dialect in Narok North sub county.

Freeman (2016) explores whether cross-linguistic activation of phonological formations crosses over to phonotactic restrictions of the non-target language during oral comprehension in bilinguals. The question this paper addressed was whether Spanish-English bilinguals retrieve Spanish phonotactics restrictions during English comprehension. The results from the analysis were that, Spanish- English bilinguals

retrieves Spanish phonotactic restrictions during English comprehension. Moreover, the bilinguals retrieve constructions across both languages during oral word. Hence, Comprehension is not bound strictly to phonology but also to phonotactic restrictions. This observation aided this research as it sought to know if the Maa speakers first access their phonotactic constraints in order to adopt the English loan nouns.

Al-Athwary (2017) researched on the phonotactic modifications of English loanwords in Arabic. The work revealed that, speakers of Modern Standard Arabic (MSA) replaced the alien English phonemes by accustomed MSA ones. They do reorganize the way the sounds are arranged to fit into MSA phonotactics, that the non-native items are adapted at the syllabic level. This particular research wanted to investigate whether there was replacement of English phonemes by familiar Maa phonemes in conforming to Maa phonotactics.

Awad (2020) studied on the discernment of the English phonotactics by Saudi English majors. He notes that Saudi EFL have problems in pronouncing and perceiving consonant clusters because they are lacking in Arabic. They manifested a frail ability to discern and separate sound amalgamations that were allowed and disallowed. This observation, made this research to be keen to note if there were such scenarios of difficulty in pronouncing and perceiving consonant clusters that were not permitted in the Maa speakers in the Purko dialect.

Mukulo (2016) analyzed the syllable structure in the research on phonological adjustments of English loanwords in Lukabras and outlined that Lukabras has an open CV shaped syllable formation which was scrutinized by the general theory of the syllable CV phonology. Additionally, she notes that, the pronounced English syllable formations in

loanwords are unpronounced at the timing tier of the CV phonology theory. The unmarking of the English syllable is done so as to attain the correctness of the forms which are acceptable to the Lukabras syllable formation. Vowel epenthesis is the most prevalent master plan of unmarking the foreign English syllable formation in Lukabras English loanwords. This observation was very critical to the current research since the researcher also used the CV- phonology theory to analyze and see if there was unmarking of the English syllable with the aim of arriving at the acceptable syllable formations in English loan nouns in the Purko dialect.

Mbwika (2018) used the optimality theory to scrutinize the modification of the English and Kiswahili syllable formations into the Rabai syllable structure. It was observed that there were some changes that happened in the syllable structure so as to suit into the phonotactic restrictions of Rabai language. She discusses adaptation processes such as re-syllabification, weight reduction and cluster tolerance. Re-syllabification was brought about by metathesis and various insertions such as paragoge, merging of some consonants and anaptyxis. Also, the syllable weight loss happens through vowel shortening, diphthongization, monophthongization, paragoge, anaptyxis, syncopation, apocopation, apheresis and merging of some components in particular syllables. Though this analysis used the optimality theory unlike the current research which used the CV-phonology and Lexical phonology in its analysis, the adaptation processes for the loanwords arrived at, was very significant to the current research in deriving the phonotactic rules controlling the adaptation of English loan nouns in Maa language among the Purko dialect in Narok North sub county.

2.1.4 Phonological Processes used in the Adaptation of Loan Nouns

Thomason and Kaufman (1988) state that borrowing of words from one language to another is an inevitable practice among languages. The loanwords must fit into the phonology of the receiving language for good performance on the language. Ana (2020) researched on the phonological examination of English borrowings in Spanish language using peculiar attributes. The researcher used Generative phonology theory in the study and also used 'Simak' method of data collection which is a method of collecting data by scrutinizing the language being used, that is, the already available data. The researcher analyzed 30 English loanwords in Spanish and the results revealed that there were two major categories of phonological processes of English loanwords in Spanish language; substitution of English consonants and substitution of vowel phonemes. The current research sought to find out if there was substitution of vowels and consonants in English loan nouns in Maa language in the Purko dialect.

Almira (2021) studied phonological adaptation of Arabic loanwords in Maguindanaon in Philippines. The results revealed that the modifications are controlled by the phonological outlook of the benefitting language. That the phonology of Maguindanaon seeks to preserve its sound system. The researcher used the optimality theory in the analysis and noted that faithfulness is broken in order to give unmarked structures. Though this research differed in the theory it used, the results were of guidance in the adaptation processes employed.

Mohammed (2016) researched on the modifications of English borrowings in Ammani Arabic. He used optimality theory to analyze his findings. His research questions were,

what is the syllable formation of the borrowed words in Ammani Arabic and what phonological processes were employed to correct the wrong structures. The phonological processes arrived at include vowel epenthesis, deletion and syncope. These processes were checked if they occur in the current research. Another intriguing thing in Muhammed's research was one of the research methodologies of data collection. The researcher gave most of the words by use of pictures on a computer monitor and asked respondents to specify and name them. Once they identified the words, they said it three times in a sentence context and were digitally recorded, the researcher later transcribed the words. The current research utilized the key informant interview method of data collection and transcribed the loan nouns which exposed the phonological processes used in the modification of the English loan nouns.

Kangwa (2017) analyzed the adaptation of consonants from English loanwords into Bemba language. The results of the research showed two major processes involved in the adaptation are devoicing of consonants and consonant preservation. This research benefited from this research by analyzing how the English consonants of the loan nouns behaved when adapting to the Purko dialect.

Mukulo (2016) worked on the phonological adaptations of English borrowed words in Lukabras language, a Luhya dialect in Kenya. This research was very important to the current research because it used a similar theory the CV-phonology theory to analyze phonological adaptation of English loan nouns in the Purko dialect. In the analysis, the researcher discovered how the English words adapt to Lukabras language is by use of the following processes vowel lowering, vowel raising, reduction of long vowels,

monophthongization of diphthongs, devoicing of consonants, stop weakening and consonant substitution. Lukabras is a Bantu language in origin as opposed to Maa language which is Nilotic. Nonetheless, these processes were checked if they occurred in the current research.

Shidiavai (2015) researched on phonological adaptation of Kiswahili and English borrowings to Lwidakho by use of the optimality theory. The methods of data collection were natural observation and introspection. This research differed with the current research in the theory used but similar in introspection method of data collection. The outcome of the research showed that preservation of phonemes and substitution processes were used for the adaptation. Therefore, the results of the research were insightful to this research in checking the presence or absence of these processes in the phonological adaptation of the English loan nouns in the Purko dialect.

Boen (2014) studied borrowings in Nandi from English and Kiswahili languages. The study used the Natural Generative Phonology and the CV-Phonology theories in the analysis. The results brought out the enormous work performed by the loanwords in a language's grammar and sound system in the action of vernacularization of loanwords. The borrowings were to be incorporated in the confines of the guidelines of the receiving language which were also bound to the constraints within the donating language. The results of this research aided the present study since the two languages Nandi and Maa come from the same language family tree; the Nilotic language family, hence there are shared language characteristics.

Shume (2017) employed optimality theory to scrutinize the phonology of Pokomo borrowings taken from Orma and English. The research discovered that epenthesis was the central vowel process accountable for nativization of borrowed words from English while vowel voicing caused nativization of loanwords from Orma. Likewise, substitution was also employed as a consonant procedure employed in the modification of the loanwords into upper Kipokomo language. The current research analyzed epenthesis and checked if there was vowel voicing and consonant substitution in Maa consonants.

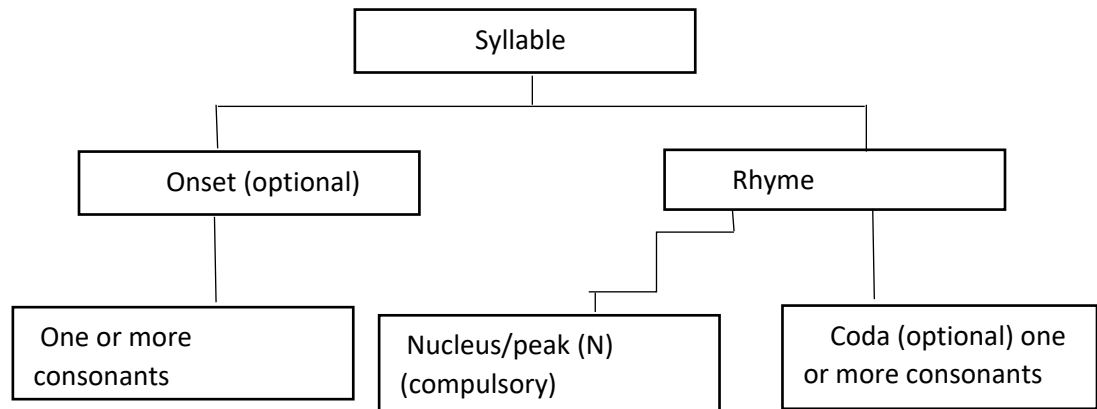
Mbwika (2018) researched on the phonological modification procedures of Rabai borrowings from English and Kiswahili. The researcher employed the optimality theory in the analysis. The present research however, used the CV Phonology and the lexical phonology theory in its analysis and it dealt with the Maa language which is Nilotic while Rabai is a Bantu language. The results of the research were an intrigue to this research in analyzing the data that was collected. The processes revealed from the analysis included; vowel epenthesis, vowel elision, vowel raising, vowel lowering, consonant substitution, consonant elision, metathesis and glide epenthesis. All these processes were checked if they existed in the current research.

2.2 Theoretical framework

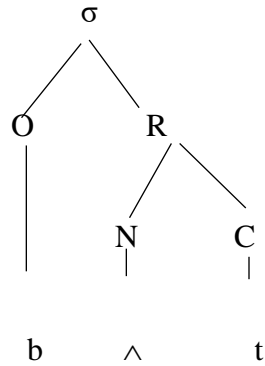
This research used two theories to describe and analyze the data, the CV-Phonology theory by Clements and Keyser (1983) and Lexical Phonology theory Mohanan and Kipasky (1980)

2.2.1 CV-phonology Theory

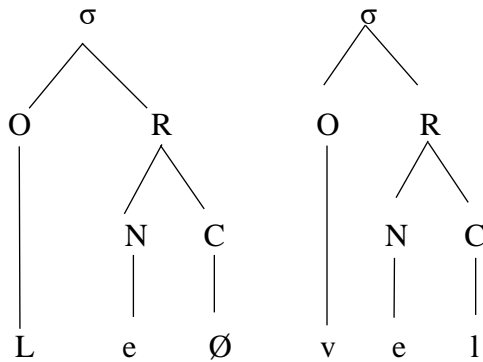
The CV phonology theory was initially put forward by Kahn (1976) in his work; *Syllable-based Generalization in English phonology* where he propounded that a syllable is a stratified unit. Clements and Keyser (1983) elaborated on this theory and arrived at the CV phonology, a generative theory of the syllable. The generative CV phonology theory is an all-round theory of the syllable which can be employed to scrutinize syllables of any language because it gives the universal tenets of the syllable. A syllable has the



Example, /bʌt/ (but)



This theory tries to eliminate the uncertainty about position of the syllable boundary. Clement and Keyser (1983) elaborate that the vowel constituent is connected with the syllable apex. To put it another way, the existence of the highest peak of resonance in each syllable is established. A component dominated by the C-element of the CV-tier is non-syllabic while one that is dominated by the V-element of the same tier is syllabic. Consequently, the V-element contains the sonority peak. For a word with multiple syllables, the explanation that should be given is to which syllable node the C-elements are allocated in confusing scenarios. For instance, the word 'Level' has two syllables hence, the coda of the initial syllable will be void and it becomes the onset of the second syllable following the onset maximization principle as seen below,



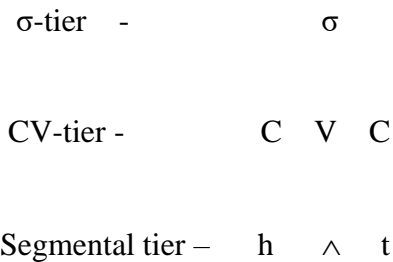
Following this proposition:

- a) The consonants that appear before the nucleus are maximized to the extent consistent with the syllable formation of the language at hand.
- b) Also, consonants that appear after the nucleus are maximized to the extent consistent with the syllable formation of the language at hand Clements and Keyser (1983)

This implies that, the irregularity should be on the coda rather than the onset because in allocating consonants to the syllable node, we start with the onset rather than the coda. CV phonology suggests an additional depiction, the CV- tier which denotes functional positions inside the syllable beside permitting a simple account of such syllable related occurrence. A diphthong can be expressed as two vowel make-up functioning as or filling of a single vowel. Consequently, lengthened or geminate consonants can be represented as a single segment spreading over two C positions. It states that the ultimate components of syllable branching are not vowels and consonants themselves but rather the units of the CV- tier which define positions in syllable formation that certain consonants and syllables may occupy. The autonomy of the CV-tier and the segmental tier is shown by the fact that phonological rules may apply independently to the members of either tier or may affect the manner in which the elements of these two tiers are related to one another. In addition, phonological processes may be sensitive to the difference between similar syllable trees which vary in the component of the CV-tier.

