

**ASPECTS OF MORPHO-PHONOLOGICAL INTERACTION IN ENDO-
MARAKWET OF KENYA**

**By
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DECLARATION

Declaration by Candidate

I declare that this is my original work and has not been presented for the award of a degree in any other college or university. No part of this thesis may be reproduced without the prior permission of the author and/or Moi University.

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DEDICATION

This work is dedicated to my beloved wife, **Joyce**; my son, **Obed**; and my two wonderful daughters, **Cynthia** and **Dorcas**. It is also in memory of my late parents, **Francis Chelimo** and **Sivilina Chelimo**, and my late brother **Vincent Kibiwott**. The work is also a dedication to my siblings: **John, Jonathan, Susan, Domtila, and Purity**.

The Lord bless you all.

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To anyone I may not have mentioned and contributed to this work in any way, I say

/kɔŋgoi mising/ ‘thank you very much’

/sere nyoo wou/ ‘be blessed’

I take responsibility for any errors of omission/commission that may appear in this thesis.

ABSTRACT

In agglutinative languages, affixes combine and create new environments that must be overtly modified by processes of phonology like deletion, coalescence, insertion, and reduction, among others. This study assumed that processes of phonology naturally yield articulable and semantically well-formed words that conform to the patterns of the language. However, this study proposes to show that in Endo, an endangered and understudied sub-dialect of Marakwet, some of the processes of phonology trigger prosodies that affect natural morphological assembly, thus creating lexico-semantic interpretive complexities. In particular, it aimed to show that phonological processes do not yield well-formed words in all circumstances. To achieve this aim, the study was guided by four objectives: to describe the nature of inflectional and derivational affixation properties in Endo, to examine processes of phonology triggered when inflectional and derivational affixes attach, to analyze lexico-semantic interpretive complexities and deviant morphological order arising from affixation and finally to assess the extent to which Lexical Phonology (LP) theory explains well-formedness in Endo. The theory states that words are derived and inflected first at the lexical level, where principles of strict cyclicity, rule ordering, and structure preservation apply, and secondly at post post-lexical level, where lexically well-formed words are scanned for phrasal conditions. The study employed a qualitative descriptive design, and primary data were collected through elicitation and informal sessions with native speakers in Sambalat, Liter, and Kaben in Marakwet East Sub-County, where 90% of Endo speakers live. Informants were engaged at various times in churches, marketplaces, or homes within the population found in the three regions. The study used clustering to accommodate informants from each of the three regions, and random sampling was later used to select four informants from each of the three regions. Stratification was useful for sorting informants according to age, sex, and geographical location. Four elderly participants were purposively selected for verification of the consistency of data collected from interviews. Secondary data was acquired through analyzing words in monographs, the Bible translated into Endo, and other literacy manuals developed by the Bible Translation Literacy Centre in Tot. Data was then analyzed qualitatively into specific lexical categories and their different grammatical classes in order to observe morphological patterns. The finding of the study is that as affixes attach, processes of phonology like deletion, insertion, or coalescence trigger prosodies like tone, length, and tongue that eventually rearrange morphological order, culminating in extended semantic and lexical interpretive levels. The study also observes that though strict cyclicity, rule ordering, and structure preservation principles in Lexical Phonology Theory (LP) seek to check against word formation anomalies at lexical and post-lexical levels, they may not fully explain some words in Endo which appear well-formed but exhibit lexico-semantic interpretive complexities. The study concludes that in Endo, while phonology helps in the attachment of morphological properties, it may lead to triggering of prosodic features, which in turn result in extended lexico-semantic complexities and novel morphological patterns. In view of this, the study recommends that more data from other Kalenjin languages be studied to further observe how phonological processes like deletion, epenthesis, or coalescence generate vowel length, tonal, and tongue root changes, which impact morphological patterns and lexico-semantic complexities.

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MARKING SYMBOLS USED

'	High tone
`	Low tone
^	High Low
ˇ	Low High
+	Presence of ATR
-	Absence of ATR (presence of RTR)
/	Alternative marking
()	Parenthetic
/ /	Phonological Representation
[]	Phonetic Representation
*	Ungrammatical
Aff-aff	Morpheme boundaries

OPERATIONAL DEFINITION OF TERMS

- i) Affix order – the phonological sequence taken by affixes based on the rules of the language. Also referred to as stacking/patterning
- ii) Compositionality – the ability of words or affixes to be interpreted semantically based on their separate parts.
- iii) Endo – The sub-dialect spoken by the people around Kaben Location in the lower Eastern part of Marakwet. Also referred to as Eno-Marakwet
- iv) Non-compositionality – when a word or affix can only be interpreted semantically on the account of ‘the whole’ form.

LIST OF ABBREVIATIONS

According to Leipzig Glossing Rules (Corbett, 2000; and Creissels, 2006)

Gloss	Meaning	Gloss	Meaning
AMB	Ambulative	L	Low tone
ASP	Aspect	LOC	Locative case
ASS	Associative case	MASC	Masculine gender
ATR	Adv. Tongue root	MOB	Mobilitive
DAT	Dative case	NEG	Negation
CAUS	Causative	NEU	Neuter gender
COP	Copula	NOM	Nominative case
DEM	Demonstrative	NMZ	Nominalizer
DEF	Definite	PRF	Perfective aspect
DIST	Distal	PL	Plural
ESS	Essive	POSS	Possessive marker
FEM	Feminine gender	PROG	Progressive aspect
H	High tone	REFL	Reflexive
HON	Honorific marker	REL	Relativize
INDF	Indefinite	SG	Singular
IMP	Impersonal	SGV	Singulative number
INST	Instrumental	SOC	Sociative case
INF	Infinitive	VBZ	Verbalizer
IPFV	Imperfective aspect	VEN	Ventive
ITV	Itive		

CHAPTER ONE

INTRODUCTION TO THE CHAPTER

1.1 Introduction and Background Information

This study aims at analyzing how, in the process of inflection and derivation in Endo, morphological elements attach and trigger phonological features that, in turn, affect aspects of lexicality, semantic interpretation, and by extension, the rearrangement of morphological patterns. To adequately address this interplay of morphology and phonology, discussions in the thesis have been organised into four major parts. The first part describes the nature of inflectional and derivational affixes in the language, while the second part focuses on the phonological processes that are triggered when morphological elements attach. The third part examines the lexico-semantic interpretive complexities that arise out of the phonological processes and prosodies of morpho-phonological interaction. The final part of the thesis makes an analysis of the way in which Lexical Phonology theory (LP) informs the interpretive complexities as they arise from the morpho-phonological interaction.

The present chapter lays the foundation of the major aspects of discussion by reviewing relevant literature and examining the tenets of Lexical Phonology theory (LP), used to anchor the study. To achieve this end, Section 1.2 of this chapter provides background information on the nature of morpho-phonological interaction in other languages before narrowing to the case in Endo. This is followed by basic descriptions of the Marakwet community in terms of their location, migration, and origin, and their socio-economic activities. I also discuss the place of Endo within the larger Marakwet before delving into the phonology of the language. The statement of the problem is provided in 1.3, where

interpretive complexities arising from the attachment of affixes and solutions to the same as proposed by LP are explained. Subsequently, the objectives of the study are stated in section 1.4, with the underlying assumptions and attendant questions explained in sections 1.5 and 1.6, respectively. Sections 1.7 and 1.8 that follow provide explanations on the linguistic significance of the study and the scope of the research.

It is also within this chapter that, in section 1.10, we find a description of how LP Theory works and how it proposes lexical and post-lexical adaptive strategies used by native speakers to overcome interpretive challenges that arise out of affixation. This is followed by section 1.11, which is basically a review of the literature that surrounds affixation, morphological and phonological processes that facilitate affixation, and possible native speaker adaptive strategies. As the chapter comes to an end, section 1.12 focuses on methodological procedures by describing the various methods used to collect and organize data, the processing approaches, and the analysis processes. Finally, section 1.13 gives a summary of the aspects discussed in the entire chapter.

1.2 Background to the Study

The first part of the background introduces aspects of the interrelation of morphology and phonology and how these aid in word formation in other languages like English and Turkish, before narrowing to Kalenjin and Endo. I also introduce how, in Endo, affixation is aided by phonological processes, which in turn affect the interpretation of final outputs.

The second part of the background gives basic information about the speakers of Endo in terms of their geographical and ecological location, origin and migration patterns, socioeconomic activities, and why/how Endo is considered different from other varieties

of Marakwet. The final section of the background is a description of the phonology of the language.

1.2.1 Introducing Morpho-phonological intricacies

Morpho-phonology, as described by Muller (2009), concerns how allomorphs are phonologically realized and their implications in lexical and semantic interpretations in speech production. This means that morphological operations lead to expansion of word meaning by inflection and novel words by way of derivation (Ariel et al 2013). As morphemes combine, new phonological environments are created that must be overtly modified by phonological operations in order to satisfy a language's phonological patterns and eventually achieve semantic and structural aspects. The result is either words that are well-formed or complex units that require further phonological modifications. For example, affixation of the English plural marker {-s} with the underlying phonological form /z/ goes through a process of phonological assimilation when combined with a morpheme that ends either with a voiceless consonant or a sibilant. The plural marker will attach to *cat* as -s and to *card* as -z, resulting in /kæt-s/ and /kɑ:d-z/ respectively. Similar results are obtained when using the English past tense suffix /-ed/, which forms consonant clusters with different sonority profiles: sonorant-obstruent clusters or obstruent-obstruent coda clusters (such as *walked* [wɒkt]) (e.g., *spanned* [spænd]).

Hammond (1999) states that affix combination also affects and triggers suprasegmental features, which further contribute to the patterning of the affixes and general output of words. In English, for example, the nominalizer /-ness/ ['nəs] attaches to the root /*unique*- / [jun'i:k] and creates a metrical configuration 'stress clash', which makes the primary stress appear on the second syllable of the root while the derivative suffix becomes non-

stressed; [ju.'nik.nəs]. This is based on the general rule that one syllable receives the primary stress.

Zeypen (2020) also observes that in Turkish, back vowels and round vowels in the genitive suffix /-in/ influence vowels in the root so that all vowels in the word agree either in backness or in rounding. For example, the genitive /-un/, which has rounded back /u/, influences the vowel /i/ in /tur-/ resulting in *tur-un* that can be interpreted as ‘for the tour’ or ‘round’ (N)

Whereas the phonological modifications illustrated above help in the well-formedness of words, Copi (1978) notes that they become sources of ambiguities and refers to them as fallacies of accent originating from the way words or expressions are accented or articulated. Accordingly, the rounding of a spread /i/ in the case of Turkish, yields two semantic interpretations: *tur-un* ‘for the tour’ and ‘round’ (N)

In English, for example, Robinson (2007) observes that the pronunciation of the word *tunes* varied according to age; older speakers in the UK would pronounce a <y> sound in between the initial consonant and vowel of a word like *tune* or *dune* – so that they sound like ‘tyoon’ and ‘dyoon’ respectively. Younger speakers blend the consonant and <y> sounds into a <ch> and <j> sound, respectively. Thus, the word *tune* might sound something like ‘choon’, and the word *dune* might be pronounced like *June*, thus resulting in ambiguity of the word *tune*. This differs from the American variety of English, where speakers generally avoid the glide and simplify the vowel to <u>. They say /tun/ ‘tune’

Dimendaal (2002) further explains that generally in Kalenjin, derivational and inflectional processes trigger phonological modifications through processes of deletion, assimilation, coalescing, vowel quality modification, and insertion, among others. For example, in Endo, the definite suffix /-ta/ attaches to nouns that end with nasals and, through homorganic nasal assimilation, /t/ agrees in voice with the nasal consonant. First, the palatal /ɲ/ is alveolarised because of its closeness to /t/, and secondly, /t/ is voiced due to its closeness to the nasal /ɲ/.

- 1) peny → pen- ta
 meat IND meat-DEF

Words formed by affixation in Endo undergo several phonological processes, for example, in 2) below, *petu-syek* ‘the days’, the vowel in the plural suffix /-ik/ first coalesces with /a/ in the root to realize /e/. This, in turn, creates lengthening of the vowel that precedes it. The alveolar /s/ that precedes /e/ is also palatalized, and the final word is /petu:ʃek/-

- 2) petu-sya-ik → petu:ʃek
 Day-TH-PL-DEF the days

In some cases, as it is in 3) below, it is the supra-segmental features that are responsible for word formations. For example, when the VEN [-u] and DAT [-ʃɪ], which are strong [+ATR], attach to words, all vowels in the word become +ATR

- 3) la:ɲ la:ɲ-u
 Climb climb-VEN
 (He is climbing in this direction)

Examples 1, 2, and 3 above point to the fact that, apart from helping in aligning affixes in Endo, phonological processes are responsible for patterns of words which create new levels of interpretations. For example, deletion of /p/ in the gender markers /chep-/ (feminine)

Another example is seen in words like *ka-i-rok* ‘you are ready’ where the vowel /a/ in the past tense prefix /ka-/ coalesces with the second person singular /i/ that follows in order to form a long /e:/. The result is in examples 7a) and 7b), where in a) the word is interpreted as an action self-initiated, or in b) externally initiated.

	a)		b)
7)	ka- i- rok	→	ke:- rok
	PST- 2S- finished		PST- finished
	You are ready (by self),		you are ready by (self /other external force....)

It is also noted that in Endo, when coalescence or deletion processes take place, new patterns and arrangements of affixes arise. For example, slots/paradigms that are ideally occupied by DEF may remain empty because of the lengthening of the POSS, leading to the deletion of DEF /-et/.

8)	(a)	lakw- et- ap koko
		Root- DEF- POSS grandmother
	(b)	lakw- a:p koko
		Root- POSS grandmother

In 8a), DEF is marked by a segmental /-et/ and the pattern is the usual ROOT+DEF+POSS, but in 8b) DEF is marked by length on the POSS, and thus the slot for DEF becomes empty. This creates a new pattern, ROOT+POSS.

This brief introduction to the interaction of phonology and morphology in Endo is necessary to appreciate the next sections on social aspects of the speakers as a separate language group from the other Marakwet varieties.

1.2.2 Introducing the Marakwet Community

This section gives brief information about the speakers of Endo in terms of their ecological zones, origin, and migration patterns, and their socioeconomic practices. I have also included here reasons why Endo is considered a language variety, and finally, I provide a brief on the phonological aspects of the language.

1.2.2.1 Location and Ecological Zones

Greenberg (1963), Blench (2010), and SIL (2009) classify Marakwet as one of the Kalenjin languages within the Southern Nilotic branch in the Nilo-Saharan group, with a speaker population estimated at 234,614: National Bureau of Statistics (2019). The tribe comprises Cherangany, Almoo, Endo, Sambirir, and Kiptani clans. The speakers live in the Elgeiyo-Marakwet County and are spread across Marakwet West and Marakwet East. Within Marakwet West (the highlands) are the Cherang'any (Sengwer), Sambirir, and Almoo speakers. In Marakwet East (Kerio valley), we find the Endo, Markweeta, and Kiptani. In this discussion, Endo is the focus language group.

The word Endo here denotes four things: first, the geographical location where the speakers are found (between Tot on the South and Kaben on the North along the valley), and the language spoken by the people who live in the Endo location. Using the name of the language as the name of the geographical location could have been a strategy by the missionaries and colonial administrators to avoid tampering with local boundaries and groupings. This trend in Kalenjin is witnessed among the Keiyo, Nandi, Kipsigis, and Tugen, among others. The word Endo also refers to the river that flows along the Kerio valley from the southern end (Keiyo Sub-County) to the north (Pokot), draining its water into Lake Turkana. The river attains different names in different regions; on the Keiyo side,

it is called the Kerio River, but around the Endo location, it is called Endo River. This is because the different groups identify themselves with the river differently; as the source of livelihood for their animals and for others, the source of water for domestic use. Lastly, Endo refers to the people who speak the Endo language, in that a person who speaks Endo is known by others as “*endowin*”. On the contrary, they consider other Marakwet people who live outside the Endo region and speak in other Marakwet tongues as “*Markwetin*.”

Three ecological zones separate the inhabitants of Marakwet: the valley (eastern territory) that lies at 3,500 feet. And the highlands (the western territory that includes Cherang’any, at 11,000 feet). Between the two zones is the escarpment (hanging valley) with altitudes that average 6,000 feet.

There are three versions of the meaning of ‘Marakwet’: Kipkorir (2009) says the word resulted from a distorted pronunciation of “Markwetta” by the colonialists and referred to a section of Marakwet people found between *Tot* and *Chesongoch* villages. Speakers on the extreme Northern side claim that the word “Marakwet” is a combination of “*mer*” (work with) and “*kwata*” (mud), and thus suggests a community that uses mud to make furrows for irrigation. The third is a claim by speakers found around Chesongoch and Tot that the word is a combination of the verb “*mar*” ‘search for’ and “*kweta*” ‘he-goat’, and to them, it refers to goat keepers. Despite the claims, the word generally points to a population that generally occupies geographical territories between Cherangany in the western highland and Endo in the eastern valley.

1.2.2.2 Origin of the Marakwet Community

Many arguments support the claims of Kassagam (1997) that Kalenjins in general originated from Egypt, travelled southwards to Sudan, and later dispersed around the Elgon

region. The first is Sambu (2011), who uses linguistic features to front the idea that the Kalenjin speakers are likely to have originated from Egypt. He demonstrates these using words like *asis* and *isis* ‘sun’ occurring in both Kalenjin and Arabic in ancient Egypt. He also notes that words like ‘Egypt’ and ‘Pharaoh’ relate to the Kalenjin words ‘ka-chiptai’- God’s sanctuary and ‘para-oo’- massive/vast, respectively. Secondly, Kipkorir et al (2009) observe that some Marakwet mythologies and theories contained in narrative collections (like those by Kipchumba 2010) point to the origin of Marakwet sub-groups. Kipkorir (1973) states that Marakwet oral traditions like the Talai legend: “The fall of the Rock Mountain,” and “*Kipteber*,” are centered on “*Misri*,” further giving hints to the origin from Egypt.

The third argument by Henrietta (1987) and Butzer (1976) suggests that there are similarities in the way furrows are designed and managed in Egypt and Endo. Specifically, the way in which water is controlled and distributed in Egypt (around the River Nile) is similar to how it is done in Endo, and this may partly confirm that at some point in time, the two communities may have existed together. Lastly, Kodalo (2000) states that the Marakwet sub-group moved eastwards in search of greener pastures for their animals, avoiding calamities and diseases, and generally to be in a conflict-free region. On its way, the Marakwet cluster fragmented into three groups, namely Cherang’anyi (the current Sengwer), Almoo (Sambirir, Chebara, and Nerkwo), and Endo (Endo, Sambalat, and Kaben)

1.2.2.3 Socio-economic Practices of Marakwet

Socially, the Marakwet community lives in villages called “*aret*” and shares common ancestry represented by common totems. Villages that share a common totem form a clan,

and there are thirteen patrilineal clans, each is distinguished from the others by particular totems - animal, bird, or a feature of the natural world. These clans are: ***Kabon, Moi, Kobil, Mokich, Saniak, Sogom, Sot, Syokwei, Talai, Terik, Ting'o, Toyoi, and Tul***. Totems help in preventing intra-marriages and are also useful in identifying livestock that belongs to each clan.

Clans exist above the village and are organized in a way that the highest organ of authority is “*asiswo*” (adult males) who decide on behalf of the community in terms of serious matters like war, curses, and land disputes. Below the clan is the village and family unit headed by the father (allowed to marry more than one wife), who oversees internal family discipline, livestock, apportioning, and succession of land matters. However, settlement of sensitive disputes touching on infidelity and witchcraft required the father to seek assistance from a “*kok*” (a group of close male age mates). Matters beyond “*kok*” were handled by “*asiswo*” (general public meeting), whose decisions are final, and any petitions beyond this were considered taboo and were subjected to curses. Circumcision for both boys and girls was done every 10 years in order to separate the different age sets. Elders would conduct circumcision if the number of the elderly had reduced and required a kind of ‘replacement’ of the aging set.

The three ecological zones dictated different economic and agricultural activities. In ***keu*** - the valley, high temperatures and sandy soils sustain crops like cassava, sorghum, and millet. Clans that have furrows plant crops like mangoes, bananas, and avocado for commercial reasons. There is also successful beekeeping done along the valley. In ***lagam***- the escarpment/hanging valley, people practiced crop production: maize, millet, sorghum, bananas, and mango farming using irrigation. In ***Mosop***- the highlands, dairy farming and

crop production were practiced around the Embobut forest. The community practiced a special kind of inter-dependence described by Saina (1996) as “tilya” survival system – as a tradition, clans faced by drought or other insecurities would seek assistance from other clans and later reciprocate the same gesture. An old practice of barter trade continues at the Aror market, where people from Marakwet converge to exchange commodities like goats, sheep, honey, and cassava for maize, sugar, and clothing.

1.2.2.4 Endo as a Separate Variety of Marakwet

Rottland (1983:139) and Zwarts (2003:12) argue that within the larger Marakwet language, there are other linguistically identifiable sub-groups spread from the extreme South (bordering Keiyo) to the furthest North (neighbouring Pokot). They refer to them as Markweta and Endo, respectively. Henrietta (1978) and Zwarts (2000) observe that Endo is the variety spoken in *Endow/endaw/* location- between “*kabaldamet*” and *kapen* (bordering West Pokot). It is spoken by about 20,547 speakers: National Bureau of Statistics (2019)

Members of the Marakwet communities are conscious of the fact that Marakwet has three different language varieties. Dimmendaal (2011) confirms the same assertion that sub-groups exist within the Kalenjin language clusters and can be isolated by their unique tonal, inflectional, and derivational patterns. Mietzer (2010), citing Rottland (1981), names two of these Marakwet sub-dialects as ‘the Northern’ and ‘the Southern.’ Part of the linguistic evidence that distinguishes Endo from the other Marakwet sub-groups is lexical, phonological, and morphological. Kipchumba (2010) identifies examples of words that differ across these groups.

This is shown in the table below,

Endo	Almo	Cherangani	gloss
<i>Álpá</i>	<i>pài,</i>	<i>pài,</i>	grain
<i>ʃálpát</i>	<i>ʃérotwo</i>	<i>ʃérotwo</i>	aloe
<i>sókɔɪ</i>	<i>sese</i>	<i>sese</i>	dog

Phonologically, it is noted that for some words, Endo changes the palatal /j/ to retroflex /ɾ/ whenever the former is preceded by H front /i/. For example, *kɪɾ* ‘something’, *mwar-ta* ‘oil/fat’ and *ar* ‘do/perform’. This /j/ is retained in Almo and Cheranganyi as in *kij*, *mwaita*, and *aj*, respectively. In other cases, Endo has an intrusive /ɾ/ that precedes /j/, for example, in *pirj-an* ‘faecal matter’ and *kwerj-an* ‘one shoe’. This /ɾ/ is omitted in the other sub-dialects: *pɪj-ɔt* and *kwej-ɔt*. It is also evident that some words in Endo introduce -ATR /ɔ/ as an end vowel in some monosyllabic and disyllabic words, and this feature is not common in the Marakwet sister languages. For example, in Endo we find *kaɔ* ‘home’ and *endaɔ* ‘endo’

1.2.2.5 Basic Phonology of Endo

Zwarts (2003) and Bible Translation and Literacy (BTL) (2006) describe the phonology of Endo as characterized by 10 vowels and 13 consonants.

a) The vowel system

The vowel system expands through phonological features of tongue root, height, and tone, which are grammatical in the language and mutually exclusive. This means that vowels belonging to the same set occur within a word. The vowels are shown in the table below.

+ATR	-ATR
i	ɪ
u	ʊ
e	ɛ
o	ɔ
a	ɑ

Backness or the frontness of vowel quality in Endo can be used for both derivation and inflection. For example, when +ATR /o/ in monosyllabic *rò:r* ‘calf’ changes to –ATR, the new word-form becomes a verb, *rɔ̀:r* ‘laugh’. In the same way, a disyllabic noun like *tòkòl* ‘bag for storing honey’, which has +ATR vowels, changes to an adverbial form through change of vowel tongue root to –ATR and thus *tɔ̀kɔ̀l* ‘all’. Inflectional processing through the tongue root is rather complex since it involves first a derivation stage before an inflection is effected. This means that when vowels in lexical verbs like /*ken*/ ‘deceive’ and /*chor*/ ‘steal’ are characterized by +ATR change to –ATR, two processes occur at the same time: a derivation of a noun from the verb and a plural assignment. Thus, /*kɛn*/ ‘deceivers’ and /*chɔr*/ ‘thieves’. Notice that in this process, the semantic principle is maintained in the derived words and thus in the inflected forms; deception in the first example and theft in the second.

