Swahili Loanwords in Meru Language of the Northeastern Tanzania: A Phonological Analysis of Nouns

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Abstract— *The study highlights the phonological analysis of nouns borrowed from standard Swahili into the Meru language of Northeastern Tanzania. It describes phonological processes that are involved for these borrowed nouns to have acceptable features and for those words to become part of the recipient language as the major objective of the study. The Optimality Theory (OT) introduced by Prince and Smolensky 1993 guided the study, Data were collected from Meru native speakers in Arusha region specifically in Arumeru District as the targeted population through interviews and Native intuition and data were recorded. These tools provide primary data that are directly obtained from the field (Kothari, 1990). This study used a qualitative research approach since data analysis, presentation, and interpretation take descriptive methods (Mugenda, 2003). According to Soeparno, (2002:117), "...the motto is to describe the fact, all the facts, and nothing but the facts". The study shows that there are processes that are involved during the nativization of borrowed nouns from Swahili into Meru; prosthesis, anaptyxis, sound tolerance, aphaeresis, devoicing, voicing, rhotacization, sound assimilation, substitution of sounds and vowel lengthering. All these processes have been very helpful as they have helped Meru language users meet their everyday communication needs. The study has now been potential for linguists for future reference and to the researcher as an academician. The study suggests that other areas of the language that have not received much research and academic attention: phonological analysis of borrowed verbs, semantic shift, negative impacts of language borrowing, the influence of Meru language in second language learning, semantic broadening, narrowing, and amelioration; other language levels including semantic, phonetics, morphology and pragmatics should be highly considered since the studies will act as the way of preserving African indigenous languages and will act as instrumental tools towards promoting local languages.*

Keywords— ***Phonology, borrowing, loanwords, prosthesis, anaptyxis, sound tolerance, aphaeresis, devoicing, voicing, rhotacization, sound assimilation, sound substitution, vowel lengthening, orthography.***

I. INTRODUCTION

Borrowing can be defined as a process that involves incorporating features of one language into another and can be studied from both synchronic and diachronic perspectives. Thomas and Kaufman (1988) define borrowing as 'the incorporation of features into a group's native language by speakers of that language; the native language is maintained but is changed by the addition of the incorporated features'. They also insist that in borrowing, structural features may be borrowed as well as phonological, phonetic, and systematic elements and features of the inflectional morphology. Even though Swahili has borrowed many words from English and other Bantu dialects, the Arabic lexicon constitutes 30% of its lexicon (Akidah, 2013). The process of borrowing has been a very normal thing for many Bantu languages and other languages in the world because of interactions among people even though their languages can have very

enough vocabularies that could help them to meet their communicative demands in their everyday life. Borrowing is an unavoidable process because of attitudes that people have toward their indigenous languages compared to other official or standard languages, economic, social cultural, and political activities and this has been a pushing factor for many scholars and linguists to try to write about different topics related to these African indigenous languages to fill gaps and academic reasons. This statement is supported by Wornyo, (2016), that; the study of loanword phonology contributes immensely to helping phonologists understand the phonotactic constraints of languages. This makes the study of loanword phonology important to phonologists.

Davis (1993) proclaims that loanwords are of interest to phonologists for at least two reasons; the first stems from the fact that the way loanwords are produced and heard in the borrowing language is always different from how they are produced and heard in the lending language; how the loanword is pronounced by the speakers of the recipient language reveals interesting insights about the phonology of the receiving language and the second reason for which loanwords are of great important, is that these borrowed words have great and unique phonological features that differentiate them from those of recipient language.

Many studies on different topics including loanwords and borrowing at large, have been done in many languages of developed countries like English, Chinese, Arabic, and French languages. That is to say, languages used in developing countries have not received much attention even though these languages are used by their speakers who interact for different reasons and borrowing has been a common process. With this matter, this study demonstrates phonological processes that are permissible in the nativization of Swahili loanwords into Meru; which is a purely Bantu dialect with alternative names Kirwa, Kirwo, or Rwo and it is not related to Kimiiru (Mir) spoken in Kenya (Lewis, 2013 and Guthrie, 1948).