Syllable trees are made-up of three-tiered illustration where each tier has a specific vocabulary connected with it. The vocabulary of the first or σ -tier consist of the single

element σ , the vocabulary of the second or CV-tier consist of the two elements C and V and the vocabulary of the third or segmental tier (nucleus tier) consist of one-column phonetic matrices featuring consonants and vowels in the customary way. Well-formed series on each tier contain sequences of the members of the alphabet specified on that tier. The word ‘hut’ /hʌt/ will be represented as shown below;



2.2.1.1 Tenets of the CV-phonology theory

The CV-phonology theory has three tenets as elaborated below;

1. It provides an alphabet where syllable parts are established in unison with a characterization of the allowed arrays of alphabetic units. The syllable trees consist of three- tiered illustrations where each tier has a certain vocabulary associated with it. The vocabulary of the first or σ - tier consist of a single element σ , the vocabulary of the second or CV- tier consist of the two elements C, V and the vocabulary of the third or segmental tier consist of single column phonetic matrices featuring consonants and vowels in the normal manner. Well-formed units on each tier contain a series of the members of the alphabet specified on that tier. This tenet was very important to this research as it aided in comparing the phonemic structure of the English and Maa language and also in deriving the phonotactics rules that allow

the permissible alphabetic units used in the adaptation of English loan nouns in Maa.

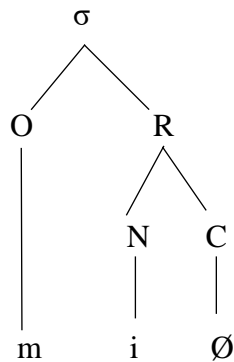
2. The CV phonology theory gives the core syllable associations, that is, it characterizes the group of language-specific propositions that alters or widens the underlying syllable representations (syllabification rules) and shapes how the rules are brought together into the prevalent structure of the phonological constituents. Or else stated, in the grammar or lexicon of a particular language, V-elements of syllable formations are not limited to dominate both [+ consonantal] segments and [+ high, -consonantal] segments. Other associations are feasible only when allowed by language particular rules. Hence, the CV-phonology theory gives permissible components of the CV tier and those of the segmental tier. This tenet has been of aid in deriving the phonotactic rules that were used in getting the sound successions that were possible and also show which ones were not possible in Maa language.
3. Additionally, the theory specifies the tenets where specific languages differ in their choice of syllable type. The CV-phonology theory submits that words are completely syllabified at the level of lexical description, that is, syllable trees are not created in the course of phonological element. Therefore, the syllable formation is given at a single level, uniquely identifiable for all languages. English and Maa languages vary in their choice of syllable type. This study will therefore seek to analyze the phonological processes used in the course of the adaptation of English loan nouns in Maa language for proper articulation.

The three tenets of the CV- phonology were employed in this research to attain the first two objectives; comparing the English language and the Maa phonemic structures and deriving the phonotactic rules used in the adaptation of English loan nouns in the Purko dialect.

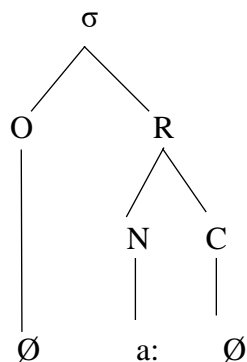
Core syllables in the CV- phonology

The predominant group of central syllable types include four successions: CV, V, CVC, VC.

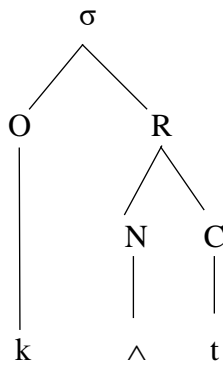
a) CV – mi /mi/



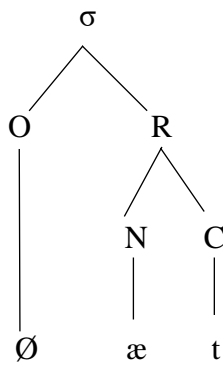
b) V- are, /a:/



c) CVC – cut /kʌt/



d) VC- at, /æt/

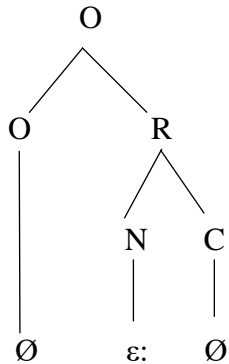


VC is the most pronounced in the knowledge that it's mandatory for any language having VC succession to also have CV, V, CVC succession. CV syllable is a member to the grammar of all languages, this syllable type may be worked on to produce one or more of the other core syllable types by performing the following actions as shown below;

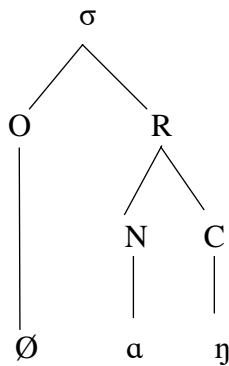
- a) Omit C at the beginning of the syllable
- b) Add C at the end of the syllable

Certain languages accept core syllable types to have orderings of consecutive V-elements, while other languages accept one C-element at the beginning or end positions in the syllable. For instance, in Maa language, we have;

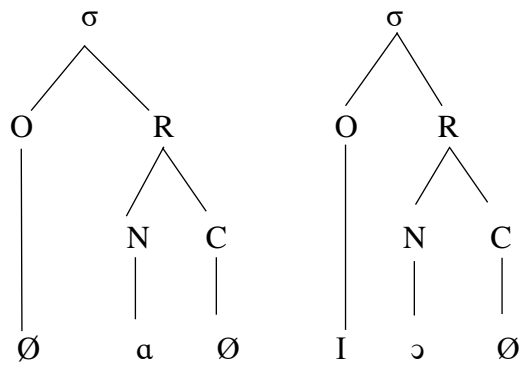
a) V -ee /ε:/ (yes)



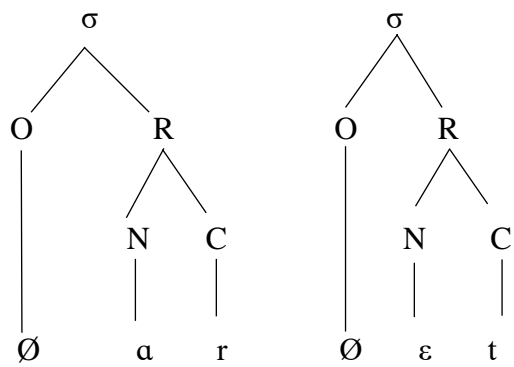
b) VC- ang /aŋ/ (home)



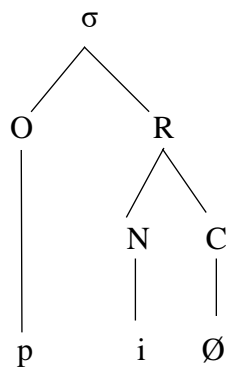
c) VCV-alo /alɔ/ (spread)



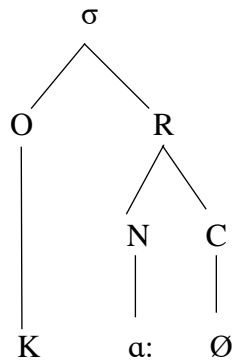
d) VCVC -aret /arɛt/ (help)



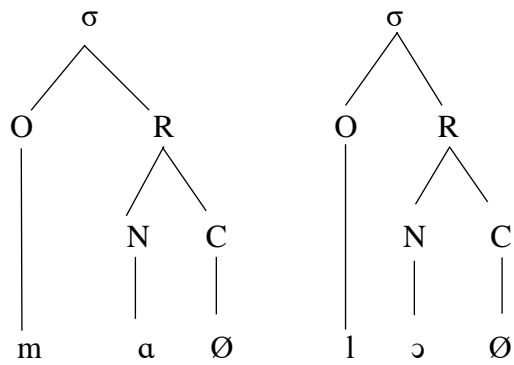
e) CV- pi /pi/ (certainly)



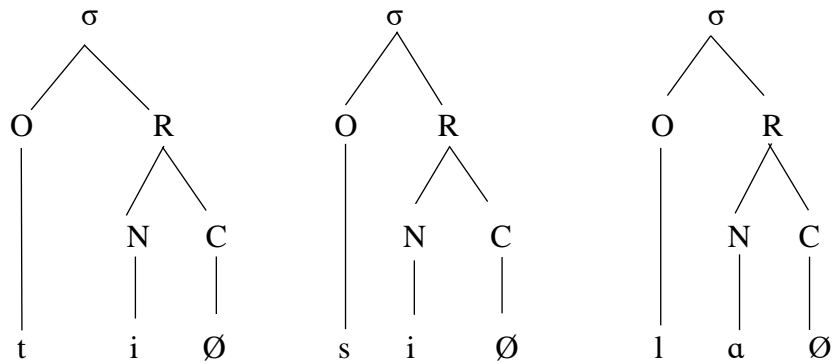
f) CVV- kaa /ka:/



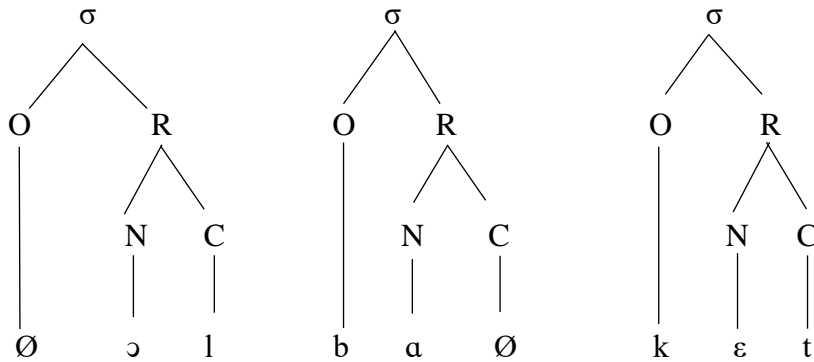
g) CVCV- malo /malɔ/ (I won't go)



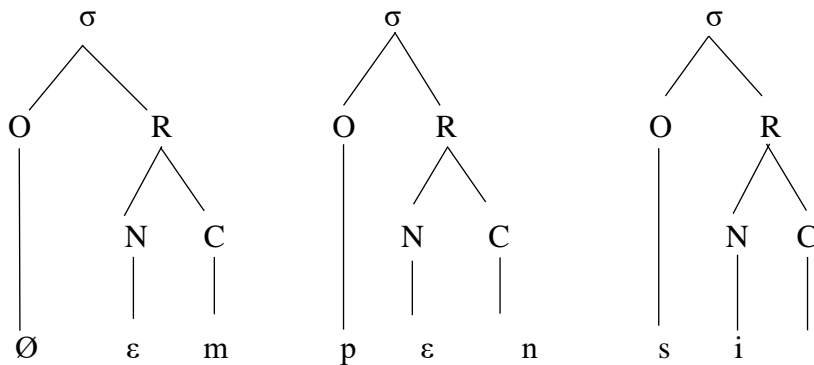
h) CVCVCV- tisila /tisila/ (purify)



i) VCCVCVC- Olbaket /ɔlbakɛt/ (bucket)