It is also noted that the height of vowels is significant in Endo. For example, in minimal pairs like *pir* ‘beat’ and *par* ‘kill’ or *sir* ‘write’ and *sar* ‘reduce’, it is height that separates the meaning. It is also observed that although the low vowel /a/ and the high /i/ are phonemic and distinguish meaning, they portray a peculiar aspect in which their distance from the ‘rest position’ of the tongue relates to different levels of past tense marking. For example, the low /a/ ‘rest position’ marks the immediate past, /o/ ‘slightly above rest position’ marks the remote past, while /i/ ‘high above rest position of tongue’ marks the distant past. This could be found in words like /*ka*-sit/ ‘I have just taken’, *ko*-sit ‘you took’, and *ki*-a-sit ‘I took’, where /ka/, /ko/, and /ki/ mark immediate, recent, and distant past, respectively, and have a relation to how high towards the palatal ridge the apex of the tongue goes.

Height in the language is also used to mark grammatical person, especially when the vowel is prefixed to a lexical verb. For example, the low /a/ marks the first person singular and the high /i/ marks the second person singular. This is shown below,

9) a-ʃona
1S-come
I am coming

10) i-ʃona
2S-come
Are you coming?

This would suggest that in Endo, the height of the vowels has an association with ‘distance’ either in relation to time or person. In other words that the lower the vowel, the closer the time and the more it relates to the first person (singular). The opposite is that the higher the vowel, the further the distance is in time (in the past), and the person shifts away from the first to the second.

Length is also a key phonological aspect in Endo and functions both for inflection and derivation. An example of inflection is when words like *mósók* ‘widow’ and *írín* ‘root’ are in singular form, but when the vowels /o/ and /i/ in the second syllable lengthen, the words become pluralized without further orthographic alteration, thus, *mòsó:k* ‘widows’ and *irí:n* ‘roots’. As relates to the derivational function, adjectives like *kúskús* ‘light’ and *ápnín* ‘sweet’ become verbs, *kúskú:s* ‘lighten’ and *àpní:n* ‘sweeten’ respectively when the vowels /i/ and /u/ in the second syllables are lengthened.

Endo is characterized by about four different tone patterns that are used for lexical and partly grammatical marking. These include high, high fall, low, and fall rise. High tone is associated with almost all monosyllabic verbs, while low tone characterizes monosyllabic concrete nouns. The rising and falling of tone is mainly used in phrasal environments and

helps in avoiding vowel sequences and mostly at syllable boundaries. Dimmendaal (1986), citing Toweet (1979) and Creider (1982), notes that tone is largely derivational in Kalenjin. At the lexical level, monosyllabic nouns like *pàn* ‘corn meal’ and *kèl* ‘leg’ contain vowels characterized by low tonal marks, but when the vowels are articulated with high tones, *pán* ‘bewitch’ and *kél* ‘fry’, the words become verbs. In some words like /*pánán*/ ‘poverty’, reorganization of tone to LH leads to a shift from abstract noun to the verb /*pànáń*/ ‘become poor’. At the grammatical level, high fall or fall rise may distinguish between different grammatical persons. For example, /*mà-íp*/ ‘he/she/they didn’t take’ and /*má-ìp*/ ‘I didn’t take’, falling in which fall rise suggests third person, while rise fall marks first person. This points to the fact that phonemes in the language go beyond the five segments to include all the prosodic features that contribute to lexicality and grammatical formations.

b) The consonant system

The consonant inventory in Endo is brief and characterized by voiceless plosives /p, t, k/, alveolar fricative /s/, and palatal /ʃ/. These are presented in the diagram below,

	Labial	alveolar	palatal	velar
Plosive	p	t	ʃ	k
Nasal	m	n	ɲ	ŋ
Trill		r		
Fricative		s		
Approximant	w		j	
Lateral approximant		l		

Rottland (1982) observes that the voiced plosives /d, b/ and /g/ only arise under two conditions: inter-vocalically and through pre-nasalisation. The voiced plosives arise intervocalically when their corresponding voiceless forms appear in between mid/e//e/ and this can be seen in words like *kébén* ‘hole’ and *idén* ‘respond’ where voiceless /p/ and /t/ occur inter-vocalically. Voicing also arises when the voiceless /t,p,k/ are prenasalized as in

emba ‘land of’ *konda* ‘eye’ and *ɲgol* ‘harden’, and when voiced plosives are preceded by /l/ as in *kelda* ‘tooth’ and *elge* ‘take cover’. Such a trend makes Lodge (1995) describe voiceless consonants in Kalenjin as generally allophonic variants. It is also observed that the lateral /l/, by voice assimilation, conditions voiceless /t/ to a voiced /d/. However, in the language, /s/ appears resistant in all circumstances to take the voice feature, even when it occurs after voiced lateral /l/ or retroflex /r/. This is aided by the fact that all arrangements of /-ls-/ or /-rs-/ create a lengthening of the preceding vowel and thus allow the combination of a voiced+voiceless arrangement. For example, /maalso/ ‘act of plastering’ or /waarso/ ‘act of scratching’. However, a fall-rise tonal pattern is also responsible for the process.

1.3 Statement of the Problem

Affixation in Endo is a productive word formation process in which derivational and inflectional affixes attach, consequently triggering phonological processes like deletion, epenthesis, and coalescing, among others, which are useful in the formation of words that are not only articulable but also interpretable by the native speaker. For example, epenthesis or deletion helps to avoid double consonants across morphological boundaries as per the rules and patterns of the language. However, as the processes of phonology help in the attachment of affixes, suprasegmental aspects of tone, length, and tongue root are also triggered, which in turn lead to lexico-semantic interpretive complexities and, in some cases, affect the arrangement of morphological patterns.

The above interplay is explained in Lexical Phonology (LP) theory, which ideally provides principles that account for the interaction of morphology and phonology. It proposes lexical and post-lexical levels for scanning the correctness of word formation through structure preservation, strict cyclicity, and level order to filter out any violations. The three principles

account for the linear relation of morphological elements as ordered by phonology, but in Endo, aspects of tone, length, and tongue root complicate such linearity. The theory assumes that morphological rules begin at the root before spreading outwards as other prefixes or suffixes attach, and the entry of a particular affix generates several phonological demands that must be fulfilled at each level before progression of the process to subsequent levels. The study, therefore, analysed how triggered aspects of phonology contribute to extended lexical and semantic interpretation and how LP theory sounds rigid and may not address unpredictable interpretations in certain instances.

1.4 Aim and Objectives

1.4.1 Aim

The main concern of this study is to first describe and analyze how affixes attach in Endo triggering phonological processes, which in turn (other than aiding in affixation) result in semantic ambiguity, unpredictable lexical categories, and new affix order, and secondly to examine the extent to which Lexical Phonology (LP) Theory addresses these concerns.

1.4.2 Objectives

The study sought to achieve the following objectives:

- i) To describe the nature of inflectional and derivational affixation properties in Endo
- ii) To examine processes of phonology that are triggered when inflectional and derivational affixes attach to bases and roots in Endo.
- iii) To analyze the lexico-semantic interpretive complexities that arise as processes of phonology aid in affixation in Endo.

- iv) To assess the extent to which Lexical Phonology (LP) theory explains well-formedness of words by affixation in Endo

1.5 Research Questions

This research seeks to provide explanations and descriptions of the following questions:

- i) How are inflectional and derivational affixes distributed in Endo?
- ii) To what extent do phonological processes like deletion, lengthening, backing, coalescing, and reduction, among others, facilitate inflection and derivation in Endo?
- iii) How predictive are phonological processes in attaining well-formedness in affixation in Endo?
- iv) How suitable is Lexical Phonology (LP) theory in explaining inflection and derivation as word formation processes in Endo?

1.6 Assumptions

This thesis is based on two assumptions:

- a) That phonological processes like deletion, epenthesis, coalescence, and vowel reduction, among others, help in facilitating non-violatable morphological attachments that yield well-formed derivations and inflections as per rules in Endo.
- b) That Lexical Phonology (LP) Theory provides the checks against rule violations in word formation by proposing lexical (lexical rules) and post-lexical levels (phrasal rules) for checking well-formedness. In both levels, word formation is scanned through observing principles of structure preservation, strict cyclicity, and level order in order to attain words that conform to the rules of the language.

1.7 Justification

Endo is a sub-dialect of Marakwet that largely relies on morpheme combination for derivation and inflection at the word and at the phrasal levels. However, the attachment of these morphemes in many ways results in triggering of phonological processes that, in Endo, affect not only the process but the outputs as well. These resultant word-forms could be complex to interpret at the lexical and semantic levels. This thesis was based on the understanding that a useful analysis of word formation must make an assessment of the interaction between morphology and phonology and the attendant effects. The researcher observes that from the literature reviewed, not much exists on the interaction of morphology and phonology in Kalenjin languages. What is there are publications on specific areas of phonology and morphology as separate levels, and some of these include the works of Toweett (1975), Creider and Creider (1989), Dimmendaal (2009, 2012), and Kipchumba (2010), among others. Although these works contain the necessary details on both morphology and phonology, they do not engage in the resultant interpretive analysis of the final word forms. The study also comes into builds on the literature that surrounds the validation of LP theory using data from an agglutinative language (Endo) of the Nilo-Saharan branch. It offers some arguments related to how prosodic aspects may contribute to the violation of rules in word formation, which may not be the case in stress languages like English.

Earlier scholars have alluded to the fact that within the Marakwet Geographical space, there are different sub-dialects that can be identified by their unique lexical, phonological, and semantic aspects. These include Rottland (1981), who provides a linguistic mapping of the boundaries of Almoo, Endo, and Cherangani based on the articulation of /r/ and /l/. Zwarts

(2003), on the other hand, describes the phonology and number system of Endo, while Mietzer (2010) describes the grammar of Cherangani. These works, though useful, do not offer descriptions in morphology nor the relationship between phonology and morphology. This study, therefore, intends to provide a phonological and morphological description of Endo as a way of concretizing the phonological and morphological aspects of one of the areas identified by Rottland as North Marakwet and using /r/ instead of /l/.

The inhabitants of the Endo location have, since 1902, been in constant war with their neighbors, the Tugen and Pokot. The fact that Endo is different from the rest of the Marakwet sister languages leaves the question as to whether they speak a language similar to that of their enemies. A study of the phonology and morphology is one way of responding to the complexities surrounding such differences.

1.8 Significance of the Study

To begin with, this research will provide significant contributions to the debate that Endo is a unique language with a different phonology, as argued by Rottlad (1981). Data from the research will go a long way in contributing to documentation efforts by other linguists who consider the language as endangered because of reduced population caused by deaths and displacements of its native speakers by constant clashes with the Pokot over livestock. Moore (1987) traces these wars to 1902 and indicates a reducing population from 18,530 in 1962, 16,590 in 1969, to 11,971 in 1979. Thirty years later, the 2009 census put the numbers at 18, 181 and a slight rise in the 2019 census to 20,547.

The findings will provide linguistic information necessary for understanding the complexities of the morpheme based on a southern Nilotic language.

This study will also provide additional data backing up assertions by Rottland (1981), Creider (2001), and Otterloo (1979) that the three dialects in Marakwet are distinct and divergent. The morphological and phonological descriptions can be used in linguistic comparative studies. Descriptions of the morphological and phonological aspects of Endo, and the interactions of the two levels, can provide information to comparative linguists who may use it for comparison with other Marakwet sister languages (Almoo, Sengwer, Markweta. Such information could be useful in establishing the credibility of assertions made by the three scholars above.

Lastly, a morpho-phonemic study of this nature is intended to shed more light on the complexity of the morphology/phonology relationship and how the interaction of the two impacts on semantic issues in language.

Moreso, my review of literature revealed that this study is among the few that have studied the Morphology and Phonology of Endo using the lenses of Lexical Phonology Theory. The slimness of such studies could be attributed to the fact that many scholars treat Marakwet as a unit instead of appreciating the diverse varieties. Other studies also consider Kalenjin as a linguistic unit and fail to appreciate the detailed and important linguistic elements that separate specific varieties. Studies like Chelimo et al (2012) and works by CASAS treat the various subvarieties as separate entities and bring out linguistic divergence at various grammatical levels. The descriptions earlier provided by Rottland (1981) and Zwarts (2004) take separate morphological and phonological descriptions without considering their interactional effects. This study, therefore, offers significant insights into the lexico-semantic and affix assembly reorganisations that emanate when phonology aligns morphological properties. To this end, the study is useful for scholars in

corpus linguistics and linguistic theory and those interested in studying relations between data and theory.

1.9 Scope of the Study

This research was carried out within the Endo location, where the majority of speakers are located, with samples drawn from villages within Endo. Data collection for this study began way back in September 2012, extending to July 2015 in a project known as '*DFG Deutsche Forschungsgemeinschaft - Die Marakwetsprachen*', which was a larger linguistic activity funded by the German Linguistic Research Foundation through Cologne University. The project was aimed at establishing, through data, the claims by Rottland (1982) that Marakwet has identifiable dialects within it. Formal permission was sought to use lexical data from the larger project for this study.

The discussions on this thesis are on four major aspects: the nature of affixes in Endo, the phonological processes triggered in affixation, interpretive complexities arising from the morpho-phonological interplay, and how LP theory explains morpho-phonological interaction in affixation. At the morphological/phonological level, the study identifies and describes the attachment of derivational and inflectional affixes in the language (segmental and supra-segmental) and provides explanations of basic phonological aspects that arise from the attachments. These include processes of deletion, epenthesis, coalescence, gemination, reduplication, and vowel raising, among others. The study further considers how the triggered phonological processes contribute to the interpretation of the final word forms and the impact it has on affix order.

The purpose of describing morphological-phonological interactions is to demonstrate how, through the tenets of LP theory, native speakers can cope with challenges of lexical and semantic interpretations arising from affixation.

Since the study is basically about revealing how phonological processes aid in affixation, there is no engagement with issues of establishing which affixes are best preferred during affixation. Thus, any affix that helps in word formation is the key component of the study. Determination of affixes that can best be selected for specific word formation is not important since that would amount to doing an Optimality perspective of study.

1.10 Theoretical Framework

Lexical Phonology (LP) theory was proposed by Kiparsky (1982, 1985) and later developed by Mohanan (1984, 1985, and 1986) and Mohanan & Giegerich (1999). Other contributions include the works of (Booji, 2006; Aronoff, 1994a, 2007; Steriade (1988), McCarthy and Prince (1990), and Blevins (2005, 2006), with the recent being the works of Oostendrop (2005) and Hillary (2007).

The theory basically deals with the organisation of grammar with respect to morphology, phonology, and the lexicon. It attempts to account for the intricate morpho-phonological relations and processes that occur within the lexicon. It argues that in the formation of a word, phonological principles apply inside the root/stem forms, at the lexical level or at the post-lexical level/phrasal level in conjunction with morphology and language rules of grammar (Mohan, 1986). It holds that a well-formed phonological word must be a string created by the morphological component through application of the phonological rules of the language in an appropriate order. In such words, the syllables must sequence logically, and all prosodic features must be well accounted for. In contributing to the workings of the

theory, Clark and Yallop (1990: 349) note that word production begins with abstract underlying forms, to which morphological components that provide the different affixed and compounded forms (via derivation and inflection) are transformed into their surface forms, which are fed by lexical rules.

This study concerns affixation in Endo and how semantic ambiguity, multiple lexical interpretation, and at times different morphological arrangements arise. For example, in *ka-i-rok* ‘you are ready’, the vowel /a/ in the past tense prefix /ka-/ coalesces with the second person singular /i/ that follows to realize /e:/

The result of this is a word with two semantic interpretations

a)		b)
11) ka-i-rok	→	ke:-rok
PST-2S-finished		PST-finished
You are ready (by yourself),		you have made yourself ready/ Someone has made you ready

According to LP, there are three principles to be fulfilled: cyclicity, level ordering, and structure preservation, which help in checking the plausibility of affixation at every level. The best way to represent inflectional and derivational word production processes is to use a sequence of linked and ordered levels of affix attachment following a cyclic pattern and preserving acceptable patterns (Katamba, 1989: 257).

1.10.1 Cyclicity, Level Ordering, and Structure Preservation

LP theory proposes that the morphological processes of any language naturally follow a cyclic and level-ordered pattern. To begin with, cyclicity for this case implies that the application of rules begins at the root before rules are spread to apply outwards as other prefixes or suffixes are attached. It indicates that phonology is applied at that level after one affix is added to the root, and then another affix is added after the prerequisites for the

first addition are met. This process of adding affixes and phonological condition fulfillment continues until the complete lexical form is attained. This kind of application portrays a cyclic kind of operation where each level constitutes a new domain that allows for rules of both phonology and morphology to apply (McMahon, 2000:43). This process is summarized in the template below, where the root is at the center and rules can apply either to the left or right.

“[[level 2 aff.] [level 1 aff.] root [level 1 aff] [level 2 aff.]]”

Secondly, level ordering as a principle of LP, on the other hand, implies that a strict order of affix attachment is followed, whereby the entry of a particular affix generates several phonological demands that must be fulfilled before the affixation process progresses to the next level. To be specific, each level that is generated by affixation has its own set of phonological rules applying to the complex words created at that particular level. For instance, roots (underived lexical objects) at Level 1 include words like cow, cry, owl, back, and so on that are essentially made up of a single morpheme. These morphemes represent significant abstract meanings that are used as building blocks to construct more concrete "nominative" meanings for words (Inkelas, 2008). This is due to the possibility that stems' derived phonological characteristics have an impact on word formation (Booij, 1995).

At this level, there are no word-formation rules that have applied to produce such words and remain uninflected. They surface in the lexicon with the same phonological, grammatical, and semantic characteristics. The theory indicates that level 1 prosodic features (tone, length, and tongue root) in agglutinative languages set the stage for the determination of the lexical categories. For example, native speakers in Endo understand

ngeet ‘wake up’ as a lexical verb and *nget* ‘be tired’ as a stative verb. The former has a long vowel /e:/ while the latter has a short vowel /e/. With this initial information, the native speaker is able to determine affixes to attach to each. To the lexical *ngeet-u* ‘wake from this side’, the ventive /-u/ is attached, but the same cannot attach to a stative verb. This suggests that supra-segmental rules, which govern the type of rules that follow in level 1 rule applications, are present at level 1. These rules typically impact vowel quality and tend to produce significant changes in the root to which they are attached. For example, in Endo, vowels in monosyllabic verbs are H (/pét/ ‘split’), while those in monosyllabic nouns are L (/pèt/ ‘people who split’). These pre-coded tone feature helps in predetermining their lexical status, and native speaker intuition will then assign affixes that attach to each category. For example, /pet/ ‘disappear’ will attach with the nominaliser /-ik/ because the default H in the root will harmonise with the H in the nominaliser to create HH and mark NOM. However, monosyllabic nouns by default have L on the root, preventing lowering of H on the suffix /-ik/. This would create a phonologically problematic articulation of LL as shown in 12) below,

12)	Verb	noun
	pét	pèt
	pet-í:k	*pèt-ì:k

In this example, the verb with the H vowel will attach with /ik/ and H tone shifts to the second vowel, creating length on the same. The created phonological environment isn’t possible with the noun, which has an L vowel, and thus, LLL creates an articulatory difficulty.

Additionally, at this level 1, it's likely that the words affixing will take the form of bound morphemes like ‘ab-’ and ‘-duct’ as in ‘abduct’ or ‘con-’ and ‘-ate’ as in *conjugate*. Such

morphemes are also pre-characterised by some phonological features, for example, in English, ‘ab-’ is generally unstressed at the initial of words, for example, in /æb'dʌkt/. Even though they need to always be connected to another form and cannot exist separately (Katamba, 1989: 259), they contain important phonological features useful at level 1. In agglutinative languages, it is at this level 1 that roots and bound morphemes are bound to trigger the initial application of a specific set of features and phonological rules (mainly supra-segmental) that will be useful in determining progression to the second level.

For example, in Endo, roots like *kèt* ‘tree’ and *két* ‘trees’ are both monosyllabic and orthographically similar but differently marked for tone as L and H, respectively. This pre-determined tonal template prepares the phonological ground for all other derivational or grammatical affixes that will attach in level two.

Thirdly, the theory also proposes a structure preservation principle, also known as change inhibiting, by Kiprasky (1985). The principle suggests that any phonological rule that is likely to violate a language’s permitted phonological structures in a lexicon is prevented from applying. He gives an example in Catalan, where the nasal rule is responsible for the homorganicity of nasal + consonant sequences. In this case, the nasal /n/ is constrained by the phonetic features of the consonant in the affix that attaches. The first rule to apply is a lexical one, which accounts for the deletion of segments that violate permissible clusters. For the case of Catalan, any consonants that do not harmonise with the place of articulation of the nasal are prohibited from applying as follows, thus [***bink**] is disallowed since /n/ is alveolar and /k/ is velar, thus not harmonic in place of articulation and violating a phonological principle in the language. However, the following are permissible: [**bint**] ‘twenty’, [**bɛŋk**] ‘I sell’, and [**kamp**] ‘field’. In these cases, there is agreement in place

between alveolar /n+t/, velar /ŋ+k/, and bilabial /m+p/. Technically, structure preservation is all about allowing rules to apply in a feeding order so that derivations and inflections are made without upsetting the acceptable patterns of the language.

According to structure preservation, native affixes in level 2 can be derivational or inflectional, and because of their previous level 1 forms, their phonological consequences and semantic qualities are more predictable. For example, in English, - *er*, which is a level 2 affix, is used to change a verb base into an agentive nominal, as in *read* and - *er* is *reader* or *speak* and -*er* is *speaker*. In Endo, *kèt* ‘tree’, which is already determined by a low tone in level 1 as a singular count noun, can qualify to select affixes that go with it. Rules of phonology will apply at this level to allow for the affixes to attach as per the rules of the language. This process will continue to Level 3 and so on until the final stage that produces acceptable word forms. Because rules apply in either direction of the root, the process takes the analogy of waves that start from the centre and spread outwards, or the separate layers of an onion bulb connected at the base. This means that, upon affixation, an underived lexical form only becomes well-formed after it has met phonological aspects of the particular level. In other words, native speakers must first determine the nature and form of the root of the lexical form (phonologically) before deciding on the next levels of affixation. For example, Rubach (2008), citing Siegel (1974), demonstrates that the English nominalization -*al* is attached to roots of disyllabic verbs with stress on the final syllable, but this is blocked if the final syllable is unstressed. This means that in Level 1, words like ‘*arrive*’ and ‘*edit*’ are roots that enter with predetermined stress patterns as per the main Stress Rule of SPE, as follows;

13)	arrive	edit	-unmarked form
	/ə'raɪv/	e'dit,	-cycle 1
	arrive+al	edit+al	-cycle 2
	arrival / ə'raɪvl/	*édit+al	- phonological form

In this example, the native speaker already predetermines that /ə'raɪv/ will phonologically attach with the suffix /-al/ while /e'dit/ will not because in English, /-al/ follows fricatives /f, s, r, v/ which are preceded like *refus-al*, *festiv-al*, or *buri-al*. This does not happen with words ending in /t/ preceded by /i/, and thus *edit* prohibits attaching with /-al/.

