A MORPHOPHONEMIC STUDY OF EKEGUSII NOMINAL DERIVATION AND PLURALIZATION

BY

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DECLARATIONS

DECLARATION BY STUDENT

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This work is dedicated to my parents, Joseph Onkwani and Florence Onkwani.

ABSTRACT

The study investigated and examined the effect of morpheme combinations through prefixation in formation of the noun in Ekegusii. It sought to identify and describe the possible types of derived nouns and the phonological processes involved in the formation of both plural and derived nominals as well as to formulate phonological constraints of prefixation in Ekegusii. It focused on establishing the relationship existing between morphology and phonology and to provide an understanding about nominal morphophonology. A descriptive research design was employed to collect, analyze and describe data. The researcher generated a list of 82 nominals: three derived and two plural nominals and identified Rogooro dialect speakers of Ekegusii in Moi University who verified the data as acceptable. Sample data were obtained from each noun class through purposive sampling which were analyzed and coded into semantic classes and explained using Anti- Faithfulness Theory provided in Optimality Theory. This theory provides specific principles that explain morphophonemic alternations in base and derivative pairs. Findings of the study indicate that nominal derivation forms deverbal, deadjectival, diminutive and abstract nominals while pluralized nouns are classified into personal, cultural, animal, augmentative and diminutive nominals. Noun Class prefixes induce a phonetic modification in the base in nominal formation. The derived and plural nouns display vowel deletion, alternation and lengthening as well as consonant mutation and deletion. Deletion and alternation of vowels is experienced in cases where there is incompatibility of features of vowels occurring in a sequence. Lengthening of vowels preceding nasal consonants in Noun Class 1 /2 is as a result of resyllabification of the nasal from coda to onset position in pluralization. Data also indicate that place assimilation of the nasal prefix to the place of articulation of the initial consonant of the base motivates mutation of the consonants in Noun Class 9a / 10a nouns which consequently leads to hardening of these consonants. Findings imply that morphophonemic modifications occur to simplify articulation and to meet the open syllable structure requirements of Ekegusii. In Optimality Theory, these phonological changes are products of unfaithful mappings of inputs to the outputs due to the interaction of markedness and faithfulness constraints. The winning candidates satisfy Transderivational Anti-Faithfulness constraints which enforce violation of the related faithfulness constraints.

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ABBREVIATIONS AND SYMBOLS

ATR-	Advanced Tongue Root
CT-	Correspondence theory
DF-	Distinctive feature
Dom-	Dominance
DEP-	Dependency
F-	Phonetic feature
GP-	Generative phonology
IDENT-	Identity
IO-	Input- output relation
MAX-	Maximality
N-	Noun
NCM-	Noun Class Marker
NCP-	noun class prefix
NP-	Noun phrase
OO-	Output-output relation
OT-	Optimality theory
R-	Relation
S-	String
S1-	string 1 of phonetic elements at surface representation
S2-	string2 of phonetic elements at surface representation
TAF-	Transderivational Anti-Faithfulness theory
TCT-	Transderivational Correspondence theory
WFRS-	Word Formation Rules
X: -	linguistic feature
¬ -	Anti-faithfulness
~:-	feature X 1 alternate with feature X 2

CHAPTER ONE

INTRODUCTION

1.0   Introduction

The study is on the interface of morphology and phonology. Particularly, the study sought to investigate the morphophonology of the noun in Ekegusii. This language is agglutinating since it is characterized by diverse combinations of morphemes in word formation. Some phonological alternations, changes and modifications occur in the internal structure of bases and affixes in derivational and inflectional morphology. The changes include both the segmental and suprasegmental levels.

The present study focused on the description of Ekegusii nominal prefixation, the interface of morphology and phonology and the morphophonological operations that are evident in the bases of derived and plural nominals. This chapter gives the background information of the study. Section 1.2 gives background information to Ekegusii language. Section 1.2.1 provides a discussion of nominal morphology of Ekegusii. Section 1.2.2 presents the phonetic inventory of Ekegusii which is of particular interest in this study. General information on morphophonemics is supplied in Section 1.3. The Problem, Aim, Objectives, Hypothesis, Research questions, Rationale, Scope of the study and the summary of the chapter are given in the sections 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10 and 1.11 respectively.

1.1   Background to Ekegusii

Ekegusii is a language spoken by the Gusii people in Kisii highlands and other regions in Kenya like Molo, Kitale, most towns and cities in Kenya as well as USA where they are settled. Kisii region covers eight districts, namely, Nyamira, Kisii Central, Kisii South, Manga, Borabu, Masaba, Gucha South and Gucha in Nyanza Province. The Gusii claim Mogusii as their founder and they have taken their name from him. The term Mogusii is a noun that consists of two morphemes: mo- (Noun Class 1 prefix) denotes personal nouns and –*gusii* is a base that means kisiiland that are joined into one word. The ancestral Gusii population entered Kenya from Uganda, moving on from the foothills of Mount Elgon towards their present land. They are settled not only in Kisii, but also in towns, cities and places with fertile soils like Molo and Kitale in the Rift Valley. According to Cammenga (2002), Ekegusii is spoken by about 1.5 million people. He classifies it as an Eastern Bantu language spoken in the northern region between the eastern shore of Lake Victoria and the western branch of the Great Rift Valley.

Guthrie (1948) labelled Ekegusii as an E. 42 Bantu language and classified it with Kuria and Logooli in Group 40 of Zone E. Linguistically, the language has a close relationship with Lulogooli, Kuria and Gikuyu. Whiteley (1960) describes it as having linguistic features that agree with those of Logooli, Gikuyu and Kuria especially the seven-vowel system. The language is spoken widely in Kisii in domains like homes, market places and it is taught in lower primary in most rural schools.

Ekegusii has two dialects: Rogooro and Maate. The Rogooro dialect is the northern variety spoken in Kisii Central and Nyamira sections while the Maate dialect is the southern variety spoken in Gucha District. The differences between the two dialects are experienced at the phonological level especially on the /d/ sound used by Maate speakers in place of the sound /t/ as used by Rogooro speakers as illustrated in (1) below.

Maate dialect	**Roogoro dialect**	**Gloss**
(1) a. Edugo	etugo	'livestock'
b.Riidimo	riitimo	'spear'

Also, there are lexical differences as shown in Examples (2a-b) below:

Maate dialect	**Rogooro dialect**	**Gloss**
(2) a. Riororo	etwoni	'cock'
b. Orogare	oroteeru	'winnowing tray'

Regardless of the linguistic differences, speakers from both sides of Kisii communicate with each other effectively. The data used in the current study consist of the Rogooro variety since the researcher is a native speaker of the northern variety. Hence in this study, the term Ekegusii is used to refer to the northern variety and generalizations about nominal morphophonemics are made on the Rogooro dialect. Ekegusii northern variety's nominal morphological and phonological systems are presented in Sections 1.2.1 and 1.2.2 below.

1.2.1. Nominal morphology

This section comprises a description of the form of the Ekegusii noun. Nominal morphology involves a system of adjustments in the noun's form and modifications in the ways speakers intend to be interpreted in discourse. According to Payne (1997), a speaker alters words' meanings in a particular context by combinations of various morphemes to communicate with the intended listener. Modern grammar offers a description, analysis and a set of definitions and rules based on objective aspects of language form. Definitions of words must relate to other levels of linguistic analysis. For instance, according to Spencer (1991:43) a word is defined syntactically as 'the smallest unit that can exist on its own or minimum free form.' Words are at the interface between phonology, syntax and semantics. Words have phonological properties; they combine to form phrases and sentences. This is a clear indication that words contribute a lot to syntax and the information a sentence communicates is derived from the words that make it. A word can either be a morpheme or consist of morphemes. Katamba (1993:24) defines a morpheme as 'the smallest difference in the shape of a word that correlates with the smallest difference in a word or sentence meaning or in grammatical structure.'

In morphology, morphemes are units of analysis. The noun consists of morphemes which are combined by word formation processes. It is formed through processes like affixation, compounding and reduplication. This study investigates derivation of the noun from other

lexical categories and pluralization of nouns and how the formation of the noun triggers phonological alternations.

Inflection and derivation are affixation processes through which words are formed. The two processes differ from one another in diverse ways. Inflection characterizes lexemes with features they need when designated in syntactic constructions. Some of the features they mark are case, agreement features and tense. Anderson (1992) defines inflection as the morphology that is relevant to syntax. Agreement and case are morphological processes that encode a relationship with syntax. By contrast, derivational morphology is purely a lexical matter which specifies reference to a particular lexical category. Also, inflection and derivation are differentiated by the semantic transparency criteria. Inflection is more semantically regular and transparent than derivation. This is owing to the fact that derivation modifies the meaning of the root and base to which morphemes are added while the inflected form is different from the uninflected forms in number, case and gender though there is uniformity in their meanings. In derivational morphology, the base is subject to semantic irregularity since it modifies its meaning as well as changing the lexical category.

The structure of Ekegusii noun consists of the noun class prefix and the base. The prefix is analyzed into an augment (pre-prefix) and a noun class marker. The base can be further subdivided into a root and a final vowel as below: -

Omoibi   *'thief'*

o-	-mo-	-ib-	-i
Augment	Noun class marker	Root	Final vowel

The pre-prefix is the initial vowel that occurs before the noun class prefixes (NCP). It emerges as a full syllable as shown above. Pre- prefixes occur in Ekegusii and they are identical with the Noun Class Marker (NCM) vowels in almost all cases. The initial vowel has been referred to as a weak determiner since it denotes specificity of the word to which it is prefixed (Petzell 2003). The pre-prefix can either be used or omitted from a noun depending on the degree of particularization implied. In Ekegusii, the pre-prefix is used before noun class markers for particularization purposes. However, Noun Classes: 1a/2, 5b, 10, 10a and 21 do not have pre-prefixes as shown by examples in Table 1 that is presented later in this chapter. Omission of the pre-prefix, in some instances, implies that the topic referred to is familiar to both the hearer and the listener.

The root and the prefix are bound morphemes that do not constitute words by themselves in Ekegusii. In Ekegusii, roots are core elements in words since they carry basic meanings as in *[o-mo-ib-i],* the root *[–ib-]* has the meaning 'steal' since the noun *omoibi* 'thief' is derived from a verb through prefixation, but the root is not a word in Ekegusii

where a word cannot in any circumstance end in a consonant. A word in Ekegusii must have the VCVCV or CVCV syllable structure. The root requires addition of the final vowel *[-i]* and the Noun Class 1 prefix *[omo-]* since all nouns in Ekegusii are grouped into semantic and morphosyntactic classes (Cammenga 2002). Thus, the noun class prefixes are widely used in Ekegusii nominal pluralization and derivation.

Noun class prefixes mark the semantic-syntactic categories of singular and plural nouns, so that the stems to which they are attached form a pair of words in singular and plural. Noun Classes 1/2 and 3/4 are illustrated in (3) below.

Class1/2

Singular		**Plural**	
(3) a. *O-mo-it-i*	*'murderer'*	*a-ba-it-i*	*'murderers'*
b. *O-mo-geendi*	*'traveller'*	*a-ba-geendi*	*'travellers'*

Class3/4

Singular		**Plural**	
(4)a .*O-mo-tego*	*'trap'*	*e-me-tego*	*'traps'*
b. *O-mo-te*	*'tree'*	*e-me-te*	*'trees'*

Plural and singular nouns in Ekegusii are marked for number. Number enables the noun to agree grammatically with the adjectives in a noun phrase. The noun may function as a subject of the sentence, direct and indirect object of the verb and as the head in a noun phrase. For example:

(5) Omoibori(N) omuya(Adj.) oeire(AUX.+V) Mokeira(N)   endaagera(N)

Parent   good   has given   Mokeira   food

'A good parent has given Mokeira food.'

The noun *omoibori* functions as a subject in the above sentence, *Mokeira* as the indirect object and *endaagera* functions as the direct object. This is a singular sentence since the subject has a singular prefix *omo-* which it shares with the adjective *omuya*.

The object of analysis in this study is phonological change in word forms that arise from derivation and pluralization. Therefore, the base is the basic unit of analysis which constitutes the imperative forms of the verb, bases of adjectives and nouns in Ekegusii. Katamba (2003:45) defines a base as

> any unit whatsoever to which affixes of any kind can be added. The affixes attached to the base may be inflectional affixes selected for syntactic reasons or derivational affixes which alter the meaning or grammatical category of the base.

The term base is used in this study to refer to the morphemes to which plural and derivational prefixes are added.

Studies in morphology of language indicate that derivation is one of the affixation processes by which languages enrich their vocabulary. Payne (1997:34) states that 'probably every language has grammaticalized ways of adjusting the grammatical category or subcategory or a linguistic form to make it either more or less noun-like.' Abstract and diminutive nouns are formed from prefixation of a nominal base form but they maintain their lexical category. In the case of deriving nouns from bases of verbs and adjectives, the bases change to deverbal and deadjectival nouns. In all cases of derivation, the meaning is modified and there is a semantic relationship between the base and the derivative. The following examples illustrate the point:

Verb base   **Nominal derivative**

(6) a. –*ib-a*   *'steal'*   *o-mo-ib-i*   *'thief'*

   b. –*it-a*   *'kill'*   *o-bo-it-i*   *'killing'*

The nominal derivative consists of a noun class prefix and a base in Ekegusii. The bases and prefixes do not have fixed meanings. Different meanings of a single base are established by attachment of various prefixes to it and forming new derivatives. In the above example, *[-ib-a]* is the base and *[obo-]* is the prefix which is attached to it to form the abstract noun *oboibi* 'theft'. The base on its own has the meaning 'steal' and the prefix refers to 'abstractness' or 'smallness' but when the two morphemes are combined together the hearer can interpret it to mean two different things: small thieves or an act of stealing. At the same time the base can be combined with a different prefix *[omo-]* to form *omoibi* 'thief' to mean a person who performs the act of stealing.

According to Bubenik (1999:168) a derivative is 'a lexeme whose stem is formed from a simpler stem (derivational base) by some kind of morphological modification (most commonly affixation).' Therefore, derivational prefixes take the base meaning, raise it and convert it into another related meaning. For instance, several meanings can be derived from –*bariri* with different prefixes as shown below:-

Adjective base	nominal derivative	Gloss
(7) -bariri	e-m-barir-i	'something red'
	o-ko-barir-a	'to become red'
	e-ke-barir-i	'red thing'
	o-bo-barir-i	'redness'
	o-mo-barir-i	'red person'

In example (7) above, *e-ke-* indicates diminutives, *o-bo-* an abstract noun or plural of diminutives, *o-ko-* denotes most gerundive nouns and *-e-m-* is a is descriptive or an attributive prefix that denotes adjectives.

In this study, the researcher analyses the nominalization pattern of Ekegusii that is mainly through prefixation. Both plural formation and derivation use Ekegusii noun class prefixes which are presented in Table 1 that follows.

Table 1.   **Ekegusii Noun Class prefixes.**

Class	Pre-prefix	Noun class prefixes	Examples	Gloss
1	o-	-mo-	o-mo-boraka	'widow'
1a	Ø	Ø	Taata	'father'
2	Ø	Ø	Taata	'father'
2b	a-	-ßa-	a-ba-boraka	'widows'
3	o-	-mo-	o-mo-yio	'knife'
4	e-	-me-	e-me-yio	'knives'
5	e-	-ri-	e-ri-ino	'tooth'
	Ø	rii-	rii-to	'leaf'
6	a-	-ma-	a-ma-ino	'teeth'
			a-ma-to	'leaves'
7	e-	-ke-	e-ke-rogo	'chair'
	e-	-ge-	e-ge-tonga	'basket'
8	e-	-ßi-	e-bi-rogo	'chairs'
			e-bi-tonga	'baskets'
9	Ø	-e-	e-yanga	'cloth'
9a	e-	-n-	e-n-daagera	'food'
10	Ø	ci-	chi-anga	'clothes'
10a	Ø	ci-n-	chi-n-daagera	'foods'
11	o-	-ro-	o-ro-meme	'tongue'
12	a-	-ka-	a-ka-gena	'small stone'
	a-	-ga-	a-ga-ita	'small gate'
14	o-	-ßo-	o-bo-taka	'poverty'
15	o-	-ko-	o-ko-ruga	'cooking'
16	Ø	a-	a-ase	'place'
21	Ø	ña-	nya-ncha	'lakeside'

Table 1 above illustrates Cammenga's (2002:199) noun class system that was adopted in this study. Ekegusii noun plurals and derivatives are prefixed by choice of a noun prefix from the morpho-syntactic classes. Some nouns in Table 1 are derivatives of verbs like *okoruga* 'cooking'. This is a clear indication that derivational morphology is productive in Ekegusii. Once derivations have been made, they can be grouped into the various classes depending on the prefix they bear and their semantic meaning in Ekegusii.