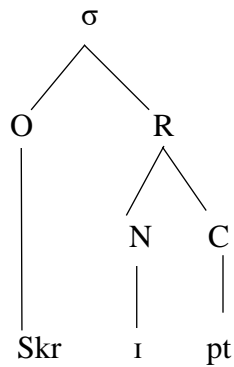
j) VCCVCCVC-Empensil /ɛmpɛnsil/ (pencil)



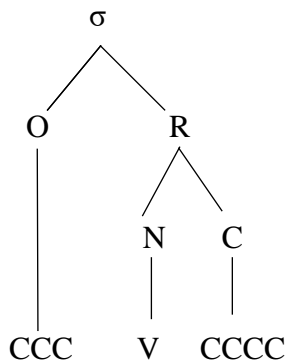
Restrictions on co-occurrence or inside the syllable are shown on positive and negative syllable formation conditions which, joined, produce the set of correctly formed core syllables for each language. The positive syllable structure conditions (PSSCs) provide the common canonic structure of correctly formed consonant or vowel groups in terms of successions of natural classes. The negative syllable structure conditions (NSSCs) applying to the outcome of the PSSCs expresses some subsequences within the syllable as ill-formed thus providing a filtering operation. In addition, some languages accept core syllable types to contain successions of consecutive V-elements. In such languages well-formed core

syllable types might contain not only of CV and CVC but also of CVV, CVVC, CVVV, CVVVC and also, openly pick CV as the illustrative of the primary core syllable and so on as shown in the above Maa examples. Furthermore, certain languages accept more than one C-element at the beginning or end position in the syllable. The English language allows up to three C elements at the onset and up to four C elements at the coda. For instance;

a) Script /skript/ - CCCVCC

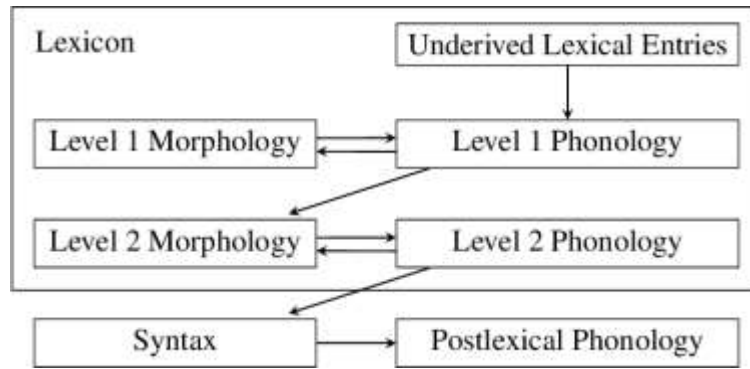


b) Twelfths /twelfθs/ - CCCVCCCC



2.2.2 Lexical Phonology Theory

Lexical phonology theory (LP) is a modern theory that was proposed by Mohanan and Kiparsky (1980). It is a theory in which morphological and phonological rules are blended within a single structure. It is a perspective in phonology that expounds on the interactions of morphology and phonology in the word building process. The perspective is centered on the awareness that, a good deal of the phonology works jointly with the word construction rules in a cyclic fabrication to express the class of lexical components in a language. The lexicon performs a vital fruitful role in the LP theory as it contains structured levels that are responsible for various phonological and morphological processes. In LP the lexicon is treated more than just an explanation to grammar, it has word formation rules of morphology connected with phonological rules to provide union between the rules that brings out the morphological structure of a word and the phonological rules that accounts for how a word is articulated. The early primary work in lexical phonology claims that the attachment of a morpheme to a word generates the applicable phonological rule distinct to that cycle of derivation. The theory provides two clear phonological rule applications. First, the rules are applied within the lexicon (lexical rules), second, the rules are applied to the output of the syntactic element (the post lexical rules) at the sentence level or phrasal phonology. LP deduces different strata for the word formation processes along with different phonological rules and/or restrictions governing these different levels.



Source: Kipasky (1982)

In the above diagram, the lexicon has an internal structure which is hierarchical, the unobtained lexical constituents contain an exclusive morpheme such as dog, car or house. No word formation rule of any kind has been employed to generate such words. They are present in the lexicon bearing the phonological, grammatical and semantic characteristics with which they surface. Level 1 has bound morphemes which cannot happen independently but must always be joined to some other forms Katamba (1989) such as, un-, -ment, mis. The theory proposes that Level 1 rules must always come before all level 2 rules which in turn must come before the post lexical rules. Level 2 rules affect the phonological and semantic properties of the lexicon for instance; *read and -er is reader, do and -er is doer* though there are some exceptions such as *cook and -er is cooker* which does not denote the doer of the activity. Therefore, the structuring of levels brings implications on the way rules apply and interact.

2.2.2.1 Tenets of the Lexical Phonology

The lexical phonology theory has two phonological rules as discussed below,

1. The lexical rules apply within the lexicon only and it requires one to have morphological and phonological knowledge on the word so as to realize the word formation processes.

The LP gives an overview of the following phonological processes that some were found to have been employed in the phonological adaptation of the Purko loan nouns from the English language. The phonological processes include: vowel shift, vowel reduction, voicing, palatalization, velar softening and spirantization.

2. Post lexical rules- the sentence is the main domain of post lexical rules since they apply on to elements deduced by syntactic performances. They therefore apply across word boundary. The lexical rules were the only ones used in this research to analyze the phonological processes used in the English loan noun adaptation of the Purko dialect of the Maa language.

2.3 Conclusion

The chapter has presented the related studies that have been done on the Maasai language, literature on the phonemic structure, literature on the phonotactic rules and literature on the phonological processes used in the adaptation of English loanwords in the Maasai language. The chapter has also highlighted the theories used in the research; the CV-phonology and the Lexical Phonology theory that were used in describing and analyzing the data.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter gives outlines the research design, study area, population, sample and sampling procedure, data collection methods, data analysis techniques and data presentation method that the research used.

3.1 Research Design

The qualitative research design was used where the descriptive and analytical types of research designs were employed. Lambert and Lambert (2012) state that descriptive design is to comprehensively sum up particular events experienced by persons or groups of people. Therefore, the design was used to classify, describe and compare the data objectively. In descriptive design, the variables were not controlled neither manipulated. The analytical design focused on why the research phenomenon was true on the phonological adaptation of the English loan nouns in Maa language in the Purko dialect. Therefore, the English and Maa phonemic structure, the phonotactic rules governing the adaptation of the loan nouns and the phonological processes utilized in the adaptation of the loan nouns were described and analyzed.

3.2 Study Area

The research was carried out in Narok North constituency, one of the six constituency in Narok county. Its population is at 251,861 according to the 2019 Kenyan census. The Maasai people are the majority residents who are from the Purko dialect.

3.3 Target Population

This research targeted Maa loan nouns from English language that are used by the Maa speakers among the Purko dialect in Narok North sub county.

3.4 Sample size and Sampling procedures

This research analyzed the adaptation of 150 English loan nouns used by the Maa speakers of Purko dialect in Narok North constituency. Purposive sampling procedure was used to sample the 150 loan nouns from the English language. Seven key informants were interviewed to generate the loan nouns from the following fields; education, technology, religion, hospital, domestic items and the political field. The researcher also self-generated the loan nouns through intuition since she understands the Purko dialect.

3.5 Data Collection Methods

The researcher employed introspection and key informant interviews as methods of data collection.

3.5.1 Introspection

Wallendorf and Brucks (1993) postulates that in introspection, the researcher performs the duties of an exclusive introspector who allows his or her personal needed emotions, sensations, memories, thoughts or imaginations as data for analysis; no one else is needed. Introspection was valid for this research due to the fact that the researcher is a native speaker of the Maa language and therefore able to generate loan nouns through intuition. The researcher counter checked the data with other Maa native speakers so as to avoid subjectivity.

3.5.2 Key informant interview

Kvale and Brinkmann (2009) state that Key informant interviews are qualitative comprehensive interviews conducted with key informants that is, interviews with persons who understands everything in the respective field. The researcher picked seven key informants who speak the Maa Purko dialect and who had the basic formal education. The seven informants made an effective and manageable group that helped in generating data. The researcher provided several English nouns and the informants gave the Maa parallel nouns. The researcher and the key informant came to a conclusion whether a given word is native or borrowed from the English language and not from other languages such as Kikuyu, Kiswahili and Sheng among others.

3.6 Data Analysis

Lecompte and Schensul (1999) define data analysis as the process a researcher utilizes to compress data to a story and its interpretation. Particularly, it is a process of compressing vast quantities of obtained information to create meaning from it. This research used the content analysis method of data analysis to compare, contrast and analyze the collected data in order to ascertain how the English loan nouns have been integrated into the Maa language in the Purko dialect. The words were transcribed and the gloss of their meaning provided. From the data analyzed, the English and Maa phonemic structure were compared, the phonotactic rules derived and the phonological processes of adaptation were given.

3.7 Data Presentation

The data was presented in tables. Tabular presentation of data gives data in rows and columns and makes it easy to analyze and arrive at conclusions. English and Maa phonemic

structures were compared in tables also, the English words that were borrowed were placed in tables. This made it easy for the researcher to derive the phonotactic rules and the phonological processes used in the adaptation were described.

3.8 Ethical Considerations

The researcher considered voluntary and informed consent and a research permit ethical considerations.

3.8.1 Voluntary and Informed Consent

The key informants for the interview were notified on the purpose and the intentions of the research and were requested to participate willingly in the research process. None of them was coerced into the research activity.

3.8.2 Research Permit

The researcher obtained a research permit from National Commission for Science, Technology and Innovation (Nacosti). The research permit allowed the researcher to conduct the research confidently especially while dealing with the key informants that were very instrumental during data collection.

3.9 Conclusion

This chapter has provided the research design that the researcher used, the study area, the targeted population, the sample and sampling procedure, the methods of data collection, data analysis technique, data presentation and ethical considerations.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.0. Introduction

This chapter provides the data and analysis as per the objectives of the research. It begins by giving data on the comparison of the Maa and English phonemic structure. Second, it provides the phonotactic rules governing the adaptation of the English loan nouns in the Purko dialect of the Maa language and lastly, it describes the phonological processes employed in the adaptation of the Purko loan nouns from the English language.

4.1 The Maa Phonemic Structure

Chomsky and Halle (1968) state that a phoneme is a set of phones that can differentiate one word from another in a specific language. The phonemic structure of a language is evident when the phonemes of a language are analyzed, that is the vowels and consonants that makes the phonology of a language. The Maa language has consonants and vowels that makes its sound system.

4.1.1 Maa Consonants

Based on Payne (2008), the Maa language has 25 consonants, as shown in Table 1 below.

Table 1: Maa consonants

Manner of articulation \ Place of articulation		Labial	Alveolar	Palatal	Velar	Glottal
Nasal		m	n	ɲ, (ny)	ŋ	
Plosive	Pulmonic	p	t		k	
	Implosive	b, mb	d, nd		g	
Fricatives			s	ʃ dʒ		h
Affricates				tʃ ɲʃ		
Rhotics	Tap		r (r)			
	Trill		r: (rr)			
Lateral			l			
Glide	Lenis	w		j (y)		
	Fortis	w: (wu)		j: (yi)		

Source: Payne (2008)

The above Maa Consonants can be presented phonemically and orthographically as shown in table 2 below.