In the same way, root forms in Endo (largely monosyllabic) first receive tongue root or tone features, which primarily help to predetermine their lexical status. These initial features phonologically prepare the roots (and any affixes already attached) as morphological properties for the correct affixation processes in level 2. This suggests that already, as words enter level 2, their lexical categories and/or grammatical aspects have been determined. For example, in Endo, at level 2, any monosyllabic word can be determined based on the tongue root features assigned in level 1; +ATR vowels are determined as verbs, and those with -ATR vowels as nouns, as shown in example 14 below,

14)	+ATR	-ATR	Level
	ken	ken	uninflected form
	Ken	ken	tongue root feature applies – Level 1
	/ken/ 'deceive'	ken /ken/	semantic value predetermined – Lev 2
	/keni:n/ 'liar'	*ken-in	affix application – Level 3

In this example, +ATR /e/ in /ken/, which is useful for considering the word as a verb, phonologically allows for the addition of the nominalizer /-in/, which also contains a verb +ATR. However, the noun form /ken/ 'waiters' has a vowel which is –ATR, and therefore the suffix /-in/, which is a nominalizer, is blocked both phonologically and semantically since it cannot mark NOM on an already nominal form. In light of this, Salman (2008)

contends that the concepts of Strict Cyclicity allow phonological rules to only apply to sound strings that are joined by a word-formation rule operating at the same level. By so doing, structures that would appear otherwise ill-formed are checked from Level one, and errors are addressed at every succeeding level.

To further illustrate the linearity, pluralisation of the word /mor/ ‘throat’ to / morokti:n/ ‘throats’ in Endo, goes through different levels with rules that must be fulfilled before progressing to subsequent stages:

15) Morphology	phonology	level
more	underived form	
morook	attach NOM affix /o:k/	Level 1
morok	shorten /o:/ in suffix /o:k/	Level 2
Morok-Tin	introduces the PL suffix /-tin/	Level 3
morok-ti:n	lengthen /i/ in the suffix to compensate for omitted /o/	Level 4
morokti:n	‘throats acceptable output	Level 5

According to LP, the underived form /mor/ could yield a verb form or a noun form depending on assigned prosodic features. For this example, assigning a low tone on the vowel in the root enables native speakers to predict the word as a noun, /mòr/ ‘throat’, and this rule would block all other possible prosodic features that mark the lexical category. With this initial lexical determination at Level 1, a NOM specifier /ook:/ can then be attached, which, when subjected to Level 2, warrants deletion of one segment /o/to facilitate attaching of the plural /-tin/ at Level 3. This is because in the phonology of Endo, when long vowels are adjacent, like /-oo/ and /-i:/ in this case, length is usually shifted to syllables on the right. Thus, for this example, for compensatory purposes, there is lengthening of /i/ in the plural marker so that at Level 4, the final well-formed phonetic output /morokti:n/ ‘throats’ is realized.

The theory also dictates that the order in which rules apply in affixation is quite important, and phonology aligns such order. Affixes in many languages are generally restricted in occurrence and also conditioned by phonological parameters. Generally, in Kalenjin languages, prefixes attach before suffixes in situations where both are used. In Endo, tense and negator are exclusively prefixed, while motion and number markers are suffixed. In LP, all phonological and morphological conditions of tense and negation must be complied with before the motion and number.

- 16) ma-ki-**wir**-ta tukun
 NEG-PST.1P-throw-ITV things
 We didn't throw things

In theory, phonological conditions of the prefix closer to the root are first fulfilled before those at a distance. Thus, in 16), the prefixes are 1P 'ki', PST 'ki', and NEG 'ma'. One 'ki' is deleted to avoid redundancy, and the roles it played, of marking person and tense, are fused in the remaining 'ki'. The NEG can then attach to the new structure 'kiwir', thus creating 'ma-kiwir'. In the arrangement, the ITV comes at the end and correctly aligns to the phonological demands of the verb because /wir/ ends in alveolar /r/, and the ITV also starts with alveolar /t/, both of which phonologically share place of articulation. When this morphological arrangement is altered, the semantic interpretation of the final output is also affected, as seen in example 17 below.

- | | | |
|--------|-------------------|------|
| 17) a) | ki-ma-ki-pe | kau |
| | Pst-NEG-1P-go | home |
| | We didn't go home | |
| b) | (ki-)ma:-ki-pe | kau |
| | NEG-1P/PST-go | home |
| | We didn't go home | |

From this example, it is observed that the omission of PST marker /ki-/ in 17b) shifts the aspect of the distant past from the way position as shown 16a), and this leads to the creation of a new structure which, semantically, may not refer to a specific point in the past. The morphological effect of this is that there's a new affix order in which the prefixed PST marker in 17a) is reversed and is suffixed in 17b). This means that, as fixes are assigned by phonological processes, it is possible that their positions may be interchanged or some affixes pushed by prosodic aspects to new positions, which in turn lead to new assemblies of morphemes and consequently semantic interpretive variations.

The whole idea of roots/affixes being determined at level 1 and the addition of affixes being controlled by phonology at every level before the final phonetically acceptable form is summarized in the Lexical Phonology Theory model as described by Kiparsky (1982). The model explains that a word that is well-formed at the lexical level will still be phonologically and syntactically checked for correctness of lexicality and semanticity at the post-lexical level. Therefore, data for this study were analysed following the linear principles of the model, where at level 1, there is an inflected form of the word which progresses to level 2, where affixes related to lexical category are assigned, and at level 3, other affixes related to grammar attach before progressing to derivational forms. This continues as suprasegmental features come to aid in proper affixation. In the end, the output is words in the language expected to be well-formed and semantically sound. The model is expected as the template for well-formedness across languages. Since the study is partly concerned with the semantic aspects of words and affix order, the model also provides an avenue for checking well-formedness across the lexical level. It means words generated

via morph-phonological interaction must be tested for correctness phrasally. The model is shown in Figure 1 below,

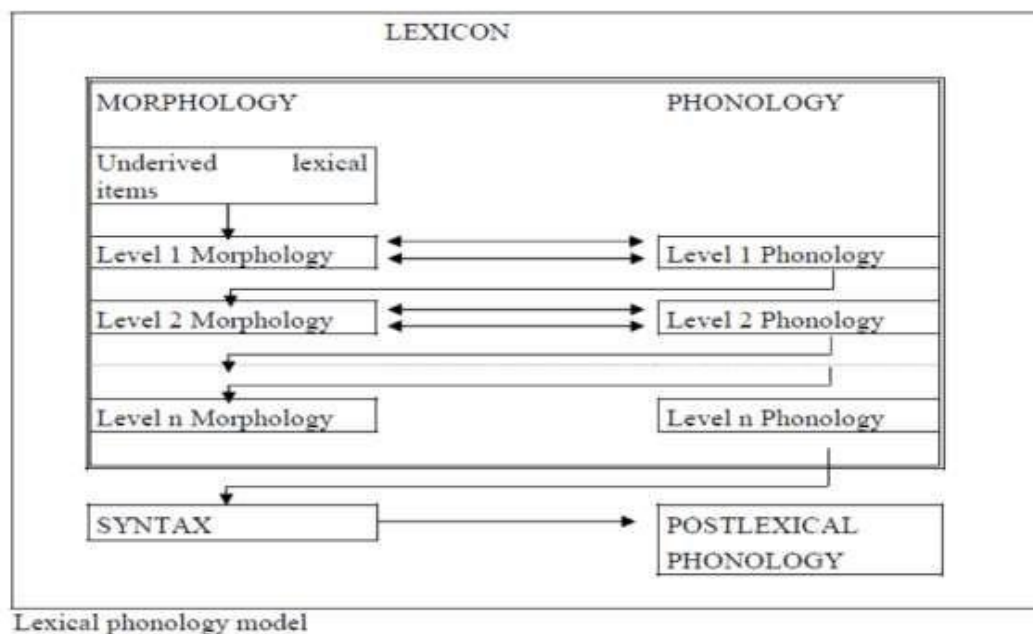


Figure 1: The Structure of Lexical Phonology (Adopted from Kiparsky, 1982:132)

1.10.2 Some deviations from Lexical Phonology Theory

Booij (2000) notes that Lexical Phonology focuses on the well-formedness of words through two main hypotheses:

- i) Morphology and (lexical) phonology apply in tandem and
- ii) There is a distinction between lexical and post-lexical phonology.

In a strict sense, Lexical Phonology concerns itself with how phonological processes aid in affixation according to a language's rules so that there is attainment of well-formed words. While this is true, this study envisaged that there are words in Endo which, after fulfilling the processes of affixation and word-formation criteria (strict cyclicity and level ordering of morphemes) as guided by LP theory, do not result in lexically and semantically

expected forms. And thus, this may point to the fact that LP theory is more focused on the well-formedness of words through morphological and phonological lenses, but there is less on the semantic and lexical status of such final forms. The point here is that a well-formed word in a language must fulfill all the parameters that relate to the word, which are primarily morpho-phonological, lexical, and semantic.

The study, therefore, holds that for Lexical Phonology theory to adequately address well-formedness in Endo, there is a need to integrate aspects of lexicality and semantics above morpho-phonological parameters, and by so doing, lexical formation would flow from phonology to morphology, to lexical form, and finally, the relevant semantic interpretation. This implies that, if we strictly go by the tenets of LP in analyzing Endo word formation, then it is possible that a well-formed noun in the language could ably become interpreted as a verb or both noun and verb, and not only the expected noun.

Such interpretive complexities arise from the phonological process that, in some cases, creates blurring and overlaps in lexical words. Since level ordering in LP concentrates on a single sort of interaction between word formation and phonology—the impact of morphological structure on the phonetic shape of complex words—Kaisse (1985) correctly concludes that level ordering is not the appropriate mechanism for expressing limits on affix combinations. For example, comparative and superlative word formation of monosyllabic (*warm* - *warmer*), or bi-syllabic with a light second syllable, as in *silly* – *sillier*, does not require any phonological alignment but rather a synthetic operation. This doesn't apply to Dutch adverbs *meer* 'more' and (*het*) *meest* 'most' respectively, which omit (et) after the determiner. The main argument here is that phonological processes are useful for affixation, although they occasionally trigger supra-segmental aspects, which in

turn may affect the interpretation of the final word-forms. Thus, it is one thing to attain a lexically conforming word (as per LP), yet it is another to interpret its semantic value (through the lenses of the language). For example, at the lexical level, deleting /p/ from the feminine marker /chep-/ results in a word with two interpretations: the name of a female person and the act of delivering a baby.

18) tʃep-tum ‘cheptum’ Female name	→	tʃe-tum ‘che-tum’ female name/to deliver a baby
--	---	--

In the same way, deleting /p/ from the locative marker /kap-/ results in a word that semantically denotes the name of a place and an act that is already complete.

19) káp-tʃèròp LOC-place Name of a place, name of place/ it has been bound	→	ká-tʃè-ròp Pst-INF-bind
---	---	----------------------------

This is also observed in the word *ka-i-rok* ‘you are ready’ where the vowel /a/ in the past tense prefix /ka-/, coalesces with second person singular /i/ to form a long /e:/. This is because the hiatus occurrence of two separate vowels in adjacent syllables is rare in Kalenjin languages. One way to resolve such, when they arise, is to coalesce the vowels, thus creating a diphthong or delete one, Vennemann (1988). The output is a verb with two possible semantic interpretations: force exerted internally or force exerted externally.

a) 20) ka-i-rok PST-2S-finished You are ready (by self),	→	b) ke:-rok PST-finished you are ready by (other external force....)
--	---	--

In other cases, through vowel harmony, -ATR vowel /a/ in the negator /ma-/ influences all vowels in the word into –ATR. This, in turn, makes the new word attain both an otherwise inative and ventive characteristics.

21) (a) ki-ma-**wir**
 Pst-NEG-**throw**
 He didn't aim an object at something/somebody

(b) ki-ma-**wir**
 Pst-NEG-**VEN something**
 He didn't throw something this way

Apart from lexico-semantic interpretive issues, it is also possible that affixes can attach successfully, following all the phonological processes but resulting in words that display morphological arrangements and positions that deviate from the natural order of a language. For example, in Endo, when the prefixed past tense marker /ki-/ is deleted, its role does not also disappear but is transferred and fused on the remaining 2P, /ki-/ , which then assumes the two roles: person and negation, and the usual order of PST+NEG is reversed into NEG+PST with intervening person markers. This is seen in 22) below

22) a) ki-ma-ki-pa kau
 Pst-NEG-1P-go home
 We didn't go home

b) (ki-)ma:-ki-pa kau
 NEG-1P/PST-go home
 We didn't go home

Example 22b) also shows that deletion of Pst /ki-/ generates lengthening of the vowel /a/ in the negator, which further triggers a lowering of tone across the vowels in the word. In Endo, when a high vowel occurs between two low vowels, such a vowel is either lowered or deleted altogether, though in Endo, it is mostly deleted. Thus, this new order is Neg+1P+go as opposed to the original PST+NEG.

/ma:ki-pa/ → /ma:kpa/ 'we didn't go'.

Another way in which Lexical Phonology theory deviates from controlling cyclicity and level ordering (word formedness) in languages is to consider the arguments of Listerri (1992) and Milroy (1987), who describe ‘speech style’ and how intra-speech features control productivity as opposed to rules explained in LP. They state that;

Definitions and categorizations may relate to the context in which the speech occurred (formal/ informal); to the task involved in producing the speech (read/descriptive/conversational); to the speed at which the speech is produced (rapid/slow); or to the amount of attention believed to be directed to the speaking process (casual/careful). (Pp. 52)

This suggests that every individual speaker has marked intra-style features that largely dictate and punctuate the individual’s speech style and mannerisms at the phonetic, phonological, phonemic, and, in some cases, syntactic dispositions. For example, factors that relate to the formality of speech and conversational aspects may, to a large extent, create environments that lead to a phonological or morphological deviation from the principles of LP. To this end, Kreidler (1989) notes that a linguistic feature may be realized differently by different speakers of the same language, and also different morphological and phonological features may be realized commonly by different speakers of a common language. To demonstrate this idea of speech style, Listerri (1992) presents a case in Hispanic phonology where researchers contrasted phonological forms in regular pronunciation from pronunciations made in more careful, attention-demanding scenarios. They observed that the speed of articulation in Hispanic is affected by the formality in which a speech is made and were able to demarcate four speed levels: slow and over precise, relatively slow in natural speech, fast in casual speech, and extremely fast in unconstrained speech. These speed differences arise from the amount of care and degree of formality taken by speakers and end up generating variations in the speed of

pronouncing the same words. According to LP, prosodic features like tone, length, and speed arise out of morphological operations through strict cyclicity and level-ordered operations, but the arguments of Listeri point to the fact that these prosodies may be triggered outside of the principles stipulated in LP and thus not analyzable in the theory.

Ariel M. Cohen-Goldenberg (2013) has also argued that in speech production by clinically impaired speakers, articulatory procedures deviate from the norms and do not follow conventional language rules. This means that there are morphological and phonological deficits that arise because of damage to lexical processes like morphological assembly, which lead to word structures that may not conform to the rules of the language. Buchwald & Miozo (2011) and Romani & Galluzzi (2005) term the deficits as ‘errors’ of segments (dog → [dæg]) or difficulties with prosodic features like stress (cigar → ^ccigar). This implies that an aphasic individual who has suffered neuro-psychological damage and has speech impairment will generate words that don’t obey language rules.

In most cases, affected areas include poor articulation, poor prosodic adherence like rate and pauses, improper morphological assignments and assembly, and word choices. Such an issue can manifest in one of two ways: either as intact post-lexical processing combined with impaired lexical processing, or as intact post-lexical processing combined with impaired lexical processing. The result of the above is that, in one way, an aphasic individual may generate lexical structures which do not conform to LP principles by any means (and by extension deviate from the language rules), the same ‘ill-formed’ structures are correctly interpreted at the post-lexical level, and listeners can assign correct phrasal rules to the same ‘ill-formed’ words. This is a case in which word formation fails to

conform to the lexical requirements at the lexical level but still fulfils post-lexical conditions.

The other way is when an aphasic individual generates words that fulfil lexical formation principles but fail at the post-lexical level. In other words, a word may appear correctly formed, but its interpretive position becomes problematic either because the speaker assigns it wrong syntactic positions or wrong lexical categories. Haim & Bat-El Foux (2022) experimented to compare an atypically developing Hebrew-acquiring boy with three typically developing boys. They observed that the three typically developing boys produced relevant phonological structures, but the atypical one erroneously produced /m/ in /-im/ ending verbs and trisyllabic forms in /-ti/ verbs. They ascribed this to a lack of phonological and morphological synchronization throughout the linguistic acquisition of structures. Ideally, LP theory requires that a word must be well-formed through the language rules at the lexical level before progressing to post-lexical levels. However, the theory does not seem to account for deviant structures, like those by aphasic individuals, which are improperly formed at the lexical level and are still able to enter into post post-lexical level successfully and fulfil syntactic requirements.

1.10.3 Post-lexical checks

The examples and discussion in the possible extended word interpretations are addressed by the theory through post-lexical checking. LP maintains that once a word has fulfilled all rules at the lexical level, it is further subjected to phrasal rules. For example, in Endo, to check for the correctness of lexically derived /ken/ (which could be a verb /ken/ ‘deceive’ or a noun /ken/ ‘mortar’), native speakers determine its status when used in a syntactic context.

- 23) (a) ne-**ken** **chich**, ki-me-weta kipsengwet
 if-deceive someone COP-NEG-go heaven
 If you deceive someone, you won't go to heaven
 (b) **a-ting'aa** **ken** nyopo ken
 1S-POS mortar REL-old
 I have an old mortar

In 23a), /ken/ occurs before a nominal element, which is a position set for verbs in the language. Ideally, verbs come before the nouns. In 23b), /ken/ comes after a possessive element. The two distinct environments show that in a sentence, even if a word had been generated wrongly through lexical phonology rules and level ordering, it can still be corrected for syntactic and semantic value at the sentence level.

It is also noted that in Endo, tone is a case marker where SUBJ receives L tone while the object has H tone, whether their order is interchanged or not. This means that a verb element must precede either the SUBJ or the recipient at all times. Thus, if /pet/ had passed at the lexical level as a noun, instead of a verb, then at the post-lexical lexical, its functions will be questionable and will require a repair of the same before being re-subjected to post-post-lexical level.

- | | | |
|-----|------------------|---------------------|
| 24) | a) ka-ŋe-sit | b) ka-ŋe-sit |
| | PST-1P-take. ITV | PST-3IMP-take.VEN |
| | We have taken | It has been brought |

It is observed that examples 24a) and 24b) both have PST, Person, and lexical verb sharing the same form, but when they enter into affixation, they follow different rules. In the first case, PST enters as /ka/ and 1P as /ŋe/. The vowel in both is +ATR. This is dictated by the vowel quality in the lexical verb /sit/, which is also +ATR. On the contrary, the second example shows that PST enters with –ATR because the lexical form has the vowel quality. The PST form must therefore fulfil this first rule of tongue root before the new form

(kaʃe-) proceeds to the next affixation level. Notice that at this level, it is almost predictable that the new form with –ATR will require the next stage to accept another affix with a vowel of the same quality. If this does not happen, then the meaning of the output is an awkward construction whose meaning may not be conceived: ka-ʃe-sɪt*

Thus, while some words in Endo may pass the lexical test by fulfilling the conditions of all levels in the theory, their status at the semantic level may become ill-formed. However, LP manages to address the same challenges by considering the phrasal level, where the word category and semantic assignment become clear.

1.11 Literature Review

The literature reviewed in this section is based on the three objectives of the study: attachment of affixes and the phonological processes that are triggered by such attachments, the lexico-semantic interpretive problems, and new affix order arising from phonological processes, and how Lexical Phonology theory explains native speaker adaptation of problems resulting from the triggered phonological processes.

1.11.1 Distribution of affixes

The whole process of affixation is dependent on the phonological features present in environments where affixes are attached. This phonological differentiation dictates a distributional pattern in which some affixes attach in environments where others cannot. Different scholars have put forth arguments that describe the different affix forms and how they arise in word construction processes. Creider & Creider (1989) describe the grammar of Nandi and observe that the lexical category of the root predetermines the affixes that attach in its immediate environment.

For example, DEF attaches closest to the root before the POSS.

- 25) a) chii-to-ap
 Person-DEF-POSS
 b) pesi-et-ap
 Day- DEF-POSS

Further, they argue that there are two forms of person markers in Kalenjin: obligatory Person markers and emphatic markers. The obligatory will attach first as prefixes, while the optional emphatic form attaches last as a suffix.

- 26) a) a-ip-an lokor
 1S-EMPH-take fruits
 I take fruits
 b) i-ip-aṇan lokor
 2S-take-EMPH fruits
 You take fruits

This argument informs of a hierarchy in affixation where attachment is based first on the grammatical function of the affix before phonological aspects are considered.

Rapp and Goldrick (2007), by relating to Creider (ibid), introduce the idea of mental grammar as a requirement in affixation. They argue that in Kalenjin, a noun in sentence-initial position dictates that it is followed by either a verb or an adjective.

- 27) a) piṭṭ ʃa **uṇa-kei**
 people REL hide-REC
 people hiding themselves
 b) lakwa **po-miniṇ**
 Child REL-small
 A small baby

The plural REL **ʃa** and singular **po** technically license either the verb or adjective and hence by default determine the occurrence of the two lexical categories after the noun.

This is important because morphologically, determining the category of the lexical item helps in projecting the type of affix that attaches to the word and maintains the morpho-semantic values. For example, REC *kej* only attaches to verbs as a suffix and not to adjectives.

- 28) lakwa **po-minij-kei***
 Child REL-small-REC
 A baby smalling itself*

In the example, ‘lakwa po-minij’, the word ‘*minij*’ could be a verb or an adjective and take different affixes there in. As an adjective, the REC *kej* renders the whole structure ungrammatical. However, if the REC is taken as a verb, the REC attaches successfully with an epenthetic /a/ to realize a well-formed **po-minij-a-kej/**

The arguments of Creider & Creider (1989) and Rapp and Goldrick (2007) offer basic needs for the identification of lexical forms to determine not only the affixes to attach but also related grammatical and semantic information. However, the arguments do not describe the necessary phonological aspects that technically dictate how and why certain affixes occupy the environments they do.

For example, Creider & Creider (1989:174) simply state that, in Class VI, nouns ending in a/o form plurals by changing the vowels to e/i.

	Singular	plural
29)	a) kesu- a Seed	kesu- e:k seed-PL
	b) ingu- a Vegetable	ingu- e:k vegetables

Ideally, the example demonstrates a phonological process where vowel /e/ in the plural suffix /-ek/ coalesces with the last vowel /a/ in the stem *aon*, creating a long /e:/. Otherwise, the plural form would have resulted in an ill-formed /kesua-ek/. The influence of affixes on stems or vice versa is further discussed by Peperkamp (1995), who analyzes Italian derivation, in which case, stems can end in a consonant or vowel. Those ending in vowels usually have the vowel as unstressed. In such cases, if a vowel-initial affix attaches to the stem, the final vowel of the stem does not surface in the output.

	Base	suffix		
30)	libro	aio	libráio	‘book seller’
	fáma	oso	famóso	‘famous’

On the contrary, base final vowels that are stressed are not deleted in the final output:

	Base	suffix		
31)	blú	astro	bluástro	‘bluish’
	caffé	uccio	cafféuccio	‘small cup of coffee’

In this case, the stem/base vowel (stressed or unstressed) determines whether the initial affix vowel is deleted or not. Likewise, in Endo, prosodies like tone determine whether certain segments are deleted, merged, or lengthened.

Lakoff (1997) describes affixes as functional properties in morphology and argues that different languages mark the semantic roles of affixes differently. While some use word order, others adopt adpositional markings, and other languages use morphological inflection. The case in Kalenjin is that the actual lexical form undergoes phonological modification depending on the grammatical category, and the result of such modification is an affix that is either segmental or suprasegmental. For the case of Endo, the suffix /-te/

(phonologically modified as /-de/ after nasals and lateral /l/) presents different roles depending on the participants involved

- 32) a) am-**de** loko:r
Eat-ITV story
Tell a story
- b) am- **de** pan
Eat- ugali
Eat (something) with ugali

While 32a) shows the suffix /te-/ as an ITV, 32b) depicts the same as an INST. The distinction between the two can only be achieved once the structure is subjected to a syntactic unit to determine phrases that occur in their immediate contexts.