1.2.2. Ekegusii phonetic inventory

In this section, the segmental inventory of Ekegusii is described using the IPA notation. In morphophonology, segmental changes occur since morphology triggers phonological changes. Sound segments are basic units of analysis that should be taken into consideration in order to establish the relationship existing between morphology and phonology. In this study, vowel and consonant alternations are analyzed. This requires an established segmental system that lays a basis for the arguments that are presented in this study.

1.2.2.1. Ekegusii vowel system

Ekegusii has a total of 14 short and long vowels. According to Cammenga (2002), Advanced Tongue Root (ATR) feature is distinctive in Ekegusii vowels. The vowels [i], [a] and [u] are specified phonetically for +ATR. All the vowels on the chart are produced with an open vocal tract. The changing shape, movement and position of the tongue determine their quality.

Table 2.   **Ekegusii vowel system**

The vowels are presented in Table 2 below: -

	Front		Central		Back	
	Short	Long	Short	Long	Short	Long
High	i	i:			u	u:
Upper mid	e	e:			o	o:
Lower mid	ɛ	ɛ:			ɔ	ɔ:
Low			a	a:		

The vowels in Table 2 above are represented in the following examples:-

Phonetic symbol	**orthographic symbol**	**Ekegusii**	**Gloss**
/i/	i	okorika	'be stuck'
/i:/	i	okoriika	'writing'
/e/	e	kera	'every'
/e:/	e	keera	'by the waterfall'
/ ɛ/	e	ogoteba	'becoming impotent'
/ ɛ:/	e	ogoteeba	'saying'
/a /	a	okobaka	'fermenting'
/a: /	a	okobaaka	'praising'
/ ɔ /	o	ogokona	'ngbewitchi'
/ ɔ :	o	ogokoona	'being annoyed'
/ o/	o	okobora	'missing'
/ o:/	o	okoboora	'saying'
/u/	u	ogokura	'scratching'
/ u:/	u	ogokuura	'screaming'

1.2.2.2. Consonant system

The consonant inventory of Ekegusii is presented in this section based on the criteria of place and manner of their articulation. Ekegusii consonants are twenty-one in total and voice is distinctive. The prenasalized consonant sounds presented here are seven in total and they are on the last row of the table. The consonants in the Table 3 below have been presented as per Cammenga (2002) and in relation to the researcher's knowledge of Ekegusii sounds as a native speaker.

Table 3:　　　**Ekegusii consonant system**

	Bilabial		Alveolar		Alveo-palatal		Velar	
	Voiceless	Voiced	voiceless	Voiced	voiceless	Voiced	Voiceless	voiced
Plosives	p		t				k	
Fricatives		ß	s					γ
Flapped liquid				r				
Affricate					c			
Nasals		m		n	ň			ŋ
Semi-vowels		w				y		
Prenasals		mb	nt　　ns	nd	ňc		nk	ŋg

The 21 consonants in Table 3 above except [w] are illustrated as follows:

Phoneme	Orthography	Ekegusii	Gloss
/β/	b	orobebe	'boundary'
/t/	t	ogoteera	'song'
/k/	k	obokendu	'coolness'
/r/	g	orobago	'fence'
/s/	s	egesieri	'door'
/c/	c	omochaakano	'beginning'
/r/	r	ribaga	'opportunity'
/m/	m	amache	'water'
/n/	n	obobani	'prophecy'
/ŋ/	ng	eng'ondi	'sheep'
/ň/	ny	omonyenyi	'butcher'
/y/	y	omoyega	'ceremony'
/w/	-	-	-
/mb/	mb	embongi	'weevil'
/nd/	nd	endoro	'bitter thing'
/nt/	nt	omonto	'person'
/ŋk/	nk	enkoko	'chicken'
/ŋg/	ng	eyanga	'piece of cloth'
/ňc/	nch	enchara	'hunger'
/ns/	ns	ensooko	'well'
/p/	p	Apoko	Apoko

1.3 Morphophonemics

Morphophonemics is a process of phonological alternations and modifications when morphemes combine. In word formation processes, sound segments and features like voice originally not in the base and affixes become evident in the derived form. At the same time, some phonological features e.g [+voice] and segments may be lost in the process. For example, the initial voiceless consonant of the nominal stem *[kasa]* is voiced due to affixation of floating feature [+voice] to form a singular noun *[gasa]* in Aka language (Akinlabi 1996). A phonological rule associates [+voice] feature to the initial consonant of the root. The underlying [−voice] feature is delinked from the consonant resulting in the surface form *gasa*. In inflectional and derivational morphology, phonetic shapes of bases and affixes are modified due to application of such phonological processes.

Morphophonemic alternations involve different forms in which a phoneme is represented. At one point a phoneme is represented by one phonemic shape and sometimes by another or others. For example in English, the plural form of *knife* is *knives*. The sound */f/* changes to */v/* when the plural suffix is attached to the base. In structural terms, *[f]* alternates with *[v]* due to suffixation.

Morphology is a level of representation above the phonological level. The morphological component entails all the various forms words take by undergoing word formation

processes. Their form often reflects their syntactic function and their parts are often composed of meaningful morphemes. The word *reading* consists of sound segments, /*ri:dIŋ*/ that form a word. It has two meaningful morphemes which are: the base *[read-]* a verb which means 'go through a written material' and the suffix *[–ing]* that is added to the stem to mark the time when the action took place. It can be used in a sentence as follows: *Jane is reading her new novel*. Each word in the sentence comprises sound segments where each sound has unique features. These words constitute meaningful morphemes that are combined to form morphemes of a sentence such as the one above.

Morphophonemic alternations apply in contexts that are defined in phonological terms, morphological terms and they generally apply only within words. Morphophonemic changes can either be phonetically conditioned or morphologically conditioned and both alternations occur as a result of the combination of affixes and bases. The phonetically conditioned allomorphy is one of the morphophonological changes which often occur under phonologically defined conditions. In English, the plural and derivational affixes change their shape depending on the phonetic context in which they occur. For example, the English plural marker is pronounced as [z], [s] or [iz] depending on the final segment of the root as in frog[z], cat[s], ros[iz]. Derivation also triggers a phonological process depending on the phonetic context. The nasal in the negative derivation prefix *[in-]* assimilates in place of articulation of the following consonant and it changes its shape depending on the phonetic quality of the consonant that it follows. For example it is articulated as [m] before [p] in i[m]possible, [n] before [d] in i[n]dependent and [iŋ]

before [k] in the derivative i[ŋ]correct. The phonetic material of affixes changes or gets assimilated to adjacent sound of the root due to root dominance. In Ekegusii, the initial sound on the base determines the phonetic changes of the affix in noun formation. For example, when the base begins with a vowel, there is gliding of vowels at the morpheme boundary as shown in (8) a-b below.

Base	**prefix**	**derivative**	**gloss**
(8) a. -oba	omo-	omw-oba	'fearful person'
b. -ana	obo-	obw-ana	'childhood'

Gliding occurs in order to avoid non-identical vowel sequences in Ekegusii as shown in example (8a-b). In example (8a), the morphemes *[omo-]* and *[ɔβa]* involved contain non-identical vowels which are: *[o]* an upper mid, back vowel and *[ɔ]* a lower mid back vowel. Their height features are incompatible and this incompatibility of features leads to glide formation. Similarly, the upper mid, back vowel *[o]* and the low, central vowel *[a]* at morpheme boundary in example (8b) conflict in height and that is why a glide is formed.

Secondly, the morphologically conditioned phonology involves phonological alternations observed when some morphemes in a language behave distinctly due to morphological processes. The changes occur on the base relative to an unaffixed base or relative to additional prefixes and suffixes. Alternations of this kind are irregular in contrast with the phonologically conditioned ones. Irregular phonological changes are experienced when the derivational affixes are combined with the base to form new words and in

formation of plurals. Such irregular phonological changes occur when a morphological process triggers processes like stress shift in derivation and consonant mutation in pluralization. In English, stress shifts from *[a] to* the following syllable which bears the vowel *[i]* in its nucleus when the derivational suffix *[-ity]* is added to *equal* in formation of *equality*. Alternatively, *[f]* alternates with *[v]* when the plural suffix is added to *thief*, *life* and *knife* in formation of plural nouns *thieves*, *lives* and *knives*. In Ekegusii, irregularities are observed in both inflectional and derivational morphology. For example, in pluralization and derivation the structures in examples (9) and (10) below occur.

Singular	**plural**	**gloss**
(9) a .*e-**ng**'ombe*	*chi-ombe*	*'cows'*
b. *o-ro-**t**eeru*	*chi-**nt**eeru*	*'winnowing trays,*
c. *o-ro-**b**ebe*	*chi-**mb**ebe*	*'boundaries'*

base	**noun**	**gloss**
(10) a.*-soka*	*e-**ns**ooko*	*'well'*
b.*-toonga*	*e-ge-toong**w**a*	*'creature'*

The bases above exhibit differences in their phonetic content. In example (9) a, the plural prefix triggers deletion of *[ŋ]*, (9b-c) and (10a) shows prenasalization of the initial consonant of the stem and (10 b) glide formation. The alternatives are observed in the base morpheme and they are unique to each base and the resultant word form. The phonological changes shown above occur as a result of the dominance effect of both prefixes and suffixes. Alderete (2001:224) explains that dominance effect is a "lexical

specification associated with a morpheme that causes base mutation". It is therefore claimed in this study that prefixes with a dominance effect specify a morphophonological modification in the base and this is the claim it sets out to justify.

1.4.   Statement of the Problem

Morphology and phonology interact within the morpheme domain in natural languages to result in a number of phonological alternations. Bantu languages exhibit combinatory morphophonological operations in word formation due to their agglutinating nature. For example, the biggest percentage of words is formed through prefixation in Ekegusii. Ogechi (2006:65-66) notes that Ekegusii is highly agglutinatinative since "most words typically consist of a basic root followed by one or more affixes and each affix represents a specific grammatical category." The combinations of Noun Class Prefixes with roots generate plural and derived nouns.

Agglutinating languages are characterized by phonological alternations in formation of words. The study examines the phonological modifications and alternations that accompany derivation and pluralization of the noun in Ekegusii. The study sought to identify and explain the phonological processes associated with formation of the noun. Therefore, the study aimed at describing the types of derived and plural nouns, phonological alternations and phonological constraints using Transderivational Anti-Faithfulness Theory.

1.5.   Aim

The aim of the study is to explain the interaction of morphology and phonology in nominal derivation and pluralization in Ekegusii.

1.6.   Objectives

i.   To identify phonological processes that occur in derivation and pluralization in Ekegusii.

ii.   To explain these processes.

iii.   To formulate phonological constraints of prefixation in Ekegusii.

1.7.   Hypothesis

In Ekegusii nominalization and plural formation, dominant affixes induce base phonetic feature alternation and modification.

1.8.   Research Questions

i.   Are there phonetic irregularities observed in derivation and pluralization of Ekegusii nominals?

ii.   Do derivational and pluralization prefixes trigger any phonological processes?

iii.   What phonological constraints explain phoneticl changes in nominalization?

1.9.   Rationale

The researcher describes morphophonology of Ekegusii in formation of both derived and plural nouns to provide an understanding of the relationship existing between phonology and morphology. Generally, the two linguistic levels are dependent upon each other. They work hand in hand in formation of acceptable words. This study is motivated by the fact that there is little that has been published about the different types of derived nouns and the phonological processes involved in the formation of nouns. The data in this study is important to researchers who would like to develop a theory which will explain morphophonemics of Bantu languages. Also, the data can be used by researchers to investigate nominal morphophonology using another theoretical framework apart from Optimality Theory which was used in this study to draw conclusions.

1.10.   Scope and Limitations

Morphophonology is a wide area of research in agglutinating languages. Studies in such an area require a long period of time and many resources. Words are formed through reduplication, affixation, compounding and conversion in Ekegusii. All these are significant in a linguistic study, but the researcher discussed and explained morphophonological alternations in prefixation of Ekegusii noun. The study was limited to discussing the nominals derived from nouns, verbs and adjectives and the number marked nominals. The study described and explained the phonological processes associated with such derivations. Phonological changes are explained at the segmental level. They involve consonant and vowel alternations and deletions in the base.

Phonetically conditioned phonology was not studied since such alternations are regular and they do not form part of this study which focussed on irregular phonetic alternations. Besides, morphosyntax and phonosyntax are not examined since the scope could be too broad for the interests of the current study.

1.11   Summary

The previous sections represent the introductory chapter of the thesis. Background information given here includes: The phonetic and morphological structure of Ekegusii as well as a brief description of morphophonemics. The noun constitutes the prefix, root and a final vowel. Prefixes are systematically arranged in Ekegusii noun class system which consists of both derived and number inflected nominals. Morphophonemics is operative in morphemes or rather in words especially in word formation. The chapter also presents the problem of the study, aims and objectives.

CHAPTER TWO

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

2.1   Introduction

This chapter discusses the theoretical framework and reviews previous studies. It describes Optimality Theory and its sub-theories that are used in this study and the previous studies related to the current study.

2.2.   Theoretical Framework

The study adopts principles of Optimality Theory and its sub-theories. This section presents the major tenets of Optimality Theory followed by an in-depth description of how Optimality works and its sub-theories which include: Correspondence Theory and Trans-derivational Anti-Faithfulness Theory.

2.2.1. Optimality Theory

Prince and Smolensky (1993) introduced Optimality as a theory for linguistic analysis. They explore the idea that Universal Grammar consists of a set of constraints out of which well-formed structures of individual grammars are constructed. They support markedness and faithfulness constraints. Markedness constraints asses well-formedness of outputs while faithfulness constraints maintain identity of underlying structures in the output. The two constraints operating in a particular language conflict and their conflict is resolved by their violation and ranking in a strict dominance hierarchy. Constraint

ranking differs from one language to another and this determines the output representations. In Optimality Theory (OT), a constraint has absolute priority over other constraints in the hierarchy.

The linguistic forms that satisfy the conflicting constraints are referred to as optimal outputs of the underlying forms. Optimality sets out to determine the analysis which best satisfies or least violates a set of conflicting constraints. The optimal analysis of a given input of a particular grammar is a grammatically well-formed structure which is at the top of the list followed by other competing candidates.

The optimal candidate is chosen through competition with other candidates upon satisfaction of a set of constraints. Generation of the optimal output at the underlying level involves two functions: Generator (GEN) and Evaluator (EVAL) in Optimality Theory. GEN takes an input in the lexicon and returns an infinite set of output candidates. According to Halle (1973), the lexicon contains a list of morphemes that form inputs for word-formation rules (WFRs). WFRs generate any legitimate combination of roots and affixes. The candidates (cand) can either be grammatical and acceptable surface structures or not. GEN generates an input (inputi) ⟶ (cand1, cand2, cand3 …candn) for example the prefix *[omo-]*, the root *[–rer-]* and final vowel *[–a]* are the possible morphemes in the lexicon. In OT terms, they are inputs which GEN takes to generate candidates like: *omorera, omoreri* 'baby-sitter'etc through word-formation rules. Both

candidates are potential outputs, but *omoreri* which is formed through derivational morphology is preferred in Ekegusii.