Table 2: Maa consonants presented phonemically and orthographically

Consonant	IPA Symbol	Purko word	Transcription	Gloss
p	/p/	papai	/papai/	Father
b	/b/	baaṭa	/ba:ta/	Treatment
t	/t/	toṭona	/tɔṭɔna/	Sit
d	/d/	duo	/duɔ/	Today
k	/k/	kaa	/ka:/	Which
g	/g/	goloto	/gɔlɔtɔ/	Hardship
mb	/mb/	<u>em</u> bolunoto	/embɔlunɔtɔ/	Revelation
nd	/nd/	<u>en</u> daa	/ɛnda:/	Food
nj	/nj/	<u>en</u> jingai	/ɛnjɪŋai/	Foolishness
ng	/ŋ/	<u>en</u> gang	/ɛŋkaŋ/	Home
s	/s/	sidai	/sidai/	Good
sh	/ʃ/	shomo	/ʃɔmɔ/	Go
h	/h/	<u>hoo</u>	/h:ɔ/	Agree
ch	/tʃ/	olchore	/ɔltʃɔrɛ/	Friend
j	/dʒ/	suuji	/su:dʒi/	Bad
m	/m/	<u>em</u> uny	/ɛmɔŋ/	Rhinoceros
n	/n/	na <u>nu</u>	/nanɔ/	I
ny	/ɲ/	<u>en</u> yorata	/ɛɲɔrata/	Love
l	/l/	Oleleshwa	/ɔleleʃwa/	olive tree
r	/r/	nkera	/ŋkɛra/	Children

rr	/r:/	ink <u>er</u> ra	/iŋkɛr:ɑ/	Sheep
y	/j/	eya	/ɛjɑ/	She/he will take
yy (yi)	/y:/	<u>eyyangiyyang</u> <u>(eyiangiyang)</u>	/ɛjiaŋjiaŋ/	Breathe
w	/w/	I <u>le</u> wa	/ilɛwɑ/	Men
ww (wu)	/w:/	olow <u>w</u> uaru (olowuaru)	/ɔlowuaru/	Lion

Source: Payne (2008)

From Table 2 above, it is evident that the Maa language combines some consonants which are pronounced as implosives where the speaker draws air into the mouth rather than releasing it, they include: /mb/, /nd/, /nj/ and /ny/ other. All other consonants are explosives where air gets out of the mouth as the sound is made.

The Rhotic trill, /rr/ is produced by trilling the tip of the tongue against the top of the mouth. The representations /ww/ and /yy/ are often written as /wu/ and /yi/ in orthography and are described as phonetically strong or fortis, more tightly pronounced version of the gently articulated /w/ and /y/ sounds. In the Maa language, these are well defined sounds which vernacular speakers use to differentiate words. For instance, in the following words as given by Payne (2008)

yy - eyyaya (eyiaya) – he/she will go looking for

y – eya - he/she will pick it

ww – ewwap (ewuap) – he/she will grab it

w - ewal – he/she will answer

4.1.2 Maa Vowels

Ladefoged and Maddieson (1996) posit that a vowel is a speech sound made by the vocal folds by unimpeded passage of breath through the mouth. The maa language has nine distinct vowels that are categorized into two compatible units, depending on whether the tongue root is pushed forward (expanding the throat cavity) or moved backwards (condensing the throat cavity) or is a neutral position.

When the tongue root is pushed in front, it is referred to as advanced Tongue Root (+ATR). When it is neutral or retracted position then it is referred to as Non-advanced Tongue root (-ATR).

Table 3 below shows the nine Maa Vowels according to the ATR value of a vowel.

Table 3: Maa Vowels

Advanced Tongue Root	Neutral	Non-advanced Tongue root
i u	ɑ	ɪ ʊ
e o		ɛ ɔ

Source: Payne (2008)

Majority of the Maa words vary from one another by just adjusting the ATR value of a vowel. Vowel /ɑ/ is neutral and thus can occur with any set. Table 4 below shows some Maa words that change in meaning due to the change of ATR vowel value.

Table 4: Maa vowels as they appear in some words

/i/	/ɪ/
arik-/arik/ guide	arik-/arɪk/ sickening
amit-/amit/- decline	amit-/amɪt/- emptying
/e/	/ɛ/
apet-/apet/- plaster	apet-/apɛt/-tighten
aiken-/aɪken/-seal	aiken-/aɪkɛn/-enumerate
/u/	/ʊ/
aud-/aud/- pierce	aut-/aʊt/- point
abul- /abul/- prick	abul- /abʊl/- excell

/o/	o
aok- /ɑɔk/-take a liquid	aot- /ɑɔt/-take out
alo- /ɑlɔ/-proceed	alo- /ɑlɔ/ - lay out

Source: Payne (2008)

4.1.3 The Maa Syllable structure

Goldsmith (1995) states that a syllable structure is a group of one or more sounds grouped together where the essential part of the sounds is the nucleus. The vowel sound (V) in any syllable is obligatory and it can stand alone or a consonant (C) or a group of consonants can come before or after. The CV phonology theory expounded by Clements and Keyser (1983) noted that VC (Vowel, Consonant) is the most marked in the syllable formation of a language. Maa language allows VC and CV sequences hence there are various elements permissible in the Maa syllable structure as shown in Table 5 below;

Table 5: Maa Syllable Structure

Syllable	Word	Transcription	Gloss
VV	ee	/ɛ:/	Yes
VC	ang	/ɑŋ/	Home
VCV	alo	/ɑlɔ/	Spread
VCVC	aret	/aret/	Help
CV	pi	/pi/	Certainly
CVV	kaa	/kɑ:/	Which

CVVCV	kueta	/kueta/	Run
CVCVCV	tisila	/tisila/	Purity
VCCVCVC	entereet	/entɛrɛ:t/	Pot

4.1.4 English Sound Inventory

The section segment that follows elaborates the English sounds which are consonants and vowels.

4.1.5 English Consonants

Roach (2002) notes that English language has 24 consonants as shown below.

Table 6: English Consonants

Manner of articulation / Place of articulation	Labial	Labio-dental	Dental	Alveolar	Palato-Alveolar	Palatal	Velar	Glotal
Plosives	p, b			t, d			k, g	
Nasal	m			n			ŋ	
Fricative		f, v	θ, ð	s, z	ʃ, ʒ			h
Affricate					tʃ, dʒ			
Lateral				l				
Approximant	w				r	j		

Source: Roach (2002)

4.1.6 English Vowels

The English vowel organization is defined by pure vowels, diphthongs and triphthongs. A pure vowel is a vowel that does not change in sound quality. Diphthongs are sounds, which contain a glide from one vowel to another while triphthongs are vowels with a glide from the first vowel to the third vowel.

Roach (2000) states that English pure vowels include six short vowels namely: /ɪ/, /e/, /æ/, /ʌ/, /ɒ/, and /ʊ/, the central vowel known as schwa /ə/, five long vowels namely: /i:/, /ɛ:/, /ɑ:/ and /u:/ as shown in Table 7 below,

Table 7: English Pure Vowels

	Front	Central	Back
High	i: ɪ		ʊ, u:
Mid	æ, e	ə, ɛ: ʌ	ɔ:
Low			ɒ, ɑ:

Source: Roach (2000)

English language also consists of eight diphthongs namely /ɪə/, /eə/, /ʊə/, /aɪ/, /əɪ/, /ɔɪ/, /əʊ/ and /aʊ/. It also has five triphthongs namely /eɪə/, aɪə/, /ɔɪə/, /əʊə/ and /aʊə/ as shown in table 8 below,

Table 8: English Diphthongs and Triphthongs

IPA Symbol	Example
iə	gear /giə(r)/
eə	heir /eə(r)/
ʊə	tourist /tʊərist/
ei	gain /geɪn/
aɪ	tie /taɪ/
ɔɪ	foil /fɔɪl/
əʊ	hone /həʊn/
aʊ	town /taʊn/
eɪə	player /pleɪə(r)/
aɪə	hire /haɪə(r)/
ɔɪə	loyalty /lɔɪəlti/
əʊə	mower /məʊə(r)/
aʊə	hourly /aʊəli/

Source: Roach (2000)

4.1.7 The English syllable Structure

The English language has also an elaborate syllable structure, it allows up to three consonants before the nucleus and up to four consonants after the nucleus as given in table 9 below,

Table 9: English Syllable Structure

Syllable	Word	Transcription
V	e	/i:/
VC	at	/æt/
VCC	ask	/ɑ:sk/
CV	to	/tu:/
CVC	cat	/kæt/
CCV	store	/stɔ:/
CCVC	stop	/stɒp/
CVCC	salt	/sɔ:lt/
CCVCC	sticks	/stɪks/
CVCCC	sands	/sænds/
CCCVC	struck	/strʌk/
CCCVCC	strided	/straɪkd/
CCCVCCCC	twelfths	/twelfθs/

Source: Goldsmith (1995)

4.1.8 Comparison of the English and the Maa phonemic structure

From the above presentation, English, a Germanic Language, has some differences in its phonemic structure from the Maa language, which is Nilotic. These differences created some constraints on the loan nouns and necessitated some phonological processes to be employed on the loan nouns in order for them to suit into the Maa sound system.

English language has 24 consonants while the Purko dialect of the Maa language has 25 consonants. Out of these consonants, it was evident that some consonants in English and Maa languages were different from each other while some were similar in the two languages as shown in Table 10 and 11 below,

Table 10: Distinct consonants

English distinct consonants	Maa distinct consonants
f	mb
v	nj
z	nd
θ	ɲ
ð	y:
ʒ	w:
	r:

Table 11: Shared consonants

p
b
t
d
k
g
s
ʃ
ʒ
h
ɟ
m
n
ŋ
l
r
w
j

Alternately, it was discovered that the English language has twelve pure vowels, eight diphthongs and five triphthongs. They include: i, e, æ, ʌ, ɒ, ʊ, ə, i:, ɜ:, ɑ:, ɔ:, u:, ie, eə, uə, ai, əi, ɔi, əʊ, aʊ, eiə, aiə, ɔiə, əʊə and aʊə while the Maa language has nine vowels, which are contrasted to one another according to the value of ATR (Advanced Tongue Root).

To express phonotactic rules, this study used the phonotactic rule notations which are linguistic symbols that accounts for the variety of changes that occur during sound changes of a language. For instance; /x/ → [y] /z_

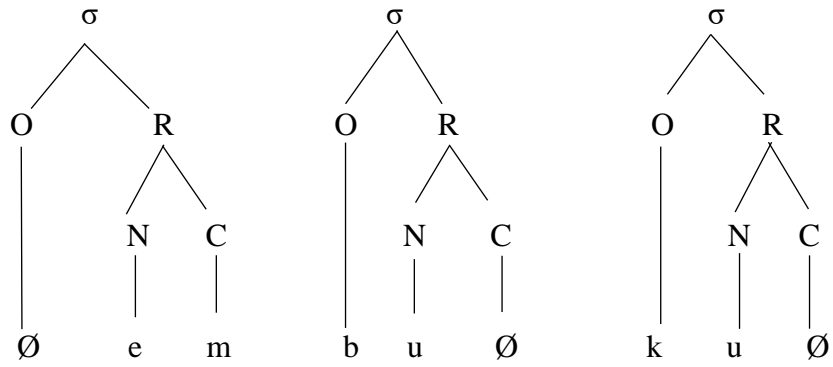
/x/ shows the phonemes affected, the arrow points at what the phonemes become, [y] shows phonetic or structural change that takes place and z shows the environment in which the changes occur. Therefore, the above notation can be read as; Sound /x/ is pronounced as [y] when it is word initial.

The vowels and the consonants are key in deriving the phonotactic rules since they are the one which are arranged following a permitted sequence in a language. Before showing the derived phonotactic rules used in the adaptation of the Purko loan nouns, it is important to know the position of the nucleus and the permitted consonant clusters in the borrowed nouns.