Okal (2018) discusses affixes that generally emerge from gender related aspects. He introduces onomastic and patronymic examples where names of people and some places are framed by assigning affixes that depict a specific gender. In Arabic, for example

- 33) **Basche** Shariff's son of Shariff'
Doxtre Shariff's daughter of Shariff'

In this case, MASC and FEM are marked by the words 'Basche' and 'Doxtre' respectively. Languages like Russian, however, mark such gender by attaching a suffix to the names as in the case of,

Troyakova's daughter of Troyak, where /-ova/ is the FEM marker

1.11.2 Processes of Phonology and Affixation

Successful affixation requires that affixes introduced must fulfill the phonological requirements of the particular environment they find themselves in. This will mean that several phonological operations are undertaken to achieve this. Some of these operations

yield desired lexical outputs, while those that do not are intuitively corrected by the native speaker's competence. Some literature on the major processes is reviewed here.

i) Affix ordering

Hay (2002) and Aronoff & Fuhrhop (2002) have made new attempts at restrictions on stacking up affixes in languages like English and German. Additional contributions come from the research of Booij (2002), who contends that the limitations on affix sequences can be explained by the phonological characteristics of affixes. He provides a Dutch example, showing that words having two suffixes are prosodically no more marked than those having a simplex stem and a suffix /-elijk/ as in /vriend-elijk/ [vrindələk] 'friendly'. However, such inflectional endings never occur before cohering derivation suffixes and will always occur at the right edge of a prosodic word, as in *aangepast-heid* 'adjustedness' and *helden-dom* 'heroism'. Their overall conclusion is that attachment of such an affix is avoided to the extent that it causes output condition violations. Additionally, if such an affix is omitted, prosodic elements take up its place, leaving the space. They contend that inflectional morphemes are ancillary to derivational morphemes as a general concept of affix stacking across languages. But Booij (1993, 1996) describes some exceptions in Dutch where pluralisation and comparative formation occur in the right edge and precede the derivational and thus inverting the general order.

Paster (2001) argues that morphological assembly can be largely conditioned by phonological aspects in a language and gives the example of Gombi. In this language, affixes follow a pattern where immediately after the verb root are consonant affixes which are ordered according to the formula 'TDNR', which means, all of the /-t/ suffixes precede the /-d/ suffixes, which precede the /-n/ suffixes, which precede the /-r/ suffixes. This

arrangement conforms to the Ladeforged (1982) increasing sonority scale, in which sonority increases from voiceless stops and becomes more salient with liquids, and he provides the example shown below,

34) 'o yam-**d-it-in-ir**-ii mo lekki gokki kesi

3sg i healthy-DEN-REV-CAU-MOD-past 3sgj medicine other new

'he cured himself with some new medicine'

The affixes that attach to the verb /yam-/ are REV /-it/, CAUS /-in/, and MOD /-ir/, which follow the increasing sonority scale. The scale is also shown below,



Example 35) by Rice (2000) further shows that phonologically ordered affixes can be re-ordered otherwise by factors such as semantics and scope, in which case, the relations that hold between affixes matter over the phonological strength. An example is given below where in a), /t/ precedes /d/ following the sonority scale, but in b) the order changes to /d/ preceding /t/

35) a. o sok-**t-id**-ii baafe de fof
 3sg lock-SEP-COM-past doors det all
 'he unlocked all the doors (at once)'

b. o sok-**d-it**-ii baafe de fof
 3sg lock-COM-SEP-past doors det all
 'he unlocked all the doors (in sequence)'

The explanation for this is that in Gombe Fula, the repetitive /t/ occurs after comprehensive /d/ when /t/ has scope over /d/, and the reverse happens when comprehensive /d/ has scope over repetitive /t/, as seen in b)

Zwarts (2003) describes the phonology of Endo and summarizes the vowel and consonant inventory and the salient phonological features that cross-cut the two levels. Specifically, he identifies the following sounds:

Consonants: /p, b, t, d, c, ʃ, k, g, m, n, ɲ, r, s, ʒ, x, v, l, j/

Vowels: /i, ɪ, ʊ, u, e, ə, o, ɔ, ε, a, ɑ, ɒ/

He further points out length, vowel quality, and tongue root as features that influence the way the phonemes are used. For example, there is a deletion of the final /p/ when the masculine /kip/ precedes bilabial nasal, probably because of shared place of articulation, in which case the nasal is retained. However, in a case where /p/ in the prefix follows a non-bilabial, the segment is retained as in kip-tanui ‘male born and fainted’

36) kip-makeet /ki-makeet/ ‘hyena’

The fact that /p/ and /m/ are both bilabials requires the deletion of /p/ from the masculine so that the delay in contact of lips is reduced, facilitating freer articulation

Zwarts (2000) also observes that the morphological structure of the verb and noun is useful in aligning affixes. He provides a template of the expected patterns in the language as follows:

Ki	ma	ki	sis	sh	i
Verbs: Tense, NEG, MOT, PERS, (ROOT) , DER, ASP, Obj, Subj,					
We were not biting					
Kap.	Bore is	shek	chu	chich.	
Nouns: LOC, GEND, NOML (ROOT) , NUMB, DEF, ASSOC, DEM, POSS					
His/her shrines					

In the two patterns shown for verb and noun generation, some final words may not have all the affixes in the string. This is partly because some of the functions may already be

assumed by suprasegmental features or may be fused with other morphological aspects. For example, in the noun generation, /kap/ assumes both LOC and MASC.

This description suggests the presence of default morphological patterns in which affixes occur as they attach to stems/roots. However, the influence of intervening supra-segmental features (on lexical categories and generally semantic aspects) as affixes attach is extensive and in some cases (since they are morphological) assumes positions technically occupied by segmental affixes. This further implies that the question of affixation is beyond segments attaching to stems and roots and includes suprasegmental features of tone, length, and tongue root. The approach taken in this study is that both segmental and suprasegmental morphemes are responsible for proper affixation and the eventual effect they have on the morphological patterns.

Thus, the default templates provided by Zawrts, on the order of affixes for both nouns and verbs in Endo, are not a strict pattern in all cases because suprasegmental features (operating as segmental affixes) may, in some cases, distort such patterns. This is explained in example 37) below,

- 37) a) má-í-sít
NEG-1S-take
You didn't take
- b) mè-sít
NEG-take
You didn't take

Coalescing of /a/ and /i/ into /ɛ/ means that the functions of negation and person marking are both fused in /mè-/ and it is difficult to accurately separate the two and assign a pattern; whether it is NEG+PERS or even PERS+NEG. This would suggest that the template needs to consider unique patterns conditioned by supra-segmental factors. Zeynep (2020)

observes that in Turkish, the possessive suffixes cannot be followed by a plural suffix. However, when some family-related nouns are used, this rule may not apply. Some examples:

Annemler, dayımlar, abimler, ablamlar, teyzemler, amcalar, babamlar, eniştemler, halamlar, dedemler, ninemle, anneannemler, babaannemler, (Zeynep, 2020)

Here, “Teyzemler [teyze-m-ler]” means “My aunt’s family, my aunt’s side” if it is written as “teyzelerim [teyze-ler-im]”, meaning would be “my aunts”. Therefore, changing the position of the P1sg and Pl suffixes changes the meaning as well.

Paster (2006) also addresses the idea of affix ordering and the factors responsible for such ordering. She notes that affixes occur against a predictable order that can be stipulated by phonology or function. On phonology, she cites an example from Arnot (1970) where affixes follow the order T(repetitive, intensive), D(associative, comprehensive), N(causative), R(locative, modal) ‘TDNR’ in Gomba Fula of Northern Nigeria. This follows the general increasing sonority on a sonority scale. Affixes that contain /r/will occur closer to the base. These are followed by those that contain /n/, /d/, and /t/ respectively:

- 38)** a) ’o ma66-**it-id**-ii joldɛ fuu
 3sg close-REV-COM-past doors all
 ‘he opened all the doors.’
- b) ’o yam-d-**it-in-ir**-ii mo lekki gokki kesi
 3sg healthy-DEN-REV-CAU-MOD-past 3sgj medicine other new
 ‘he cured him with some new medicine’

She generally points out eleven affixes, all of which are patterned by phonological properties. The pattern is occasionally not followed because of lexical reasons. Some lexicalized forms are idiomatic in nature, whose meaning is not predictable from their parts.

- 39) **'o irt-**in-ir**-ii kam supu'o kuddu
 'he made me stir the soup with a spoon.'

The order is reversed and follows a FALLING SONORITY C&C SCOPE

This discussion is vital since in Endo, phonological aspects rearrange the order of affixes, and the result is unpredictability of meaning.

ii) **Morphological constraints**

According to Klein (2005), morphological material affects each other phonologically as it is strung together and scanned for potential combinations and other uses. This is so even if they satisfy syntactic and semantic requirements, some morphological qualities are limited to bases or attaching affixes with specific phonological characteristics, without which they cannot be connected. This implies that some affixes can trigger phonological processes which others cannot, and thus triggering as opposed to blocking affixes, as stated by Pater (2000). For example, according to Hammond (1995), there is a restriction in Tagalog infixation that dictates the affix [um] must be allocated at the left edge of the stem to capture the infix's left edge orientation requirement. Hammond further explains that in Ulwa, there is a constraint that requires the affix [ka] to be assigned at the right edge of the head foot. These two constraints are summarized by Prince (1999) as alignment constraints.

Dimmendaal (2009) discusses affixes that do not obey expected roles and rules because of various constraints that are phonological. He points out neutral affixes that naturally allow phonological features to operate across them to subsequent affixes or sounds. He also describes opaque affixes, which block any phonological operations from operating and crossing over them. Tongue root feature, for example, spreads depending on the features

in the neighboring affix/sound. The reflexive /kɛ-/ in Endo and other related Kalenjin languages generally disallows any spread of features, while the INF /ke-/ permits such.

- 40) ké:-kér-ké:
 INF-see-REFL
 See one-self

The verb /ker/ has the vowel /e/, which is +ATR. This feature spreads leftwards successfully to the INF, which is neutral, but fails to spread to the REFL since it is opaque. The result of this is that the INF, the root, and the REFL all acquire H insulating in a word interpreted as ‘seeing’

Neutrality or opacity of affixes in Kalenjin further compounds the determination of lexical items and their eventual semantic interpretation. However, in 41) ATR crosses to the REFL and tonal aspects are rearranged as LHL, resulting in the word associated with ‘to close’.

In 41) below, the failure of the REFL to accept +ATR also means that once the tone is changed, meaning is also changed, and thus,

- 41) kè:-kér-kè:
 INF-close-REFL
 close one-self

Finley (2009) also describes a category of morphemes that are unable to spread harmony across the syllables and sounds. She explains that disharmony is considered in two levels: non-harmonic morphemes and phonologically motivated non-participating morphemes. The former refers to morphemes that on their own do not permit harmony without any phonological explanation, while the latter refers to morphemes that permit harmony but lack corresponding vowels in subsequent affixes. She provides an example from Turkish where the progressive /-jor/ fails to harmonize.

This is despite vowels on either side harmonizing:

- 42) gel-ijər-um ‘I am coming’
 kos--ujər-um ‘I am running’
 bak-^jər-um ‘I am looking’

The suffixed vowel retains the back feature despite existing in-between a front vowel context. After the disharmonic suffix, the suffixes that come after it still go through harmony by agreeing in [BACK] and [ROUND] with it. These statistics show that exceptions in Turkish are morpheme-bound, meaning that the existence of an unusual non-harmonizing morpheme does not preclude harmony from applying when connecting morphemes. Suffixes that come after opaque suffixes will harmonize with the opaque suffix, harmoniously following the morpheme-bound nature of exceptions.

Three categories of morphemes exist in Kalenjin: adaptable, dominant, and opaque, according to Lodge (1994). The following techniques are used to characterize their behavior and distribution:

- a) dominant morphemes are always [+ATR] and any immediately adjacent adaptive morpheme(s) will share this value
- b) ii) adaptive morphemes vary their [ATR] value according to the specification of [ATR] in their neighboring morpheme(s)
- c) iii) opaque morphemes are always [ATR] and do not vary the value, even next to a dominant morpheme. They delimit the domain of dominant morphemes:

As affixes attach, the tongue root features they carry greatly determine the semantic output of words.

43)	a) kI-a-ger [+ATR]	[kIayer]	‘I shut it’
	b) kI-a-ger [-ATR]	-e [+ATR]	[kiayere] ‘I was shutting it’
	c) ka-ma-a	-ge:r -ak	[kamaoye:rak] ‘I didn’t see you’

In 43a), where all the morphemes are adaptive, the form is' subject to no modifications and surfaces in its underlying form as far as [ATR] harmony is concerned, giving [ATR], the redundant specification of all morphemes. In (43b) all vowels are [+ATR] and links the auto-segment accordingly. In the third example (43c), the last three vowels are linked to [+ATR], but the “No Crossing Constraint” prevents it from being linked to the first morpheme; thus linking with [ATR] and surfaces as [ATR].

Dimmendaal (2012) further introduces metricality structures as a property in Nilotic languages that contributes to the attraction of affixes. Metricality generally argues about the prominence of syllables in a word. In some cases introduction of opaque affixes distorts metrical patterns and warrants the addition of more affixes to create word metrical balances. Dimmendaal observes that in Eastern, Western, and Southern Nilotic, length creates dissimilar patterns and generates long sequences of affixes aimed at achieving similar metrical states. He notes that in Nandi, dissimilar lengths occur on tri-syllabic nouns characterized by HHF (falling), while a lack of shortening on the stem and affix occurs on disyllabic nouns with HF (falling). For example, when the specifier /-it/ is attached to nominal stems in Nandi (and other Kalenjin languages for that matter) that end in vowels, there is an unusual pattern and lack of metricality, HHLH. A gradual rise to H from L, preceded by HH, is problematic in the language.

As a remedy, coalescence of the final root vowel and the initial vowel in the specifier takes place, hence, HHHL.

- 44)

talamwa + it	→	talamwait	→	tálám-wê:t	‘grasshopper’
sikirya+ it	→	sikiryait	→	síkír-jê:t	‘donkey’

In Endo, nominal stems that end in consonants take the DEF /jet/ without coalescence since phonologically alveolar /t/ and /palatal /j/ form a sound sequence in the language. To balance the metrical aspect, vowel length is retained in the stem and not transferred to the DEF.

The result of this is HHHLH.

- 45)

kíməgɛ:t	→	kíma´gê:t-jét	‘hyena’
tapa:kwa	→	tápâ:kw-ét	‘girls leglet’

Raffelsien (2005) also argues that in English there are two types of suffixes: stress-neutral, which are peripheral to stress-shifting suffixes which indicating that morphological forms are mapped onto prosodic structures based on the phonological constraints. In this case, Class I suffixes, which are stress shifting, are noticed to be non-cohering (form prosodic domains on their own) and technically affect the phonological structure of a morphological arrangement. For example, the suffixes /-ic/ and /-ion/, when added to words, shift the position of stress, like in ‘specific’ /spəˈsɪfɪk/, ‘specify’ /ˈspes.ɪ.fai/ and ‘specification’ /ˌspes.ɪ.fɪˈkeɪ.ʃən/. On the contrary, the cohering (not stress shifting) suffixes like /-ful/ and /-ment/ attach to words and retain their prosodic character. For example, in words like ‘care’ /keə/ – ‘careful’ /ˈkeəfʊl/ and ‘govern’ /ˈgʌv(ə)n/ – ‘government’ /ˈgʌvənmənt/. According to Booij (2005), in languages like Dutch, phonological properties of stems or suffixes in certain cases become phonologically irrelevant but are assigned by default due

to their semantic properties as opposed to morphological and phonological aspects. Level ordering is, therefore, a language-specific principle and may not be operational as a universal factor.

iii) Affixation and productivity

Plag (2006) argues that affixes attach to stems, but their frequency is based on the successful well-formed outputs, thus according to their productivity. Bauer (2003) states that productivity is the quantity of new word forms that can be produced by a specific morphological process. Ideally, Productivity is the frequency of use of a particular morpheme in a language. A particular morpheme is productive if it is actively used not only in existing words but also in word formation. Some affixes have more than one functional role within a lexical category, and their morphological distribution is higher than others. One way of ranking and determining the productivity of affixes is by assessing their frequency of occurrence with given words and their utility value. This implies that some affixes apply more frequently than others and are more visible. Kastovsky (1986) notes that even though some affixes could be productive, phonological constraints block their usage in certain environments. For example, in English, the nominal /-al/ can only attach to verbs that end in a stressed syllable, excluding those verbs ending in an unstressed syllable.

46)	arrive	→ arrival
	betray	→ Betrayal
	construe	→ construal

If we were to force against the rule, by trying to attach -al to stress-final verbs such as /deláy, explain/, the result is ill-formed structures like *delayal, *explainal.

The verb-forming /- en/, on the other hand, only attaches to base-final obstruents, and the verb form does not take bases that have more than one syllable.

- 47) a) black → black-en
 b) length → length-en
 c) fat → fatt-en

The base forms in Endo enter into affixation processes preloaded with both phonological and semantic aspects that block certain affixes from attaching. For example, verbs and some nouns are typically monosyllabic CV or VC. However, verb quality plays a role in determining the lexical category and semantic nature.

Words with –ATR denote verbs, while those with the retracted tongue root feature denote nouns

- 48) lit ‘sharpen,
 lit ‘sharpeners’

To these base forms, affixes that attach begin with vowel forms since the bases end in consonants. Thus, to verbs, ASP /ei/, NOM /-in/, or REF /-kei/, and the noun base would take DEF /-in/.

The tongue, as a feature, already functions as an affix and assumes the roles of NOM and PL simultaneously, giving speakers the choice between the supra-segmental form and the physical form. Productivity is even more complex in agglutinative languages because of the multiplicity of roles assumed by various affixes. For example, in Endo, the affix /tʃe-/ (marks plural and requests) attaches to verbs and nouns;

- 49) a) tʃe-pe
 1P-go
 Let's go.
 b) tʃe-kemoi
 FEM-night
 Born in the night

While it attaches to both nouns and verbs, it is more productive on nouns (FEM, LOC, REL) than on verbs (PERS, NUMB). This creates a problem in circumstances where a word (because of phonological/suprasegmental features) can accept several affixes that play the same role.

- 50) a) wir-**u** kir
 throw-**VEN** something
 Throw something in my direction
- b) kε-wir kir
 INF-throw something
 To throw something in my direction

Segmental VEN/u//u/ and supra-segmental (-ATR) serve the same function. While segmental affixes are more productive in Endo, supra-segmental affixes always occur as underlying factors that reinforce/complement or, at times, replace the former. The process is further complicated by intervening restrictions, like pragmatic demands whereby the ignited supra-segmental features add extra aspects of semantics and morphological roles to the morphemes. For example, features associated with pragmatic aspects like a deep voice are more related to ‘greatness and magnificence’ while a sharp voice denotes ‘very small/lessness’.

The idea suggested here is that some affixes are probably going to be more productive than others, but this is mostly dependent on how their morphological distribution is determined by phonological factors.

1.12 Research Methodology

This section discusses the methodological approach adopted in order to get data for analysis. I describe the design used and the study area of focus, the population targeted,

and the methods used for collecting data. The section finally explains how the data will be packaged for meaningful analysis.

1.12.1 Research design

Since the study was interested in data in the form of words, it employed a qualitative design, which allowed for physical and in-depth interaction with informants and provided an opportunity for first-hand and accurate data. The design also permitted sorting of data collected into words (in specific lexical categories) and delineated morphological parts for analysis. Data collected was qualitatively assembled into specifics of word categories and analyzed descriptively by observing relationships between morphological and phonological interplay.

1.12.2 Study area

The geographical area of study was mainly the Endo Location in Marakwet Sub-county. Over 90% of the speakers of Endo are found in this location, which stretches between Tot on the southern and Liter on the northern side. My primary informants were drawn from this region.

1.12.3 Target and sample population

The study targeted a population of about 18,181 native speakers of Endo (National census statistics 2009), which is sparsely spread within the Endo geographical region with significant concentrations around Liter, Sambalat, and Endo locations. Quite a number of Endo speakers have also moved to urban centers like Eldoret and Kitale. For this reason, the researcher first used cluster sampling in order to accommodate speakers from various geographical areas. Secondly, random sampling was used in the different clusters identified. From the locations (including Eldoret and Kitale), the researcher used 16

respondents who were selected by stratification sampling. This included four elderly speakers used to observe some socio-cultural patterns and to check the correctness of some ambiguities arising from affixation. The researcher believed that some words were likely to have changed due to borrowing and technological trends. Thus, to get accurate words, it was necessary to counter-check with speakers who have stayed in the Endo location for almost the entirety of their lives.

1.12.4 Methods of data collection

This study was based on data collected by Mietzner Angelika, Eunice Kosgey, and me on Cherangani, Endo, and Almo between 2011 and 2013. This was under a project that was aimed at describing some linguistic aspects of the various subgroups within the Marakwet language. Official permission was sought to use part of the project data for this study. These consisted of words, phrases, sentences, and folk stories, which were collected through note-taking and recording. The lexical, phrasal, and textual collections allow for detailed scrutiny of the behavior of phonemes and morphemes, for example, phonemic traits across syllables, lexical boundaries, and in longer strings. Folklore stories and conversations were important in revealing contexts in which certain words are used, and thus providing more semantic and lexical constraints of word use. To achieve this, data was gathered by using the following approaches:

i) Using Interviews

Bickmores (2007) observes that interviewing is a fruitful elicitation method because it allows a researcher to engage one or more informants in an in-depth inquiry with them. For this study, data were elicited with interviews conducted with small groups of Endo speakers, conversations and casual exchanges, and impromptu visits to gatherings. For

every concept elicited, it is possible to do probes and seek clarifications. In this study, interview was used to elicit words per category, like names of places or things, verbs, and descriptive words. It was also used to clarify and probe some words and their categories, and the various affixes that go with each category. The method also helped in perceiving the complex prosodic patterns, lexical choices, and affix structural order. Interview probes were used with elderly informants for confirmations, especially on words found in proverbs/sayings. This knowledge may not be held by the younger age groups. Such sayings and proverbs were important for the research because, through them, the researcher was able to identify the different morphological aspects, like the singulative markers and antiphrastic aspects. To obtain these proverbs and sayings, the researcher conducted direct interviews and occasionally made tape recordings for further analysis on issues of supra-segmental phonology. The researcher interviewed informants using the Bouquiaux & Jacquelline (1992) extended word list manual to collect words against this list.

For purposes of follow-ups and analysis, the researcher also used tape recording, particularly in social functions and activities like local government meetings, religious gatherings, and weddings conducted within the Endo location. These involved attending some church functions at Endo, occasional presence in village meetings, and informal interactions with people around the marketplaces. Tape recording allowed for later analysis and identification of morphological patterns and words used in songs and general recitations, which could not be probed adequately through interviews. These informal engagements yielded a lot since it was possible to easily detect consistencies and inconsistencies of morphological elements. For example, the use of the Adverbial of place

/jɪ/ and /jɛ-jɪ/ ‘here’ behaved as free variants. In such cases of varied incidences, data related to the same were elicited from multiple speakers for reliability in making generalizations.

ii) Using secondary material

In a study of this nature, corpus data may not be very desirable, but I found it important because these are excerpts and productions of some ‘experts’ in language and translation. I visited the Endo Catholic Mission center in Tot in order to collect written materials that included the Endo Bible ‘*Araruut nyo Reel*,’ and literacy monographs produced by the Bible Translation Literacy Program (BTL) located at the Tot center. Another source of written material was hard copies and prints of word lists generated by BTL staff during their field research.

It was also important to get CD recordings of preaching conducted by Endo speakers in FM radio stations and in local churches within Endo, recordings of teachings in Endo by local Sunday school teachers and missionaries. These audio recordings were useful since, through them, it was possible to trace and observe prosodic patterns both at the syntactic and lexical levels. They were mainly used for checks and confirmation of the orthographic nature of lexical forms. They were also subjected to my primary informant for the interpretation of supra-segmental aspects.

1.12.5 Procedure for data analysis

Analysis of data was carried out along with the aim and objectives of the study. Data collected was mostly in the form of words, and this required that they be sorted first into specific lexical categories for ease of following morphological and phonological patterns. The sorted words were then delineated into specific observable affixes, and their

morphological aspects were assigned based on the meanings of the words as provided by the informants. Affixes of concern were put in bold for ease of identification.

Accompanying prosodic features like tone, length, and tongue root and vowel quality were also assigned to specific affixes. This was important to observe any changes in the process of affixation.