II.   BACKGROUND INFORMATION OF THE MERU LANGUAGE

Meru language with alternative names which are; Kirwa, Kirwo, or Rwo (Thomas, 1997), is a language spoken by Wameru or Meru, which are Bantu tribe located on the foothills of Mount Meru. The Meru, a Bantu-speaking people came first about three hundred years ago, arriving from the Usambara area together with the first Machame, Chagga whose Bantu language is very closely allied to Meru. It is spoken in Arusha region specifically in Arumeru district and it is not related to Kimiiru (Mir) language spoken in Kenya as many people thought (Lewis, 2013 and Guthrie, 1948).

The total area inhabited by the Meru people covers about 300 square miles in both West; East and South parts of Mount Meru, (Moore, et al., 1977: 97). Meru as a Bantu Language has been classified as Niger-Congo, Atlantic-Congo, Volta-Congo, Benue-Congo, Bantoid, Southern Narrow Bantu, Central, E. Chagga [E61]; language spoken in Tanzania Lewis, (2013).

III.   THEORETICAL FRAMEWORK

The study was guided by the Optimality Theory (OT) which suggests that Loanwords change to suit the phonotactics of the native language. They change because there is a native rule that compels them to change specifically to acquire native features. Loanwords change because requirements on surface syllable structure compel them to change (Uffman, 2001). This is why the rule-based explanation of loanwords proposed earlier fails to account for how loanwords are nativized. As Yip (1993) points out, "rule-based analyses of loanwords miss the generalization that when a language adopts a loanword into its vocabulary it attempts to bring that word into conformity with the phonology of the language."

Golston and Yang (2001:1) argue that "rule-based analysis of loanwords results in rules that are neither rules of the donor language nor of the native language." They suggested that in the phonological adaptation of loanwords, the rules of Universal grammar seem to apply. This suggestion they pointed out may also not hold in all cases because the phonological adaptation of loanwords differs from one language to another depending on the segments that exist in the native language and the phonotactic constraints that the syllable structure of the language in question possesses. This makes constraint-based modules of loanword adaptation useful in the study of loanword phonology. Constraint-based approaches are better suited for explaining loanword phonology.

Kenstowicz, (2012) insists that it is suitable to use OT to formally express the conflict that is observed in loanword adaptation where the segment in the loanword tries to remain faithful to the source of the loanword and also tries to fulfill the segmental and phonotactic constraints that exist in the recipient language. Also, Yip (1993) has shown how loanwords undergo phonological nativization using the constraints in the phonological system of the language accepting the loanword (Wornyo, 2016).

Prince and Smolensky (1993:93-97), propose the Basic Syllable Structure Constraints. These constraints describe the universally unmarked characteristics of syllable structure. They propose the CV structure as the basic syllable structure. They propose a set of constraints for a syllable structure governed by the Basic Syllable

Structure. Below are excerpts from Prince and Smolensky (1993:93-97).

a. ONS: A syllable must have an onset

b. –CON: A syllable must not have a coda

c. NUC: Syllable must have nuclei

d. *COMPLEX: No more than one C or V may associate to any syllable position node. *M/V; V may not associate to Margin nodes (Ons and Cod). *P/C; C may not associate to Peak (Nuc) nodes in Wornyo (2016).

IV. MERU PHONOLOGY

Meru as a Bantu language has sound inventories that make it a language normally used by its users for communication. It has consonants and vowels that all together combine to form morphemes, syllables, words, phrases, clauses, and other large structures.

A. Meru Consonants

Meru like some Bantu languages has 22 consonant sounds where six are plosives, four nasals, six fricatives, one affricative, three liquids, and finally two glides and all give a total of 22 consonant sounds. The table below shows these consonant sounds based on their place and manner of articulation for each.

Table 1: Meru Consonants Chart

Manner Of Articulation	Vl Vd	Place of articulation						
		Bilabial	Labial Dental	Dental	Alveolar Ridge	Palatal Alveolar	Soft palatal	Glottal
	Plosive.	p, b			t , d		k , g	
	Nasal	m			n	ɲ	ŋ	
	Fricative		f , v		s , z	ʃ		h
	Affricative					ʧ		
	Liquid				r , l	j		
	Glides	w		y				

The Consonants Orthography

Meru has a similar orthography to that of the Swahili language as there is great influence among them. Due to the influences between the two languages, it is obvious that they must share most of the features or have some features in common, and apart from that the two are Bantu languages. Meru has twenty-two consonant sounds and five vowels. The table here below shows how Meru consonants are realized in orthography.