EVAL (Evaluator) evaluates candidates produced by GEN. It chooses candidates that best satisfy a set of ranked constraints after the evaluation procedure. This optimal candidate becomes the output by satisfying the high ranked constraint. Choice of the optimal candidate is dependent upon constraint ranking which is language-specific. There are two kinds of EVAL constraints in Optimality Theory: markedness and faithfulness constraints. Markedness and faithfulness conflict and cause a violation of constraints. They conflict for example in cases where markedness is satisfied by having the optimal candidate's morphemes being different from the inputs in the underlying form thus violating faithfulness constraints and vice versa. This culminates in constraint violability. For instance, if well-formedness is high ranked, faithfulness constraints are violated such that the output becomes unfaithful to the input. The following are the Optimality Theory's faithfulness and markedness constraints that are used in this study:

Faithfulness constraints (McCarthy & Prince 1995)

MAX_IO(X): prohibits linguistic feature deletion
DEP_IO (X): prohibits linguistic feature insertion
IDENT_IO (X): prohibits linguistic feature mutation
PRENASAL: Prohibits prenasalization
PARSE- μ: requires that all moras are parsed into syllables

Markedness constraints (McCarthy &Prince 1993, 1995)

NOCODA: Requires open syllables

ONSET: Requires that syllables have onsets

NLV: Prohibits long vowels

*VV: Prohibits vowel sequences

Given a plural prefix [ci-n-] and the stem [-ro:ce], GEN produces two output candidates: *chindooche* and *chinrooche*. EVAL constraints evaluate the two outputs to choose the winning candidate. The faithfulness constraint PRENASAL and the markedness constraint NOCODA can be used to evaluate the winner. Table 4 below gives a description of how Optimality theory's constraints work, explanation of some symbols which are used in data analysis and interpretation and constraint ranking that result in the optimal candidates. Table 4 is presented below:

Table 4.   Candidate set in Optimality Theory

Input: /ci-n- + ro:ce/	NOCODA	PRENASAL
+chindooche		*
Chin.roo.che	*!	

The symbol (**+**) indicates the optimal candidate. *chindooche* is the correct output candidate while *chinrooche* is not since it violates NOCODA and it is not acceptable in Ekegusii. Violations are indicated using the symbol (*) and fatal violations are indicated by the symbol (!). Formation of the plural noun in Table 4 leads to nasal assimilation

hence prenasalization of the stem consonant [r] to a prenasalized consonant [nd]. The nasal syllabifies from coda to onset position of the next syllable leading to lenghthening of the stem vowel. Syllabification leads to satisfaction of the markedness constraint Nocoda and violation of Prenasal. The example above implies that the two constraints conflict so as to have Nocoda outranking Prenasal, i.e, NOCODA>> PRENASAL.

Optimality Theory has developed since its invention into different theories. Among them are: Correspondence Theory (Smolensky and Prince 1995), Transderivational Correspndence Theory (Benua 1997), Transderivational Anti-faithfullness Theory (Alderete 2001) etc. The researcher gives explanations of this study based on the principles of Transderivational Anti-faithfulness theory (TAF) which borrows a lot from Transderivational Correspondence and Correspondence Theories. The effects of TAF constraints derive from the larger constraint system of OT. Alderete (2001) explains that TAF constraints draw from the faithfulness constraints by violating faithfulness constraints and specifying the alternating features. The relationship between OT and TAF is presented in the next section.

2.2.2. Transderivational Anti-faithfulness Theory (TAF) in Optimality Theory
Transderivational Anti-Faithfulness theory is seen to have added a new constraint to markedness and faithfulness constraints in OT which requires a violation of related faithfulness constraints. Faithfulness constraint is a formulation in Correspondence

Theory (CT) by Smolensky and Prince (1995). Oostendorp (2006:39) citing McCarthy and Prince 1995) defines correspondence as follows:

> Given two strings S_1 and S_2 correspondence is a relation R from the elements of S_1 to those of S_2. Elements α S_1 and β S_2 are referred to as correspondents of one another (McCarthy and Prince 1993, 1995).

The correspondence relation requires that two segments stand in relation to one another but does not demand an absolute identity of the segments. S1 and S2 may be related as an input-output pair, or as base and reduplicant, or as a pair of output words. The output segment can be completely distinct from the input. For example, the inputs for the output *omoteeri* are the prefix [*omo-*] the root [*–teer-*] and the final vowel [*–a*] stand in a correspondence relation. The above example indicates that all the output segments are not identical to the inputs especially the low, central final vowel [a] changes to a high front vowel [i]. One of the major contributions of CT to TAF is the aspect of correspondence relation between paradigmatically related words where base derivative pairs are compared in correspondence relation to assess phonetic alternations for example in *teera* and *omoteeri*.

This correspondence innovation has further developed in two stages and directions: one, Benua (1997) adopts a surface-to-surface correspondence relation between the outputs and having a requirement that they must be similar. Two, Alderete (1999,2001) takes the faithfulness constraints and formulates antifaithfulness constraints as negations of faithfulness constraints. Therefore, TAF theory is an extension of Transderivational Correspondence Theory.

Another development of Optimality Theory was developed by Benua (1997). Benua's (1997) Transderivational Correspondence Theory (TCT) evaluates two morphologically related words in a correspondence relation regulated by faithfulness. Output-output (OO) faithfulness gives priority to the base such that it operates from a base to a derivative where a base becomes an input for a morphological process. Further, TCT accounts for affix classes defined by faithfulness constraints. In particular, the subcategorization frame for each affix specifies the OO correspondence relation upon which distinct faithfulness constraints are defined. These constraints regulate similarity between the base and the derivative.

TAF theory adopts and evaluates the paradigmatic effects of TCT. It emphasizes the dissimilarities between the base and its derivative by proposing Anti-faithfulness constraints. Mutation is defined as a morphological change marked by a stem-internal phonological process like affixation induces base mutation. It is a change that is not due to normal phonological processes. In the present study, some base and derivative pairs are dissimilar. The dissimilarities are accounted for by TAF theory as discussed in the sections that follow.

2.2.3. The Development of Transderivational Anti- Faithfulness Theory (TAF)

Alderete (1999) developed TAF theory as a reversal of faithfulness constraints that were initially proposed by McCarthy and Prince (1995) and later refined by Benua (1997).

TAF theory requires a violation of at least one faithfulness constraint- type. The basic tenet of TAF theory according to Alderete (2001:210) is that:

> For every faithfulness constraint F, there is a corresponding
> Anti- Faithfulness constraint F that is satisfied in a String S
> iff S has at least one violation of F.

The researcher uses TAF theory's principles to explain morphophonological operations in Ekegusii nominal derivation and pluralization.

The present study explains the morphologically conditioned phonological changes. These alternations are as a result of affix dominance as explained in TAF theory. TAF theory posits that most languages have both recessive and dominant affixes. The latter induce base alternations that lead to differences in the base in derivation while recessive affixes do not. For example in Ekegusii, the plural prefix [*ama-*] is recessive since when attached to [*–goro*] 'leg' to form *ama-goro* 'legs' it does not trigger any base change as is the case of the *chi-* when attached to [*-n'gombe*] to form *chi-ombe* which deletes the velar nasal consonant [ŋ]. The problem posed in the study is to find out and explain the base mutations as a result of dominance effects and TAF theory provides a framework within which the dominance effects are explained.

Transderivational Anti-Faithfulness theory is devoted to solve the morphophonological base mutations by proposing four hypotheses which explain data (Alderete 2001:213-215). Firstly, TAF theory describes the property of affix specificity.

Affixes must have a dominance property to induce base mutations. There are affixes that can trigger phonetic changes while others cannot. This property is pertinent in the present study. Thus, the researcher describes and explains the data of Ekegusii nominal affixation and how affixes trigger segmental alternations observed.

Secondly, output-output correspondence requires certain morphological processes that will trigger base mutations. In Ekegusii, words are formed through morphological processes like derivation and pluralization. The researcher was concerned with prefixation of bases to form plurals and nominal derivatives in this study. The base and derivative output pairs stand in relation to one another. For instance, both the verbal base *tuka* 'investigate' and the nominal derivative *obotuki* 'investigation' are ouput correspondents. TAF theory applies since it identifies and describes the phonetic differences between the two correspondents.

Thirdly, TAF constraints trigger phonetic changes on the base of the derived word and the theory explains morphologically conditioned base alternations. In this study, the researcher explains phonological alternations that occur in derivation and pluralization of the base of pluralized and derived noun.

Fourth, TAF constraints are grammar dependent. The activity of TAF constraints and the resulting changes depend on the larger constraint system of OT. TAF constraints narrow down an alternation by specifying the alternating feature and the faithfulness violation

required. These constraints do not offer explanations on the location of the feature that alternates and the explanation why such changes occur. In this study, the researcher explained data using different approaches including Optimality theory, Autosegmental theory and researcher's interpretation of data.

Transderivational Anti- Faithfulness theory was preferred over Lexical Phonology and Morphology and Faithfulness theory since TAF theory accounts for the affix- induced base alternations and the ultimate effects. This is true since TAF enabled the researcher to provide an understanding on morphophonology of the base in Ekegusii nominal derivation and pluralization. This was done by the formulation of constraints that govern well- formed structures.

However, TAF theory could not work independently without seeking some explanations from the mother theory, OT. Particularly, the researcher drew the conflicting nature of OT's constraints from the postulations of Prince and Smolensky (1993) in order to explain the concept of winning candidates and constraint ranking. In addition to that, TAF theory is limited in the sense that it doesn't provide an explanation why some phonetic alternations occur but it only specifies the alternating feature. The researcher had to seek explanations from general observations of Bantu data on Bantu languages, Autosegmental theory (Wolf 2007) and by observing the language pattern and came up with explanations for each noun and phonetic characteristics it displayed.

Therefore, the researcher describes the segmental changes on the base which include the consonantal and vocalic mutations and which also involve deletions, insertions and mutations. For example, deverbal noun formation can be illustrated as follows:

(11)   Anti-faith

a.Output1:   [toŋa] ——————→ [omotoŋi] (*a* through anti-faith becomes (*i*)

                            'Create'   'creator'

                            Antifaith

b. Output 2:   [toŋa] ——————→   [egetonŋwa] (through anti-faith, *w* is inserted)

                            'Create'   'creature'

The bases and derivatives are different phonetically. The above example (11a) shows that formation of the noun results in final vowel alternation from *[a]* to *[i]* and this satisfies the TAF constraint ¬OOIDENT [high]. The output satisfies the TAF constraint ¬OODEP [glide] that requires obligatory insertion of a linguistic feature while it violates the OODEP [glide] faithfulness constraint which prohibits feature insertion. The researcher explains the phonological processes involved in noun formation by formulating anti - faithfulness constraints established in OT.

Morphology is construed as being antifaithful in nature in TAF theory. Its function is to create contrast between lexical categories when words are formed especially through affixation. The anti-faithfulness constraints require the output to be phonologically distinct from the input by violating the related faithfulness constraints. In Optimality Theory, the markedness and faithfulness constraints conflict so that when markedness constraints outrank faithfulness, the output (derivative) is unfaithful to the input (base)

and when faithfulness constraints outrank the markedness constraints, the output is faithful to the input. In a grammar there are morphological constraints which are also anti-faithful in nature which trigger various phonological alternations. There arise phonological mutations, deletions and insertions once the anti-faithfulness constraint outranks the faithfulness constraint. According to Alderete (1999), it is only the dominant affixes which can induce a phonetic contrast between the base-derivative pairs by triggering deletion, insertion or mutation in the base.

2.2.4. Transderivational Anti- Faithfulness constraints

Alderete (2001:211-213) proposed anti- faithfulness constraint families in the TAF theory as negations of the faithfulness constraints. These constraints are presented below:

¬ OOMAXIMALITY constraint family:

Requires obligatory deletion of at least one x in the s1 $\longrightarrow$ s2 mapping.

¬ OODEPENDENCY constraint family:

Requires obligatory insertion of x in S_2 not present inS_1.

¬ OOIDENTITY (F) constraint family:

Requires that at least one pair of correspondent segments must differ in feature F.

In (11) b above, a glide is inserted as follows:

[to:ŋa] $\longrightarrow$ [egeto:ŋwa]

Anti- faith

This satisfies the constraint:

¬OODEP [glide] requiring insertion of [w] before the final vowel.

The above constraint families with their sub-constraints are used to explain base mutations and modifications of the kind in nominal pluralization and derivation.

2.3.   Literature Review

This section presents previous studies related to the current study which are mainly studies concerning morphophonologically conditioned phonology. Morphologically conditioned phonological alternations are changes that occur between morphemes of the base. Yun (2003) defines it as a case where mophophonology turns into morphology first and most quickly where phonological conditioning is weakest. Previous studies on Bantu languages' morphophonemics indicate that morphology has an influence on phonology, though much of it is on tonal changes.

The Zulu nominal stem and prefix undergo tonal changes. According to Rycroft (1963:63), certain nouns with 'full' prefixes change their tonal pattern which may affect the prefix and in some cases the stem, when they occur in close junction with a preceding word which ends with a 'low' consonant. Rycroft likens the foregoing changes to those that occur when nouns are inflected. The changes occur in stable or copulative inflection and with pre-prefixal elements na- /ne-/ no- , concord Noun Classes 8 or za- ze- zo- lo- . Rycroft (ibid: 65) explains that nouns that undergo these changes belong to three categories. First, they are those with disyllabic H L prefix except izi- in Noun Classes 8 and 10. Second, all nouns in which the prefix has high monosyllabic tone these nouns belong to Noun Classes 9 and 10.

Another study on tonal changes in prefixation by Sharman (1963) shows that the phonological structure of the stem in Bemba greatly influences the phonological representation of the pre-prefix and noun class marker. According to Sharman (1963), the phonetic shape of the nominal is VCV type and this shape is a result of the initial vowel plus noun class marker. The stem induces tonal changes on the noun class marker and the initial vowel. The initial vowel always constitutes structurally high monophone and the class marker structurally low tone. High monophone, low structural tone before a stem with high tone gives high phonological tone. Although tone is not within the scope of the present study, these studies indicate a possibility that Bantu affixes induce phonological changes in the stem and vice versa. So the present study narrows its scope to look at segmental changes.

Kambou (2003) found out that the verbo-nominal roots in Lobire show morphophonological operations in suffixation. Lobire is an African language spoken in Southwest Burkina Faso and Northwest Ghana in West Africa. Kambou is a native speaker of the language. He collected nouns and verbs which he observed with regard to the deletion of the suffix vowel and sought to propose a rule of such behavior. He recorded the data he had collected while on a field trip and transcribed himself and cross-checked with the informant who was a native speaker. 300 nouns and verbs were analyzed within Autosegmental theory where six groups of verbo-nominal roots were established based on their syllable structure. Lobire roots are verbo-nominal in nature such that either a verbal suffix or a nominal suffix can be adjoined to them to obtain a

verb and a noun respectively. The roots refer to the concept they represent in terms of meaning. The results of the study showed that the suffix consonant undergoes consonant harmony to give the different allophones. Also, contour tones in verbs and nouns are as a result of the adjunction of CV suffix morphemes with polar tones and deletion of the suffix vowel. Kambou's study is relevant to the present study not because he analyzed suffix changes, but because of the methodology used in a morphophonological study. The methodology is also used in this study to collect Ekegusii nominals which display phonological changes. The methodology is less costly and it enables the researcher to collect authentic data due to the direct contact that is between the researcher and informants as well as data.