Different words were sampled from different lexical categories and subjected to inflection or derivation affixation processes. For example, verbs would specifically be inflected for number, tense, gender, or negation, or subjected to multiple affixations, and during these processes, affixes were isolated from the roots to observe patterns of affixation. Consistent trends were then identified and generalizations drawn from them.

Inflected and derived words in the different word categories would then be delineated to isolate the affixes analyzed according to morpho-phonological processes in Endo. The same would then be subjected to the LP template in order to assess whether the final semantic, lexical, and affix order results from proposals of the model or otherwise. Cross-cutting supra-segmental features were also noted, and the effect they contributed to the final semantic aspect of the words generated.

1.12.6 Ethical Standards

The research involved dealing with human subjects and consequently required adherence to ethical standards. This study first engaged local leaders to present research permits and seek permission to interview subjects in the region. Confidentiality of information, openness of data expected and use, fairness, and respect for personal space were assured.

Informants were always allowed to withdraw whenever they felt so.... For openness, the information collected was shown to the informant or played to them if tape recorded....

1.13 Summary of the Chapter

This chapter was intended to set the stage by providing the background to the aspect of study in the research- interaction of phonology and morphology - and introducing basic information about the speakers of Endo in terms of their origin and migration patterns, and how Endo has featured as a separate linguistic entity from Almo and Cheranganyi. To this end, there have been descriptions of its phonology and some lexical forms that separate it from the rest. More so, the speakers are knowledgeable of the existence of such differences. The chapter has also gone further to discuss how Lexical Phonology Theory accounts for affixation in Endo and some deviations from the theory. Literature supporting the LP propositions and how phonology and morphology interact is reviewed. The section has also explained the statement of the problem and objectives, and finally, the methods used to collect data and the analysis procedures.

CHAPTER TWO

AFFIXATION PROPERTIES IN ENDO

2.1 Introduction

The discussions made in this chapter are aimed at addressing the first objective of the study: to describe the nature of derivational and inflectional affixation in Endo. To adequately engage the content of this objective, various aspects and properties of affixes used for inflection and derivation in the language are singled out and described. The chapter has been organised into two main parts, with the first describing the major word classes in the language that include the noun, the verb, and the adjective. Specifically, section 2.2 describes the various affixes that mark nominal aspects, section 2.3 deals with affixes that relate to the verb, and section 2.4 is on the various affixes that attach to adjectives.

The second part of the chapter analyses the various morphological mechanisms and patterns used for derivation and inflection in Endo, with section 2.5 describing both the productive and the unproductive as well as segmental and prosodic affixation strategies. The last section, 2.6, gives a summary of the descriptions made in the entire chapter.

2.2 The Noun

In this section, I briefly describe the various classes of nouns in Endo that include mass nouns, count nouns, abstract nouns, and collective nouns, and the affixes commonly attached to each class. Pustejovsky (1998) argues that knowledge of the basic semantic components forms the initial analysis of the morphological structure of words. Different languages have varied morphological mechanisms for marking such semantic categories (count, non-count, mass, and abstract nouns). For example, Kiswahili, which is a Bantu

language, uses a class system where nouns are represented by number pairing for singular and plural.

For this case, class 1/2 (human) selects the prefix /m-/ to mark singular and /wa-/ for plural, while class 9 (non-count) nouns are marked by a null morpheme for both singular and plural. This is shown in 51) and 52) below.

51)	Sg	Pl
	m-tu a person	wa-tu people
52)	Ø-damu	Ø-damu
	Ø-blood	Ø-blood
	blood	blood

While studying affixation in Joola Eegimaa, Bassene (2012:41) notes that the prefix /a-/ purely marks human while /ε-/ marks non-human semantic categories, displaying a case of strict distribution of affixes in the language. This is illustrated in example 53 below.

53)	a-kkɔɲa ‘shepherd’
	a-llara ‘worker’
	ε-βetεxo ‘hawk’
	ε-bbaj ‘spear’

In Endo, affixes are used to mark and differentiate nouns based on semantic features like the masculine /kip-/ and feminine /chep-/ used to mark gender and the Sg /-it/ and Pl /-ik/ used to mark number, respectively. These gender and number affixes in Endo are successfully assigned with the help of phonological factors that include length and tongue root (in some cases, they contribute to overlaps of lexical categories because of shared phonological features), Creider (1982).

2.2.1 Count nouns

This category forms the bulk of nouns in Endo and comprises nouns that denote humans, animals, and other objects. Count and non-count nouns are separated by segmental and prosodic markers denoting the same. For example, some count nouns use the suffix /-et/ to mark the singular definite forms and /-ik/ for the plural definite. This definite marker /-ik/ is marked phonologically depending on the features of the final vowels in the root. And this means that it could take different forms even in words that belong to the same category or semantic grouping. For example, the singular /lakwet/ “the child” becomes /lakook/ “the children” where /-ik/ undergoes a phonological deletion of /i/ when mid-high/e/ in the root and /i/ in the suffix occur in one environment. This is partly because Endo does not permit vowel sequencing. In other cases, some indefinite singular forms that end in vowels like /lakwa/ “a child” form plurals through lengthening of the final vowel /lakook/ “children”. The arguments suggest that

Endo relies on phonological factors for both the singular count and plural count forms of affixation, as shown in 54a) to 54c) below.

54)	a) la:k-wet child-Sg.DEF the child	lak-ɔ:k child-PL the children
	b) we:rit Son-Sg.DEF The son	wer-i:k son-PL.DEF the sons
	c) koke:l-jet Star-Sg.DEF The star	koke:-lik star-PL.DEF the stars

In 54a), the definite singular /la:k-wet/ takes plural definite /lakook/ through phonological reduction of /i/ in the definitive affix and lengthening of /o/ to compensate the loss of /ɛ/.

Whether the noun is animate or inanimate, the affixes used are the same. For example, 54c) is non-human though it marks singular and the plural using the same suffixes /-et/ and /-ik/ respectively as it does with animate nouns.

2.2.2 Mass nouns

In Endo, mass nouns like salt, sugar, and flour have a predictable affix that exclusively separates them from other types of nouns. Like count nouns, borrowed nouns take the definite /-ik/ (phonologically adaptive) while other native mass nouns take /-εk/, which also varies depending on the phonological conditions of the last sound in the root word.

55)	a) ʃú:mbí ‘salt’	ʃu'mbí:k salt-DEF The salt
	b) súkarú ‘sugar’	súkar-úk sugar-DEF The sugar
	c) nónón ‘soil’	nónón-ék soil-DEF The soil
	d) pér ‘water’	pér-ék water-DEF The water

Examples 55a) and 55b) above show that the definite forms of borrowed mass nouns ending in vowels usually lengthen the final vowel because it merges with the first vowel in the definite affix. Thus /i/ in 55a) simply lengthens, but /u/ in 55b) first requires deletion of /i/ in the affix since both are high vowels before the remaining /u/ becomes lengthened. Some mass nouns in the language that end in the nasals /n, m, ɲ, ŋ/ or the alveolars /t, k, p, r/ (suggested in 55c) and 55d) take the suffix /-εk/ or /-ek/ depending on the tongue root

features of vowels in the root. This means that, if the vowel in the root word is –ATR, then the vowels in the suffix also acquire the same feature and vice versa. Also, it is observed that tone is H across the words, which emanates from the root to the suffix

2.2.3 Abstract nouns

These are nouns derived basically from adjectives and verbs. There are two suffixes used to derive such abstracts: /-in/ (attaches to adjectives) and /-isjɔ/ (attaches to verbs), and both are phonologically selected.

	Adjective	Derived Noun
56)	a) rɛl ‘white’	rɛl-ín white-NOML Whiteness
	b) ɲwán ‘bitter’	ɲwán-ín bitter-NOML Bitterness

Examples 56a) and 56b) show how the suffix /-in/ derives the abstract nouns from the adjectives, while 57a) and 57b) below show how abstract nouns are derived from verbs

	Verb	Derived form
57)	a) té:r ‘separate’	té:r-ìsjò separate-NOML Separation
	b) sík ‘deliver (a child)’	sík-ìsjò deliver-NOML Delivery

In both ways of deriving abstract nouns, the vowel in the root of the adjectives and the vowel in the affix share common phonological features. The suffixes /-in/ and /-isjɔ/ attaching to the adjective and verb, respectively, bear +ATR, which phonologically spreads the feature leftwards (to the root) so that all vowels in the new word are +ATR. This means that the vowels in affixes and those in the roots enter into phonological harmony. However,

this gets complicated as tone harmonises differently. It is noted that the roots have H, which changes to L in the affixed form and spreads across all the affixes that attach later. This indicates that a change in the tongue root affects tonal patterns and equally the interpretive form of the word. collectione, in 56a), failure to conform to the tonal spread ends up not in a nominal form but in a verbal form.

58)	té:r	té:r-	ísjò
	‘separate’	separate-	NOML
		He/she is separating.	

2.2.4 Collective nouns

Nouns of this type usually denote a collection, several people, or entities that are considered as one. They are, therefore, nouns that describe a group of items. Some of these nouns in Endo include:

59)	kúsír	‘lice’
	kòṅéi	‘termites’
	sákám	‘bees’
	mákàrkár	‘worms’

Part of the counting system in Endo is to treat collective nouns as countable nouns. To allow this, the singulative marker /-ja:n/ is attached to such collections. Although such nouns are not the plural forms of the individual items present, they help in denoting a family or a collection. Once the singulative affix attaches, the new word form is treated as any other count noun and can be subjected to the native plural formation processes. This can be seen in 60) below

60)	kùsír-jâ:n	‘a louse’
	sàkám-jâ:n	‘a bee’
	màkàrkár-jâ:n	‘a worm’
	kòṅé-jâ:n	‘a termite’

In their collective nature, the nouns present a predictable tone pattern where they begin in High/High (H) and end in L. However, the singulative marker, which enters with falling tone, affects the tones on the root word in a manner that if there is a root with more than 2 syllables, the middle syllable in the root is L. It means the vowel in the singulative suffix predictably bears a High Low tone, suggesting a process controlled not only by affixing /ja:n/ but also by changing tone patterns.

It is also important to point out that, other than marking simulation, the suffix /-ja:n/ also has the force of marking DEF when attached to concrete count nouns, as seen in 61a,b)

- | | | |
|--------|--|------------------------------------|
| 61) a) | pàkàs-já
Servant-INDEF
The servant | pàkàs-jâ:n
servant-DEF |
| b) | tikìt-já
root-INDEF
a root | tikìt-jâ:n
root-DEF
the root |

Again, it seems that the root words are of LLH, which change to LLF in the DEF affixed form. The study holds that partly, the LL in the root, warrants the falling pattern to accommodate and neutralize a case of 3 successive LLL, which may be an articulative challenge to speakers.

The section has presented a discussion on the basic types of nouns and the various affixes that attach to them based on their semantic values. The discussion has also shown briefly how the phonological assembly works in every category of nouns during affixation.

2.3 Verb Classes

This section discusses the various types of basic verbs and also the three auxiliary forms that include,

BE HAVE DO
 ‘ko/ku’ BE, have ‘ka/ki’ ar/tas

These are discussed in 2.3.3. I also give explanations on the copular verb. In all the discussions, I present their forms and their functions.

2.3.1 Basic verbs

Dimmendaal (1983), citing Creider (1981) and Tucker & Bryan (1966), distinguishes between Class 1 and Class 11 types of verbs in Southern Nilotic languages. They note that Class I verbs, characterized by H, +ATR tones, comprise the base forms and ideally do not have an initial vowel /i/. They also point out that when such verbs appear in sentence structures, they behave as intransitive verbs since their actions do not require an object.

- 62) a) ɲé:t ‘wake up’
 b) lúl ‘fall’

Endo is a VSO language, which is shown by Class II verbs preceded by L, –ATR /ɪ-/ that functions as a causative and marks 2sg. This means that the subject could be provided or implied, and thus, such verbs increase valence by 1. Unlike Class 1 verbs, which have +ATR vowels, Class II verbs have L on causative and H, -ATR on the root.

- 63) a) ì-ló:l kèt-ìt
 CAUS.2sg-fall tree-DEF
 Cut down the tree
 b) ì-ɲé:t kókò
 CAUS2sg-wake grandfather
 Wake the grandfather

For this study, Class I verbs mainly enter into affixation by use of suprasegmental features since they are monosyllabic and form the base of affixations. They are also found at level 1 in the order of affixation and mainly relate to lexical category distinction. On the other hand, Class II verbs like *thois ein* 63) initially enter into person marking and henceforth attach the affixes to the right. As valency increases, the number of affixes also increases, and this is controlled by suprasegmental features.

Basic verb forms in Endo are either monosyllabic or disyllabic and show a common pattern where a low vowel segment [a/a] appears as an underlying form at the end of every basic verb form. Zwarts (2003) also observes that vowel reduction in Endo is sensible since what is [e] or the absence of it in many other Kalenjin languages turns out to be [a]. For example, the progressive aspect marker in Keiyo /-e/ surfaces in words as /ipè/ ‘is taking and /wate/ ‘is pricking’, but in Endo it appears as /a/ in words like /ipà/ ‘is taking and /wàtà/ ‘is pricking’. Chelimo (2010) also notes that, though such a vowel does not appear predominantly in Keiyo verb forms, phonologically there appears to be a trace that must have been occupied by a vowel form at the end of Keiyo nominal forms. The underlying low vowel form /a/ appears to be one of the contributing factors that accounts for and facilitates productive affixation processes in Kalenjin, especially when the infinitive *ke-/* is prefixed on lexical verbs. In Endo, this is shown in 64) and 65) below,

64)		gloss
	Ke-ala	to buy
	ke-rira	to cry
	ke-fala	to shout

In example 64), it is noted that Endo phonetically surfaces the vowel /a/ at the end of words, which differentiates it from the other Kalenjin languages that omit the same word finally, as seen in example 65).

65)		gloss
	Ke-al	to buy
	ke-rir	to cry

This can be explained phonologically in that the infinitives in Endo have tone patterns of the form LHH, while the other languages show a LH. This could suggest that the vowel could be redundant and on its way to being dropped by the Klaenjin languages, though Endo still retains it.

2.3.2 Copular Verbs

These are verbs that serve to fulfill grammatical functions in a language by aligning/joining an adjective or a noun complement to a subject. In Endo, copular verbs may take two structures: V+ Complement + Subject or V+ Subject + Complement.

66)	a)	ka-leku	puʃ	lakoʃu
		PST-became	useless	children-DEM
		V	C (ADJ)	S
		These children became useless		
	b)	ka-leku	lako-ʃu	puʃ
		PST-became	children-DEM	useless
		V	S	Compl (ADJ)
		These children became useless		

If, however, the Subj comes after the verb, then the thematic roles are affected, and the eventual semantic output is also affected. Thus, the focus in 66a) is puʃ ‘useless’, but in 66b) below, focus shifts to lako-ʃu ‘children’. Thus, in Endo, copular verbs must be attached to prefixes that mark tense or Aspect, but I other cases may also be attached to an infinitive; ke-leku chemoken ‘to become famous’

2.3.3 Auxiliary Verbs

i. The verb ‘BE’

The verb BE in the language is used either as a separate lexical item or is attached as an affix (productive form) to roots of verbs and adjectives.

- 67) a) kìròp kú ám-ísjà
 N AUX eat-Pres
 Kirop is eating
- b) ko-am-isja kirop
 eat-AUX good
 Kirop was eating

In 67a), the auxiliary /ku/ appears as a separate lexical item but is attached to the verb in 67b) to license syntactic agreement; tense on adjectives and verbs. When it attaches to the verb, it usually comes before person markers. This is different from English, where words like ‘is’ and ‘are’ mark a number. Endo transfers this number function to the neighboring morphological elements, which is technically understood by the native speaker from the syntactic functions that such elements denote, as is seen in 68)

- 68) (a) kì-kì-pé-tí kaú
 Pst-1P.AUX-go.Pl-PROG home
 We were going home
- (b) kì-pé-tí kaú làkò-ʒò-nè
 Pst.ASP-go.Pl-PROG home child-Pl-DEM
 Those children were going home

Examples 68a) the auxiliary is marked /-kì-/ and comes immediately after the past tense marker /ki-/ , while in 68b) the auxiliary does not appear physically. In such absence, its function is transferred and embedded within the past tense /ki-/ marker (now serves as PST.AUX).

This means that the auxiliary has two forms depending on tense and person, but in some cases, these two forms may be identical, as it is in 69a) and 69b) below

- | | | | |
|------------|-----|----------------------------|------------------------------|
| | a) | | b) |
| 69) | (a) | kí-á-wétjà kaù | kí-kí-pétjà kau` |
| | | AUX.Pst-1S-go home | AUX.Pst-1P-go home |
| | | I was going home, | we were going home. |
| | a) | | b) |
| | (b) | wètà kaù kíróp | pètjà kaù lákófóné |
| | | Ø.3S-go home kirop | Ø-3P-go children |
| | | Kirop is going home, | the children are going home. |

Replacing a lexical BE with an affix is facilitated further by tone changes on the remaining items. While 68a) shows the noun with LLH, 68b) shows HHH on the same. The tone features on the adjectives part remain LLH in both cases. This could mean that the omission of the lexical BE, which initially had L tone, sheds this feature to the adjective. Thus, the entire adjective will have LLL with a lengthened final vowel to compensate for the deleted auxiliary, as suggested in 70) below.

- | | | |
|------------|-----|--------------------------|
| 70) | (a) | làkò-ťǔ kù kàrà̀m-èn |
| | | Children-DEM are good-PL |
| | | These children are good |
| | (b) | kàrà̀m-è:n lákó-ťǔ |
| | | Good-PL child-PL |
| | | These children are good |

ii) The verb ‘Have’

In Endo, the verb ‘Have’ is a complex lexical form because tone is used to facilitate its various functions. The verb takes different morphological forms depending on the role it plays; mark Aspect and Tense at the same time. In general, /ka-/ marks activities quite recent, /ko-/ distant, and /ki-/ remote past, as shown in 71a-71c).

71) a) **ka**-am-ife kirop asife kitokuara
 Pst-eat-ESS kirop today morning
 Kirop **had** eaten **this morning**

b) **ko**-ami-ifo Kirop asun
 Pst-eat-ESS Kirop **yesterday**
 Kirop **had** eaten **yesterday**

c) **ki**-am-ife kirop arin
 Pst-eat-ESS kirop last week
 Kirop **had** eaten last week

Notice that even if the adverbs of time like today, yesterday, and last week are left out, it is possible to identify how far in the past an action happened. Thus, speakers can tell the most recent from a distant past simply by the kind of vowel appearing in the past tense marker; /a/ for the most recent, /o/for distant, and /i/for remote. It is also observed that the morphemes ka-, ko-, and ki- mark both perfective in the past and perfective in the present with different tones. In 72a), /kà-/ L marks present perfective, while in 72b), /ká-/ H is used to mark the past perfective. This is further illustrated in 72) below

72) (a) **kà**-kò-ám-ís kíróp
 R.PR-eat-ESS kirop
 Kirop **has** eaten

(b) **ká**-kò-ám-ís kíróp
 R.PR-eat-ESS kirop
 Kirop **had** eaten

These examples suggest that the verb “Have” in Endo is distributed in a continuum that ranges between the present (recent) and the past (distant).

These time affix markers can be summarized in 73):

73)

Have form	Past/distance
ka-	Most recent/Short while ago
ka:-	Early today
ko-	Yesterday
ki-s	Distant past

This could suggest that the lower vowels /a/ and /a:/ point to recent events, while the higher vowel /i/ points to events further detached from the speaker and immediate time.

iii) The verb ‘Do’

There are two forms of the verb ‘do’ in Endo, and these are discussed separately in this section: /ar/ and /tas/. The lexical /ar/ is used in the language as a full verb, as illustrated by the examples below;

- 74) (a) α-**ar**-ε πəɪf̥ ɲa-ɲon
 1S-**do**-IMP work REL-mine
 I do my work
- (b) kɪ-kí-**ár** pəɪf̥ɔ̃
 PST-1P-**do** work
 We did some work

The auxiliary /tas/ is a supportive element that helps the lexical verb to form the interrogative and usually occurs before the main verb.

- 75) tas ki-wə kaʊ?
 Did PST go home?
 Did you go home?

In English, a sentence like ‘I **did** do my work’ has the form ‘do’ performing some emphatic function. Likewise, the auxiliary /tas/ in Endo supports other verbs to form questions, like

in 75), and in some cases to introduce possibilities. For example, *tas ropon* ‘it is likely to rain’

2.4 Adjective Classes

In this part, I discuss various types and classes of adjectives in the language. These include color, taste, quantifiers/qualifiers, and numerals/ordinals adjectives. I also present some affixes that attach to these adjectives

2.4.1 Adjectives describing color

Color terms in the language are sourced from aspects related to nature, like domestic animals, plants, or heavenly bodies. These colors are then used to describe human-related and other non-living objects in society. The majority of the color terms become descriptive affixes when used with compound adjectives and when they occur with gender marking affixes. Some of the basic color terms are listed below:

76)

pírír	Red
túr	Black
rél	White
járíl	Green
ńópó pèr	Blue
kipkóloswo	Yellow
arús/ ʃèpàrér	Grey

In the language, distinct primary colors like red, grey, green, and yellow are described by using one word, but secondary and other colors, which aren’t clear (and somewhat blurred), are described by first introducing them using the word *murjál* ‘pale/close to’. However, the introductory word is immediately followed by a relative marker /na/ to license its agreement with the primary color it is being associated with, as it is in 77) below.

- 77) murjál ná tùr ‘Pale black’
 murjál ná pìrìr ‘Pale red’

Color terms in the language are usually for the create names of people, animals, or places in the community when they are prefixed by gender morphemes like /ki-/ and /che-/. For example, the names of people like *ki-rel* / *ʃe-pirr* ‘brown boy/brown girl’ are assigned to individuals whose facial presentations show some brownness. Although the prefixes /ki-/ and /che-/ are used to mark gender, they (in this argument) mark ‘presence of-’ within the same derivations. Thus, /che-pirr/ means the presence of brownness. There are certain places named by use of outright primary colours, for example, *nyalil* ‘green’ is a place in the hanging valley, and *tùrtùr* ‘a dark place’

It is also useful to mention here that the color of animals is described differently from the way it is for humans. The same color on animals is described differently (with a different word) when it relates to human beings. For example, in 78a, b) below are some descriptions of animal colors,

- | | | | |
|--------|--|---------------------------|-------------|
| 78) a) | Person
kip/ʃe pirr
Masc/Fem brown | cattle
ʃepsitie | ‘brown’ |
| (b) | kip/ʃe rel
kip/ʃe tur
Masc/Fem white | ʃeparus | ‘dark/grey’ |

Some animals have a mixture of colors, like black and white for Friesian cows or zebra, and this kind of color presentation may not be so with human beings. This could imply that, for the case of animals, Endo speakers prefer to use words that describe generalities of the visible colours on the animal. The different mix of colours has different descriptions as pointed out in 79).

79)	mármár	‘several mixed colors (dotted) ‘
	àrékèw	‘mixture of two colors on the body’
	ḡēmúke	‘one color on half the body and another on the other half’
	ḡēmólòk	‘white head and other colors on the rest of the body’
	sàmoí	‘mixture of any 3 colors’
	chèpís	‘mix of white and brown’
	pìrír mét	‘brown head with other color on other parts’
	tuí mét	‘black head...’
	lèlmoò	‘white stomach...’
	lèlginà	‘white tits’

2.4.2 Adjectives describing tastes

Taste in Endo is restricted to sweet, bitter, tasteless, and sour, and all other forms of taste are made in relation to these four. For example, *peryoön* ‘taste of water’ is from the lexical form *laplap* ‘watery’. These lexical adjectives that describe different types of tastes as shown below:

80)	Adjective	Gloss
	anyin, chamu,	Sweet
	samsam,	Sour
	ng’waan, mindiril, katkat	Bitter
	peryoön, taytay	Tasteless

Adjectives of taste in the language also display different morphological features from other adjectives because they take the plural affix /-en/, which is associated with count nouns. Naturally, non-count nouns like *Water* and *Sugar* do not take plural affixes, but in Endo, this is possible because of singulation (discussed earlier).