Table 2: Consonant Realization in Orthography and Associated IPA

Consonants	IPA	Examples	Gloss
b	/b/	Ka**b**ana	Fight/struggle
d	/d/	Kun**d**a	to love
f	/f/	**F**inya	power/energy
g	/g/	Makun**g**a	fish
j	/j/	U**j**i	porridge
k	/k/	Ngu**k**u	a hen
l	/l/	**L**aaya	sleep on something
m	/m/	Nga**m**a	morning
n	/n/	Ngi**nan**a	a part of a banana tree
p	/p/	I**p**anga	a bush knife
r	/r/	Ngu**r**e	appetite
s	/s/	Ki**s**oma	a church
t	/t/	Nga**t**ara	problems/difficulties
v	/v/	**V**andu	People
w	/w/	Uk**w**i	Firewood
z	/z/	Shangaa**z**i	aunt
ch	/ʧ/	**ʧ**eny	home
sh	/ʃ/	**ʃ**ule	school
ny	/ɲ/	fi**ɲ**a	power/ energy
ng	/ŋ/	**ŋ**anya	someone
h	/h/	**h**ayi	here is
y	/y/	ha**y**i	here is

C. Meru Vowels

Meru language has five vowels which are /a/, /e/, /i/, /o/ and /u/ where /i/ and /e/ are high front vowels, /a/ central low and finally /u/ and /o/ are high back vowels.

Table 3: Meru Vowels Trapezium

	Place of the Tongue			
		Front	Central	Back
Height Of the Tongue	High	i		u
	High-mid	e		o
	Low-mid			
	Low		a	

The Vowels Orthography

Examples here below show orthographical realizations of these vowel sounds.

Table 4: Vowel Realization in Orthography and Associated IPA

Vowels	Meru Words	Gloss
/i/	as in **r**i**sha	"run"
/e/	as in r**e**ta	"lost"
/a/	as in k**ab**a	"punish"
/o/	as in **o**risa	"show"
/u/	as in k**u**mba	"throw"

Meru language has long vowels that come as a result of phonological environments. These vowels can be elongated depending on the circumstances and words. For instance, we can have long vowels as shown in the following examples;

Table 5: Long Vowels Realization in Orthography and Associated IPA

Long Vowels	Meru words	Gloss
/i:/	Ibarash**i:**shi	"avocado"
/e:/	M**e:**mba	"maize" corn
/a:/	K**a:**wa	"coffee"
/o:/	K**o:**ria	"tie tightly"
/u:/	M**u:**re	"ask him/her"

C. The Syllable Structure of Meru

Meru language has open syllables of different types as monosyllabic, disyllabic, tri-syllabics, and others. The sequence of phonemes of syllables in Meru depends on the sequence of morphemes. In this language, the following syllable structures have been realized;

Structure	Example	Gloss
a. V as in; **i**mba	#**i**$mba#	"sing"
eka	#**e**$ka#	"thanks"
b. **CV as in;** Kaba	#**ka**$**ba**#	"punish"
Seka	#**se**$**ka**#	"laugh"
c. **CCV as in;** ri**sha**	#ri$**sha**#	"run"
nu**mbe**	#**nu**$mbe#	"cow"
d. **NCV as in;** ru**mbu**ka	#ru$**mbu**$ka#	"jump"
Ku**mbu**a/o	#ku$**mbu**$a#	"remember"
e. CVV as in; **taa**	#**taa**#	"pay/light"
Mooko	#**moo**$ko#	"cassava"
f. NV as in; numbe	#**nu**$mbe#	"cow"
Mayo	#**ma**$yo#	"teeth"
g. GV as in; wera	#**we**$ra#	"wait"
U**ya**	#u$**ya**#	"come back"
h. NGV as in; **mwa**sha	#**mwa**$sha#	"tall"
Mwate	#**mwa**$te#	"let him/her get in"
i. $NCGV$ as in; ri**ngyi**sa	#ri$**ngyi**$sa#	"chase"
R**ingyi**a	#ri$**ngyi**$a#	"take care for"
j. CGV as in; **kya**she	#**kya**$she#	"calf"
Kwimboo	#**kwi**mboo#	"wake up"
k. $NNGV$ as in; **nmwa**asha	#**nmwa**$a$sha#	"he/she is tall"
l. #NG# as in; mbo**ny**	#mbo$**ny**#	"information"

Based on the syllable structure above, it is obvious that the syllable in Meru language is open. For the case of syllable structure NG, when nasal consonant /n/ occurs with Glide /y/ consecutively, especially at the word-final position, it is considered as a complete syllable since glide sound /y/ in such circumstances is given all features of high front vowel /i/.