In another study, Yun (2003) explains that vowel elision is a function of suffixation in Aymara. A suffix is lexically specified to delete the final vowel of the base. His definition coincides with that of Inkelas (1998) study of dominance where affixes induce phonological alternations to the bases they are attached. Dominant suffixes trigger the deletion of a vowel which comes before it in Aymara. Yun's study is relevant in this study that analyzes sound changes in Ekegusii nominal derivation and pluralization. His definition is used to analyze the effects of prefixation in Ekegusii in order to establish a relationship existing between morphology and phonology.

Inkelas, Orgun and Zoll (1997) analyzed morphologically conditioned phonology in reduplication using Mother Doubling Theory. They recorded cases of assimilation,

dissimilation, deletion, insertion, lenition, coda sonorization, and neutralization in input-output modifications. In their study, reduplicative phonology is not different from non-reduplicative phonology. Therefore, their findings indicate that morphologically conditioned phonology can apply in other word formation processes. This study investigates morphophonology of Ekegusii nominal derivation and pluralization using TAF theory.

Frazier (2006) analyzed accent alternations in Proto-Indo-European Athematic nouns using the Anti-faithfulness constraints provided in Transderivational Anti- faithfulness theory. She assessed anti-faithfulness in inflectional paradigms in Proto- Indo- European Athematic nouns. In her findings, she explains that each accent pattern is distinguished by either alternating stress or vowel quality between weak forms and strong forms. She presents an argument that surface stress is as a result of the interplay of the lexical accent specifications of the morphemes that comprise the stem. The strong endings are classified as dominant and are responsible for ablaut alternations. Frazier analyzed anti- faithfulness in inflectional paradigms, but in the current study the researcher applies the Transderivational Anti- faithfulness theory to show that just like inflectional morphology, stem modifications can be analyzed using TAF theory in derivational morphology.

Similarly, Park (1995) assessed Swahili syllabic requirements of nouns and reveals that Swahili nouns require a minimum of two syllables. Nouns in Class 11 drop the [*u*] in formation of plurals as in the singular *ukuta* and the plural *kuta*. Others like *[uta] – Nyuta* N is added to retain disyllabicity in the plural. The results imply that affixation determines Swahili's phonological changes that occur in the struggle to retain disyllabicity. This phenomenon occurs in cases where stems are too small so affixes are added to meet the disyllabic minimality requirement in the language.

Meeussen (1967) analyzed Bantu grammatical systems. Among them is morphophonology. In his analyses of morphophonology, the vowel *[i]* appear as*[e]* after either *[e]* or *[o]* in verbal and nominal stems. For example *[–tend-id-]* becomes *[–tend-ed-]* 'say to' and *[–dondid-]* becomes *[-donded-]* 'seek for.' On the other hand, *[u]* appears as *[o]* after *[o]*. Further Meeussen postulates that the rule applies even in cases where *[e]* or *[o]* is followed by a sequence of [*i*]or [*u*] which is not interrupted by *[i, a, u]*.' this is a general observation that might apply to some languages but not all. Meeussen recommends a proto-Bantu rule (Meinhof's rule) for consonant mophophonemes. In Meinhof's rule, the consonant sequence consisting of a nasal and voiced oral in a word is manifested as a double or long nasal if the following syllable has a nasal. For example, *[n-bon-]* becomes *[mmon-]* 'I see' and *[n-ndim]-* becomes *[nnim]* 'I cultivate'. However, Meeussen did not explain the applicability of such postulations if they occur due to a morphological process or not.

Okombo (1982) explains how the final consonants of the stem show contrast in voice between the singular and plural. The final consonant in plural is voiced while the singular is voiceless and vice versa. Alderete (2001) describes the Luo voicing polarity as an anti-faithfulness instance since the phonetic shapes of the base and derivative vary. For instance, the base *ba*t has a voiceless final obstruent *[t]* while the plural a voiced *[d]* as in *bede*. This difference is induced by the dominance effect of the plural suffix *[e]*. Although Okombo analyzes pluralization, the researcher finds the study relevant to this study. It enabled the researcher to analyze Ekegusii consonant mutations in Ekegusii nominal derivation and pluralization by using the approach of output- output correspondence relation.

Innes (1971:45) also explains that Mende is characterized by consonant mutations. Mutation comes about due to the contact between word forms and morphemes. He states that 'most nouns, except those with initial *h,m,n ny* or *ŋ* are within the consonant mutation system, but there are some which are not.' Nouns other than those with initial *h,m,n,ny, ŋ* outside the consonant mutation are loanwords taken into Mende from Krio and English, for example, *pani 'pan' Buku, 'book',* personal and geographical names, numerals and words denoting kinship terms and friends. Consonant mutation occurs when the word is second in a compound or genitival phrase and the unmutated form occurs in all other contexts. Some other nouns have a mutated initial consonant when they occur in neither a compound word nor a genitival phrase.

According to Elwell (2005) nouns are derived from verbs through prefixation in Ekegusii. However, he doesn't explain mophophonological processes that are involved in the nominalization process. Since there is no relevant information on the study, the researcher sought to explain morphononology in derivation and pluralization in Ekegusii.

2.4   Summary

This chapter has presented the theoretical framework and literature review. The arguments presented in the first part of this chapter show that Markedness and Faithfulness constraints given in Optimality Theory determine the surface realization of an input. Their conflict may either give rise to a faithful or unfaithful linguistic structure of an input. Transderivational Anti-Faithfulness are additional constraints introduced into OT and they are morphological in nature. TAF constraints trigger phonological alternations on the base when morphemes are combined. Previous studies discussed in section 2.3 reveal that Bantu languages exhibit rich morphophonology. Morphophonological changes are experienced in word formation and they include elision, mutations, tonal changes and vowel lengthening. It is claimed that morphologically conditioned phonology is a result of the existence of dominant prefixes. However, to the best of my knowledge morphophonemics is not limited to the morphophonological processes explained in 2.3 and this study gives a description of Ekegusii morphophonemics to add knowledge to existing literature.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1. Introduction

This chapter discusses the research design and data collection methodology that were used in the study. Section 3.2 presents the research design the study employed. Section 3.3 discusses the research methodology. It gives the sample population that was used in data collection, describes how data was collected and explains how data were organized and discussed.

3.2. Research Design

This study is descriptive in nature since the researcher aimed at describing the phonetic characteristics of derived and pluralized nouns in relation to their bases. The researcher generated a list of Ekegusii words and identified two adult Rogooro dialect speakers in Moi University who verified the data as acceptable. Two male informants, Henry Omwenga and Patrick Osero, were selected to verify the data that the researcher, who also speaks the Rogooro dialect, had generated. This was done in order to avoid wastage of time in verifying the same data using several informants. The researcher sought clarifications from informants in Moi University where the research was conducted to cut on the cost of travelling to areas settled by the Gusii people. This was important because much time and resources were saved in the process of data collection. The researcher used adult informants who corrected spellings and pronunciations of Ekegusii nouns that

were contentious since they have good mastery of Ekegusii. Sample data were obtained from Ekegusii noun classes through purposive sampling which were later analyzed and coded into semantic classes. Each group of nouns was dealt with in isolation to identify the unique phonetic changes each nominal class displays. Then, the phonetic changes in derivation and number inflection of Ekegusii nouns were explained using Transderivational Anti-Faithfulness Theory.

3.3. Methodology

3.3.1. Sample Population

The researcher targeted adult and native speakers of Ekegusii in Moi University to verify and correct pronunciations and spellings of data. Two adult males aged 46 and 56 years were selected by purposive sampling to verify data. The researcher targeted speakers of Rogooro dialect living in Moi University since the data that was used in this study was selected from the dialect. The respondents were easily accessible to the researcher. The researcher approached them and asked them to be part of the study by booking an appointment with them. The researcher used the approach since it was convenient and time saving.

3.3.2. Data Collection

The researcher generated nouns and later asked informants to verify these nouns. They were given a list of nouns which they read out aloud one by one. As they read the list, the researcher recorded the nouns on paper. After the whole process, both the researcher and respondents checked the final copy of the list and agreed that those were the correct

nouns as used in the Rogooro dialect. Nouns were obtained from the researcher's knowledge of Ekegusii and others were obtained from Cammenga (2002), Whiteley (1960, 1965) to make a list of 50 derived and 32 pluralized nominals. The researcher selected between two to seven nouns from each noun class so that the selected nouns could act as representative data for each noun class. The researcher recorded the nominals on paper and read them to the two respondents who confirmed that they were acceptable words in Ekegusii by proposing the accurate pronunciations that were contentious especially vowel length in some bases. These nominals were then ready for transcription and analysis.

3.3.3. Data Analysis and Interpretation

There were two sets of data that were collected: the derived and plural nouns. The derived nouns were analyzed into the deverbative, adjectival, gerundive, abstract and diminutive types. The plural nouns were classified and analyzed based on the semantic classification of Ekegusii Noun Class system. Further, both derived and plural nominals were transcribed morphemically to distinguish the noun class prefixes from the bases then, phonetically to identify the segmental mutations, deletions and insertions the noun class prefixes induce. These morphophonemic alternations are explained using Transderivational Anti-Faithfulness theory.

3.4 Summary

This chapter explains the research design and methodology used in the study. This study is mainly descriptive and it gives descriptions for phonological and morphological

phenomena observed in nominal derivation and pluralization. A small sample population was preferred to avoid time wastage and the researcher generated data which was later verified by respondents. The chapter outlines how data was analyzed by making use of Ekegusii noun class groupings and interpreted using principles of Optimality Theory.

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION

4.1.   Introduction

This chapter presents and discusses Ekegusii nominal derivation and number inflection. Data is discussed based on the objectives of this study. The chapter begins by presenting and discussing the types of derived nouns in section 4.2, followed by a discussion of plural formation in section 4.3. Then, morphohonological changes are explained and constraints formulated using Transderivational Anti-faithfulness theory (Alderete (2001) in 4.4.

4.2.   Nominal derivation in Ekegusii

Derivation of nouns in Ekegusii is divided into: the class changing and class maintaining nominal derivation. The different types of nouns that fall under each class are listed and discussed in order to identify the phonetic contrasts each base-derivative pair displays. The two types are presented and discussed in sections 4.2.1 and 4.2.2 below:

4.2.1. Class Changing Nominal Derivation

Ekegusii nominals are formed from bases of adjectives and verbs. The derived nouns were classified into four major categories, deverbatives, gerundive, deadjectival and diminutive nouns as presented in the sections that follow.

4.2.1.1.   Deverbative nouns

These nouns were identified in Noun Classes 1, 3, 9 and 14 of Ekegusii Noun Class system. The data were further divided and grouped into classes depending on the characteristics the nouns displayed. These groups are discussed under the sub-topics that follow.

4.2.1.1.1.   Agentive nouns

Agentive nouns are formed when the Noun Classes 1 and 2 prefix to the base of a verb and the change of a final vowel as shown in the following examples:

Base	gloss	noun	gloss
(12) a. -kung-a	'protect'	o-mwe-kung-i	'protector'
b. -rug-a	'cook'	o-mo-rug-i	'*cooker'
c. -anch-a	'love'	o-mwa-nch-i	'lover'
d.-eesik-a	'respect'	o-mw-esik-i	'respecter'
e.-gor-a	'buy'	o-mo-gor-i	'buyer'
f.-gamb-a	'rule'	o-mo-gamb-i	'ruler'
g.-orok-i-a	'teach'	o-mwo-rok-i-a	'teacher'

The above data indicate that the class of the word changes from the verb to a noun. The change is characterized by the change of the final vowel. The final vowel *[a]* denotes most imperative verbs in Ekegusii such that when it changes to *[i]* the class shifts and the resulting word is a noun. Agentive nouns denote the performer of an action. Thus the final vowel /i/ marks nouns and it refers back to the performers of a given action meant by the verb from which the noun is derived. The word *omwekungi* in the language refers

to a woman who takes up the responsibility of maintaining and building her self-esteem in society. Additionally, *omorugi* is a noun given to a person whose profession is to cook or a wife who should cook for her husband. Similarly, *omwanchi* refers to a person who loves another person. The final vowel changes when a derivational prefix is attached to the imperative verb. The change is predictable since most agentive nouns have the final vowel *[i]*. Example (12g) above shows that the final vowel is [a] retained in the derived noun which shows that there are a few exceptions where the final vowel of a derived nouns remains the same as that of the base. However, this study seeks to explain irregular phonetic changes within the stem not regular changes such as those of final vowels which seem obvious and predictable for each type of derived nouns. Thus, regular phonetic changes are not within the scope of this study.

4.2.1.1.2. Personal nouns

These nouns were identified in Noun Classes 1 and 2 and they take the prefixes *[o-mo-]* in the singular and *[a-ba-]* in plural. Just like agentive nominals, they are derived by the attachment of the noun class prefix to the imperative verbal base.

Base	gloss	derivative	gloss
(13) a. -eesik-a	'respect'	o-mo-isek-e	'girl'
b. -kung-a	'protect'	o-mo-kung-u	'woman'
c. -sib-a	'imprison'	o-mo-sibw-a	'prisoner'

The nouns in example (13a-c) are nouns assigned to people. In their derivation, the final vowel may change phonetically from *[a]* to *[e]* or *[u]* or not. Unlike in agentive nouns,

this change is unpredictable. Similarly, internal phonetic changes in the base are not obvious, for instance, in Example (13a) there is change of the long, low mid front vowel *[ɛ:]*, to a high, front vowel, *[i]* and *[i]* to *[e]* in derivation of *omoiseke* from *[omo+eesika]*. The final vowel changes are triggered by the derivational prefix.

4.2.1.1.3. Impersonal deverbatives

These nouns were observed in Noun Classes 3, 9 and 14. The nouns that were collected denote events, actions and abstract ideas. First, deverbatives denoting events are derived nouns in Noun Class 3 formed by the attachment of the prefix *[o-mo-]* to the stem of the verb as shown in the following examples:

Base	**gloss**	**noun**	**gloss**
(14) a. -chaak-a	'begin'	o-mo-chakan-o	'beginning'
b. -roober-i-a	'plan'	o-mo-rober-i-o	'plan'

Data indicate that nouns derived from verbs in Class 3 name events and plans for the future. The term *omochakano* refers to the beginning which in the Biblical sense refers back to the period when the world was created. The word *omoroberio* refers to a plan of events intended to happen in the future. It is evident from the above data that the long vowels in the stem shorten while the final vowel *[a]* in the stem changes to *[o]* in the derivation of impersonal nouns in example (14) above.

Second, deverbatives denoting action were identified in Noun Class 9a and 10a and they are formed by combining the Class Prefix, [e-n-], and the verb stem. The data below were sampled from the list generated during the study.

Base	gloss	noun	gloss
(15) a.-busur-a	'sow'	e-m-busur-o	'seed'
b.-sook-a	'get out'	e-n-sook-o	'getting out'
c.-gaamb-a	'talk'	e-n-gaamb-o	'a talk'

The nouns in the examples above are assigned to things depending on the action conveyed by the verb from which the noun is derived. The term *ensooko* given to the small river (spring) conveys some characteristic of the verb i.e. oozing of water from the ground. Nouns in this Class denote rivers, seeds, foods and other social cultural objects. Derivation of these nouns is characterized by post-nasal hardening and changing the final vowel *[a]* to *[o]* as shown in (15) above.

Third, Noun Class 14 prefix, [o-bo-], is attached to the verbal stem to form deverbal nouns that denote abstract ideas. The data are presented in 16 below:

Base	gloss	noun	gloss
(16) a. -rend-a	'watch'	o-bo-rend-i	'protection'
b. -toong-a	'create'	o-bo-toong-i	'creation'
c. -anch-a	'love'	o-bw-anchan-i	'love'
d. -ra-a	'lead'	o-bo-ra-i	'leadership'

The above data indicate that the nouns in Class 14 refer to concepts which we conceive abstractly. We cannot touch, feel, smell, see, taste or experience concepts such as protection, creation, love and leadership but we only understand them without any physical reality. The derived abstract nouns end with the high final vowel *[i]* which is dissimilar to *[a]* in the base. This implies that when a verb becomes a noun through prefixation, the final vowel has to change to signify the class shift.