Thus, in the language, both count and non-count adjectives are marked for plurality with

/-en/

81) (a)	ápín-en lokorek
	Sweet-PL fruits
	The fruits are sweet

between the possessor and the possessee, and in both cases, the determiners come after the noun.

Honorifics like /*arap*/ son of /*chepo*/ daughter of or /*kokoop*/ ‘grand mother of’ also behave as determiners and come before the noun they modify. For example, in /*ko:p-chebet*/ ‘Grand Mother of Chebet’, where ‘ko: :p’ is seen to modify ‘chebet’, which is an implied noun and not semantically provided in the structure. Thus, it helps to allude to a specific noun entity, acting as a kind of qualifier.

Some adjectives in the language behave as clear quantifiers and serve to inform about quantities or approximations of quantities. These adjectives may precede the noun they describe or follow the noun with an intervening relativizer.

- 82) (a)** **ɲèrìn** tùkà
 few cows
- (b) tùkà ʔà **ɲérín**
 cows REL few
 few cows

Quantifiers undergo affixation by the Pl suffix /-en/, which is optional and serves to emphasize the quantity already stated. However, it only functions with a preceding quantifier since the relativizer (which also marks plural) renders the plural /-en/ redundant since it refers to the plural entity already marked in the lexical noun element.

- 83) (a)** ʔāŋ ʔòrì:k
 many steal: PL
 many thieves
- (b) *ʔor:ik ʔa *ʔaŋ-en
 Thief: Pl REL many-Pl
 The thieves who are many

2.4.4 Numerals and Ordinals

a) Numerals

In the language, cardinal numbers that range between 1 and 10 are referred to by single words. These include: *akoŋa* ‘one’, *ereŋ* ‘two’, *somok* ‘three’, *angwan* ‘four’, *mu:t* ‘five’, *lou* ‘six’, *tusap* ‘seven’, *sisit* ‘eight’, *soko:l* ‘nine’, and *taman* ‘ten’. It gets complex when describing numbers that range from 11 and above because using one-word descriptions is no longer enough to clarify information. The language, therefore, quantifies figures into ones, tens, and hundreds; a process that requires many words to fully describe such scenarios. For example, when a second digit (in the tens position) is added to the cardinal number (occupying the ones position), the result is considered to be a sum of the tens (represented by the cardinal in the ones position) and the digit in the tens position.

For example, ‘15’ would be interpreted as:

84) Taman ŋgo mut
Ten and five

“The sum of 10 and 5” = 15

Every digit that occupies the tens position is introduced by the conjunction ‘**ŋgo**’, which means ‘and’. This process applies to all numbers that range between 11 and 50, and the general pattern is:

“The sum of the tens of cardinal digit in the ones position and x (digit in the tens position)”.

85)

Artam ngo tusap	Fourty and seven	Forty-seven
Sosom ngo somok	Thirty and three	Thirty three
Artam ngo muut	Fourty and five	Forty-five

It is also observed that all figures that range between 61 and 100 follow a different pattern of description in which figures are introduced by the prefix “*tomon-wo:k*,” which means

“bundles of tens,” and coordinating conjunction *ngo* ‘and’ that introduces any figure in the hundreds position.

86)

<i>Tomon-wo:k lo ngo sisi:t</i>	Six tens and eight	Sixty eight
<i>Tomonwo:k soko:l ngo ereny</i>	Nine tens and two	Ninety two

However, whenever a digit is followed by a zero, the conjunction /ngo/ ‘and’ is not used since nothing is being added, for example, *tomon-wok sisit* (eight tens) ‘eighty’ and *tomon-wok sokol* (nine tens) ‘ninety.’ Figures that range between 100 and 999 are introduced by the element “pokol”, which means ‘hundred’.

87)

<i>pokol</i>	Hundred
<i>pokol akonga</i>	One hundred
<i>pokol soko:l</i>	Nine hundred
<i>pokol ngo akong’a</i>	One hundred and one

For large numbers that may have three digits or more, counting considers the sum of the hundreds, the tens, and the ones, and each time, a new digit is introduced by coordinating ‘ngo’

88)

<i>pokol ngo tiptem ngo akonja</i>	Hundred and twenty-one	One hundred and twenty-one
<i>pokol ngo tiptem ngo somok</i>	Hundred and twenty-three	One hundred and twenty-three
<i>pokol erej ngo sosom ngo erej</i>	Two hundred and thirty-two	Two hundred and thirty-two

The concept ‘thousand’ is likely a borrowed idea from Kiswahili since Endo has no native word for the word but describes it through nativizing the Kiswahili word *elfu* ‘thousand’ into ‘clip’. Figures in thousands are expressed through grouping numbers and summing them using the coordinator ‘ngo.’ Speakers can follow in their minds the number of digits expressed and can judge that it is either thousands or hundreds in question.

- 89) (a) elip akoŋa
 thousand one
 ‘one thousand’
- (b) elip akoŋa **ŋgo** pokol ereŋ **ŋgo** sosom **ŋgo** mut
 Thousand one and hundred two and thirty and five
 ‘one thousand two hundred and thirty five’

b) Ordinals

These are numbers that denote the order in which items are arranged. In Endo, ordinals are introduced by the word /*nopo*/, which means ‘belongs to’.

- 90) (a) lakwa *nopo* **tai** kuŋom
 The child who belongs **first** is bright
 The first child is always bright
- (b) ʃiʃ *nopo* **let** kusalwa
 A person who belongs **last** is foolish
 The **last** person is foolish

Without the introducing word /*nopo*/, the words ‘tai’ and ‘let’ would mean different things: front and back, respectively. Order is a matter of placement, and the / *nopo*/ assigns the noun to specific positions between two extreme ends. Some common nouns are ordinal in nature.

These include nouns that refer to the order in which children are born in a family.

- 91) 1st born –kiporet
 2 born-
 3 born - kwomkwen
 4 born-
 Last born –townian

The names *kiporet* ‘first born,’ *kwomkwen* ‘middle,’ and *townian* ‘last born’ are family birth positions understood by natives. However, there seems to be no clear terms for children born between the stated ones. When twins are born as firstborns, they are referred

to as *Saram ʃa kiporetin* ‘firstborn twins’. Twins born last are *saram ʃa towandin* ‘last born twins’

2.5 Derivation and Inflection

This section presents the different affixes used for the derivation and inflection of the various lexical categories in the language. The section first analyses derivation strategies for the different word categories before focusing on inflection patterns. As for derivations, I describe de-nominalization, de-verbalization, de-adjectivalization, metathesis, reduplication, and compounding, and under inflection, I consider number, gender, location, possession, and case. For the verb, I discuss tense, aspect, motion, negation, and reflexive/reciprocal.

2.5.1 Derivation

2.5.1.1 Noun-related derivations

By this process, other nouns, verbs, and adjectives are derived by way of affixation on nouns.

i) Nouns from other Nouns

Creider & Creider (1989) observe that derivation of nouns from other nouns can be realized through different processes that include the use of suffix /-ndi/, and /-i:/, and the prefixes /ki-/ and /che-/. To begin with, abstract and proper nouns are derived from common or concrete nouns by the suffix /-ndi/. Abstract nouns are derived from concrete nouns by adding the suffix /-ndi/.

	Generic	Derived
92) (a)	ʃorwa friend	ʃorwa- ndi friend-Nom friendship

(b)	lakwa child	lakwa- ndi child-Nom childishness
(c)	muren youth	muren- andi youth-Nom youthfulness

The INDEF marker /-ndi/ attaches to indefinite concrete noun forms that are human in nature and converts them to abstract. Phonologically, it is expected that the final vowel /a/ in the roots and /n/ in the affix attach as seen in 93a) and 93b). However, in 93c), the word *muren* ends in a nasal /n/, which requires an epenthetic /a/ to be introduced to check against a likely *nn* geminate, which can only occur word finally in the language

The second process is when proper names are also derived from common nouns by prefixation using honorifics like *arap* ‘son of’ or *chepo* ‘daughter of’, and in other cases, the gender markers /kip-/ and che(p)- are used. These are shown in the example below.

	Common form	Derived proper
93) (a)	rop rain	ki-rop MAS-rain (Boy born on a rainy day)
(b)	limo Grazing field	ʈfe-limo MAS-grazing field (girl born in a grazing field)
(c)	amɔ river	kip-amɔ MASC-river (boy born around a river)

The masculine /ki-/ and feminine /ʈfe-/ usually serve to specify gender and relate the birth of children to events surrounding their birth. In 93a), /ki-/ marks masculine but also serves to relate the gender aspect to the rainy season (during the birth). 93b), uses /ʈfe-/ to mark feminine and also relates this gender aspect to the location (grazing field where the birth

took place). Thus, in Endo, gender is not only marked on human nouns but on non-human aspects: physical locations, some events, and seasons.

- 94) (a) kip-torok
Masc-waterfall
Name of a waterfall
- (b) che-songoch
Fem-place
Name of a place

Thirdly, the suffix /-i:n/ is attached to names of places, happenings, and historical time to derive names that typically associate a noun with the attributes related to the place, happening, or the time. For example, a person who hails from Nandi or Marakwet will be named *nand-iin* ‘from Nandi’ and *markwet-iin* ‘from Nandi’ respectively. Major happenings in the community relate to socio-cultural practices that are strictly observed and remembered. For example, a man who has undergone *Pokoro's* highest ceremony to celebrate elders will be named *pokor-i:n* ‘passed pokoro stage’. On matters of history, speakers associate names of age groups with some important knowledge and wisdom, and people belonging to specific age groups are referred to as *main-iin* ‘of the age group between 1890- around 1910’ and *kipnyikew-iin* ‘of the age group between 1910 and around 1920’. Finally, names of clans were also used to derive names of people belonging to the very clans. For example, a person belonging to the *Kapterik* clan is *terik-iin*, while one belonging to the *Kapsaniak* clan is *saniak-iin*. However, in this case, there is clipping of the locative /kap-/, which is accounted for in the long vowel in the suffix.

ii) Verbs from Nouns by the causative /-ɛn/

A small number of verbs are derived from nouns by attaching the causative /-ɛn/, which is essentially linked to derived verbs that suggest ‘become or make to be’. The suffix attaches to nouns that relate to “living/life” and that have the capacity to cause or be caused to affect some behavior. For example, nouns that include plants, animals, humans, heavenly bodies, or body organs can cause behavior in some manner, and the same can cause or trigger some action to occur. For this to be marked, the vowels in the uninflected disyllabic form retain their low tones with the suffix bearing a high tone.

This can be seen in the example below,

	<u>Noun form</u>	<u>derived verb</u>
95) (a)	lòkò:i story	lòkò-én story-VBL tell a story
(b)	pànnàn poverty	pàn-én poor-VBL impoverish

2.5.1.2 Verb-related derivations

In this section, I discuss processes of de-verbalization leading to the derivation of other verbs and nouns, adjectives

i) Nouns derived from verbs

Nouns are derived from verbs in two ways: first by the addition of the nominalizing suffixes /-i:n/ or /-so/ (which generate concrete count nouns and abstract nouns respectively) and by way of reduplication. Several verbs in Endo end in consonants like *i-sup* ‘follow’ and *i-pat* ‘till’ (permitting possible attachment with /-i:n/), which Creider & Creider (1989) describe as an agent deriving suffix. Many of these verbs are Class II and

have the underlying /i-/ that assigns the imperative value. This can be seen in examples like *ki: sup* ‘to follow’ → *ka-supi:n* ‘follower’. It is also noted that several suffixes start with vowels. But a unique suffix is /-so/ (starting with a consonant), which is used to derive abstract nouns from verbs ending in nasals. This suffix, however, is determined phonologically based on the features contained in the vowel in the root word.

This is shown in 96a) and 96b) below:

96) (a)	ʃo:r steal	ʃor- i:n steal-NOML a thief	ʃor- so steal-NOMNL theft
(b)	sa:m borrow	sa:m- i:n borrow-NOML a borrower	sa:m-so borrow-NOML borrowing
(c)	pir beat	pir- i:n beat-NOML a beater	pir-ifo beat-NOML beating

In 96b), the verb /sa:m/ ends in nasal /m/. The derived abstract form becomes /sa:m-so/, which is phonologically possible since the tip of the tongue can rise to the alveolar ridge with the two lips tightly held. 95c) demands that the final /r/ in the root merges with /s/ in the suffix. This presents a phonological challenge because it means a H vowel /i/ is followed by /r/, which is followed by /s/, creating /-irs-/. High vowels make the tongue tense, which is the same case for the trill and the alveolar fricative. To overcome this, an epenthetic /i/ is introduced between /i/ and /s/ to avoid a sequence of /-irs-/. Finally, the alveolar /s/ becomes palatalized to /ʃ/, which permits phonological agreement with the H /i/.

ii) Deverbalized Adjectives

This is the most productive operation as relates to adjective derivation, which involves the application of the suffix /-at/. Indeed, almost all monosyllabic verbs in Endo are predominantly characterized by H tones and the de-verbalizing suffix L tone. Thus, de-verbalisation to derive adjectives results in HL, and this is partly responsible for the shift in lexical interpretation as seen in 97).

	<u>Verb</u>		<u>Adjective</u>	
97)	tják	‘untie’	tják-át	‘free’
	pé:rú:r	‘bless	pè:rùr-át	‘blessed’
	íl	‘break’	ìl-át	‘broken’
	ʃáp	‘make’	ʃáp-át	‘well made’
	wái	‘chop’	wǎ :t	‘chopped’
	mwá	‘say’	mwǎ:t	‘popular’

This data shows that the suffix /-at/ is attached to a verb to change it to an adjective that describes some state of affairs. The addition of the affix changes the high tone on the vowel in the monosyllabic verb to L in the Adjective. The affix itself bears an H tone. In other Kalenjin languages like Keiyo, adjectives of state usually begin with the /ɪ/ vowel, which has a low tone. This tone renders all other vowels in the word L and –ATR, and when this vowel is deleted in Endo, it creates an environment that allows for the vowel in the suffix /-at/ to attain H tone. In a syntactic unit, a derived adjective with the LH features can be followed by a single noun form, and the structure is still grammatically well-formed.

- 98) (a) **tjá:ká:t** tap-i
Free cow-this
This cow is free
- (b) **ʃápá:t** aran-i
Well made way-this
This way is well-made

In example 98) below, the phonological features of the vowels in the negator do not affect the process of deriving an adjective from a verb because the low tone on the negator harmonizes with the high tone in the root verb, so that both are LL, allowing for the high tone in the suffix.

This is shown in example 99.

- 99)** (a) mà-ìl-át
NEG-break-Adjectivaliser
Not broken
- (b) mà-ɸ̃áp-á:t
NEG-make-Adjectivaliser
Not well made

The tone patterns are affected by the way the derived adjective is positioned in a sentence. When the adjectives are independent words, the vowels have L (L) H tones as shown in examples 99a) and 99b), but when the adjective is used in a sentence predicatively, the tones change from LH to HL, in 100a) to 100c)

- 100)** (a) kèt-ì kò ép-àt
tree-DEM COP cut-Adjectivalizer
This is a tree that has been cut
- (b) tàp-ì kò tják-àt
cow-DEM COP free-Adjectivaliser
This is a free cow (not tethered)
- (c) làkwà-nì kò pérúr-àt
child-DEM COP bless-Adjectivalizer
This is a blessed child

It is also noticed that when the adjective is attributive, the tone pattern remains LH, just like when they are independent.

- 101)** (a) tják-át tàp-í
Free-Adjectivalizer cow-DEM
This cow is free

- (b) pèrùr-át lákwá-ní
 bless-Adjectivalizer child-DEM
 This child is blessed

The adjective deriving affix /-at/ only attaches to verbs in their basic forms, since attaching it to already inflected verbs generates structures that are strange in the language.

- 102)** (a) ka:-ken- *ka:-ken-a:t
 ASP-deceive
 He has deceived
- (b) ka:-lap -*ka:-lap-a:t
 ASP-fool
 He has fooled

2.5.1.3 Adjective-related derivations

This section discusses the derivation of nouns and verbs from adjectives

i) Nouns from adjectives

Several abstract nouns are derived from adjectives, where /-ja/ attaches to disyllabic adjectives, while /-in/ attaches to monosyllabic adjectives. In both cases, the attaching suffixes are characterized by RTR tongue root qualities, and, being a dominant feature in the language, assimilate all the other vowels in the word to RTR.

- 103)** (a) kartit kartit-**ja**
 cold cold-NOML
 coldness
- (b) kara:m kara:m-**ja**
 good good-NOMNL
 goodness
- (c) tur tor-**in**
 Dark dark-NOML
 Darkness
- (d) ɲwan ɲwan-**in**
 Bitter-NOMLZ
 Bitterness

It is also possible in Endo to derive nouns by attaching a relational singular prefix /pole-/ and plural /ʃole-/ (appears as /po-/ or /ʃo-/ in other Kalenjin dialects) to adjectives of color, size, or taste. The affix exerts the meaning “that which is” to the adjective, partly making it attain features of the noun. Last (1995) refers to such affixes as particles and argues that they serve to connect/attach certain properties and qualities to the noun they describe. While /pole-/ attaches to singular forms, /ʃo-/ and /ʃole-/ attach to the plural forms.

104)

- (a) ʃi **pole-karam**
 Person REL good
 A person who is a thief
- (b) ʃumba **ʃa le wisen**
 White people REL fast
 White people who are fast runners

ii) **Verbs from Adjectives:**

Some verbs in Endo are also derived from adjectives through suffixation in two possible ways. The first is what Zwarts (2003) identifies as the use of /-iitu/, which attaches to adjectives to derive verbs that suggest either expected states of being or requests/commands. As for the former (expected states of being), attaching the suffix makes vowels in the root LL and those in the suffix HH. The latter (to suggest a request/command) happens when the suffix attaches, and all vowels in the root and in the suffix are HH.

	Adject	verb
105)	(a) tɪlɪl Clean	tɪlɪl-í:tú clean-BE-IMP it will be clean
	b) kárám Good	kárám-í:tú good-BE-IMP be good

The second way relates to the redundancy of /i/ as a second-person marker. Several adjectives in Endo are either monosyllabic or disyllabic. A causative /-it/ is attached to monosyllabic adjectives with a lengthening of the vowel /i/ in the affix. As for the disyllabic adjectives, the vowel in the second syllable is simply lengthened. This process particularly affects Class 11 verbs in Kalenjin, which have /i-/ preceding verbs to suggest the agent that causes action. For this case, the use of /i-/ is covert and underlying.

The author assumes it is this covertness that warrants a lengthening of the vowels for compensation.

106)	Adjectives		Verbs
	(a)	rel white	rel-i:t white-CAUS whiten
	b)	lou Far	lor-i:t far-CAUS farthen
	c)	marmar Dotted	marma:r dotted-CAUS Make sure to be dotted
	d)	paipai happy	paipa:i happy-CAUS make to be happy

2.5.1.4 Adverb-related derivations

Formation of adverbs and other lexical groups from adverbs differs from one language group to another. In Kiswahili, for example, adverbs of manner are derived from adverbs of time by adding /ki-/ to the adverb of time. For example, the adverb of time *sasa* ‘now’ becomes an adverb of manner *ki-sasa* ‘in the manner of this era’. In Endo, the study observes that a small set of nouns in Endo are derived from adverbs when the nominalizing /ki-/ is attached to adverbs of time. Such adverbs in the language have the capacity to

describe different ranges of time in the week or even the year. For example, *asun* ‘yesterday’ and *aiin* ‘two days ago’ are adverbs of time that relate to days in a week that just ended. The prefix /ki-/ is also added to adverbs of time that specify time in the day, like morning, afternoon, and evening. This means that, in Endo, when the prefix /ki-/ is attached to such adverbs, the result is nouns that denote things or events associated with such times.

In examples 107a)-107c), *kərən* ‘morning’, *pərət* ‘noon time’, and *kəsəlɪn* ‘evening’ are all adverbs of time, but the derived forms, *kɪ-kərən* ‘breakfast’, *kɪ-pərət* ‘lunch’, and *kɪ-kən* ‘supper’ are realized as noun forms

107)	(a)	<i>kərən</i> morning	kɪ-kərən NOML-morning breakfast
	(b)	<i>pərət</i> noon time	kɪ-pərət NOML-noon time lunch
	(c)	<i>kən</i> long ago	kɪ-kəsəlɪn NOM-past supper

It is also argued here that some proper names in the language are derived from adverbs of time through prefixation by using the nominalizer /ki-/ or /che-/. This again is possible with adverbs relating to specification of periods in a day, like *mutai* ‘early in the morning’, *pet* ‘daytime’, or *kemboi* ‘night’. Others include adverbs that suggest a place like *keter* ‘behind the house’, or *piy* ‘cattle shed’.

When the prefix /ki-/ or /che-/ is attached to these adverbs, we realize nouns.

108)	<i>ki-mutai</i>	‘proper name for boy born early in the morning’
	<i>che-mutai</i>	‘proper name for a girl born early in the morning’

ki-(p)keter	‘proper name for boy born behind a house’
che-(p)keter	‘proper name of a girl born behind a house’

2.5.1.5 Other Derivational Processes in Endo

i) Metathesis

Crystal (2003) and Norman (1981) describe metathesis as a phonological process related to the alteration of the sequence of elements and affecting the order of phonemes. This is a word formation process that does not involve the addition or omission of affixes but rather the rearrangement of segments or syllables in a word to generate new words that either belong to the same category as the initial word or otherwise. The new word forms are characterized by a different order of syllables or, in some cases, a re-arrangement of the segments within the syllable. According to Hume (1998), in many languages, metathesis does not appear as a common phonological process in constraining segments like assimilation or elision does. Instead, Belvins and Garrett 1998 and Hume (2001) consider metathesis as a prosodic feature connected to speech performance errors like slips of the tongue. However, Zwarts (2003) provides the following examples in which Endo interchanges the order of syllables in some different from what other Kalenjin languages portray.

	Other Mar. Dialects	Endo	gloss
109)	a) kimalat	kilamat	lizard
	b) motfokor	mokotfor	grand child
	c) mokolər	mokorel	heart
	d) la:r	ra:l	cough

The last two syllables in a) and b) are interchanged while the initial syllable is retained. In c), the initial and final consonants in the last syllable are interchanged. Monosyllabic words like d) take the same strategy as in c). This points to a regular pattern where:

- i) polysyllabic words interchange the last two syllables
- ii) monosyllabic words simply interchange the positions of the consonants

The study partly agrees with Hume (1998, 2003) that metathesis, though noticeable in some languages, does not contribute much to aspects of derivation and inflection. However, it speaks much to speech deficiencies in cases of aphasic conditions that affect normal morphological speech patterns and in early language learning stages. Children learning to speak Endo interchange the order of /se-/ and /ke-/ when they tend to front /se-/. This could be attributed to the fact that phonologically, when children learn a language, they first pick fricatives as opposed to plosives. For this case, /s/ will be fronted ahead of /k/. For example /ke-sei/ → /se-kei/

ii) Reduplication

Inkelas & Zoll (2005) indicate that reduplication is a productive derivation process in many Kalenjin languages that involves repetition of some part or whole of a linguistic structure in order to realize a new form. Booij (2006) further notes that the process is complex since it not only involves duplication of sections but also attracts supra-segmental aspects which affect the final structures and their interpretation.

In Endo, duplication could be realized by simply repeating the form, for example, *ɲas* → *ɲasɲas* 'tender' or *kit* → *kitkit* 'tickle'. It could also be done by introducing /a/ in between the reduplicated forms. Thus, *ɲas-a-ɲas* 'slash repeatedly' and *kit-a-kit* 'investigate continuously'. Phonologically, the base form is initially loaded with an H tone on the vowel (most are monosyllabic), which changes when reduplicated.

- 110)** (a) *ɲàsɲàs*
'soft/tender'

- (b) $\eta\acute{a}s\eta\acute{a}s$
 tender (pl)
- (c) $\eta\grave{a}s\text{-}\acute{a}\text{-}\eta\acute{a}s$
 slash severally

In 110b), the number on Adjectives is marked by tone when it changes from H to L and recurs in the vowels on the reduplicated parts. The result is a reference to an adjective that describes objects in the singular. On the contrary, when the H tone is retained in both reduplicated parts, the word refers to an adjective that describes in plural. In 110c), addition of /a/ between reduplicating parts breaks the tonal harmony so that there is LHL that results in words suggesting habituality- marking recurrence and frequency in a verb (Wood & Garrett 2001). Insertion of /a/ between duplicated forms may take the features of epenthesis, but in this study, I discuss the two separately because of their different functions.