V.   PHONOLOGICAL ANALYSIS OF NOUNS BORROWED FROM STANDARD SWAHILI

Phonological processes are those processes that come as a result of phonological environments. They are processes that are caused by either assimilatory environments or non-assimilatory environments that have phonological traits. Loanword adaptation goes through a series of processes (Wornyo, 2016). From the study, the following are phonological processes that are permissible in nativization of Swahili loanwords in Meru;

A. Prosthesis

This can be defined as the insertion of vowel sounds at word-initial position. The study has shown that some borrowed nouns into Meru language from Swahili have to be nativized through prosthesis to acquire the Meru native features specifically to have preferred sound, syllable structure, and pronunciation as observed here below;

(1)   **Swahili Word   Meru Word   Gloss**

          i. Jiko   /**i**riko/   "kitchen"

          ii. Darasa   /**i**darasa/   "class"

iii. Parachichi   /**i**barashishi/   "avocado"

iv. Boksi   /**i**book**i**si/   "box"

v. Gari   /**i**kari/   "car"

The data above show the insertion of vowel sounds at word initial positions and this process is known as prosthesis. The data from Meru language as shown above, prove that a front high vowel /i/ is inserted at the word's initial position as triggered by the environment of different consonants/r/, /d/, /b/, and /k/ so that these nouns can have acceptable native features.

B. Anaptyxis

This phenomenon deals with the insertion of vowels between two consonants or after a consonant in a syllable-final position (Mallya, 2018). The process occurs when the source words, from Swahili that have consonant clusters are borrowed into a target language; the Meru and receive a vowel to break up the clusters. Kangwa (2020), insists that the word medial vowel epenthesis is motivated by the fact that Bantu native phonology does not allow consonantal clusters. From the study, the data below show the phonological environments where vowels are inserted to break consonant clusters of these Swahili borrowed nouns into Meru specifically called anaptyxis for these nouns to become pronounceable.

(2)   **Swahili word**   **Meru word**   **Gloss**

i. Biblia   /biib**i**liya/   "Bible"

ii. Daktari   /dak**i**taari/   "doctor"

iii. Boksi   /**i**book**i**si/   "box"

iv. Baiskeli   / bas**i**keeli/   "bicycle"

The data above show that Meru language does not allow the succession of two consonant clusters and to disallow that, there must be an insertion of vowel sounds and the process itself is known as epenthesis. If a borrowed word has two or more consonant clusters, the vowel is inserted between the two consonants to break the consonant sequences as well as to make easy articulation as observed above.

C. Sound Tolerance

It has also been observed that some words do not involve any change or modification for them to be nativized after being borrowed. Mwita (2009) refers to this process as cluster tolerance. These borrowed words are taken and used as they are in the case of their orthography, pronunciation, and meaning. For instance;

(3)   **Swahili Word**   **Meru Word**   **Gloss**

i. Kioo.   /kioo/   "mirrow"

ii. Ufunguo   /ufunguo/   "key"

iii. Sufuria   /safuria/   "Cooking pot"

iv. Saa   /saa/   "a watch"

v. Ngamia   /ngamia/   "camel"

vi. Sukari   /sukari/   "sugar"

vii. Saba   / saba/   "seven"

In the data above there are a few cases where Meru language maintains vowel clusters that were in the borrowed Swahili nouns, especially at the word-final position. The process of retaining vowel clusters is called "Vowel cluster tolerance". No noun that has undergone any modification to acquire Meru native features. Meru, the recipient language has maintained the cluster that was in borrowed language.