4.2.1.2.   Gerundive nouns

Data indicated that gerundive constructions in Ekegusii are very many since nearly every verb can form a gerund if Noun Class 15 prefixes are attached to it. They are formed from the imperative form of the verb when the prefixes *[o-ko-]* and *[o-go-]* are combined with the verb. Data are presented below:

	Base	**gloss**	**noun**	**gloss**
(17) a.	-iigw-a	'obey'	o-ko-igwer-a	'obeying'
b.	-teer-a	'sing'	o-go-teer-a	'singing'
c.	-rem-a	'dig'	o-ko-rem-a	'digging'
d.	-gend-a	'go'	o-ko-gend-a	'going'
e.	–sib-a	'tie'	o-go-sib-a	'tying'

The final vowels in all the gerunds above are the same as those of the imperative verbs. However, the prefix has two morpheme variants *[o-ko-]* and *[o-go-]*. Dahl's law is operative in Ekegusii where the voiceless consonant *[k]* of the prefix marker changes to *[g]* when it comes before word stems with voiceless consonants through dissimilation.

The prefixes *[o-ko-]* and *[o-go-]* are the same as the English suffix *[–ing]* which indicate that a word is a gerund. Baker (2005:5) noted that the gerundive display a mixture of nominal and verbal properties that make us to say that the gerunds are nominal and verbal simultaneously. The words formed in Ekegusii with this prefix function both as nouns and verbs. When they function as verbs they express the progressive aspect in sentences and they are preceded or modified by an adverb. So the gerund is a derived noun since attachment of the prefix results in shifting the grammatical category of the imperative verb to Class 15 of Ekegusii noun class system. In example (18) that follows, adjective acts as a complement of the noun/gerund and it functions as the subject in the sentence.

(18) Ogoteera kwaye nokuya 'Her/his singing is good'

The gerund *ogoteera* 'singing' is preceded by the possessive adjective *kwaye* 'her/his' that acts as a determiner and which comes after the noun in Ekegusii. In the above example, the gerund functions as the subject of the sentence and is post-modified by the possessive adjective. Therefore in Ekegusii, the gerund functions as the noun.

Nouns formed from verb stems in derivational morphology of Ekegusii account for the largest group of nouns in the language. This is a characterization in the data that has already been discussed above. Most of these nouns are distributed in Classes 1 and 2, 3 and 4, 9 and10 and 14 and 15. Nouns derived from verb stems retain semantic and some phonetic characteristics of the verb from which they are derived. Thus these nouns denote events, plans, actions and agentive roles.

4.2.1.3. Diminutives

Nouns that were collected from Noun Class 12 are referred to as diminutives which bear

the diminutive prefix *[a-ka-]*. They are derived through the combination of Noun Class

12 prefix *a-ka-* and verb bases as shown in the data below:

Verb	gloss	noun	gloss
(19) a. -ban-a	'prophesy'	a-ka-ban-i	'small prophet'
b. -ib-a	'steal'	a-ka-ib-i	'small thief'
c. -riik-a	'write'	a-ka-riik-i	'small writer'

Data indicate that the derived nouns in this Noun Class represent small individuals, for

instance, in *akabani, [a-ka-]* means 'small' and *[-bani]* meaning 'prophet'. The name is

used to show that the person or object referred to is small metaphorically. The final vowel

changes from a low central vowel *[a]* to a high front vowel *[i]* in derivation of such

diminutives.

Another group of diminutives is derived by the prefixation of Noun Class 7 prefix to the

verb base. The following are the sample data:

Base		derivative	gloss
(20) a.-raand-a	'spread'	e-ke-raand-i	'guard'
b.-gaamb-a	'rule'	e-ke-gaamber-o	'rulling throne'
c.-saang-a	'share'	e-ge-saangi-o	'communal work'

These nouns are classified under diminutives since the bear the prefix e-ke- thogh in the

real sense they do not refer to things as being small. The diminutive nouns in Noun Class

7 exhibit long vowels in their bases. The long vowels precede nasal consonants while final vowel *[a]* alternates with *[i]* and *[o]* as shown in 20a-c above.

4.2.1.4. Deadjectival nouns

The study identified and sampled nominals derived from adjective stems from Noun Classes 1 and 14. They are divided into attributive and abstract nominal types and they are presented below:

4.2.1.3.1.   Attributive nouns

Base	gloss	noun	gloss
(21) a. -tambe	'long'	o-mo-tambe	'tall person'
b. -gotu	'old'	o-mo-gotu	'old person'
c. -mwamu	'black'	o-mo-mwamu	'black person/thing'

The data presented in (21 a-c) above indicate that when Noun Class 1 prefix, [o-mo-] is attached to the adjective base attributive nouns are formed. These nouns are qualitative in nature since they qualify nouns and retain some characteristics of the adjectives. They form nouns which have some attributes describing the noun. For instance, the noun *omotambe* refers to a tall person in the context of Noun Class 1. The derived noun 'tall person' derives from the base adjective while the prefix *[omo-]* qualifies it to be in Noun Class 1 in Ekegusii.

4.2.1.3.2.   Abstract nouns

Noun Class 14 data in Ekegusii noun class system consist of deadjectival nouns denoting

abstract ideas. Their derivation is through prefixing *[o-bo-]* to the adjective base.

Base	gloss	noun	gloss
(22) a. -kendu	'cold'	o-bo-kendu	'coldness'
b. -riri	'foolish'	o-bo-riri	'foolishness'
c. -be	'bad'	o-bo-be	'badness'
d. -kong'u	'hard'	o-bo-kong'u	'hardship'

The nominal derivatives denote properties which are intangible but we can conceptualize

them. Formation of these nouns does not display any phonetic alternations on the base of

the derivatives.

4.2.2. Class maintaining nominal derivation

Nominal derivation of Ekegusii is mainly prefixal. Data that were collected indicated that

some nouns are derived from bases of nouns. The researcher was able to identify two

kinds of noun-noun derivation. The base and derivative pairs display similar phonetic

characteristics while the prefixes change to indicate modification of the meaning of the

base noun. The two types are presented in 4.2.2.1 and 4.2.2.2 that follow.

4.2.2.1.   Abstract nouns

These nouns shift from Noun Class 1 to Class 14. The derived nouns are different in meaning from their bases. So, the names in Noun Class 14 refer to things about which we do not have any physical reality unlike their bases. Some nouns are presented below:

Base	gloss	derivative	gloss
(23) a. o-mo-saacha	'man'	o-bo-saacha	'manhood'
b. o-mw-aana	'child'	o-bw-aana	'childhood'

The prefix *o-bo-* replaces Noun Class 1 prefix which is used in nouns that represent animate things which are tangible to form abstract nouns.

4.2.2.2.   Diminutive nouns

The researcher observed that nouns shift their class membership to form diminutives. For example, nouns from Noun Classes 1 and 9 shift to Noun Class 7 when prefix of the class is attached to the base in formation of diminutive nouns presented below.

Base	gloss	noun	gloss
(24) a.o-mo-ib-i	'thief'	e-ke-ib-i	'small thief'
b. e-mor-i	'calf'	e-ke-mor-i	'small calf'

The meaning of the base is modified by the prefix *[e-ke-]* to express smallness of the thief in (24a) above. A speaker may use the diminutive noun to mean that the thief is either young or nonspecialized. The two kinds of thieves, small thief and big thief, are differentiated based on how much they can steal. The base and derivative have some semantic relationship.

4.3.   Pluralization in Ekegusii

Nouns which form plurals were identified and selected for analysis. Data that was collected shows that the Noun Classes which form plurals by the combination of the plural prefix with a nominal base include Noun Classes 1/ 2, 3/ 4, 5/ 6, 7/ 8, 9/ 10, 9a/ 10a, 11/10a, 12/14 and 12/8 whereas Noun Classes 14, 15, 16 and 21 do not have plural concepts. Data on nominal pluralization is divided into eight sections: 4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5, 4.3.6, 4.3.7 and 4.3.8 to show some of the phonetic changes displayed in pluralization.   The phonological processes are then discussed and finally morphophonemic constraints are formulated to explain the changes. These nouns are presented and discussed under categories provided by Ekegusii Noun Class system.

4.3.1.   Personal nouns

The prefixes *[o-mo-]* and *[a-ba-]* are characteristic of this class. Nouns in singular and plural forms are presented in order to show the changes involved in the shift from singular to plural.

Singular		Plural		Gloss
(25) a. o-mo-tureeti	[omoturɛːti]	a-ba-tureeti	[aßaturɛːti]	'chiefs'
b. o-mw-ana	[omwana]	aba-ana	[aβaːna]	'children'
c. o-mo-geend-i	[omogɛːndi]	a-ba-geendi	[aβaγɛːndi]	'travellers'

This Noun Class constitutes names of humans and so they are referred to as personal nouns where the singular takes the prefix o-mo- while the plural takes a-ba-. One of the striking phonetic characteristic of the nouns in (25 a-c) above is vowel length in singular

and plural. It is a unique attribute for this Noun Class and such a phonetic characteristic is discussed in section 4.4.

4.3.2. Cultural objects/ parts of the body

The nouns in class 3/4 are marked by the prefix *[o-mo-]* in singular and *[e-me-]* in plural. Some nouns sampled from this class are presented below:

Singular		**Plural**		**Gloss**
(26) a. o-mo-gondo	[omoɣondo]	e-me-gondo	[emeɣondo]	'farm'
b. o-mo-twe	[omotwe]	e-me-twe	[emetwe]	'heads'
c. o-mo-te	[omote]	e-me-te	[emete]	'trees'

Noun Class 3 and 4 denote a variety of things though it is hoped that the data selected for this study will be representative. Based on the above data, the nouns denote trees and different types of trees, parts of the body and those things that the Gusii people do to earn a livelihood as well as those they do as part of their culture. Therefore, the singular and plural prefixes and their semantic characteristics naturally qualify the nouns into this class. There is phonetic regularity in both the singular and plural forms since attachment of the plural prefix to the stem does not show any phonetic modification both on the stem and the prefix.

4.3.3. Man-made objects/ parts of the body/augmentatives

Noun Class 5/ 6 represented by the singular prefix *[e-ri-]* and plural prefix *[a-ma-]* constitute nouns that denote tools, parts of the body and augmentative names of things.

Singular	**Plural**		**Gloss**		
(27)a. rii-timo	[ri:timo]	a-ma-timo	[amatimo]	'spears'
b. e-ri-ino	[eri:no]	a-ma-ino	[amaino]	'many teeth'
c. rii-saacha	[ri:saaca]	a-ma-saacha	[amasa:ca]	'huge men'

The term *riitimo* refers to a spear used to fight an enemy or dangerous animals. *Amaino* refers to many teeth and *amasaacha* is the augmentative of *omosaacha* 'man'. The augmentative form is used with some metaphorical meaning especially when the person referred to is not morally upright. So its usage is accompanied by some contempt and hatred. It should be noted that the nouns in this nominal class can either take a pre-prefix or not depending on the level of specificity that the speaker conveys and the knowledge the hearer has about the term. The pre-prefix is eliminated in cases where both the hearer and the listener have common knowledge about the object as illustrated in Example (27) a) and c) above.

4.3.4   Cultural objects

The nouns under this category are classified in Noun Classes 7 and 8. Nouns in singular have the prefix *[e-ke-]* while those in the plural are marked with *[e-bi-]*. Sample data is presented below.

Singular		**Plural**		**Gloss**
(28) a.e-ke-buse	[ekeßuse]	e-bi-buse	[eßißuse]	'clay'
b. e-ke-rogo	[ekeroγo]	e-bi-rogo	[eßiroγo]	'chairs'

The names in this class denote various objects as shown in (28a-b) above. The Noun Class prefix is used to refer to actual names of things as used in the language without expressing smallness for example (28a-b) above. There were no phonetic alternations that were noted in this class.

4.3.5.   Animal names/ sociocultural objects

Noun Class 9/ 10 nouns that were collected had the singular and plural concepts denoted by the prefix *[e-]* in singular and *[ci-]* in plural. These nouns are presented in Example (29) below.

Singular		**Plural**		**Gloss**
(29) a. e-sese	[esese]	chi-sese	[cisese]	'dogs'
b. e-tuba	[etuβa]	chituba	[cituβa]	'files'

Data indicated that most words in this class do not display phonetic changes in formation of plural nouns. Noun Class 9 and 10 consists of names animals and tools as shown by examples (29a-b) above.

4.3.6. Animal names/ food stuffs

These nouns are classified in Noun Class 9a and 10a and they refer to animals and foodstuffs. They are characterized by the prefix *[e-n-]* in the singular and *[ci- n-]* prefix in plural.

	Singular		Plural		Gloss
(30) a.	e-n-gote	[eŋgɔte]	chi-n-gote	[ciŋgɔte]	'bunch of bananas'
b.	e-m-bori	[embori]	chi-m-bori	[cimbori]	'goats'
c.	e-ng'-ondi	[eŋondi]	chi-ng'-ondi	[ciŋondi]	'many sheep'

Data indicate that these nouns are characterized by a nasal prefix marker in both the singular and plural. The nasal can be represented as either *[n]* or *[m]*. The nasal prefix and the initial consonant of the base are articulated as a single prenasalized consonant since the nasal of the prefix assimilates to the point of articulation of the consonant that follows it. The nasal prefix triggers hardening of the initial consonant of the base both in the singular and plural. For instance, the obstruents *[g]* and *[b]* in *[ng]* and *[mb]* in (30a-b) above are observed only when they are in form of prenasalized consonants or when preceded by the nasal prefix. They do not exist as independent consonant sounds in Ekegusii.

4.3.7. Sociocultural objects

Most nouns in this category are nouns that denote things that the Abagusii use in their daily life. Other nouns that denote cultural objects have been presented in Examples (28) and (29). Additional cultural nouns that are grouped in Noun Class 11 and 10a are

presented Example (31) so as to asses if the class prefix triggers phonological changes.

Sample data from Noun Class 11 and 10a nouns are presented below.

Singular		**Plural**		**Gloss**
(31) a. o-ro-gena	[oroɣena]	chi-n-gena	[ciŋgena]	'grinding stone'
b. o-ro-sa:na	[orosana]	chi-n-sa:na	[cinsa:na]	'forests'
c. o-ro-che	[oro:ce]	chi-n-dooche	[cindo:ce]	'rivers'

The sample data show that the nouns in this class denote natural things like forests, varieties of stones and rivers. The plural prefix [*ci-n*] takes the position of the singular prefix [*o-ro-*] where the nasal prefix merges with the initial consonant to form a prenasalized consonant.

4.3.8. Diminutives

Dimunitive nouns were identified in Noun Classes 12 and 8 and 12 and 14. First, Noun Class 12/8 nouns are formed by attaching the prefix *[a-ka-]* to the base while the plural prefix *[e-bi-]* replaces the singular prefix in pluralization. The following are some of the nouns in the class.

Singular		**Plural**		**Gloss**
(32) a. a-ga-saiga	[aɣasaiɣa]	e-bi-saiga	[eßisaiɣa]	' small boys' huts'
b. a-ka-riikwa	[akari:kwa]	e-bi-riikwa	[eßiri:kwa]	'workers'

Nouns in this category refer to things in relation to their size. The speaker's attitude matters a lot when talking about that person or thing. The diminutive plural prefix means many small things/ people. The referent *ebiriikwa,* as commonly used to refer to workers

in tea estates and privately owned farms, is derogatory since the workers are assigned low economic status as compared to the use of the term *omoriikwa* 'worker' which is respectable. So, anything referred to using nouns in this noun class is demeaned or abused.