	Verb	Adjective
111)	wát ‘prick’	wát-wát ‘pricky,
	láp ‘taste’	láp-láp ‘tasteless’
	wís ‘observe’	wís-wís ‘not heavy’

For this case, adjectives derive from verbs when tone remains HH across the vowels in reduplicated syllables. This is because when the tone changes to LH, the category is retained as a verb and not an adjective. Consequently, the meaning affected by the new verb is ‘habituality’.

112)	láp ‘taste’	láp-láp ‘taste frequently’
	wís ‘observe’	wís-wís ‘observe severally’

There are also cases of reduplication where verbs derive from other verbs through lengthening of the vowel in the second syllable of the reduplicated form.

The result of this process is new verbs whose meaning is not related to the original forms.

113)	Verb	verb
	ter	ter-teer
	understand	scatter/spread
	par	par-paar
	kill	drill

In the case of 113) above, when the second part (the reduced form) attains length, there is a change in content other than the recurring effect. This implies that length in such scenarios has a two-fold effect: semantic and grammatical. The second strategy, by epenthesis, relates to verbs that are derived from other verbs by inserting /a/ to separate the duplicated lexical form.

The process makes the derived verb attain an additional grammatical level of habitual/progressive aspect

114)	Verb	verb
	Mor	mor-a-mor
	Insult	insult severely
	Siŋ	siŋ-a-siŋ
	Scrub	scrub severely

iii) Compounding

Compounding as a morphological process entails combining two or more independent lexical elements to attain a new word form. In Endo, compounding basically results in compound nouns and compound adjectives. Compound nouns are derived from combinations of noun + noun, adjective + noun, or verb + noun. Many of these compound nouns are in the form of idiomatic expressions, and this means that their meaning in isolation does not directly correspond to the meaning of the derived forms.

This is seen in example 115) below,

115)

		Lit	Gloss
N + N	ng'ung'uny + met Soil + head	Soil head soil head	Determination
ADJ + N	rel + met white + head	White head White head	Wisdom
V + N	am + ket Eat + tree	Eat tree eat tree	Strategy strategy.

On the other hand, compound adjectives in the language are formed when two different types of adjectives come together to describe a common noun. Ideally, when two adjectives combine, they are separated by a relative marker *ja* 'which is' for example *pirir nya karaam* 'red which is good. However, in Endo, this relative marker is omitted (probably due to its redundant morphological contribution) in some constructions, which leads to compound adjectives (two adjectives adjacent to each other).

This process mainly applies to adjectives of color, which are usually followed by opinion adjectives, as shown examples in 116) below,

- 116)
- (a) **pirir-** **kara:m** lakwa-ni
brown- good child-DEM
This child is very much brown
- (b) tur- aŋer tak-et
black- serious face-DEF
The face looks totally black

Though such a derivation is rarely used, words arising from the process occasionally surface in descriptions of livestock like *arus tui* 'brown but more dark' and *rel toiyoi* 'white with a tinge of colorlessness'

In 116b), an adjective of color /tur/ ‘black’ combines with that opinion /aŋer/ ‘serious’ to form *tur-aŋer* ‘totally black’. This process suggests that, when two adjectives combine, the second word acts as a modifier of the first one and denotes the degree of the idea described in the first word. Thus, though /kara:m/ ‘good’ and /aŋer/ ‘serious’ are adjectives in the language, they have the force of adverbials of degree in the combination.

2.5.2 Inflections

This section focuses on inflection markers used on different lexical forms and the resultant semantic outputs. For the noun, I discuss number, gender, location, possession, and case. For the verb, I discuss tense, Aspect, motion, negation, and reflexive/reciprocal.

2.5.2.1 Number marking

Number is marked differently on the different lexical categories, either by the use of affixes or by the use of supra-segmental processes. Here, I discuss the various affixation and supra-segmental strategies used to inflect nouns, verbs, and adjectives for number. Citing Nicholes (1992), Dimmendaal (2000) describes number marking in Nilo-Saharan languages as rich and complex because of the requirement for the numeral classifier type and the noun-specific type. This means that to mark a nominal element for number, the word category must be specified first to determine the type of affixes to assign. Zwarts (2003), for example, observes that in some languages, some nouns are intrinsically singular while others are relatively plural in form. To check their status, there is a need to consider their grammatical agreement with neighboring elements. In Endo, the words *aka* ‘another’ typically follow SG, while *walak* ‘other’ follows PL, and the two are mutually exclusive.

- 117) (a) tuka walak tʃa pka-nei
 Cow.PL other REL move-VEN
 Other cows which are coming

- (b) rop aka **na** tʃona
 rain another REL come-VEN
 Another rain that is coming

The word “walak” is plural sensitive and thus all other words occurring with it inflect to conform to plurality- the noun cows, the relative tʃa, the plural inflected verb pka-**nei**. The form “aka” also affects all other elements to the singular for: singular noun rain, relative **na** and verb singular tʃo-**na**. This suggests that even in cases where it is difficult to tell whether a noun is in the singular or plural form, the test can help to point out the specific state. In short, once the word category and number status of a word is determined, relevant number marking affixes can then be attached.

The definite singular /-et/ belongs to Class I and is attached to singular noun forms in the language. While it is realized as /et/ in many Kalenjin languages, Endo deletes the final /t/, which results in lengthening of the final vowel, /e:/, and displays variations depending on the phonological qualities and quantities of the vowels at the end of the root noun.

These variants include/e:/ and /-ta/

- 118)** (a) sira sir-**e:**
 ‘cloth’ cloth-**DEF**
 The cloth
- (b) ɛm ɛm-**ɛ:**
 ‘river’ river-**DEF**
 the river
- (c) ro: :p ro:p-**ta**
 ‘rain’ rain-**DEF**
 The rain
- (d) ko:m ko:m-**ta**
 ‘container’ container-**DEF**
 The container

The choice between /-e:/ and /-ta/ is phonologically determined, where /-e:/ attaches to singular nouns that end in vowels, or the alveolar consonants /r,s, t,n/. On the other hand, /-ta/ attaches to singular nouns that end in bilabial consonants /p, m/ or velar consonant /k/. However, abstract nouns that end in alveolar nasal /n/ do not take /e:/ but /ta/ because /t/ is phonologically conditioned as /d/ by the nasal that precedes it, and by assimilation, it also becomes voiced

- 119)** sopo:n sopo:**nda**
 health health-DEF
 the health

On the other hand, the definite plural /-ik/ attaches to plural count nouns and is also phonologically conditioned by environment, resulting in variants /-uk/, /-ka/, and /-ka/

- 120)** (a) ket keti:k
 tree tree: PL
 the trees
- (b) la:kwa lak-**o:k**
 ‘child’ child-**DEF.PL**
 The children
- (c) kelda kel-ek
 ‘tooth’ tooth-DEF.PL
 The teeth
- (d) taŋ tu:-ka
 ‘cow’ cow-DEF.PL
- (e) tʃɛ tʃɛ:-ka
 ‘milk’ milk-DEF
 the milk

There is a complex of phonological operations in the examples above because there are no predictable patterns associated with the variants. For example, it would be easy to state that in 120a) nouns that end in voiceless alveolar plosive /t/ accept /-ik/. But many other such

nouns end in /t/ like *met* ‘head’ and *sot* ‘calabash’, whose plural forms are *metewe:k* ‘heads’ and *soto:nik* ‘calabashes’ respectively. The prosodic properties of the vowels in each are all the same.

In 120c), tongue root is a factor since *kelda* ‘tooth’ becomes ‘*kelek*’ while *kelda* ‘leg’ becomes *kɛljɛk* ‘legs’. It would be argued that since RTR has a high tensed back of tongue, there is a need for the introduction of /j/ to ease such tensing. 120e) reveals a category of non-count nouns that end in /ɛ/ taking the definite /-ka/. Another example here includes: *pe(r)* ‘water’ becomes *pe: ka* ‘the water’, and /-ok/ and /-ik/ are used when the noun is either disyllabic/polysyllabic, while /-ka/ is used with monosyllabic nouns.

There is a small number of singular nouns in Endo that inflect for plural by reducing or raising the vowel in the second syllable. In the examples below, /o/ is reduced to /e/ and /a/ is raised to /e/, suggesting some kind of centering process. The centered vowel /e/ is then eventually lengthened.

121)	(a)	torkol testicle	tork-e:l testicle-PL testicles
	(b)	ɲokan hen	ɲok-e:n hen-PL hens
	(c)	par parcel of land	par-e:n land-PL parcels of land

This mainly concerns disyllabic nouns that have the first vowel in the root as either low /a/ or mid-high/o/. In both ways, the vowels are centered to /e/ and the second vowel lengthened as seen in examples 120a) to 120c)

A small number of words use vowel simple lengthening of the second vowel in the noun. Being prosodic and agglutinative, Endo exploits length (not productive) to mark plurality on certain nouns. This entails changing all vowels from +ATR to –ATR, then lengthening the vowel in the last syllable of nouns. An example is that of nouns that end in nasals as seen in 122a) and 122b.)

122)	(a)	ɲɔtɔɲ a lion	ɲɔt-ɔ:ɲ lion-PL lions
	(b)	kɔɲɔɲ horn bill	kɔɲ-ɔ:ɲ hornbill-PL hornbills

This strategy is also possible for plural marking with nouns that have diphthongs in the second syllable. Plural marking for this matter is achieved by first deleting the diphthong (disyllabic nouns) and then lengthening the vowel that remains in remains in the word.

123)	(a)	pel-ion the elephant	pe:l elephant: PL elephants
	(b)	put-ion pubic hair	pu:t pubic hair: PL pubic hairs
	(c)	rel-wan fox	re:l fox: PL foxes

Using length to mark plurals in nouns appears to be productive in disyllabic words that have mid /e/, high/u/u/ or /i/as the initial vowel.

It is also possible that tongue root, though rare, is an unproductive strategy for indefinite plural formation. It is an alternative way of using supra-segmental instead of segmental affixes. This is common with pluralizing indefinite nouns that end with ith/-in/. The

strategy involves deletion of the indefinite suffix /-in/ and then changing the tongue root of the vowel in the remaining monosyllabic form to -ATR

- 124)**
- | | | |
|-----|-------------|---------|
| (a) | am-in | am |
| | eat-INDEF | eaters |
| | eater | |
| (b) | ʃor-in | ʃor |
| | steal-INDEF | thieves |
| | thieves | |

However, the strategy is largely unpredictable since there are other monosyllabic words also with -ATR vowels, though they are singular and not in their indefinite plural forms like /kɔr/ ‘land’ and /kɛn/ ‘mortar’

Hieda (2003) and Creider & Creider (1989) describe suppletion as a less productive process for pluralizing nouns, probably because neither the segmental nor the prosodic aspects are involved, and there is no rule to explain the change. In such cases, there are complete differences between the singular and the plural forms.

Examples of such are shown in 125a and 125b below,

- 125)**
- | | | |
|-----|-----------|-------|
| (a) | ara:n | nɛ |
| | goat: IND | goats |
| | a goat | |
| (b) | ʃe: to | tipin |
| | girl: IND | girls |
| | a girl | |

Apparently, it appears the strategy works with animate nouns, as is the case with the two examples shown above. The associative affix /-pa/, which attaches to some noun forms, generally denotes plurality to signify items of association. Association for this matter

should not be confused with possession. In 126) below, ‘the stick’ is not assumed to belong to, but to be associated with

- 126) kɪrɔ(k)-pa matir-ɛn
 Stick-ASS circumcise-DEM
 Sticks used by males in ceremonies

The free translation for this is a reference to a special stick that every man involved in circumcision must carry as a symbol of maturity and responsibility. However, the stick in reference is symbolic and refers to all sticks in the hands of the *matiren* ‘circumcisers’.

Thus, though it may appear as pointing out to a single stick, in essence, it is all the sticks held by such men

- 127) kɔ:r-pa sɔpɔ:n
 Land-ASS success
 Land that brings about success

In 127), the *land* in question is that which is associated with success (fertile and productive, plenty of water, pastures, etc). It is generally understood that land in Endo is also considered communal (for grazing, ceremonies, shifting cultivation, etc) and treated as communally owned as opposed to individually. Thus, land in this case is any which is suitable for their survival and not one as may appear to be referred to.

I am arguing here that ASS /pa/ is used to mark Plural by drawing from the general knowledge of native speakers. Thus, linguistic structures could contain nouns like ‘stick’ or ‘land’ which appear in the Sg form but are understood by native speakers as plural.

Lastly, the Singulative marker /-jan/, described by Bender (1983:124) as a marking feature predominant in Surmic and Nilotic languages, marks the singulative when the suffix /-jan/

is attached to mass nouns like blood, hair, soil, herbs, etc. Ideally, it is not possible to single out an item from such nouns, but in Endo, the suffix /-jan/ allows speakers of the community to construct nouns that are considered singulars from the mass nouns.

- | | | | |
|-------------|-----|--------------------|--|
| 128) | (a) | sɔmɛɪ
hair | sɔmɛ- ja:n
hair- SING
piece/bundle of hair |
| | (b) | kɔrɔɪ
blood | kɔrɔt- ja:n
blood- SING
drop of blood |
| | (c) | ɲɔŋɔɲ
soil | ɲɔŋɔɲ- a:n
soil- SING
a lump/ball of soil |
| | (d) | sa:kit
medicine | sakit- ja:n
medicine- SING
some unit of medicine |

The root in 129a) and 129b) end in vowel /ɪ/, which is deleted since /j/ in the suffix also shares palatal features with it, and timing would be longer and taxing. In 129c) the root ends in palatal nasal /ɲ/, which is characterized by high features just like /j/ and demands deletion of /j/. The root in 129d) ends in an alveolar voiceless plosive /t/, which easily accepts the affix without adjustments. The root forms of the mass nouns have LL tones, but when the suffix /ja:n/ is attached, the tone patterns change to LLH since the affix is H.

It is also possible that in Endo, the number is fused on person markers, for example, in 129a) below, /ki-/ marks first person plural, while /ko-/ in 129b) marks second person plural. The third-person marker is not physically represented in the examples and is null for both person and number.

- | | | |
|-------------|-----|--|
| 129) | (a) | ko- ki -am
Pst-1P-eat
We ate' |
|-------------|-----|--|

- (b) **ma:-pa**
Neg-go
They didn't go

In 129a), the affix /ki-/ serves both person and number, but in 129b), no affix is shown, though this is compensated by the length of the negator. Thus, the number on the verb is marked by the segmental and prosodic length.

2.5.2.2 Number agreement between Adjectives and nouns

Creider (1993), in describing the Nandi language, observes that adjectives are similar to nouns in having distinct singular and plural forms (pp 61). Last (1995) also, in describing Chai grammar, concludes that adjectives agree with the head of the noun phrase in number (pp 40). Adjectives in Endo (as it is in other Kalenjin languages) distinguish singular from plural either by use of an affix or modification of the tongue root feature. The suffix /-in/ is used to mark plurality.

130)

	Singular	plural	gloss
i)	apin	apin-in	"sweet"
ii)	tyakat	tyakat-in	open
iii)	ila:t	ila:t-in	broken

One way of confirming the number on adjectives is to assess the relationship that holds between the noun and the adjective in a syntactic construction. In Endo, there is a correlation number between the adjective and the noun occurring in such structures. The relative singular marker /no-/ relates a singular noun to a singular adjective, while /fa/ relates the plural forms.

- 131) (a) tap **no**-tur
Cow **REL** black
A black cow

- (b) ko **po**-ou
House **REL**-big
A big house
- (c) tuʃ ʃa – ʃaŋ
Cows REL.Pl- many
Many cows
- (d) piʃ ʃa ʃaŋ
People REL.Pl-many
Many people

As concerns the tongue root, the number is also marked by adjusting the +ATR qualities of the vowel segments in the singular forms to -ATR in the plural adjective.

	Singular		plural	
132)				
i)	aɲin	‘sweet’	aɲɪn	‘sweet’
ii)	tanɪn	‘slim/thin’	tanɪn	‘slim/thin’
iii)	samɪs	‘foul smell’	samɪs	‘foul smell’
iv)	somsom	‘rotten’	somsɔm	‘rotten’

All the examples in 132) show that the number in color terms is denoted when there is a change in the tongue root from +ATR vowels in the singular forms to –ATR in the plural forms. However, there is a second variant for plural colour formation, which is /-en/ that does not change tongue. This form simply conforms to the tongue root features contained in the root form, for example, *aɲɪn* ‘sweet’ (sg) → *aɲɪn* ‘sweet’ (pl), *tanɪn* ‘thin’ (sg) → *tanɪneen* ‘thin’ (pl), while the former also signifies INDEF, the latter is used mainly with DEF.

2.5.2.3 Gender Marking

In this section, I describe how gender is marked on the different word categories by different morphological strategies in Endo. Generally, gender is marked by the masculine /ki-/ and the feminine /che-/ on nouns, but may suggest other gender related aspects outside

human domains. For example, certain cultural items like homes or physical locations are associated with a specific gender, as shown below:

i) Masculine /ki-/ and FEM /tʃe-/

Like in other Kalenjin languages /kip-/ specifically marks masculinity on proper names, while /tʃep-/ marks femininity. However, Endo (unlike sister languages) omits the plosive /p/ in both the masculine affix /kip-/ and the feminine /tʃep/, resulting in /ki-/ and /tʃe-/ respectively.

	Endo	Other Kalenjin dialects
133)	(a) ki-rop MASC-rain	kip-rop MASC -rain Born during the rainy season
	(b) ki-ruto MASC-journey	kip-ruto MASC -journey Born when my mother was on a journey
	(c) tʃe-tʃumba FEM-whitemen	tʃep-tʃumba FEM-whitemen Born during the colonial period

It is also important to note that the affixes /ki-/ and /tʃe-/ are also found in some other human nouns, although their role in such nouns is not to mark gender but simply to show expertise of the individuals mentioned.

- 134)**
- (a) tʃe-sakitya:-n
HAB-medicine man-DEM
A person specialized in herbal medicine
 - (b) tʃe-maet-jan
HAB-glutton-DEM
A person who is used to overeating

The affix /ʃe-/ in 134a) and 134b) do not show gender, but the skill of the herbalist and the gluttonous behavior. For this case, the herbalist or the gluttonous person could either be male or female.

There are also birds in the language whose names begin with the affixes /ki(p)-/ and /ʃe-/ but do not mark gender.

- 135)** (a) ʃe-ʃuku:k ‘owl’
 ʃe-tuke ‘dove’
- (b) ʃe(p)-kule:lmo: ‘weaver bird’
 (white stomach region)

Ideally, the masculine /ka-/ and feminine /ko-/ in Endo are used as locatives but become gender markers when they are used with nouns that culturally have gender overtones, like homes or cattle. Ownership of homes and cattle in the community is associated with males, while specific houses are associated with women.

- 136)** (a) **ka**-ki-limo
 MASC.LOC-MASC-limo
 Home of Kilimo
- (b) **ko**- ʃelimo
 FEM.LOC-Chelimo
 House of Chelimo (female)

In 136a), /ka-/ suggests that *Kilimo*, being the owner of the home (and culturally so), is masculine, while in 136b), one of the houses in the homestead being occupied by *Chelimo* (feminine) is marked by /ko-/.

Honorifics are also gender related, and in Endo, they are used as expressions that mark aspects of respect, success, dignity, and power among members in the community. Men and women earn respect and honor through age, although men are more respected by the

size of their family and/or the number of cattle they own, while for women, dignity is based on the number of children born and their success. For the youth and generally children, such honor is earned through association with their fathers. There are different affixes in the language that denote these levels of honor.

The prefixes /ma-/ or /eja-/ are used on female names to denote “mother of”. /ma/ could have originated from the Kiswahili word *mama* ‘mother’ and nativised into the Endo system. /eja/ is likely a phonological modification of /iyoo/ ‘mother’ in Endo. The two words have other culturally based associations with dignity and honor. They are therefore used as addresses that present women (who have had children) as procreative and responsible for the continuity of life. These affixes are not attached to borrowed names but to native female names.

- 137) (a) **ma-ʃemutai**
 Mother.FEM-chemutai
 Mother of Chemutai (respected woman)
- (b) **eja-kirop**
 Mother.FEM-kirop
 Mother of Kirop (respected woman)

Although both affixes suggest dignity of women, /eja-/ is associated with more elderly women in the community (probably past menopause), while /ma-/ is used more with women in their prime productive age. The affix /eja-/ therefore suggests more positive attributes of women who have had more experience in life through age, production, and child rearing.

On the other hand, feminine /ko (p)-/ is attached to names of women who have successfully remained in their marriages for a long time, and their children have equally married and

sired children. The affix is specifically used to mean “grandmother of” but carries with it some respect and elevation in the community.

The name that comes after the prefix is usually that of the first grandchild of the lady in question.

- 138)** (a) **ko- tferono**
Grand. **FEM** – cheronono
Grandmother of Cheronono (Woman of dignity)
- (b) **kop-elena**
grand. FEM – Hellen
Grandmother of Hellen (Woman of dignity)

As for men, masculine /kwombɔ-/ and /kukɔp-/ are used as honorifics that denote ‘father to’ and ‘grandfather to’ respectively.’ They present men as people with respect and dignity.

They also come before the names of the firstborn grandchildren.

- 139)** (a) **kwombɔ- kipkorir**
Grand-kipkorir
Grandfather of kipkorir
- (b) **kukɔp-kipkorir**
grand-kipkorir
grand father of kipkorir

As for the youth and children, masculine /wɛrɔ-/ and feminine /tʃɛpɔ-/ are gender specific affixes that also denote masculine and feminine, respectively. They are used mainly in reference to young boys and girls who could be married or not. They generally denote “son of” and “daughter of” respectively. In the community, addressing young children with reference to their fathers is considered respectful. These affixes precede the proper name of their fathers. Such proper names could be the local names in Endo or even the Christian names as seen in 140).

- 140)** (a) **wɛra:-** kiruto
son-kiruto
son of kiruto
- (b) **ʔɛpɔ-**kiruto
daughter- kiruto
daughter of Kiruto

The third aspect of gender in the language relates to physical locations, where generally, affixes that point to location vary because of phonological adaptation. For example, the suffix /-e:/, which is ideally an instrument, also serves as a locative marker.

- 141)** (a) **kà-àpùn-é:** èm pér
Pst-fetch-LOC river water
He fetched water from the river
- (b) **kwaŋ-e:** kɔ pan
Cook-LOC house food
She cooks food in the house

In the two examples, the suffix /e:/ determines the location where an activity is centered or originates. In 141a), water is located in the river, while in 141b), food is cooked in the house. When the affix acts as a locative, the verb to which it attaches must be followed by a direct object that specifies the location of the activity or the item described. All vowels in the verb describing location are characterized by low tone across the word, while the activity has H tones across it. This means the positions of these two elements can be interchanged, but their functions are not changed as dictated by tone.

- 142)** **kà-àpùn-é:** èm pér **or** **kà-àpùn-é:** pér èm
Pst-fetch-LOC river water
He fetched water from the river

The prefix /ka-/ and /ʔɛ-/ , which are ideally gender markers in the language, also double up as locatives. Many names of places and locations in Endo begin with the affixes /ka-/ or /ʔɛ-/ and serve to some extent to specify places where certain events occur. Such names

include: *ka-sowar*, *ka-pen*, *ka-sait*, *che-songoch*, *che-setan*, *che-munada*. Such affixes help to partially identify the events/circumstances associated with these regions.

- 143)** (a) a-wet-ja: **kap**-urwo
1s-go-IMP LOC-rest
I am going to a place of rest
- (b) mi tʃumba **tʃe**-soŋoŋ
Present white people LOC-place
White people are at Chesongoch (a place)

In 143a), ‘urwo’ means shade, and thus ‘kap-urwo’ denotes a place where there are many trees and plenty of shade. In 143b), ‘paraa’ means vast, and thus ‘che-bara’ refers to a vast land. In other cases, these affixes could tell what/who originally inhabited the place, for example, ‘kap-ben’ is a place initially inhabited by a person called Ben. Thus, the absence of such affixes renders the words as simply referring to activities or proper/common names of people.