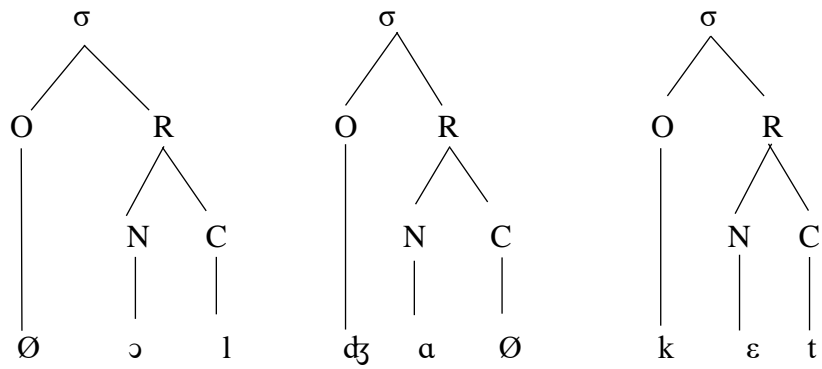
4.2.1. The nucleus in the loan nouns

This study noted that, the loan nouns in the Purko dialect were polysyllabic and, in each syllable, the nucleus was mandatory while the onset and the coda were optional. The nucleus is the most sonorous part and acts as the peak of the syllable while the onset and the coda of the syllable can be empty, the following examples show the compulsory identity of the nucleus in every syllable of the Purko loan nouns from the English language. For instance,

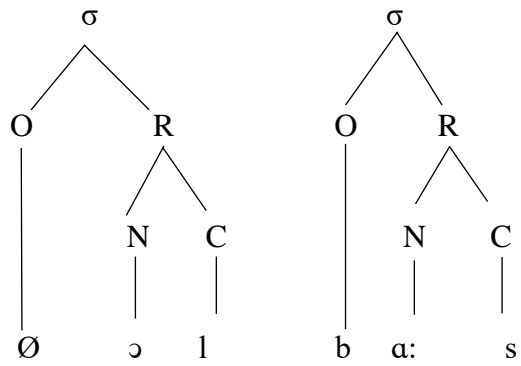
English – book Purko – /embuku/



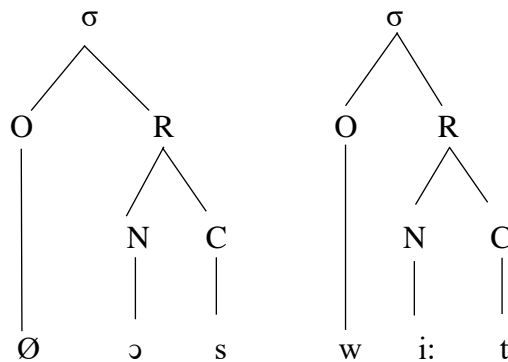
b) English - Jacket Purko - /ɔldʒaket/



c) English – bus Purko /ɔlba:s/



d) English – sweet Purko - /ɔswi:t/



4.2.2. Consonant Clusters

The English language allows up to three consonants before the nucleus and up to four consonants after the nucleus while the Purko dialect allows one consonant before the nucleus and a single consonant at the end of a word.

Therefore, when the Purko dialect borrows a noun from the English language, then the sequence of the consonant clusters has to be broken by insertion of vowel sounds in the case of a group of three or four consonants in English language.

Tables 13, 14 and 15 give consonant clusters in English and Maa languages

English	Maa
Text/teksts/ - CVCCCC	/iltekisi/ - VCCVCVCV
Syllable tier	σ σ σ σ
CV-tier	VC CV CV CV
Segmented tier	il te ki si

Table 14

English	Maa
Spring/sprɪŋ/ - CCCVC	/ɔsɪpɪrɪŋ/ - VCVCVCVC
Syllable tier	σ σ σ σ
CV-tier	V CV CV CV _c
Segmental tier	ɔ si pi rɪŋ

Table 15

English	Maa
Sprite/sprɪt/ - CCCVVC	/ɔsɔpɔrɪt/ - VCVCVCVVC
Syllable tier	σ σ σ σ σ
CV-tier	V CV CV CV VC
Segmental tier	ɔ sɔ pɔ rɪ t

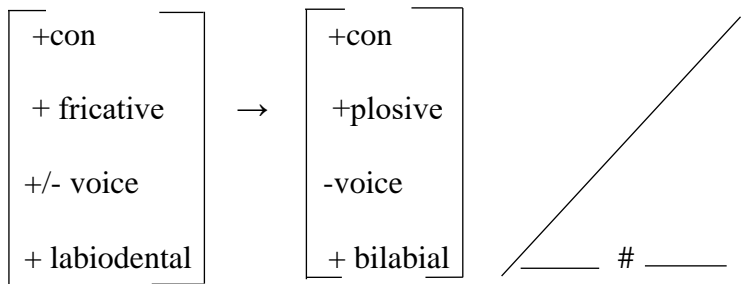
4.2.3 Phonotactic Rule Notation of Substitution

Lahey (1988) states that substitution is a phonological process that entails systemic clarification, with one speech sound displacing another. Substitution was evident in this research since the Purko dialect does not have sounds /f/, /v/, /θ/, /z/, /ʒ/ and /ð/. Hence,

when a word is borrowed having this consonant sounds, then they get replaced with available and simpler speech sounds in the Purko dialect.

4.2.3.1 Substitution of sound /f/ and /v/ by sound /p/

The Purko dialect do not have consonants /f/ and /v/ therefore, loan nouns with these consonants sounds get substituted by the voiceless plosive sound /p/ at the middle of the loan nouns. The phonotactic rule of substitution is, /f/, /v/ → /p/ _____ # _____



This rule states that, the voiceless labiodental fricative and the voiced labiodental fricative consonant sounds /f/ and /v/ changes to a voiceless bilabial plosive consonant sound /p/ in the middle of Purko loan nouns. Examples in words are shown on the Table below,

Table 16: substitution of sound /f/ and /v/ by /p/

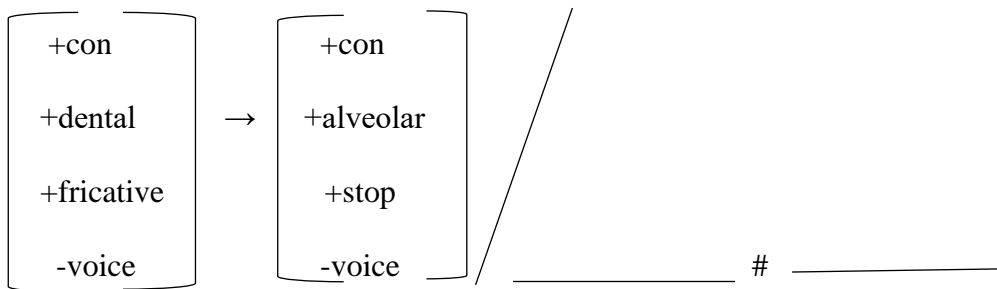
English	Maa
Governor	ɔlgapənai
Office /ɒfɪs/	/ɛŋkɔpɪs/
Fridge /frɪdʒ/	/ɔlpɪrɪdʒ/
Veranda /vərandə/	/ɔlparanda/
Vest /vɛst/	/ɛmpɛ:s/

Video	/vidiəʊ/	/ɛmpidiə/
T.V	/ti:vi:/	/ɛnti:pi:/
Culvert	/kʌivət/	/ɔlkalpat/

4.2.3.2 Phonotactic rule of substitution of sound /θ/

Similarly, the Purko dialect does not have the voiceless dental fricative /θ/, hence, the sound gets replaced with the voiceless alveolar /t/ in the medial of the words. The phonotactic rule is,

/θ/ → /t/ _____ # _____



This rule states that, the voiceless dental fricative consonant sound /θ/ gets changed to the voiceless alveolar stop consonant sound /t/ in the medial environment of the loan nouns. Examples in words are,

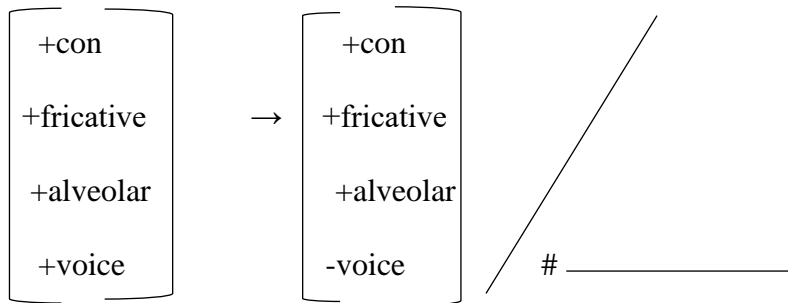
Table 17: substitution of sound /θ/ by sound /t/

English	Transcription	Maa	Transcription
Thermos	/θɜ:məs/	Oltamos	/ɔltaməs/
Thermometer	/θɜ:mɒmitə/	Oltamometa	/ɔltamɒmeta/

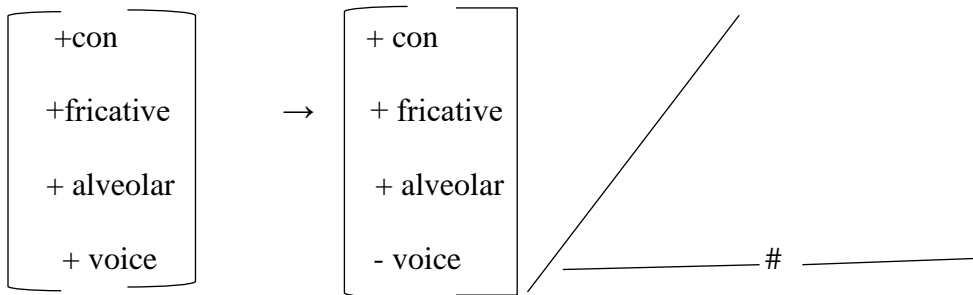
4.2.4 Phonotactic rule of Devoicing

Silveira (2004) defines devoicing as a process by which speech sounds that are voiced are made voiceless. This study noted that, when the English language lends a word with sound /z/ to the Purko dialect then the /z/ sound is devoiced to sound /s/ either at beginning, middle or at word final, this happened because the Purko dialect does not have sound /z/. The phonotactic rules derived here are,

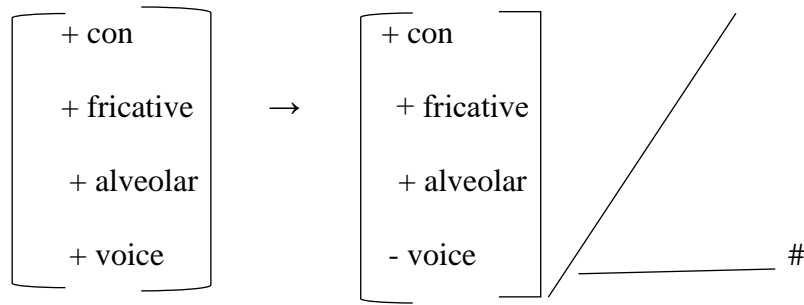
a) /z/ → /s/ # _____



b) /z/ → /s/ _____ # _____



c) /z/ → /s/ _____ #



The above rules state that, the consonant sound /z/ which is a voiced alveolar fricative gets changed to the consonant sound /s/ which is a voiceless alveolar fricative in the three-word environments, beginning, medial and final positions. Examples in words are,

Table 18: Devoicing of sound /z/ to sound /s/

English	Maa
Zero /zɪərəʊ/	/siro/ - initial
Z /zed/	/sed/ - initial
Rosary /rəʊzə:v/	/ɔɾɔsari/ - middle
Dozen /dʌzn/	/endasan/ - middle
Blouse /blaʊz/	/emblaʊs/ - final
Plies /plaɪz/	/ɔlpulaɪs/ - final/

4.2.5 The phonotactic rule of vowel epenthesis

Hall (2006) refers to epenthesis as a process where a phoneme is added to an utterance so as to correct an input that does not conform to a language’s structural demands. The

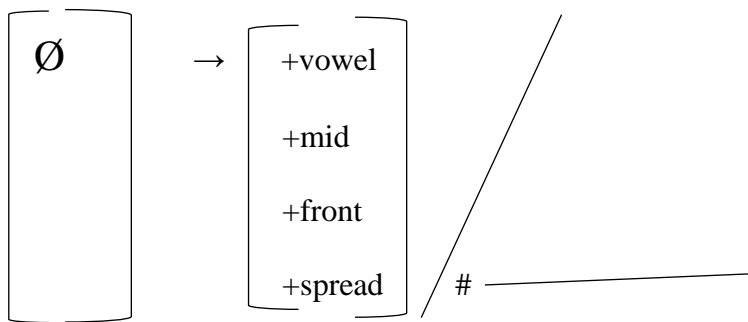
English loan nouns in the Purko dialect add vowel sounds at various positions of the loan nouns; beginning, middle or end of the word.