Second, Noun Class 12 and 14 diminutives are formed when the singular prefix [*a-ka-*] is attached to a base and plurals are formed when the prefix *[o-bo-]* combines with a base. This Noun Class constitutes the following nouns:

Singular		**Plural**		**Gloss**
(33) a. a-ka-mbeba	[akambeßa]	o-bo-mbeba	[oßombeßa]	'small rats'
b. a-ga-ita	[aɣaita]	o-bo-ita	[oßoita]	'small gates'

Noun Class 12 nouns' bases combine with Noun Class 14 prefix to form plurals. Things are referred to non-pejoratively. Jurafsky (1996) observes that the aspect of meaning in diminutives in world languages arises from their origin in words meaning 'child' and the meaning small represents an extension of the meaning child or young one of high animals. The data above represent nouns with the meaning small which is used when referring to a thing using the prefix [a-ka-] / [o-bo-]. This implies that there are bigger things than the one talked about. This is evident in Example (33a) above where talking of *obombeba* refers to many young ones of rats.

The sampled data reflect that number in nouns is distinguished in Ekegusii basically by use of the singular and plural prefixes. Number, therefore, is marked on the noun though

there are nouns which are not morphologically marked for number both in the singular and plural. Nouns with plural concepts have been presented in order to show the phonetic changes that accompany formation of plural nouns. The researcher gives data further attention by describing the phonetic changes, processes and constraints involved in formation of plural nouns in the following section.

4.4. Morphophonological operations and constraints in Ekegusii noun formation

Derived and pluralized nouns are discussed further in this section. Formation of nouns is associated with a number of both vowel and consonant changes which shall be explained in this section. General Optimality Theories' constraints, Transderivational Anti-faithfulness theory's (TAF) principles and constraints (Alderete 2001) are used to explain both vowel and consonant alternations. TAF constraints are negations of faithfulness constraints (McCarthy & Prince 1995) and TCT (Benua 1997). The following is the overview of these constraints.

The researcher uses markedness and faithfulness constraints (McCarthy &Prince 1993, 1995) to explain data. Markedness constraints impose requirements on the structure wellformedness of the output. The markedness constraints used in this study include: ONSET, NOCODA, NLV and *VV. ONSET requires that syllables must have onsets, NOCODA requires that syllables must be open, NLV prohibits long vowels and *VV prohibits vowel sequences. Faithfulness constraints explain the relation between the input and output. The output form must match the input form in some specific way. Therefore

they prevent every input from being realized as a different form in the output. The faithfulness constraints are obeyed if the output candidate is identical in every regard to the input. Markedness and faithfulness constraints conflict in formation of the outputs so that the winning candidate violates the constraints. MAX_IO(X) fathfulness constraint prohibits linguistic feature deletion requiring that input segments must have output correspondents. DEP_IO (X) prohibits linguistic feature insertion and requires that output segments must have input correspondents. IDENT_IO (X) constraint prohibits linguistic feature mutation, PRENASAL prohibits prenasalization and PARSE- μ constraint requires that all moras are parsed into syllables.

Transderivational correspondence OO constraints (Benua 1997) are also used in explaining data. TCT constraints explain phonetic similarities between base and derivative outputs pairs. They were developed from the original faithfulness constraints which asses input- output pairs but TCT constraints asses output candidates. TCT constraints have a general constraint OO_FAITH- X which requires that every element of the derivative form has a correspondent in the base and vice versa. They borrow the symbols of faithfulness constraints i.e OO-MAX-X etc.

The current study employed TAF theory as its conceptual framework but because of its inadequacy in analyzing the data that was collected, the researcher used other OT constraints in interpreting the data. Anti-faithfulness constraints by Alderete (2001:211- 213) were used in identification of the alternating features. ¬ OOMAXIMALITY

constraint family requires obligatory deletion of at least one x in the s1 to s2 mapping, ¬ OODEPENDENCY constraint family requires obligatory insertion of x in S2 not present inS1 and ¬ OOIDENTITY (F) constraint family requires that at least one pair of correspondent segments must differ in feature F. TAF constraints can be simplified further as follows:

¬ OO- MAX – X: requires obligatory deletion of feature X

¬ OO- DEP- X: requires obligatory insertion of feature X

¬ OO- IDENT-X: requires obligatory mutation of feature X

The TAF constraints above are formulated in tableaux proposed in OT together with rankings in relation to how nominal derivation and pluralization in section 4.2 and 4.3 trigger the morphologically motivated phonology. The morphophonological changes that were observed are discussed in the sections that follow.

4.4.1. Vowel changes in nominal derivation and pluralization

These are changes of the phonetic qualities of vowels in derivation and pluralization of nouns in Ekegusii. The derivational prefixes induce vowel changes at the initial, medial and final positions of the base. Some of these changes are regular while others are irregular. In particular, vowel changes at the final position are regular except for a few cases where the changes depend on the type of derived nouns. The findings are presented in the following sub-topics.

4.4.1.1.   Vowel Deletion

Deletion is the complete loss of a sound from a word. Derivation of deverbal nouns indicated that some segments are eliminated from the base in the course of forming nouns.

| **Base** | **gloss** | **derivative** | **gloss** |

(34) -eegw-a [ɛːɣwa]   'be given'   e-ke-ɛɛgw-a   [ekɛːɣwa]   'gift'

Combination of the imperative verb with a noun class prefix in formation of a diminutive noun results in deletion of the vowel at the morpheme boundary.

Markedness constraint conflicts with faithfulness constraint in formation of the surface structure *ekeegwa*. The formation of the noun results in loss of a vowel and this cannot be explained by TAF constraints since it is a case of root dominance. TAF constraints specify and explain phonetic alternations the prefix triggers on the base. The researcher explains example (34) using faithfulness and markedness constraints proposed by McCarthy & Prince 1995 as shown in Table 5 below.

[ɛːɣwa] ⟶ [ekɛːɣwa]

Table 5: Vowel deletion in derivation

Base	Derivative /eke+ɛːɣua/	VV*	IO-MAX[upper]
[ɛːɣwa]	+i.ekɛːɣwa		*
	ii.ekeɛːɣwa	*!	

Diminutive formation is characterized by deletion of the upper-mid vowel as indicated by the above example in Table 5. The upper-mid vowel *[e]* occurring in a sequence with the lower-mid vowel *[ε:]* is deleted due to incompatibility of features between the stated vowels. [e] [+ATR] of the prefix meets with [ε] [-ATR] of the base and the base wins over the prefix which leads to deletion**.**

In OT, there is a markedness constraint prohibiting vowel sequences within a single phonological word *VV. This constraint is inviolable in that vowel deletion occurs to avoid its violation. Its satisfaction results in violation of the faithfulness IO-MAX [upper] constraint. As shown in Table 5 above, candidate (i) is optimal following the ranking *VV>>IO-MAX where the faithfulness constraint is violated at the expense of satisfying *VV, the constraint that is against vowel sequences.

Welmers (1974:39) observes that vowel elimination exists when two vowels occur in a sequence across a morpheme boundary. In addition to that, Hyman (2003) and Mtenje (2007) contend that vowel sequencing is prohibited in Bantu languages and this is a phenomenon that is presented in (34) above. Hyman (2003) explains that vowel, V1V2, in a sequence within or across a domain resort to elision where either V1 or V2 is deleted.

Similarly, Mtenje (2007) found out that vowel deletion occurs in Cindali, Cinyika and Citonga, Malawian Bantu languages, to avoid vowel sequences. Therefore, a conclusion can be drawn from the above data that Ekegusii does not allow sequencing of a short and

long vowels (V+V:) in words instead, it prefers long vowels or different vowels with compatible features in a sequence. When prefixes with short vowels are combined with stems with long vowels to form the diminutive noun, the form *[ekɛ:gwa]* 'gift' emerges instead of *[ekeɛ:gwa]* ' this be given' as shown above, the prefix vowel is elided due to the conflict of [+ATR] of [e] and [-ATR] of [ɛ] of the base since there is no compromise in between. One vowel is deleted so as to create a CV syllable structure commonly found in Ekegusii.

4.4.1.2.   Vowel alternation

Deverbal nouns in Noun Classes 3 and 14 display vowel quality alternation when the class prefixes are attached to the base. Long vowels at the medial position of the base shorten upon prefixation.

Base	**gloss**	**derivative**	**gloss**
(35) a.-chaak-a [ca:ka]	'begin'	o-mo-chakan-o [omocakano]	'beginning'
b.-roober-i-a [ro:ßeria]	'plan	o-mo-roberi-o [omoroberio]	'plan'

The pre-prefix and the Noun Class marker 3 *[o-mo-]* are combined with the imperative verb to form the impersonal devebative noun. The consequence of the switch from verb form to noun is vowel alternation at the medial and final positions as it is clear from the above data. The long, low central vowel *[a:] ~ [a]* at the medial position shortens in the formation of the impersonal deverbatives presented in (35a) above. The final vowel changes from *[a]* to *[o]* in derivation of the impersonal deverbatives. These vowel

changes occur when a class changing prefix is attached to the imperative verb to derive nouns.

The formations of personal nouns also result in vowel alternation. The interaction of Noun Class 1 prefix with the verb base to form deverbative nouns results in the following nouns:

Base	gloss	derivative		gloss
(36) a. -eesik-a [e:sika]	'respect'	o-mo-isek-e	[omoiseke]	'girl'
b.-kung-a [kuŋga]	'protect'	o-mo-kung-u	[omokuŋgu]	'woman'

Vowels at the medial and final positions alternate when the form changes from the imperative verb to a noun. In example (36a), the vowel *[e:]* ~ *[i]* medially since *[o]* and *[e:]* are both upper mid vowels but *[e]* is a front vowel and *[o]* is a back vowel. The upper mid front vowel *[e]* changes to a high front vowel *[i]* when it combines with an upper mid back vowel *[o]* through dissimilation to make articulation easier. The low, final vowel *[a]* changes to the upper mid vowel *[e]* due to the change from a verb to noun. Also, prefixation of *[–kung-a]* results in *omokungu* where the final low, back vowel *[a]* becomes a high back vowel *[u]*.

Transderivational Anti-Faithfulness constraints require an opposition between the base and the derivative. Derivation of deverbal nouns displayed vowel changes. The derivation of the personal noun below illustrates the changes.

Vowel alternation is explained in Table 6 below using OT, TCT and TAF constraints in order to show the output structure and how it is assessed using these approaches .TAF constraints are negations of faithfulness constraints in TCT and CT and that is why they cannot explain data without making reference to OT, TCT and CT. Constraint violation and satisfaction in derivation of the noun *omoiseke* 'girl' is presented in Table 6 below.

[ees**i**ka] ⟶ [omois**e**ke]

Table 6: Vowel alternation in nominal derivation

Base	Derivative /omo+e:sika/	*VV	¬OOdomIDENT[high]	OOdomIDENT[high]	OI-IDENT [high]
[eesika]	+ i.omoiseke			*	**
	ii.omoeesika	*	**!		

¬OOdom-IDENT [high] >> OOdom-IDENT [high]

The upper-mid vowel *[e]* in the base changes to the high vowel *[i]* when the derivational prefix is attached to it. The derivation prefix induces alternation of the stem medial vowel. Such an alternation satisfies the high ranked TAF constraint ¬OOdom- IDENT [high]. Thus the winner indicated by the symbol [+] is the most harmonic output. It least violates the high ranked TAF constraint, but it violates the faithfulness constraint OO dom-IDENT [high] which is ranked below ¬OOdom- IDENT [high].

According to McCarthy & Prince (1993, 1995), unfaithful mapping of the input to output is as a result of the interaction of markedness and faithfulness constraint. The output,

omoiseke, in Table 6 (i) above is unfaithful to the input *[omo- + e:sika].* The upper-mid back prefix vowel *[o]* is incompatible with the stem initial long, upper-mid front vowel *[e:]* so the stem vowel changes to a high front vowel *[i].* This leads to satisfaction of the markedness constraint *VV which prohibits vowel sequences which in turn enforces violation of the faithfulness constraint, OI-IDENT [vowel] that prohibits linguistic feature alternation.

4.4.1.3.   Vowel lengthening

Vowel lengthening is a phonological change of vowels experienced in pluralization of nouns in Ekegusii. Personal nouns in Noun Classes 1 and 2 display long vowels in their bases. The nouns presented in Example (37a-b) below are derived from the underlying imperative verb forms /ɣen.da/ and /ran.di/ which have a total of two syllables. The surface long vowels are short in the underlying representation before derivation.

	Singular	**Plural**		**Gloss**
(37) a.	/omo+ɣenda/	a-ba-geend-i	[aßaɣe:ndi]	'travellers'
b.	/omo+randi/	a-ba-raand-i	[aßara:ndi]	'preachers'

Vowel length is motivated by resyllabification of the nasal from coda to onset in order to form a prenasalized consonant. As presented in Example (37 a-b) above, long vowels precede nasal consonants. Clements (1986) explains that vowel lengthening occurs when a nasal is reassigned from coda to onset as prenasalization leaving behind an unoccupied space which is then filled by lengthening of a vocalic nucleus. After lengthening, the short vowel changes its form and it becomes a long vowel observed in the surface form of

nouns in Noun Class 1 in Ekegusii. The nasal is syllabified from coda to onset so as to form a preferred CVV.C syllable structure and not the CVC. CV syllable structure.

In Optimality Theory, the outputs in (37) above are unfaithful to the input and they are products of the interaction of markedness constraint NLV (no long vowels) which prohibits long vowels and faithfulness constraint PARSE-µ which requires that all moras are parsed into syllables (Prince & Smolensky 1993, McCarthy & Prince 1993 ,1995). Vowel length as a result of resyllabification leads to violation of NLV and satisfaction of PARSE-µ so that PASRE-µ >> NLV as illustrated in Table 7 below.

Table 7: Vowel Lengthening

Derivative /o-mo-+γɛ.nda/	PARSE-µ	NLV	IO-IDENT[vowel]
+i. omogeendi		*!	**
ii. omogenda	*!		

Output (i) is the acceptable form of the plural form in Ekegusii. It satisfies the high ranked PARSE-µ faithfulness constraint and violates NLV markedness constraint. The conflict between the constraints results in vowel lengthening. TAF theory could not explain vowel lengthening in Ekegusii since there are no constraints for the same and that is why the researcher explained the data using OT as shown in Table 7 above.

4.4.2. Consonant changes in derivation and pluralization

The consonant changes that were observed in this study are similar in both derivation and pluralization. Formation of the noun is accompanied by mutation of the initial consonant of the base. They are explained below using Transderivational Anti-Faithfulness Theory.

4.4.2.1.   Consonant mutation

Mutation refers to the stem internal phonetic change that is conditioned by word-formation processes. Consonant mutation in this study is manifested in two stages: post nasal hardening and nasal assimilation. These stages are discussed below.

Post nasal hardening

Hardening is a process which turns voiced continuants into non-continuants. This process turns the voiced continuant [β] into a non-continuant [b] and the voiced flapped liquid [r] into a stop [d] when preceded by the nasal prefix. The following data illustrates the contrast existing between the verb base and the derived noun.

Base		**gloss**	**derivative**	**gloss**	
(38) a. -bong-a	[βoŋga]	'destroy'	e-m-bong-i	[embongi]	'weevil'
b. -busur-a	[ßusura]	'sow'	e-m-busur-o	[embusuro]	'seed'
c. -raager-a	[raaɣera]	'eat'	e-n-daager-a	[endaaɣera]	'food'

Noun Class 9a nasal prefix has two surface variants: *[n]* and *[m]*. The deverbal nouns in 38(a-c) are derived by attaching the nasal noun class marker before the verb base.

Consequently, the bilabial fricative *[ß]* of the base (38a and b) becomes *[b]* and the

flapped liquid *[r]* of the base (38c) becomes *[d]* in formation of a noun.