It has also been found that, in the process of nativization of nouns borrowed from Swahili, some have retained Consonant Clusters as illustrated here below;

(4)   **Swahili Word**   **Meru Word**   **Gloss**

i. Chai   /shai/   "tea"

ii. Chuma	/shuma/	"iron"
iii. Ngoma	/ngoma/	"drum"
iv. Parachichi	/ibarashishi/	"avocado"

From the data above, the consonant clusters [ch] and [ng] have been retained to show that such clusters are also permissible in Meru language.

D. Aphaeresis

From the study, it has also been discovered that some borrowed nouns must undergo the process called aphaeresis: loss of sound at the beginning of a word so they can acquire Meru native features as demonstrated here below;

(5)   Swahili Word   Meru Word   Gloss

i. **H**oteli	/oteli/	"hotel"
ii. **H**oni	/o:ni/	"horn"
iii. **H**asara	/asara/	"loss"
iv. **H**arufu	/arufu/	"smell"

The data above show that the glottal fricative /h/ of borrowed nouns in the Meru language is deleted in the process of nativization. That is to say the glottal fricative sound /h/ is not permissible.

E. Devoicing

Collins English Dictionary (2016) states that devoicing is the process by which a consonant that is usually voiced becomes devoiced. The study has also revealed that in the borrowing process, some borrowed nouns must undergo the phonological process called devoicing or weakening so they can acquire Meru native features that are acceptable. The data below reveal;

(6)   Swahili Word   Meru Word   Devoicing rule   Gloss

i. Ja<u>g</u>i	/i<u>j</u>a<u>k</u>i/	*g→k	"jug"
<u>ii. G</u>ari	/i<u>k</u>ari/	*g→k	"a car"
iii. Meza/mesa/		*z→s	"table"
iv. Baku<u>l</u>i	/baku<u>r</u>i/	*l→r	"bowl"

From the data above, the roman number "i" and "ii", the consonant sound which is soft palatal plosive /g/ and which is voiced, has changed to soft palatal plosive /k/ which is voiceless. Also in roman number "iii", the alveolar ridge fricative /z/ which is a voiced sound, has changed to alveolar ridge fricative /s/ that is voiceless. Finally in data roman number "iv" the alveolar ridge liquid /l/ which is voiced, has changed to alveolar ridge liquid /r/ which is voiceless. All these changes; changing of voiced consonants to voiceless, have been done for the borrowed nouns from Swahili for them to have acceptable features of pronunciation in Meru.

F. Voicing

This is a phonological process in which voiceless sounds especially consonants become voiced because of their phonological environments or positions. The study has revealed that there are nouns that undergo this process to acquire Meru native features after being borrowed from Kiswahili. Consider the following data;

(7)   Swahili Word   Meru Word   Voicing rule   Gloss

i. **P**anga	/i<u>b</u>anda/	*p→b	"bush knife"
ii. **P**arachichi	/i<u>b</u>arashishi/	*p→b	"avocado"
iii. Supu	/subu/	*p→b	"soup"

The three examples above have shown how the Voicing process occurs for the Swahili borrowed nouns to have acceptable pronunciation in the Meru language.

G. Rhotacization

Rhotacizatin is one of the phonological processes a borrowed word may undergo to acquire native features of a recipient language. This phonological process always uses the phoneme /s/ or /z/ to become /r/; and mostly this takes place between vowels or glides. From the study, this process has been observed through the data shown here below;

(8)	Swahili Word	Meru Word	Gloss
	i. Ma**z**iwa	/ma**r**uwa/	"milk"
	ii. Mbu**z**i	/mbu**r**u/	"goat"
	iii. Mwe**z**i	/mwii**r**i/	"moon"
	iv. Mzinga	/nringa/	"beehive"
	v. Mzimu	/warumu/	"craziness"

The data above reveal that, in nativization, the rhotacization process is also possible so that these Swahili borrowed nouns can acquire the Meru native features. During the nativization, the alveolar ridge fricative sound /s/ which is a voiceless sound, or alveolar ridge fricative /z/ which is a voiced sound becomes alveolar ridge liquid /r/ which is voiceless.