Vowel sounds /e/ and /o/ are added at the beginning of a loan noun depending on the gender of the noun. Tucker and Mpaayei (1955) state that the Maa language has three classes of gender; masculine, feminine and neuter.

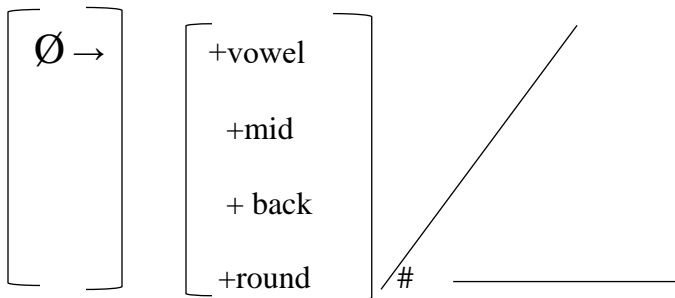
This study was interested in the masculine and the feminine genders. The study noted that the class of gender is manifested on the prefixes on the nouns, vowel /e/ is used to begin the loan nouns that are feminine while vowel /o/ is used to begin the loan nouns that are masculine. However, assigning of the masculine and feminine gender depended majorly on the semantic meaning of the sentence or the of word environment at that particular moment.

This research noted that the Purko dialect assigns gender on nouns depending on size and power, if a noun is small in size and less powerful, then it is regarded to be feminine but, when the noun is perceived to be big in size and powerful then it is masculine. The phonotactic rules derived here were,

a) /Ø/ → /e/ # _____



b) /Ø/ → /ɔ/ # _____



In the rules above, vowels are described according to the tongue and lips positions.

Vowel /e/ is pronounced at the middle part of the mouth and the tongue is advanced to the front and the lips are spread. While vowel /o/ is pronounced at the middle part of the mouth and the tongue is advanced to the back while the lips are rounded. These vowels are added at the beginning of words.

Below are examples of Purko loan nouns taking vowel /e/ (feminine) and vowel /o/ masculine at the beginning of words.

Table 19: Epenthesis of vowel /e/ and vowel /o/ at the beginning of words

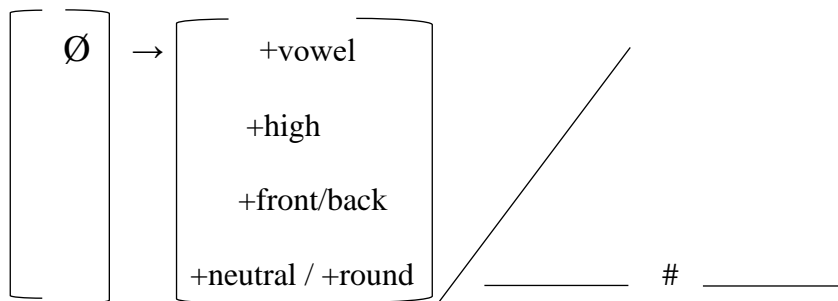
Gloss	Femine-vowel/e/	Masculine-vowel/o/
Gate	/enge:t/	/ɔlge:t/
Bucket	/embakɛt/	/ɔlbakɛt/
Torch	/entɔ:f/	/ɔltɔ:f/
Sheet	/entʃiti/	/ɔltʃiti/
Basin	/embɛfɛn/	/ɔlbɛfɛn/

Box	/embəkis/	/ɔlbəkis/
Bishop	/embifɔp/	/ɔlbifɔp/
Slash	/esilafɑ/	/ɔsilafɑ/
Book	/embuku/	/ɔlbuku/
Skirt	/esika:t/	/ɔsika:t/

c) Vowel epenthesis at the middle of loan nouns

The Purko dialect also add vowels at the middle of the loan noun, vowels /i/ and /u/ are added at the middle to break consonant clusters that may not be allowed in the Purko dialect. The phonotactic rule of epenthesis of vowels at the middle of the Purko loan nouns is as follows.

/Ø/ → /i/, /u/ _____ # _____



This rule state that, vowel /i/ and /u/ which are pronounced while the tongue height is high and the tongue is advanced to the front and middle part of the mouth respectively and the lips are neutral, get added to the middle of words in order to break consonant clusters that are permitted in the Purko.

The following are examples of loan nouns that add vowels in the middle in order to break the multiple consonants that are not permitted in the Purko dialect.

Table 20: Epenthesis in the middle of words

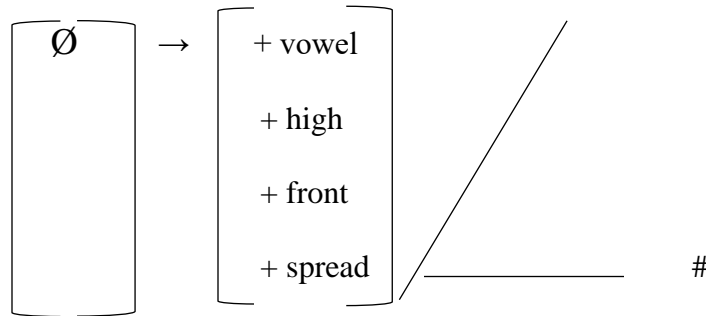
English	Maa	Gloss
/sku:l/	/suku:l/	School
/prinsipl/	/ɔlpirinsipɔl/	Principal
/plastik/	/ɔlplastic/	Plastic
/wi:lbarəʊ/	/ewilibarɔ/	Wheelbarrow
/bɛdrʊm/	/ɔlbedurum/	Bedroom

d) Vowel epenthesis at the end of loan nouns

Lastly, under vowel epenthesis, a vowel sound is added at the end position of the loan nouns when forming their plural forms. It's paramount to know that, when the plural of the loan noun is given, then the vowels /e/ and /o/ that were at the beginning of the noun changes to vowel /i/ and add the same vowel /i/ at the end.

Therefore, we will have vowel /i/ both at the beginning and at the end of the loan noun.

The phonotactic rule is, /Ø/ → /i/ _____ #



This rule states that, vowel /i/ which is pronounced when the tongue height is in the high position and the tongue is advanced to the front and the lips are spread is added to the loan nouns at the words while forming their plural. Examples of words are,

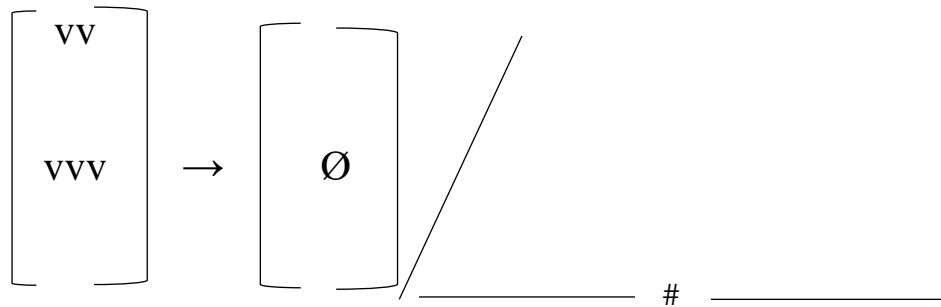
Table 21: Epenthesis at the end of words

English	Purko	Gloss
/bɛdru:mz/	/ilbedurumuni/	Bedrooms
/ɒfisiz/	/iŋkɔpisini/	Offices
/skʊ:ls/	/isuku:lini/	Schools
/hɔspɪtlz/	/isipitalini/	Hospitals
/wi:lbarəʊz/	/iwilibarəni/	wheelbarrows
/plæstɪks/	/implastikini/	Plastics

4.2.6 Phonotactic rule of vowel reduction

Katherine (2004) state that, vowel reduction is a phonological happening where some vowels undergo qualitative changes in unstressed positions. Vowel reduction was evident in this research since, the Purko dialect do not have diphthongs and triphthongs and

therefore, English loan nouns having diphthongs and triphthongs undergo vowel reduction in order to fit into the Purko phonology. It was noted that, two members of the triphthongs were joined into one vowel and another simple Purko distinct vowel was added, on the other hand, the diphthongs were reduced to single vowel. The phonotactic rule is, /vv/, vvv/ → /Ø/ _____ # _____



This rule state that, the diphthongs /vv/ and triphthongs /vvv/ are reduced to monophthongs or simple Purko distinct vowels at the middle of words as shown below.

Table 22: vowel reduction

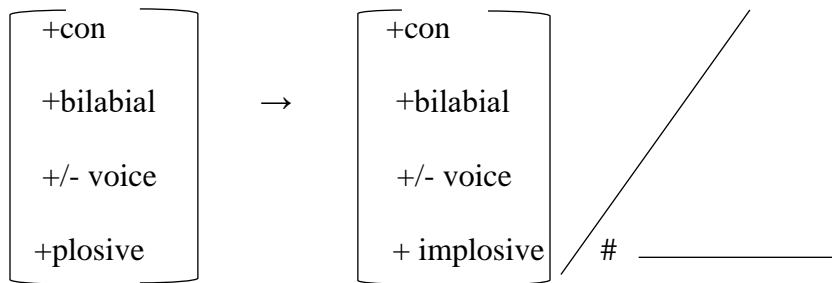
Gloss	English	Maa
Radio	/reidiəʊ/	/eredio/
Wire	/wʌiə/	/ewayə/
Video	/vidiəʊ/	/empidio/
Blouse	/blaʊz/	/embulaʊs/
Rosary	/rəʊzəri/	/ɔɾɔsari/

4.2.7 Phonotactic rule of assimilation

Pavlik (2003) states that, assimilation is a sound change where a phoneme typically a consonant or a vowel change to become more similar to a nearby sound. This research noted that there was bilabial assimilation of the female gender loan nouns having the prefix /en/ in the Purko dialect.

The prefix /en/ was assimilated to /em/ sound, the phonotactic rule of assimilation is,

/en/ → /em/ # _____



en + book → **em** + buku = /embuku/

en + pump → **em** + paamp = /empa:mp/

en + bishop → **em** + bishop = /embifɔp/

en + blouse → **em** + bulaus = /embulaʊs/

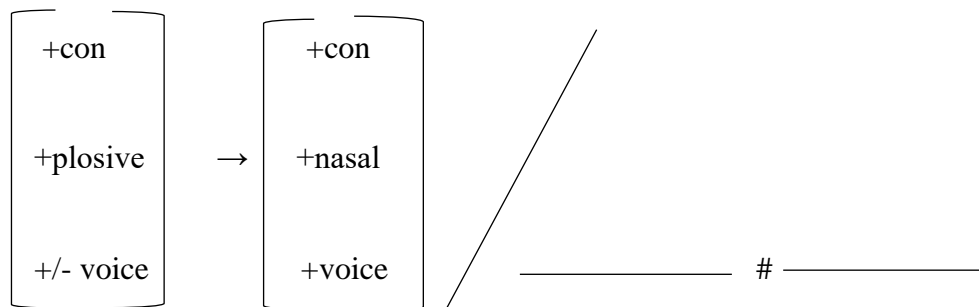
en + box → **em** + bokis = /embɔkis/

This rule states that, English loan nouns with consonant bilabial plosive sounds which can either be voiced or voiceless and have the Purko female gender prefix /en/ gets assimilated to an implosive sound /em/ at the beginning of the word.

4.2.8 The Phonotactic Rule of Nasalization

Ladefoged (1971) states that nasalization is the creation of sound while the velum is lowered in order to allow air gets away via the nose during the production of the sound by the mouth. This research noted that when an English noun has a plosive sound at the beginning and the Maa language borrows the noun, then the plosive sound is nasalized at the middle of a word. The nasal sounds /m/, /n/ and /ŋ/ are attached to the plosive sound of the loan noun after a vowel epenthesis has taken place.