Nouns grouped in Noun Class 10a denote sociocultural objects. They form their plurals

with the prefix *[ci-n-]*. The nasal in the prefix assimilates in place of articulation to the

initial consonant of the base. In addition to that, there is consonant hardening and the

following are the nouns that display such mutations:

Singular		**Plural**		**Gloss**
(39) a. o-ro- bago	[oroßaɣo]	chi-m-bag-o	[cimbaɣo]	'fences'
b. o-ro-reria	[ororeria]	chi-nderia	[cinderia]	'family lines'

In Example (39a-b) above, the fricative *[ß]* in the singular changes to *[b]* in plural and

the flapped liquid *[r]* is realized as the obstruent *[d]* in plural when both consonants are

preceded by the nasal prefix *[-n-]* also *[-m-]*. Pluralization of Noun Class 10a in Ekegusii

mutates the initial consonant of the base which is consequently prenasalized. Silverman

(1995) explains that Bantu languages prefer to realize nasal and oral consonant sequences

as nasal stops through synchronic alternations. These changes result from the

combination of the nasal prefix and the base in formation of plurals.

Hyman (2005) and (2003) observes that nasal assimilation changes the quality of the

consonants such that they are uttered with a burst after a nasal in Bantu languages like

Kikuyu, Bemba, Kwanyama and many more. Where there is total assimilation, the

expected realization is C2C2 rather than C1C1. The consonant C is realized differently

after N. Thus the consonant C becomes C' only after N as shown by the above data in example (39a and b). Other Bantu languages display post nasal hardening as indicated by findings from Kwanyama (R.21) and Kikuyu (E.50) by Tirronen (1977) and Armstrong (1940) respectively as cited in Hyman 2003. The two studies show that when the nasal prefix [n] precedes both the fricative [β] and the liquid [l], the consonants change to stops [b] and [d] respectively.

Homorganic nasal assimilation

Homorganicity refers to a process where the nasal prefix preceding the stops [b] and [d] are articulated at the same point with the stops after consonant hardening. Nasal assimilation in Ekegusii involves a nasal prefix assimilating to the point of articulation of the initial consonant of the base it precedes. The following are nouns that were selected from Noun Class 9a.

Base		gloss	derivative		gloss
(40) a. -busur-a	[ßusura]	'sow'	e-m-busur-o	[embusuro]	'seed'
b.-bong-a	[ßoŋga]	'destroy'	e-m-bong-i	[embongi]	'weevil'
c.-raager-a	[raaɣera]	'eat'	e-n-daager-a	[endaaɣera]	'food'

The above data shows changes that occur in derivation of the noun. The nasal prefix [–n-]/[-m-] of Noun Class 9a *[e-n-]* combines with the imperative verbs *busura, bonga* and *raagera*. Then, nasal prefix assimilates to the point of articulation of the first consonant of the base to form prenasalized consonants. In 40a and b above, the prenasalized consonant *[mb]* is formed and in 40c the prenasalised consonant *[nd]* is

formed. The nasal and the following consonant become homorganic are articulated as a single sound.

Homorganic consonants also occur in Noun Class 10a only in their plural forms. Noun Class 10a prefix is attached to Noun Class 11 bases to form the plurals presented in Example (41 a-b) below.

Singular		**Plural**		**Gloss**
(41) a. o-ro-geend-o	[oroɣe:ndo]	chi-n-geend-o	[ciŋge:ndo]	'journey'
b. o-ro-ko	[oroko]	chi-n-ko	[ciŋko]	'firewood'

Example (41 a) illustrates derivation of the noun from the imperative verb [–*geend-a*] when combined with the prefix *[o-ro-]* to form the noun *orogeendo*. The imperative verb consists of the stem initial consonant *[ɣ]* but when the plural of the noun is formed the initial consonant of the stem becomes a prenasalized velar consonant *[ŋg]*. It is then assumed that the nasal prefix marker, *[-n-],* of Noun Class 10a *[ci-n-]* assimilates to the point of articulation of the initial consonant *[ɣ]* so that the sounds become homorganic and form a prenasalized consonant *[ŋg]*. In Example (41 b) above, the voiceless velar *[k]* in the singular changes to a prenasalized consonant *[ŋk]* since the nasal prefix marker assimilates to the point of articulation of the velar and the two consonants combine to form a single prenasalised consonant.

McCarthy (1988:87) explains that nasals assimilate in place of articulation to the following consonants. He further defines place assimilation as spreading of place node

rather than the individual features characterizing place distinctions. The assimilating features in (40a-c), *[b]* labial in 40a and 40b and *[d]* alveolar in 40c, and (41a-b), velar features in 41a and 41b, above spread over a wider domain such that the nasal becomes labial when it occurs before the bilabial *[b],* alveolar before the alveolar *[d]* and velar before the velar consonants *[k]*and *[g].*

Nasal assimilation is a common phonological process in Bantu languages like Kitharaka, Kikuyu and many more. Mberia (2002) found out that when the nasal prefix which has two variants *[m]* and *[n]* precedes a verb root beginning with a consonant in Kitharaka, a Bantu language spoken in Kenya, the nasal assimilates to the point of articulation of the following consonant. Kitharaka nasal assimilation operates in Noun Classes 9 and 10. Nasal homogarnicity is a result of assimilation of the nasal prefix to the point of articulation of the following obstruent due to the adjustment of articulators in anticipation of production of the obstruents. The adjustments harmonize the point of articulation of the nasal consonant to that of the following obstruent and according to Antilla (1972), it leads to articulatory simplification. Abercrombie (1967) explains that homogarnicity of two segments succeeds in reducing the efforts of articulation in English. However, Ekegusii does not have the obstruents *[d]* and *[b]* in isolation. They occur when preceded by a nasal so as to form prenasalized consonants. Therefore, the changes of these consonants from one form to another are experienced since there is a morphological process, derivation, which brings the nasal prefix and the stem together and triggers the change.

In transderivational Anti faithfulness Theory, consonant mutation occurs when TAF constraints override faithfulness constraints. Consonant mutation in derivation and pluralization is illustrated in Table 8 and 9 below:

Consonant mutation is explained in Table 8 below using both OT and TAF theories. The markedness constraint NOCODA and faithfulness constraint PRENASAL explain constraint conflict and formation of the prenasalised consonant while TAF constraint ¬OO-IDENT specifies the alternating feature in formation of the noun *embusuro* 'seed' as shown in the table below.

[**ß**us**u**ra] ⟶ [em**b**usuro]

Table 8.   **Consonant mutation in nominal derivation**

Base	Derivative /e-n+ßusur+a/	NOCODA	PRENASAL	¬OOdom-IDENT[cont]	OOdom IDENT[cont]	IO-IDENT[cont]
[ßusura]	+ i.embusuro		*		***	***
	ii.en.ßusura	*		**!		

¬ OOdom-IDENT [cont] >> OOdom-IDENT [cont]

The fricative *[ß]* in the base alternates with the obstruent *[b]* when the dominant nasal prefix is combined with the base to derive a deverbal noun. The Anti-Faithfulness constraint IDENT requires obligatory mutation of a given feature. In this case, the constraint triggers loss of the feature [+cont] of the initial consonant of the stem such that the initial *[ß]* [+continuant] of the deverbal noun becomes an obstruent *[b]* [-continuant]

which contrasts with the base in the feature [continuant] upon prefixation. The winning candidate, (i) *embusuro,* satisfies the high ranked TAF constraint ¬ OOdom- IDENT [cont] which outranks the faithfulness constraint OOdom-IDENT [cont] and requires mutation of the consonant of the stem. This leads to violation of the related faithfulness constraint. Plural formation results in postnasal hardening which is base-mutating. Postnasal hardening is characterized by changing the phonetic feature of the initial consonant of the base due to prenasalization as shown below:

The table below illustrates consonant mutation in formation of the plural noun *chingena* from the singular form. Consonant mutation is explained using OT's principles as well as TAF constraints. Table 9a is presented below.

a. [oro+ɣena] ⟶   [ciŋ**g**ena]

Table 9 (a) Consonant mutation in pluralization

Base	Derivative /ci-n+ɣena/	NOCODA	PRENASAL	¬OOdom-IDENT[cont]	OOdom IDENT[cont]	IOIDENT[cont]
[ɣena]	+i.ciŋena		*		*	*
	ii.cin.ɣena	*		*!		

¬OOdomIDENT [cont]>> OOdomIDENT [cont]

The initial fricative *[ɣ]* of the base has the feature [+continuant] which becomes an obstruent after the nasal prefix. This can be explained as a consequence of prenasalization

of the velar consonant *[γ]*. The prenasalized velar consonant *[ŋg]* is formed when the plural nasal prefix and the velar fricative *[γ]* come together. Output (i) *chingena* is the winning candidate since it satisfies the high ranked TAF constraint while it violates the low ranked Faithfulness constraint as illustrated by Table 9a above. Transderivational Anti-Faithfulness constraint ¬ OOdom IDENT [cont] outranks the Faithfulness constraint OO-dom IDENT [cont] since the winning candidate satisfies the Anti-Faithfulness constraint which triggers consonant mutation shown in Table 9a.

The nasal of the plural prefix [ci-n-] triggers change of the stem initial consonant as shownin Table 9b below:

The table below explains formation of the plural noun *chinderia* from the base *[-reri-a]* when combined with the plural prefix *[ci-n-]*. Pluralization results in consonant hardening, that is, the flapped liqiud *[r]* changes to an obstruent *[d]* and the change is explained as consonant mutation using constraints presented in Table (9b) below.

a. [oro+**r**eria] ⟶ [cin**d**eria]

Table 9 (b) Consonant mutation in pluralization

Base	Derivative /ci-n-+reri-a/	NOCODA	PRENASAL	¬OOdom-IDENT[cont]	OOdom IDENT[cont]	IOIDENT[cont]
[reria]	+i.cinderia		*		*	*
	ii.cinreria	*		*!		

¬ OOdom-IDENT [cont]>> OOdom-IDENT [cont]

In the winning candidate, the flapped liquid *[r]* [+continuant] changes to an alveolar *[d]* [-continuant] in pluralization. The optimal candidate is the form that contrasts away from the base from which it is derived. In Example (39b), the alveolar consonant *[r]* changes its characteristics when it is preceded by the nasal prefix. The nasal of Noun Class (10a) prefix assimilates to the point of articulation of the alveolar consonant *[d]* of the base due to prenasalization. Postnasal hardening and assimilation processes are triggered by the TAF constraint ¬OOdom-IDENT [cont] which mutate the initial consonant of the base as shown in Table (9b) above. Therefore, the winning candidate, (i) chinderia, satisfies the TAF constraint ¬OOdom-IDENT [cont] which is ranked above the faithfulness constraint OOdom-IDENT [cont].

Consonant mutations exemplified in Table 8 and (9a-b) above occur since the nasal prefix assimilates to the place of articulation of the oral consonant which consequently leads to formation of prenasalized consonants. Surface realization of prenasalized consonants is the result of the conflict between PRENASAL and NOCODA constraints (McCarthy & Prince 1993, 1995). PRENASAL prohibits prenasalized consonants while NOCODA prohibits codas.

There is another way of interpreting the above features. Wolf (2007:1-5) conceives consonant mutation as the attachment of floating features in the underlying representation to output segments. He suggested the MAXFLOAT constraint requires that all phonological material that is not linked in the input is fully preserved in the output i.e MAXFLOAT

prohibits deletion of floating features. This constraint works closely with markedness constraint *FLOAT which is against ungrammatical forms in a language to trigger attachment of floating features. So both features [+continuant] and   [-continuant] exist in the underlying level. The feature [-cont] docks to the initial consonant of the stem when the derivational prefix is attached to it and this leads to violation of the IDENT [cont] constraint and satisfaction of MAXFLOAT constraint which states that all autosegments floating in the input have output correspondents. In reference to Table 8 and 9 above, the phonological feature [-continuant] of the prefix is associated to the root node of the adjacent stop triggering delinking of the [+ continuant] feature and hence mutation of the initial segment of the stem.

Morphologically motivated phonology in Ekegusii indicates that Antifaithfulness constraints are ranked above Faithfulness constraints (ANTI-FAITHFULNESS>>FAITHFUNESS). This is so because of dominance effects of some derivational prefixes which mutate segments in the stem. Phonetic contrast between the base and the derivative occur in a morphological environment which triggers it. These findings are equivalent to those by Akinlabi (1996) who found out that morphologically conditioned phonology in Terena triggers nasalization of sonorants where the first person singular in Terena is marked with the feature [+nasal]. Additionally, Kurisu (2001) shows that affixed plural forms in German incur mutations in the base. The researcher uses Realize Morpheme constraints which require derived forms to differ in any way from the morphological bases.

4.4.2.2.   Consonant deletion

A consonant is deleted at a morpheme boundary in number inflection. Deletion of the initial consonant from the base of Noun Class 10 was observed as demonstrated in (42) below:

Singular		**Plural**		**Gloss**
(42) e-ng'ombe	[eŋombe]	chi-ombe	[ciombe]	'cows'

The voiced velar nasal *[ŋ]* in the singular base in Noun Class 9 is deleted in plural formation when the base takes up the plural prefix *[ci-]* to form *chiombe*. Velar nasal deletion is shown in Table 10 that follows.

Table 10 below shows deletion of the velar nasal [ŋ] in formation of the plural chiombe. The table illustrates how OT and TAF constraints work out the winning candidate. Constraint ranking and violability is displayed in the table below.

[eŋombe] ⟶ [ciombe]

Table 10.   Consonant deletion in pluralization

Base	Derivative /ci+ŋonβe/	ONSET	IODEP [nasal]	¬OOdomMAX[nasal]	OOdom MAX[nasal]	IOMAX[nasal]
[ŋombe]	+i. Ciombe	*			*	*
	ii.Ciŋombe		*	*!		

¬OOdom MAX [nasal]>> OOdom-MAX [nasal]

Output (i) is the optimal output accepted in Ekegusii. The term *chiombe* is derived from the underlying morphemes */ci+ŋonβe/* through the operation of deleting the velar nasal

[ŋ] at the morpheme boundary. The plural form *[ci.o.mbe]* displays the CV.V.CV syllable structure rather than the unacceptable form **[ciŋombe],* CV.CV.CV. Velar nasal deletion is a result of the conflict between markedness constraint ONSET which requires that syllables must have onsets and faithfulness constraint DEP which is against insertion of a segment. The optimal candidate violates ONSET while it satisfies DEP constraint so that IODEP >>ONSET as in Table 10 above.

Alternatively, deletion satisfies TAF constraint ¬OOdom MAX which requires obligatory deletion of the initial consonant of the base and violates the related faithfulness constraint that prohibits deletion, OOdom-MAX. Transderivational Anti-faithfulness constraints determine well-formed structures in a language by requiring feature alternations. Therefore, TAF constraint is high ranked. It dominates the faithfulness constraint i.e ¬OOdom-MAX [nasal]>>OOdom-MAX [nasal].

4.5   Summary

This chapter has dealt with nominal derivation and pluralization in Ekegusii which are mainly through prefixation. Data indicate that derivation of nouns in Ekegusii is class changing and maintaining. In both cases, the original meaning of the base is slightly modified morphologically so as to result in a new word that is semantically related to the base. Similarly, the derived nouns retain some semantic and phonetic characteristics of the base word. However, the largest percentage of nouns that were studied did not show a one-to-one phonetic relationship between the bases and the derived forms. Most nouns

display phonetic features that were not in the original inputs of the derivation process, for instance, agentive nouns are characterized by vowel alternation and diminutives by vowel deletion. This is explained as the effect of dominant prefixes as explained in Transderivational Ant-Faithfulness Theory. On the other hand, deadjectival nouns display total similarities between the base and the derivation due to the presence of recessive prefixes in Ekegusii.

It was noted that plurals and singulars have similar meanings but they vary in the number of entities implied. Ekegusii noun class system consists of nouns that have plural concepts while others do not have. The samples discussed in the preceding section are those that form plural concepts. It emerged from the data that some plural and singular pairs display a phonetic contrast. The contrast was accounted for by formulation of morphophonemic constraints. The most harmonic candidates satisfy the high ranked TAF constraints which require opposition between the base and the derivative. The optimal candidate violates the related faithfulness constraint which implies that TAF constraints dominate faithfulness constraints.