H. Sound Assimilation

This is one of the common phonological processes among languages where a sound changes its phonemes so that they become similar to other nearby sounds and it occurs within a word or between words. When segments take on features from neighbouring segments, the assimilation process is said to have occurred (Wahome, 2023). The study in the Meru language has also found this phenomenon as shown here below;

(9)	Swahili Word	Meru Word	Gloss
	i**. Ch**uma	/**sh**uma/ "iron"	
	ii**. Ch**ai	/**sh**ai/	"tea"
	iii. Para**chi**chi	/ibara**sh**i**sh**i/	"avocado"
	iv**. Ch**upa	/**sh**uba/	"bottle/flask"
	v. To**chi**	/to:**shi**/	"torch"

The data above has revealed that, the sound; palatal alveolar affricative /ʧ/ has changed and become palatal alveolar fricative /ʃ/ for these borrowed Swahili nouns to be nativized. All these sound assimilation processes are just efforts made by Meru native speakers for these Swahili borrowed nouns to have an acceptable pronunciation. With these data, then it is obvious that sound assimilation is permissible in the Meru language.

I. Substitution of Sounds

Substitution is a process that takes place during borrowing and involves substituting consonants in the source language with others in the target language. Hussain et al, (2011) argue that substitution is meant to preserve sounds from deletion and it tries to reshape the word closer to the input form. Hock, (1991) insists that during substitution of a consonant, an item is replaced with the phonetically-close phoneme in the recipient language which is usually associated with the absence of equivalents in the target language. From the study, it was also observed that there are some Swahili borrowed nouns where substitution of sounds had to be applied for them to have the native feature of the recipient language; the Meru. For instance;

(10)	Swahili Word	Meru Word	Gloss
	i**. Dh**arau	/**s**arau/	"scorn"
	ii**. W**atu	/**y**andu/	"people"
	iii. Kaha**w**a	/kaa**y**a/	"coffee"

As shown above, a substitution process has also been identified; the dental stop sound /ð/ has changed to alveolar ridge fricative /s/ which is a voiced sound, and for the case of data roman number "ii-iii", bilabial glide /w/ has been changed to labial dental fricative /z/. With these data and the changes observed, it is obvious that substitution is permissible in nativization.

J. Vowel Lengthening

According to Siame and Banda, (2021), Vowel lengthening is defined as a phonological process that demands an expression of the number of vowels in a particular word in the target language. This is a process where short vowel sounds are changed

to be long to create or for the borrowed words to have the preferred sounds in the recipient language. From the study, the following data were observed;

(11)   **Swahili Word**   **Meru Word**   **Gloss**

    i. Ada   /**aa**da/   "fees"

    ii. D**a**da   /d**aa**da/   "sister"

    iii. Gesi   /g**ee**si/   "gas"

    iv. P**e**po   /p**ee**po/   "evil spirits"

    v. P**i**pi   /p**ii**pi/   "sweets"

    vi. S**o**da   /s**oo**da/   "soda"

    vii. B**o**ksi   /ib**oo**kisi/   "box"

    viii. S**u**mu   /s**uu**mu/   "poison"

All the above data show that short vowels /a/, /o/, /a/, /u/, and /i/ have been lengthened to have or create the preferred sound in the Meru language during the nativization process.

VI.   CONCLUSION

The study aimed to examine Swahili loan nouns in Meru language of Northeastern Tanzania and describe the phonological processes involved for these nouns to acquire Meru native features. The result has shown that Meru native speakers have borrowed lots of nouns from the standard Swahili and for these nouns to acquire native features, these phonological processes: prosthesis, anaptyxis, sound tolerance, aphaeresis, devoicing, Voicing, rhotacization, sound assimilation, sound substitution, and vowel lengthening are applied for the borrowed nouns to have acceptable native features of Meru.

VII.   RECOMMENDATIONS FOR FURTHER STUDY

The study concentrated specifically on a Phonological Analysis of Nouns borrowed from the standard Swahili into Meru Language of Northeastern Tanzania. Now that the study is on the borrowed nouns, there are other areas of the language that need to be researched including; phonological analysis of borrowed verbs, semantic shift, negative impacts of language borrowing, influence of Meru language in second language learning, semantic broadening, narrowing and amelioration. Furthermore, there is a need for study on the other language levels including semantics, phonetics, morphology, and pragmatics as they will all act as a way of preserving African indigenous languages. Mallya, (2018), argues that "…these studies act as instrumental tools towards promoting local languages.

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