The phonotactic rule is, /plosives/ → /nasals/ _____ # _____



This rule states that, the plosive consonant sounds found in the English loan nouns that are either voiced or voiceless get nasalized by the voiced nasals /m/, /n/ and /ŋ/ at the medial environment after the vowel epenthesis has taken place. For example,

Table 23: Examples of nasalization

English	Maa
Tray /trei/	/enture:/
Class /kla:s/	/eŋkilasi/
Dairy dɛ:ri/	/endɛiri/
Degree /digri:/	/endikiri:/
Pump /pʌmp/	/empɑ:mp/
Plastic /plastik/	/empulasitik/
Book /bʊk	/embuku/
Computer /kəmɹju:tə/	/eŋkɹmputɑ/
T-shirt /ti:ʃə:t/	/entishat/

From this research it was noted that, there are phonotactic rules that governed the adaptation of the borrowed English nouns into the Purko dialect. The derived phonotactic rules by this research were six in number, they are: phonotactic rule of substitution, phonotactic rule of devoicing, phonotactic rule of vowel epenthesis, phonotactic rule of vowel reduction, phonotactic rule of assimilation and phonotactic rule of nasalization. These rules made it possible for the loan nouns to easily adapt into the Purko phonology.

4.3 Phonological processes involved in the adaptation of the Purko loan nouns.

Loan words find a way of fitting into the phonology of the borrowing language, this is made possible by the phonological processes that are involved in the adaptation. This study noted that, English loan nouns borrowed by the Purko dialect of the Maa language employed various processes of phonological adaptation for the loan nouns to fit into its phonology. The Lexical phonology theory (LP) by Mohanan and Kiparsky (1980) was used in describing these phonological processes. In the LP theory, the morphological and phonological rules are combined within a single structure. The Lexicon, which plays a vital productive role in LP theory, contains word formation rules, which are accounts for how a word is uttered. The LP has two different types of phonological rules; the lexical rules and the post lexical rules. This research employed the lexical rules only to describe the phonological processes used in the adaptation of the loan nouns.

The lexical rules were important to this study because they were applied within words only and not across word boundaries. Jensen (1993) observed that the use of word formation rules brings phonological change, which influences pronunciation of several words. Some of phonological rules expounded in the overview under the Lexical Phonology theory were; Vowel Shift Rule, Vowel Reduction, Voicing, Velar Softening, Palatization and Spirantization.

Halle and Mohanan (1985) discussed the two rules under the LP Theory: Lexical rules and post lexical rules. The Lexical rules handled by their study include; syllabification, resyllabification, Devoicing, Assimilation, Affixation, Deletion and substitution. Some of these lexical rules were found helpful to this study, as they were used in the phonological

processes of adaptation of the English loan nouns in the Purko dialect of the Maa language. The following were the phonological processes used in the adaptation of the Purko loan nouns from the English language.

4.3.1 Substitution

Lahey (1988) states that substitution is a phonological process entailing systemic clarification, with one speech sound replacing another. Substitution happens in the adaptation of the loan nouns in cases where the English consonant was missing in the Purko dialect and yet the noun has been borrowed. Some of the missing consonants in the Purko dialect that were substituted were; /θ/ by /t/ /v/ and /f/ substituted by /p/ as shown below,

Table 24: Examples of substitution

English	Maa	Substituted sounds
thermos - /θɜ:məs/	oltamos - /ɔltamɔs/	θ - t
thermometer - /θɜ:mɔmitə/	oltamometa - /ɔltamɔmeta/	θ - t
fridge - /frɪdʒ/	olpirij - /ɔlpiridʒ/	F - p
veranda - /vɛrɛndə/	olparanda - /ɔlparɛndə/	V - p
video - /vidiəʊ/	olpidio - /ɛmpidiəʊ/	V - p

4.3.2 Devoicing

Silveira (2004) defines devoicing as a process where speech sounds that are voiced are made voiceless. Maa language lacks sound /z/, hence, those English loan nouns with sound /z/ (voiced, alveolar fricative) Changes to sound /s/ (Voiceless, alveolar, fricative) for correct phonological adaptation as seen in the following words.

Table 25: Examples of devoicing

English	Maa	Gloss
/plaɪz/	/ɔlpulaɪs/	Plies
/blaʊz/	/embulaʊs/	Blouse
/rəʊzəri/	/rɔsari/	Rosary
/rizə:v/	/ɔrisap/	Reserve
/dʌzn/	/endasan/	Dozen

4.3.3 Vowel Epenthesis

Hall (2006) refers to epenthesis as a process where a phoneme is incorporated to an utterance so as to correct an input that does not conform to a language's structural demands. In vowel epenthesis, a vowel is added in the word to make that word agree to the syllable formation of the receiving language. Maa language uses epenthesis process as a strategy for adapting the loan nouns into its lexicon. Vowels are inserted in all word positions that is at the beginning, middle and at the end.

Table 26: Examples of vowel epenthesis at the beginning

English	Maa	Gloss
/dʒækɪt/	/ɔldʒækɛt/	Jacket
/tɔ:ʃ/	/ɔltɔ:ʃ/	Torch
/stu:l/	/esutu:l/	Stool
/net/	/enɛ:t/	Net
/skə:t/	/ɛsɪkɑ:t/	Skirt

Table 27: Examples of vowel epenthesis in the middle,

English	Maa	Gloss
/sku:l/	/suku:l/	School
/prɪnsɪpl/	/ɔlpɪrɪnsɪpɔl/	Principal
/plɑstɪk/	/ɔplɑsɪtɪk/	Plastic
/wi:lbarəʊ/	/ɛwɪlɪbərəʊ/	Wheelbarrow
/bɛdrʊm/	/ɔlbedurum/	Bedroom

When the plural forms of the loan nouns are taken then there is always a vowel epenthesis of vowel /i/ at the end.

Table 28: Examples of vowel epenthesis at the end

English	Maa	Gloss
/bʊks/	/ɪmbukui/	Books
/ɒfɪsɪz/	/ɪnkɔpɪsɪni/	Offices

/skʊ:ls/	/isuku:lini/	Schools
/bʌirəʊz/	/imbairɔi/	Biros
/dʒagz/	/ilja:gi/	Jags
/pianəʊz/	/impianɔni/	Pianos

4.3.4 Vowel reduction

Katherine (2004) states that, vowel reduction is a phonological occurrence where some vowels go through qualitative changes in unstressed positions.

Maa language lacks diphthongs and triphthongs, this research noted that, when such English nouns with diphthongs and triphthongs are borrowed, then the diphthongs and triphthongs are compressed to a single vowel or the vowels are simplified into the Maa distinct vowels for easy pronunciation.

Table 29: Examples of Vowel reduction

English	Maa	Gloss
/traʊzəz/	/ɔlturɔsa/	Trousers
/piləʊ/	/ɔlpilɔ/	Pillow
/blaʊz/	/embulaʊs/	Blouse
/reidiəʊ/	/erendiɔ/	Radio
/vidiəʊ/	/empidiɔ/	Video

4.3.5 Assimilation

Pavlik (2003) states that, assimilation is a sound change where a phoneme typically a consonant or a vowel change to become more similar to a nearby sound. The Purko dialect assigns gender nouns depending on the intended meaning or the context of the noun. The feminine gender takes the prefix /en/ while adapting the loan nouns, therefore, the English bilabial plosive consonants assimilated the prefix /en/ to the prefix /em/ in the Purko loan nouns. For instance, in the following words assimilation process took place.

en + bishop → **em** + bishop = /embɪʃɔp/

en + blouse → **em** + bulaus = /embulaʊs/

en + box → **em** + bokis = /embɔkɪs/

en + book → **em** + buku = /embuku/

en + pump → **em** + paamp = /empa:mp/

4.3.6 Nasalization

Ladefoged (1971) states that nasalization is the creation of sound while the velum is lowered in order to allow some air to get out via the nose in the course of the sound production by the mouth. This research noted that the plosive sounds at the beginning of the English loan nouns get nasalized through the addition of sound /m/, /n/ and /ŋ/ after a vowel epenthesis has taken place.

Table 30: The Table below shows examples of nasalization

English	Maa
Tray /trei/	/enture:/
Class /kla:s/	/eŋkilasi/
Dairy dɛ:ri/	/endɛiri/
Degree /digri:/	/endikiri:/
Pump /pʌmp/	/empɑ:mp/
Plastic /plastik/	/empulasitik/
Book /bʊk	/embuku/
Computer /kəmɹju:tə/	/eŋkɔmputa/
T-shirt /ti:ʃə:t/	/entishat/

Therefore, this research found out that, the borrowed English nouns must undergo some phonological processes for them to be adapted into the Maa phonology in the Purko dialect. These phonological processes employed by the loan nouns were: substitution, devoicing, vowel epenthesis, vowel reduction, assimilation and nasalization.

4.3.6 Conclusion

This chapter has analyzed the phonological adaptation of the English loan nouns in Maa language in the Purko dialect. This has been achieved by first comparing the English and Maa phonemic structure, deriving the phonotactic rules governing the adaptation of the loan nouns and describing the phonological processes used in the adaptation of the loan nouns.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.0. Introduction

This chapter presents a summary of the research findings, conclusion to the study and recommendations for further research. The main purpose of this research was to analyze the phonological adaptation of the English loan nouns in the Maa language in the Purko dialect in Narok North constituency. The CV- phonology theory by Clements and Keyser (1983) and the Lexical Phonology Theory by Mohanan and Kiparsky guided this study. Introspection and key informant interview methods of data collection were used.

5.1. Summary of Findings

The research compared the English and the Maa phonemic structure and arrived at some differences and similarities. The study noted that English has 24 consonants: p, b, t, d, k, g, m, n, ŋ, f, v, θ, ð, s, z, ʃ, ʒ, h, tʃ, dʒ, w, l, r, and j while the Purko dialect of the Maa language has 25 consonants: p, b, t, d, k, g, mb, nd, nj, s, ʃ, h, tʃ, dʒ, m, n, ŋ, ɲ, l, r, r:, j, j:, w, and w: It was clear that, some consonants found in English language were not in the Maa language, they included; /f/,/v/, /ʒ/, /θ/,/ð/ and /z/, equally, there were some consonants that were found in Maa language but were not in the English language, they included /mb/,/nj/, /nd/, /r:/, /y:/, /w:/ and /ɲ/.

Notably, there are a number of consonants that the two languages shared, these include /p/, /b/,/t/,/d/,/k/,/g/, /h/,/s/,/ʃ/,/tʃ/,/dʒ/,/m/,/n/,/ŋ/,/l/,/r/,/w/ and /j/. The study also noted that the English language has 12 pure vowels, which include; /ɪ/, /e/, /æ/, /ʌ/, /ɒ/, /ʊ/, /ə/, /i:/,

/ɜ:/, /ɑ:/, /ɔ/ and /u:/, it also has eight diphthongs, which are: /ɪə/, /eə/, /ʊə/, /ai/, /əi/, ɔi/, /əʊ/ and /aʊ/ and five triphthongs: /eɪə/, /aɪə/, /ɔɪə/, /əʊə/ and /aʊə/.

On the other hand, the Maa language has 9 distinct vowels which vary from each other by a change in the ATR value of a vowel (Advanced Tongue Root) They include; i, ɪ, e, ɜ, u, ʊ, o, ɔ and a. The Maa language lacks the diphthongs and triphthongs. Therefore, the two languages only share the following vowels: i, ɪ, e, ɜ, u, ʊ, o and a.

Additionally, this research was able to derive the phonotactic rules governing the adaptation of the English loan nouns in the Maa language, Purko dialect. It was clear that, every loan noun had a nucleus in the syllables, in some words the syllables were up to five and hence five nucleuses. It was also noted that the Maa Language allows one consonant at the onset and one consonant at the coda (CVCVCV) while the English language allows up to three consonants at the onset and up to four consonants at the coda (CCCVCCCC). Phonotactic rules that governed the loan noun adaptation were; phonotactic rule of substitution, phonotactic rule of devoicing, phonotactic rule of vowel epenthesis, phonotactic rule of vowel reduction, phonotactic rule of assimilation and the phonotactic rule of nasalization.