CHAPTER FIVE

FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1.   Introduction

This chapter gives a summary of findings, conclusions and recommendations of the study. The study sought to investigate segmental morphophonology of Ekegusii nominal derivation and pluralization. It sought to achieve the following objectives:

i.   To identify and explain phonological processes that occur in derivation and pluralization in Ekegusii.

ii.   To explain these processes.

iii.   To formulate phonological constraints of prefixation in Ekegusii.

In addition to the above objectives, the study sought to answer the following questions:

i.   Are there phonetic irregularities observed in derivation and pluralization of Ekegusii nominals?

ii.   Do derivational and pluralization prefixes trigger any phonological processes?

iii.   What phonological constraints explain phonetic changes in nominalization?

The researcher further made an assumption that there is morphologically conditioned phonology in Ekegusii nominal derivation and plural formation where dominant prefixes induce phonetic feature alternation and modification on the base.

5.2. Summary of Findings

Findings of the study are discussed in this section. Data were divided into two sets: derived and pluralized nominals. Data indicate that nouns are derived from verbs, adjectives and nouns. Derived nouns are discussed under two major categories: class changing derivation and class maintaining derivation. Class changing derivation results in formation of deverbal, deadjectival, gerundive and diminutive nouns. Class maintaining derivation leads to the formation of abstract and diminutive nominals. Nouns with plural concepts are formed by prefixation of the plural prefix to a base which results in formation of: personal nouns, cultural nouns, names of parts of the body, names of man-made objects, names of animals, names of foodstuffs, names of socio-cultural objects, augmentatives and diminutives. It became evident from the data that:

i.   The attachment of the nasal prefix to a stem in derivation of deverbal nouns and formation of Noun Class 10a plurals triggers postnasal hardening. For instance, *[e-n-βusura]* becomes *[embusuro]* and *[e-n +raagera]* becomes *[endaagera]* in derivation since the attachment of the prefix to the base mutates the initial consonants of the base. Similarly, the singular –plural transition shows that the nasal prefix mutates the stem initial consonant. For example, *[chi-n+ reria]* changes to *[chinderia]*. Hardening changes over both the fricative *[ß]* and the liquid *[r]* to obstruents *[b]* and *[d]* respectively because of prenasalization. Prenasalized consonants are formed by syllabification of the nasal prefix from coda to onset of the following consonant. The nasal assimilates to the point of

articulation of the following consonant through homorganic nasal assimilation and both become a single segment. The nasal prefix is dominant in the sense that it triggers mutation of the stem initial consonant. Such consonant mutations violate the faithfulness constraint, OO-IDENT [cont], and the output candidates satisfy ¬OO-IDENT [cont] of Transderivational Anti Faithfulness theory.

ii. Derived nouns in Noun Class 7 display stem internal vowel lengthening and consonant prenasalization when the surface forms are compared with the underlying forms. For example when *ekeraandi* is compared with */ran.di/*, there is vowel length distinction. The long vowels before nasal consonants are short in the underlying level. The nasal consonant which serves as coda of a syllable and the oral consonant which is the onset of another syllable in the underlying level are two different consonants realized as a single prenasalized consonant at the surface level. The nasal consonant resyllabifies from coda to onset of the next syllable leaving behind an empty mora in formation of nouns through prefixation. The vowel of the preceding syllable lengthens so that the empty mora is filled as the nasal combines with the oral consonant to form a prenasalized consonant. This result in the VC.V syllable structure accepted in Ekegusii. This phenomenon could not be explained by TAF constraints so the researcher sought to explain it using OT's constraints. In OT, syllabification satisfies markedness NOCODA while prenasalization violates faithfulness PRENASAL.

iii.   Similarly, formation of Noun Class 1 /2 nouns is characterized by vowel lengthening before prenasals. For example, the surface long vowel [ɛ:] in the noun *omogeendi* is short in the underlying level in the base /ɣɛn.da/. The base constitutes two syllables CVC.CV where one of them has a coda that is prohibited in Ekegusii. During derivation of the noun through prefixation, vowel lengthening occurs in two stages: the coda of the first syllable resyllabifies to onset position to form a prenasalized consonant [nd] since Ekegusii prefers open syllables. Formation of prenasalised consonant violates faithfulness constraint PRENASAL and satisfies markedness constraint NOCODA. On the other hand, vowel lengthening is initiated by conflict of the faithfulness constraint PARSE- μ which requires that all moras are parsed into syllables and the markedness constraint NLV which prohibits long vowels. Vowel lengthening violates the Markedness constraint NLV while it satisfies PARSE- μ faithfulness constraint.

iv.   Derivation of the deverbal noun *[omoiseke]* from *[omo+ e:sika]* shows that Ekegusii prohibits the occurrence of the short, upper-mid front vowel [o] and the long, upper-mid back vowel *[e:]* in a sequence. When they occur, the long vowel changes to a short high front vowel *[i]*. The optimal candidate is formed due to the interaction of *VV (a markedness constraint that prohibits vowel sequences) and OI-IDENT faithfulness constraint which is against linguistic feature mutation so that *VV dominates OI-IDENT. The most harmonic candidate violates

faithfulness constraint OO-IDENTdom[high] while it satisfies TAF constraint ¬OO-IDENTdom[high]

v.   Formation of Noun Class 10 plural [chiombe] from *[ci + ŋombe]* is accompanied by deletion of the initial stem velar nasal *[ŋ]*. The plural prefix triggers its deletion due to dominance effect of the prefix and the TAF constraint ¬OO-MAXdom[nasal] that requires that the output candidate differs phonetically from the input by deleting the velar nasal. ¬OO-MAXdom[nasal] constraint outranks the related faithfulness constraint OO-MAXdom[nasal] that prohibits segmental deletion.

vi.   The final vowel changes over to indicate a shift of the grammatical category especially the derivation of deverbatives and dimunitives. The absolute form of the final vowel *[a]* changes to *[i, o, u]* i.e *[omo+iba]* becomes *[omoibi]*, *[omo+kunga]* changes to *[omokungu]* and *[eke+ burug-a]* forms *[ekeburugo]*. The final vowels act as nominalizers that turn the base of the verb to the derived noun. They normally replace the end vowel of the imperative verb *[a]* in creation of deverbatives while others retain it.

5.3   Conclusions

Findings of this study indicate that nominal derivation and pluralization are mainly through prefixation. The dominant prefixes induce phonetic modification of the base

through derivation and pluralization. This implies that particular nominal derivations and number inflections are morphologically conditioned. The dominant prefixes trigger idiosyncratic phonetic alternations in the base in formation of acceptable structures in Ekegusii. Such alternations satisfy Transderivational Anti-Faithfulness constraints which are ranked above the OO and IO Faithfulness constraints. Therefore, antifaithfulness constraints dominate faithfulnesss constraints in Ekegusii.

In addition to that, findings of the study give us evidence that nouns in Ekegusii are systematically organized in the Noun Class system in the language. Class groupings are based on the type of prefix a base takes and so words which have similar prefixes are grouped together. Additionally, nouns with common semantic characteristics are grouped into a particular class where the singular Noun Class prefixes are in odd numbers while plural Noun Class prefixes are in even numbers.

Data indicate that the semantic relationship between the singular and plural nouns is regular since the nouns express the same meaning or idea. What is different is the number of entities implied. The singular refers to a single unit while the plural refers to more than one entity. Unlike pluralization, derivation modifies the meaning of the base in formation of new derivatives though the meanings of bases and derivatives are related but they are not the same. This is clearly indicated by the data that were collected as presented in this study.

5.4.   Recommendations for Further Research

This study describes segmental morphophonology in Ekegusii noun formation through derivation and pluralization. There is need to expand knowledge on the Ekegusii where, to the best of my knowledge, most lexical items have not been documented and some morphophonological processes have not been discussed. Hence, there are other crucial areas that need thorough investigation. These areas are outlined below:

i.   A study of the morphologically conditioned suprasegmental features in Ekegusii nominal derivation and inflection for example tone, vowel harmony, consonant harmony and syllabification.

ii.   Morphophonemics of other word formation processes like compounding, reduplication and conversion.

iii. An investigation of derivation of adjectives and adverbs.

iv.   The interaction of morphology and phonology at the phrasal level for instance the noun phrase, verb phrase and adjectival phrase.

5.5   Summary

The thesis is divided into five chapters: Chapter One introduces the study and provides background information to Ekegusii, Chapter Two describes how Optimality Theory works and reviews previous studies, Chapter Three presents the research design, data collection and analysis procedures which were used in the study, Chapter Four discusses the phonetic changes in derivation and pluralization of Ekegusii nominals using

Optimality Theory and finally Chapter Five presents the summary of findings, conclusions and recommendations of the study.

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APPENDICES

Appendix 1:   Reading list presented to Ekegusii native speakers in Moi University to verify for acceptability.

Thank you for accepting to be part of this study of morphophonemics on Ekegusii number inflection and derivation of nouns. Your contribution is appreciated. Read the following list of 86 nouns and provide alternative spellings where applicable.

Obokendu	Omoroberio	Omwesiki
Obororo	Embusuro	Omwekungi
Omogotu	Ensooko	Okorema
Obuya	Oboriri	Okogeenda
Omotambe	Endaagera	Omomwamu
Oboyia	Embongi	Akariiki
Ekenyugwa	Embusuro	Obobe
Ekeraandi	Oborendi	Obwanchani
Egesaangio	Obotongi	Omworokia
Ekeegwa	Obonaabi	Oborai
Egetoongwa	Obosaacha	Obokong'u
Egesambeba	Okoigwera	Oborendi
Ekegaambero	Ogoteera	
Omorugi	Ogoita	
Omoremi	Ogotuuma	
Omoiseke	Ogosibia	
Omokungu	Akabani	
Omoibi	Akaibi	
Omochando	Akariikwa	
Omochakano	Omosibwa	

Plural nouns

Abageendi

Abaana

Abaanto

Emetwe

Emegoondo

Emeringamu

Amateemwa

Amasaacha

Amaino

Amatimo

Chiombe

Chianga

Chigoto

Chisese

Chisuti

Chitaya

Chimbori

Chimbaata

Chinko

Chinteeru

Chimbago

Chinsaana

Chindooche

Chingena

Ebiita

Ebitaanda

Ebibuse

Ebirogo

Ebisaiga

Ebiriikwa

Ebimbeba

Ebiita

Chingambo

Appendix 2. Transcribed Data on Segmental Alternations of Ekegusii noun formation.

Derived nouns

Noun class 1

ruga	[ruɣa]	omorugi	[omoruɣi]
rema	[rema]	omoremi	[omoremi]
eesika	[e:sika]	omoiseke	[omoiseke]
kunga	[kuŋga]	omokungu	[omokuŋu]
iba	[ißa]	omoibi	[omoiβi]
ancha	[anca]	omwanchi	[omwanci]
gora	[ɣora]	omogori	[omoɣori]
orokia	[orokia]	omworokia	[omworokia]
gotu	[ɣotu]	omogotu	[omoɣotu]
tambe	[tambe]	omotambe	[omotambe]
siba	[siβa]	omosibwa	[omosiβwa]
kunga	[kuŋga]	omwekungi	[omwekuŋgi]
mwamu	[mwamu]	omomwamu	[omomwamu]
rera	[rera]	omoreri	[omoreri]

Noun class 3

chaanda	[ca:nda]	omochando	[omocando]
chaaka	[ca:ka]	omochakano	[omocakano]
rooberia	[ro:ßeria]	omoroberio	[omoroßerio]

Noun class 7

nyua	[ňua]	ekenyugwa	[ekeňuɣwa]
raanda	[ra:nda]	ekeraandi	[ekera:ndi]
saanga	[saaŋga]	egesaangio	[eɣesa:ŋgio]
eegwa	[ɛ:ɣwa]	ekeegwa	[ekɛ:ɣwa]
toonga	[to:ŋga]	egetoongwa	[eɣeto:ŋgwa]
mbeba	[mbeßa]	egesambeba	[eɣesambeßa]
gaamba	[ɣa:mba]	ekegaambero	[ekeɣa:mbero]

Noun class 9a

busura	[ßusura]	embusuro	[embusuro]
sooka	[sɔ :ka]	ensooko	[ens ɔ:ko]
riri	[riri]	oboriri	[oßoriri]
raagera	[ra:ɣera]	endaagera	[enda:ɣera]
renda	[renda]	oborendi	[enda:gera}

Noun class 12

bana	[ßana]	akabani	[akaßani]
iba	[ißa]	akaibi	[akaßani]
riika	[ri:ka]	akariikwa	[akari:kwa]
riika	[ri:ka]	akariiki	[akari:ki]

Noun class 14

toonga	[to:ŋga]	obotongi	[oßotoŋgi]
omonyanaabi	[omoňana:bi]	obonaabi	[oßona:aßi]
omosaacha	[omosa:ca]	obosaacha	[oßosa:ca]
kendu	[kendu]	obokendu	[oßokendu]
roro	[roro]	obororo	[oßororo]
ya	[ya]	obuya	[oßuya]
yia	[yia]	oboyia	[oßoyia]
raa	[ra:]	oborai	[oβorai]
be	[βe]	obobe	[oβoβe]

Noun class 15

iigwa	[i:ɣwa]	okoigwera	[okoiɣwera]
teera	[te:ra]	ogoteera	[oɣote:ra]
ita	[ita]	ogoita	[oɣoita]
tuuma	[tu:ma]	ogotuuma	[oɣotu:ma]
sibia	[oɣosißia]	ogosibia	[oɣosißia]

Plural nouns
Noun class 1/ 2

omogeendi	[omoɣe:ndi]	abageendi	[aßaɣe:ndi]
omwana	[omwana]	abaana	[aßa:na]
omonto	[omonto]	abaanto	[aßa:nto]

Noun class 3/4

omotwe	[omotwe]	emetwe	[emetwe]
omogoondo	[omoɣo:ndo]	emegoondo	[emeɣo:ndo]
omoringamu	[omoriŋgamu]	emeringamu	[emeriŋgamu]

Noun class 5/ 6

riitemwa	[ri:temwa]	amateemwa	[amate:mwa]
riisacha	[ri:saca]	amasaacha	[amasa:ca]
eriino	[eri:no]	amaino	[amaino]
riitimo	[ri:timo]	amatimo	[amatimo]

Noun class 7/ 8

egeita	[eɣeita]	ebiita	[eßi:ita]
egetaanda	[eɣeta:nda]	ebitaanda	[eßita:nda]
ekebuse	[ekeßuse]	ebibuse	[eßißuse]
ekerogo	[ekerogo]	ebirogo	[eßirogo]

Noun class 9/ 10

engombe	[eŋombe]	chiombe	[ciombe]
eyanga	[eyaŋga]	chianga	[ciaŋga]
egoto	[eɣoto]	chigoto	[ciɣoto]
esese	[esese]	chisese	[ciɣoto]
esuti	[esuti]	chisuti	[cisuti]
etaya	[etaya]	chitaya	[citaya]

noun class 9a/ 10a

embori	[embori]	chimbori	[cimbori]
embata	[embata]	chimbata	[cimbata]
oroko	[oroko]	chinko	[cinko]
oroteeru	[orote:ru]	chinteeru	[cinte:ru]
orobago	[oroßaɣo]	chimbago	[cimbaɣo]
orosana	[orosana]	chinsaana	[cinsa:na]
oroche	[oroce]	chindooche	[cindooce]
orogena	[oroɣena]	chingena	[ciŋgena]

Noun class 12/ 8

agasaiga	[aɣasaiɣa]	ebisaiga	[eßisaiɣa]
aganchera	[aɣancera]	ebinchera	[eßinchera]
akambeba	[akambeßa]	ebimbeba	[eßimbeßa]
akanyoni	[akaňoni]	ebinyoni	[eßiňoni]