Finally, this research found out that there were phonological processes that the English loan nouns had to undergo for them to correctly fit into the Purko dialect. The phonological processes employed were; Substitution, Vowel Epenthesis, Vowel Reduction, Devoicing, Assimilation and Nasalization.

5.2 Conclusion

In conclusion, it is evident from the research that, there are similarities and differences between the English and the Purko dialect of the Maa language in their phonemic structure. This necessitated some changes on the loan nouns from the English language into the Purko dialect. There were also phonotactic rules used in the adaptation of the loan nouns: phonotactic rule of substitution, phonotactic rule of devoicing, phonotactic rule of vowel epenthesis, phonotactic rule of vowel reduction, phonotactic rule of assimilation and phonotactic rule of nasalization.

The phonological processes used in the adaptation of the loan nouns included: vowel epenthesis, vowel reduction, substitution, devoicing, assimilation and nasalization.

Hence, all the borrowed nouns fitted into the phonology of the Purko dialect.

5.3 Recommendations for Further Study

This research was restricted to phonological adaptation of English loan nouns in Maa language specifically in the Purko dialect. Therefore, further research can be conducted on;

i) The phonological adaptation of loan nouns from the English language in the other 21 Maa dialects.

ii) Phonological adaptation of loan nouns from Kikuyu, Kiswahili and Sheng languages which also have had significant language contact with the Purko dialect.

iii) Effects of loanwords to the receiving language especially if the donating language is dominant, prestigious and powerful.

5.4 Conclusion of the chapter

This chapter has given the summary of the findings of the research, the conclusion of the research and the recommendations for further studies.

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APPENDIX

Gloss	English IPA	Maa IPA
1.Fees	/fi:/	/pi:s/
2.School	/sku:l/	/suku:l/
3.Office	/ɒfis/	/eŋkɔpis/
4.Torch	/tɔ:ʃ/	/ɔltɔ:ʃ/
5. Book	/bʊk/	/embuku/
6. Bicycle	/bʌisikl/	/embaisikil/
7. Bucket	/bʌkɪt/	/ɔlbakɛt/
8. Speaker	/spi:kə/	/ɔsipika/
9. chalk	/tʃɔ:k/	/ɔlfuka:/
10. uniform	/ju:nifɔ:m/	/ɔljunipɔm/
11.Jumper	/dʒʌmpə/	/ɔldʒampə/
12.Jacket	/dʒakɪt/	/ɔldʒakɛt/
13.File	/faɪl/	/ɔlpaɪl/
14. Class	/kla:s/	/eŋkilasi/

15. Glass	/glɑ:s/	/eŋgilasi/
16. Tv	/ti:vi:/	/ɔlti:pi/
17. Gate	/geit/	/ɔlgɛ:t/
18. Dairy	/dɛ:ri/	/endeiri/
19. Pump	/pʌmp/	/empa:mp/
20. Cabbage	/kɑbɪdʒ/	/ɔlkɑpiʃ/
21. Skirt	/skɔ:t/	/ɔsika:t/
22. Trousers	/traʊzəz/	/ɔltɔʊsɑ/
23. Pillow	/pɪləʊ/	/ɔlpiləʊ/
24. T-shirt	/ti:ʃɜ:t/	/entiʃɜ:t/
25. Net	/nɛt/	/enɛ:t/
26. Carpet	/kɑ:pɪt/	/ɔlkɑpɛt/
27. Generator	/dʒenəreɪtə/	/ɔldʒeneretə/
28. Solar	/səʊlə/	/ɛsələ/
29. Gas	/gɑs/	/ɔlgɑ:s/
30. Fridge	/frɪdʒ/	/ɔlprɪdʒ/
31. Tray	/treɪ/	/ɛnture:/
32. Stool	/stu:l/	/ɛsutu:l/

33. Curtain	/kə:tn/	/ɔlkatein/
34. Thermos	/θɜ:məs/	/ɔltaməs/
35. Charger	/tʃɑ:dʒə/	/ɛtʃadʒə/
36. Cable	/keɪbl/	/ɛŋkɛbəl/
37. Jug	/dʒʌg/	/ɔldʒɑ:g/
38. Cylinder	/silɪndə/	/ɔlsilɪndə/
39. Blender	/blendə/	/ɔlbələndə/
40. Tile	/taɪl/	/ɔltɑɪl/
41. Drum	/drʌm/	/ɔldrɑmɑ/
42. Key board	/ki:bɔ:d/	/ɛŋki:bɔd/
43. Piano	/piənəʊ/	/ɛmpianəʊ/
44. Guitar	/gɪtɑ:/	/ɔlgɪtɑ/
45. Governor	/gʌvnə/	/ɔlgəpənɑi/
46. Senator	/sɛnətə/	/ɔsenetɑi/
47. Chief	/tʃi:f/	/ɔlʃi:p/
48. Councilor	/kaʊnsɪlə/	/ɔlkɑnsələi/
49. Minister	/mɪnɪstə/	/ɔlmɪnɪstɑi/

50. Location	/ləʊkeɪʃən/	/eləkɛʃən/
51. Pastor	/pɑːstə/	/ɔlpastai/
52. Gospel	/gɒspl/	/ɔlgɔspel/
53. Bishop	/bɪʃəp/	/ɔlbɪʃɔp/
54. Computer	/kəmˈpjʊːtə/	/ɛŋkɔmpjʊtə/
55. Tyre	/taɪə/	/ɔltair/
56. Camera	/kæməɹə/	/ɛŋkæmɛɹə/
57. Sitting room	/sɪtɪŋruːm/	/ɔlsɪtɪŋruːm/
58. Store	/stɔː/	/ɔsɪtɔː/
59. Ceiling	/sɪlɪŋ/	/ɔsɪlɪŋ/
60. Veranda	/vəɹəndə/	/ɔlparandə/
61. Coridor	/kɔrɪdɔː/	/ɔlkorɪdɔ/
62. Certificate	/sətɪfɪkeɪt/	/ɛsatɪpɪkɛt/
63. Pencil	/pɛnsɪl/	/ɛmpɛnsɪl/
64. Grade	/greɪd/	/ɛŋkɪɹeːd/

65. Secondary	/sekəndəri/	/səkəndəri/
66. Degree	/diɡri:/	/endikiri:/
67. College	/kɒlɪdʒ/	/kɒlədʒ/
68. Principal	/prɪnsɪpl/	/ɔlprɪnsɪpəl/
69. Committee	/kəmiti:/	/enkəmiti:/
70. Biro	/bʌɪrəʊ/	/embairəʊ/
71. Geometry	/dʒiɒmetiri/	/ɔldʒɒmetiri/
72. Nursery	/nəsəri/	/nasari/
73. Secretary	/sekriteri/	/esekeretari/
74. Bus	/bʌs/	/ɔlbɑ:s/
75. Headmaster	/hedma:stə/	/ɔhedimasɪtə/
76. Plastic	/plastɪk/	/ɔlplastɪk/
77. Soda	/səʊdə/	/ɔsuda/
78. Chips	/tʃɪps/	/ʃɪpɪs/
79. Sweet	/swi:t/	/ɔswi:t/

80. Vest	/vest/	/empɛ:s/
81. Mortuary	/mɔ:tʃʊəri/	/mɔʃari/
82. Ward	/wɔ:d/	/ewɔ:d/
83. Nylon	/nɪlɒn/	/ɛnɪlɒn/
84. Sweater	/swetə/	/ɛsuetə/
85. Blouse	/blaʊz/	/embulaʊs/
86. Butchery	/bʊtʃəri/	/embusherɪ/
87. Plot	/plɒt/	/empulɔ:t/
88. Sink	/sɪŋk/	/ɔsɪŋk/
89. Tractor	/traktə/	/ɔlturaktə/
90. Wheel barrow	/wi:lbarəʊ/	/ewilibarɔ/
91. Acre	/eɪkə/	/eɪkə/
92. Slash	/slɑʃ/	/esɪlɑʃə/
93. Syringe	/sɪrɪndʒ/	/ɔsɪrɪndʒ/
94. Pressure	/preʃə/	/pureʃə/

95. Bedroom	/bedru:m/	/ɔlbedirum/
96. Serviette	/sə:viət/	/ɛsapiet/
97. Lock	/lɒk/	/elɔ:k/
98. Wire	/waɪə/	/ewayɑ/
99. Box	/bɒks/	/ɔlbɔkis/
100. Carton	/kɑ:tn/	/ɔlkatɔn/
101. Taxi	/tæksi/	/entekisi:/
102. Ruler	/ru:lə/	/ɔrula/
103. Video	/vidiəʊ/	/ɔlpidio/
104. Suit	/su:t/	/ɛsuti/
105. Sprayer	/spræɪə/	/ɔsupurejɑ/
106. Texts	/tɛksts/	/iltekisi/
107. Message	/mesɪdʒ/	/ɔlmesedʒ/
108. Sprite	/sprɪt/	/ɔsupurait/
109. Dam	/dam/	/ɔlda:m/

110. Dish	/diʃ/	/endi:ʃ/
111. Bandage	/bændɪdʒ/	/ɔlbændedʒ/
112. Rosary	/rəʊzəri/	/ɔrɔsari/
113. Bladder	/blədə/	/ɛmbulanda/
114. Bomb	/bɒm/	/ɔlbɔ:m/
115. Biscuit	/bɪskɪt/	/ɛmbɪsɪkɪt/
116. Colgate	/kɒlɡeɪt/	/ɔlkɒlɡeɪt/
117. Culvert	/kʌlvət/	/ɔlkʌlvət/
118. Thermometer	/θɜ:mɒmɪtə/	/ɔltamɒmeta/
119. Director	/dɪrɛktə/	/ɔldairɛktə/
120. Lunch	/lʌntʃ/	/ɔlanj/
121. President	/prɛzɪdənt/	/ɔlpurɛzɪdənt/
122. Railway	/reɪlweɪ/	/ɔreɪlweɪ/
125. Zero	/zɪərəʊ/	/sɪrɔ/
126. Watchman	/wɒtʃmən/	/ɔwuɒtʃmən/

127. Bandana	/bandanə/	/ɔlbʌndənə/
128. Cheque	/tʃɛk/	/ɛntʃɛki/
129. Block	/blɒk/	/ɔlbʊlɔ:k/
130. Plies	/plaɪz/	/ɔlpulaɪz/
131. Muslim	/mʊzlim/	/ɔsilamui/
132. Avocado	/ʌvəkə:dəʊ/	/ɔlpakədəʊ/
133. Jeans	/dʒi:nz/	/ɔldʒins/
134. Tie	/taɪ/	/ɛntaɪ/
135. Sofa set	/səʊfə set/	/ɔsɔpaset/
136. Stove	/stəʊv/	/ɔsɪtɔ:p
137. Cushion	/kʊʃn/	/ɔlkʊʃn/
138. Motor car	/məʊtəka:/	/ɛmɔtəka:/
139. Coach	/kəʊtʃ/	/ɔlkɔtʃ/
140. Referee	/rɛfəri:/	/ɔrɛpəri:/
141. Socket	/sɒkɪt/	/ɛsɒkɛt/

142. Screw	/skru:/	/ɔsukuru:/
143. Stapler	/steiplə/	/ɔsitepula/
144. Number	/nʌmbə/	/ɛnamba/
145. Form	/fɔ:m/	/ɔfɔ:m/
146. Library	/laɪbrəri/	/ɔlaibrari/
147. Kilo	/ki:ləʊ/	/ɔlkilə/
148. Basin	/beɪsən/	/ɔlbɛʃən/
149. Judge	/dʒʌdʒ/	/ɔldʒʌdʒ/
150. Picture	/pɪktʃə/	/ɛmpɪʃə/
151. Agriculture	/ɑgrɪkʌltʃə/	/ɛŋkɪrɪkʌʃə/
152. Packet	/pækɪt/	/ɛmpækɪt/
153. Game	/geɪm/	/ɔlge:m
154. Bulb	/bʌlb/	/ɔlbʌlb/