2.5.2.4 Possessive Marking

Possession is inherently the relation between the possessor and the item possessed. This relation is marked in different ways by the use of different affixes in Endo. The singular /-ɲi/ and plural /-tʃi/ attach to nouns to show belonging/ownership/possession. The Sg /-ɲi/ is used with nouns in their singular form and only changes their phonological character based on grammatical person.

- 144)** (a) kari:**ɲ**-i
Car- **POSS**-3S
His car
- (b) kari:**ɲ**-an
Car- **POSS**-1P
Our car

The plural /-tʃi/, on the other hand, attaches to nouns in their plural form and only alters when the grammatical person has changed.

- 145)** (a) kɔrɪ-tʃ-ɪtʃ
houses-POSS-3P
His houses
- (b) ware-tʃ-wan
Lambs-POSS-1S
My lambs

The second possessive marking is by the suffix /pɔ-/ , which attaches to lexical forms to suggest the equivalent of ‘belong to’ in English. It is not an affix as such but an independent lexical form that occurs before the possessor or after the possessee.

- 146)** (a) pɔ́ pítá kàrì:t
POSS pita car
The car belongs to Peter
- b) pɔ́ tʃésómán pàrè-nì
POSS name land-DEM
This land belongs to Chesuman

In both 146a) and 146b), /pɔ/ occurs ahead of the possessor and bears high tone, which is a result of the H tone borne on the possessor. The possessee here bears a low tone. On the contrary, when /pɔ/ occurs ahead of the possessee, tonal patterns are rearranged.

- 147)** (a) pɔ̀ kàrì:t pítá
POSS car pita
The car belongs to Peter
- (b) pɔ̀ pàrè-nì tʃésómán
POSS land-DEM name
This land belongs to Chesuman

It will be noticed that the possessive lexical marker predictably changes its tonal feature to conform to the tonal properties of the word it precedes. In 147a) and 147b), /pɔ/ precedes the possessor, which has high tones and thus also takes high tones. But in 148a) and 148b) below, it precedes the possessee whose tonal properties are low and makes the /pɔ/ also take low tones.

In some constructions, a copula is used to introduce the possessive (when it occurs between the possessor and the possessee).

- 148)**
- (a) kari:t kɔ-**pɔ** pita
Car COP-**POSS** Peter
The car belongs to Peter
 - (b) pɛrɛ-nɪ kɔ pɔ ʃɛsɔman
land-DEM POSS name
This land belongs to Chesuman

In such constructions, tone does not play a role since the copular and possessive semantically suggest/introduce (without contradiction) the possessor. The third way of marking possession is by the suffix /-ap/, which is realized as /-ap/ for class I (definite) and as /-ip/ for class II (indefinite). In both ways, the affix has the meaning ‘belonging to’

- 149)**
- (a) kar-it-**ap** pita
Car-DEF-**POSS** Peter
Peter’s car
 - (b) pɛr-ɛt-**ap** malimu
land-DEF-**POSS** teacher
The teacher’s cows
 - (c) kar-i:**p** pita
Car.INDEF-**POSS** Peter
Peter’s car
 - (d) pɛr-ɛ:p malimu
land.INDEF-POSS teacher
Peter’s land

In 149a) and 149b), the presence of the definite affix warrants the use of possessive /ap/. This is phonologically plausible because of the freedom in the articulation of the low /a/ in /ap/ after /i/ and /ε/. On the contrary, in 149c) and 149d), there is no definite but rather an indefinite affix. This would mean /kari + ap/ and /pare + ap/. The vowel in the possessive is deleted, leaving the one in the main word. The result is a lengthened vowel slightly different from that used with definite.

There is also another strategy used to mark possession, which uses the possessive /-tɪŋ-/ by attaching it to either full lexical items or pronoun forms. The affix ideally has the meaning ‘have’. This is shown in example 150.

- 150)**
- (a)** α-τɪŋα: rəpijə
 1S-POSS-me money
 I have money
 - (b)** ɪ-τɪŋε kɪr
 2S-POSS something
 Do you have something?
 - (c)** ma-τɪŋ-α kɪbɛt kɪr
 NEG-POSS Kibet anything
 Kibet does not have anything
 - (d)** tɪŋε ɒpa pən
 POSS father food
 Father has food

This kind of possession suggests that the item is in the domain of the stated possessor, who may not necessarily be the owner. This also means that the item is in the possession of the said possessor, but does not guarantee that the possessor owns the item.

Another strategy is to mark possession by using the suffix /-tap/, which in the language shows ownership in relation to a human owning another. Ideally, it relates to women who have been circumcised and shows to whom they belong (their father). Thus, it is an affix

that identifies a circumcised woman as being the daughter of a certain man. There are general beliefs in the community that children and women belong to men just the way other properties belong to them. The affix /tap-/ identifies very elderly, married, and circumcised women as daughters of some influential man in society.

- 151) (a) **tap**-randich
POSS-Randich
 Belongs to Randich
- (b) **tap**-tuwei
POSS-tuwei
 Belongs to tuwei

In these two examples, the women mentioned are said to belong to families of Randich and Tuwei, who, in the minds of the speakers, are supposedly men of respect and honor in the community.

Lastly, there exists some form of double possessive marking in cases where possession is marked twice in the same lexical entry are common. In such instances, one of the markers is prefixed while the other is suffixed.

- 152) nɛ ʈa-kʊʈʰ-ɛn
 goats REL-POSS.2P.PL-POSS
 your goats

The affix /kʊʈʰ/ marks 2P possession “yours”. The suffix /-ɛn/ also marks elements of possession “you” and directs the possessum to the possessing pronoun. Ideally, such a construction would mean “Your goats you”. When the possessor is 3P, PL, the construction is:

- 153) nɛ ʈa-kwaʈʰ-ɛʈʰ
 goats REL-POSS.3P.PL-POSS
 their goats

2.5.2.5 Case Marking

Generally, case marking in language helps to show the roles and functions of the NP. In particular, the case helps determine grammatical relations of the Subject and direct object/indirect object, or to point out the semantic roles of NP like Agent, Patient, or Recipient. Creissels et al (2007) argue that case marking in Niger Congo is productive on subjects or objects, and this is predictable since objects are introduced by the verb ‘take’, which is absent on subjects. Toweett (1979) and Creider (1989) also observe that Kalenjin languages display a marked nominative case system with all other case systems not marked. In Endo, the nominative is marked by the use of tone. The examples below help to show the predictability of the nominative regardless of the position in syntactic structure:

- 154)** (a) kì-pír ǵérónó kībèt
 PST-beat NOM ACC
 Cherono beat Kibet
- (b) kì-pír ǵèrònò kíbét
 PST-beat ACC NOM
 Kibet beat Cherono

It will be noticed from the two examples that the nominative is characterized by vowels with High tones while the accusative has vowels with Low tones. Speakers of the language can easily tell the nominative from the accusative.

One of the affixes that mark case is Essive /a/, which is a form of case marking that denotes a temporary state or character in which the subject was at a particular given time. In Endo, it is marked by –ATR/-a/-a /, which is suffixed on the verb. It will be noted that if the word has +ATR vowels, it will suggest that the word is a verb and in the imperative form, as seen in 155a).

- 155) (a) rip-sa pondani
Guard-IMPER man-DEM
Old man, guard... (an order)
- (b) rip-**sa** ponda-ani
Guard-**ESS** man-DEM
This man is guarding (in the state of guarding)
- (b) sis-**a** fɪf-an
quiet-**ESS** person-DEM
That person is quiet (in a state of quietness)

In 155b) and 155c), all the vowels have changed to –ATR and suggesting that the word is no longer imperative but a form showing the character of the noun at that particular state. Such temporative denotations do not require an object to follow.

The second case relates to the comitative/Sociative /ja/, which is a case form that depicts ‘together with’ or ‘x in company of y. It is used to mark the subject and present who/what the subject was when performing some task. In Endo, it is marked on the verb by the suffix /-ja/ to refer to both animate and inanimate lexical forms.

- 156) (a) ka-lul-**ja** keti:k
Pst-fall-COM tree-PL
The trees fell (tree in a group of other trees)
- (b) ki-sis-**ja** lako:k
Pst-silent-COM child-PL
The children kept silent (children in the company of other children)

Comitative is a valency-increasing affix because it demands that the subject(s) involved in the action be mentioned for the construction to be complete. In both 156a) and 156b), the commutative is immediately followed by the complementary. It is also important to point out that the commitment automatically changes the tonal pattern of the complement to low.

In a syntactic construction involving the commitative, all affixes on the left will have high tones by any word (complement) after the commitative takes L tone.

Thirdly, there is the Dative /-tʃa/ and Applicative /-tʃina/ described by Zwarts (2003) as having the function of adding an extra argument to the verb for a goal or benefactive. Shibatani (1996) also considers applicatives as valence-increasing affixes. This implies that the verb must be transitive for a dative to be realized.

The affix marking dative is /-tʃa/

- 157) sit-**tʃi** koko per
 Take-DAT grand mum water
 Take water to grand mum

The applicative also increases the valence of a transitive verb by three, while the dative increases the same by two, as seen in the example below

- 158) sit-**tʃina** wer-an kok per
 take-**APPL** boy-DEM grandma water
 The boy is taking water to Grandma

The applicative dictates three arguments: ‘boy’, ‘grandma’, and ‘water’, while the dative in 158) enforces two arguments: ‘grand ma’ and ‘water’

There is also the Ablative /-(n)ɛ:/, which is an affix that helps to identify source and cause relations “out of” or away from. For example, in Turkish, *ev* “house” and *ev-den* “from the house”. Although the definition of ablative is still not clear, it is evident that many scholars agree that it is about suggesting motion from a particular source (of course, this is not the same as ventive/itive). In Endo, this is marked by –ATR suffix /-nɛ:/, which has a long

vowel. Again tongue root here is important because without it, the word would behave as an imperative form. Thus, it is this feature that marks the ablative.

- 159)** ki-wir-u-ne: ɛm
 3IMP-throw-VEN-ABL river
 It is thrown from the river

What separates the active and ventive from the ablative is the idea of source. For the latter two, interest is in the direction of motion. The Instrumental /ɛ:/ and /-a:/ that mark the noun or noun phrase as the instrument is used by an agent to effect some action is an instrumental. Naess (2007) says it is that element that triggers an effect on the patient. It is one of the affixes in the language that raises the valence status of a verb since such verbs require patients. In Endo, there are two affixes used to mark an instrument: suffix /-ɛ:/ and suffix /-a:/. The first is the productive Suffix /-ɛ:/, which is commonly used in requests and imperative sentences. With this kind of use, the verb is usually preceded by past tense markers or the negator. For example,

- 160)** (a) kɪ-pɪr-ɛ: lakwa sɪta
 IMP-beat-**INSTR** child cane
 A child is beaten with a small cane
- (b) mɑ-kɪ-tak-ɛ: kumat aŋga
 NEG-IMP-fetch-**INST** honey sheet
 Honey is not fetched with a sheet

The second instrument marker is the Suffix /-a:/. While the suffix /-ɛ:/ occurs with requests and imperatives, the suffix /-a:/ mainly occurs with person markers, in particular the first person singular, which begins with /a/. I earlier argued for double person markers, and this forms one of the cases of doubling. This means that the prefixing /a/ denotes person, while

the suffix takes two roles: that of emphasizing the person and suggesting instrument as well. For example:

- 161)** α-wir-α: kər
 1SG-hit-**INST**.EMPH stone
 I hit with a stone

Such an occurrence is warranted by the fact that Endo and other Kalenjin languages have double person marking. For this case, the affix marks both the instrument and the emphatic factor.

2.5.2.6 Person Marking

Zwarts (2003) identifies three prefixes for marking person in Endo: first person singular /α-/ and plural /ki-/ , second person singular /ɪ/ and plural /α/, and lastly third person, which is null, /Ø/ for both singular and plural.

These are shown in the table below;

Person	Example	Gloss
First person singular (1Sg)	α- sit- ε 1S-take-PROG	I am taking
First person plural (1P)	ki-sit-ε 1PL-tak-PROG	We are taking
2nd person Singular	ɪ-kalap-ε 2SG-lift-PROG	You are lifting
2nd person Plural	α-kalap-ε 2PL-lift-PROG	You are lifting
3rd person	kalap-ε lift-PROG	*Lifting
3IMP	ki- ki -ap DPST-3IMP-take	It was taken

Both 3P and 3S have an affix attached to the verb, but such grammatical person is shown by a separate lexical form (Nom) or a pronoun added in the syntactic string to help describe and identify person.

- 162)** (a) kalap-ε kibet kor
lift-PROG kibet stone
Kibet is lifting stone
- (b) kalap-ε inee kor
lift-PROG him/her stone
He/she is lifting stone

When the negator /ma-/ precedes first person singular /a/ and second person plural, there is a lengthened /a:/ because of merging /a/ in the person marker and /a/ in the negator.

- 163)** (a) ma:-site
NEG.1S-take
I am not taking
- (b) ma:-kalape
NEG/2PL-lift
You are not lifting

However, when the second person singular /ɪ/ attaches with /a/ in the negator, there is a special coalesced /ε/ occasioned by the reduction of /ɪ/ and raising of /a/

- 164)** mε-kalape
NEG-lift
You are not lifting

With regards to the third person impersonal (3IMP), the impersonal takes two different forms: [kɪ-] and [ʃε-], where the former occurs with a distant past affix [kɪ-] and the latter with recent past /ka-/

- 165)** (a) kɪ-kɪ-ap
DPST-3IMP-take
It was taken
- (b) ka-ʃε-ap
ASP-3IMP-take
It has been taken

2.5.2.7 Aspect Marking

According to Jerono (2012), aspect in Tugen falls into two categories: Perfective (completive/aorist), which expresses a temporal view, and the Imperfective (durative/continuative), which expresses events or states in progression. In Endo, the two categories are marked by various affixes on the verb.

Perfective aspect in Endo, like it is English, is marked by the use of the various forms of ‘to have’, which also helps in segregating perfective in the past and perfective in the present. The examples in 166) below demonstrate this:

- 166)**
- | | | | |
|------------|---|------------------------|----------------|
| (a) | kà-am-ifa
R.PR-eat-ESS
Kirop has just eaten | kirop
kirop

 | paniepi
now |
| (b) | ká:-am-ifa
R.PR-eat-ESS
Kirop had eaten | kirop
kirop | |

To begin with, the simple past form of 166a) and 166b) is **ká:-am-is kirop** ‘Kirop ate’. Notice that when the present ‘has/have’ is used, the vowel on the Tense marker is short, but lengthens when the past ‘had’ is used. There is a low tone on the present form and a high tone on the past tense form. Probably this is occasioned by the lengthening of the vowel in the past. Apparently, this demarcates the two in the language. The imperfective aspect, on the other hand, is marked on verbs that are already inflected for person. Progression in Endo is marked by the suffix /a/, which attaches to verbs regardless of the grammatical person of the verb. This means that imperfective /a/ attaches to verbs in 1S, 1P, and both 2S and 2P in the same form.

- 167)**
- | | |
|------------|--|
| (a) | a-ŋo-na
1P-come-IMP
I am coming |
|------------|--|

- (b) ki-tek-**a** ko
Pst-build-**IMP** house
We are building a house
- (c) i-we-**ta** kau?
2p-go-IMP home
Are you going home?

The study also observed that motion is implied by Ventive /-u/ and itive /-te/, which Dimendaal (2009:10) describes as affixes that mark motion and express movement towards a deictic centre or away from the same centre. Creider (2002) and Mietzner (2007, 2011) observe that in Kalenjin, such affixes are of two types: ventive/itive and ambulative cisloactive/ambulative andative

The ventive /-u / is used to denote motion in the direction of the speaker and is called ventive. While the itive /-te/ marks motion away from the speaker centre and is called itive. The ambulatives mark repeatedness of actions as movements to or away from the speaker. I first discuss the ventive/itive and note that the two affixes operate in In Endo like it is in other Kalenjin languages, except that /e/ in the itive /-te/ becomes a reduced /a/. This is because Endo generally reduces high /i,u/ word initially and /e/ word finally.

- 168)** (a) ap-**ú:**
take-VEN
Take to direction of the speaker
- (b) tom-**tá:**
empty-ITV
empty away from the speaker

It will be noticed that the examples in 168a,b) appear as imperatives in the language, and this means that the ventive has the effect of changing a verb into the imperative by changing the tone to high. Palancer (2012) cites Kaufmann (1999), who discusses two versions of

the ambulative: cisloactive /-a:nu/ and andative /-a:ta / mark special movements in which the subject repeatedly does the same action as they move toward or away from a deictic centre, respectively.

- 169)** (a) tom-a:nu
sing-AMB
singing while moving toward the speaker
- (b) pot-a:ta
eat-AMB
falling severely while moving away from the speaker

Marking the Inceptive and infinitive is achieved by using the prefix /kɛ-/. As an inceptive, it helps denote processes of becoming and, to some extent, the beginning of some states of affairs. It is considered part of the impersonal and is marked by /kɛ-/, which contains –ATR vowel segment.

- 170)** (a) kɛ:-nar
INC-fat
be-fat
- (b) kɛ:makarnan
INC-rich
be-rich

In the above examples, the inceptive /kɛ-/ makes the verbs not only suggest ‘becoming fat’ and ‘becoming rich’ but also show that the states are progressive with a beginning, continuity, and a likely end. On the other hand, the infinitive in the language occurs with all lexical base verbs and denotes states. The quality of the vowel in the infinitive is +ATR but will change based on semantic considerations of the verb- ventive/itive or the vowel qualities borne on the root verb.

- 171)** (a) ke-tjak
INF-untie
To untie

- (b) **kɛ-tom**
 INF-sing
 To sing

It is also observed that Negation in Endo is achieved by the use of the negator prefix /ma-/, which can precede the lexical verb and person markers or follow tense markers.

- 172) (a) **me-tiŋ-a kir**
 NEG/2S-own something
 I don't own anything
- (b) **ki-ma-ki-tere kile aŋer kore:**
 Pst-NEG-1P realizes that the rough situation
 Didn't you realize the situation was rough?

The first example shows that /me-/ is a result of coalescing the vowels /a/ in the negator and /i/, which marks 2S, resulting in /me-/. This is a case where the negator precedes the person marker. The second example is where the negator comes after the tense marker /ki/, and this is the typical order, thus, tense+Neg+Person.

Lastly, Reflexive and reciprocal are marked by using the suffix /-kei/. Ideally, a reflexive is a pronoun that refers to another pronoun or noun, which is usually the antecedent in a sentence, while a reciprocal construction is a pattern in which each of the participants occupies both the role of agent and patient with respect to each other. The two roles in Endo are marked by a common suffix /-kei/.

- 173) (a) **ʃama-kei lakwe:**
 love-REF child-DEF
 The child loves itself
- (b) **ki-tarete-kei**
 1PL-assist-REC
 We are assisting each other

In the first example, the action of the child is directed to itself ‘rebounding’, but in the second example, one person assists another, then the turn changes for the other to be assisted.

2.6 Summary of the Chapter

The chapter was aimed at achieving the first objective of the study, which meant describing both derivational and inflectional properties used in Endo. The chapter was structured in two sections, with the first describing the different word classes in the language that include nouns, verbs, and adjectives, and the various affixes used for their derivation and inflection. The second part specified the individual morphological aspects and distributional functions. The chapter mainly described affixes and showed morphological variations and patterns that help in derivation and inflection across the different word categories. The chapter has also described physical affixation, suprasegmental, and other factors that affect affixation in the language, like word category and semantic levels. Specifically, it has been about affixes that attach to certain lexical categories and the results they generate.

CHAPTER THREE

MORPHO – PHONOLOGICAL INTERFACE

3.1 Introduction

The discussions in this chapter are aimed at responding to Objective Two of the study, which seeks to examine processes of phonology triggered when inflectional and/or derivational affixes interact. Phonology controls how morphemes are combined and how meaning aspects are expressed in phonological representations. This indicates that morphemes are necessary for phonological processes in speech production, particularly in multimorphemic words that are susceptible to phonological complexity brought on by the combination of morphemes, Rapp. 2013). It is noted that as morphemes combine, new phonological processes alter their structural and semantic forms to conform to the language's phonological constraints. Section 3.2 of the chapter discusses how phonological aspects affect properties of physical segments in affixation. These processes discussed include insertion, deletion, devoicing, and coalescence. Others are back formation, vowel height reduction, consonant weakening, and prosthesis. Section 3.3 analyzes how prosodic aspects like tone, length, and tongue root are responsible for proper or improper affixation. It is in section 3.4 that the thesis analyses other constraints beyond the segments and prosody that affect affixation. These include the lexical category of words, grammatical function of words, allomorphy, and competing affixes, and lastly, the periphrastic concerns (substituting lengthier structures with shorter or single-word forms). The last section, 3.5, provides a summary of the contents of the entire chapter 3.

3.2 Segmental Phonology and Word Formation

There are processes of phonology that involve physical segment modifications that affect how morphemes physically attach at boundaries. These are processes that eventually help shape features of segments at boundary levels to allow for successful phonological agreement between segments at the boundaries. Some of these processes include epenthesis, deletion, devoicing, and assimilation.

3.2.1 Epenthesis

Epenthesis, according to Hall (2011), is primarily a linguistic strategy for correcting otherwise uncharacteristic sequences in a language to facilitate acceptable phonotactic alignments. There are two strategies for epenthesis in Endo that allow for CV or CCVV patterns on verbs and nouns. The first process involves the insertion of vowels /a/ or /i/, and the second is the insertion of consonants /w/ or /j/.

3.2.1.1 Insertion of vowels

This is a phonological process commonly realized in Endo where the vowels /a/ and /i/ are inserted between two lexical verbs. The insertion of /a/ is mainly for deriving verb forms that suggest repetition/recurrence of an activity.

Rule: The insertion of /a/ between monosyllabic lexical verb forms generates new verbs that portray a kind of reduction, which in the language signals a repeated activity.

In short, the process entails duplicating a verb in its original form, but with an intervening inserted /a/, as seen in 174) below

174)	Verb	Reduplicated	gloss
(a)	kít ‘create a chamber’	kít-á-kít	create chambers severally
	sír ‘develop rashes’	sír-á-sír	develop rashes severally inwards
(b)	kír ‘write’	sír-á-sír	Write and write
	kít ‘scrutinize’	kít-á-kít	‘scrutinize on our part’

It is also observed from the examples that the insertion of the vowel /a/ retains the vowel patterns of the original verb since /a/ is harmonically neutral. Roos (2000) argues that in Yellow Yugur, the vowel /a/ has two possible surfaces: [a] and [i], and the two operate depending on the harmony environment in which they are used. In Endo, vowels in monosyllabic verbs are characterised by high tone and can be either front or back vowels depending on the meaning of the word. And since the language is harmonic, insertion also aligns vowels harmonically. This suggests that, if the vowel in the verb is +ATR, the inserted vowel also becomes +ATR for harmony. This is the same for –ATR, which also becomes –ATR. In 174a), the vowels in the verb are +ATR and dictate a front, while in 174b) the vowel is -ATR, and this requires an epenthetic -ATR.

It is also noted that as the tongue root harmonizes across the vowels in the word, tone patterns also become harmonized.

Rule: Ideally, monosyllabic verbs in Endo have a high tone, but when an epenthetic vowel is inserted, it changes to LHH

- 175) (a) tìl-á-tìl penda
chop meat
chop the meat
- (b) ka-swa: tìl-à-tìl mi keu
Pst 1S-saw the thorny tree in the valley
I saw a thorny tree in the valley

Rule: The vowel /i/ is inserted between a lexical verb and itive /-te/ (marks motion away from the speaker center)

Such epenthetic /i/ in this case phonologically helps avoid the/tt/ cluster inter-vocalically because it is disallowed in Endo.

176)	(a)	ɲut-te:	ɲùt-í-té:	‘spit away’
		sit-te:	sìt-í-té:	‘take away’
	(b)	ɲot-tɛ:	ɲòt-i-té:	‘spit with’
		sit-tɛ:	sìt-i-té:	‘take with’

However, while the example in 176a) fulfills the degemination function, -ATR epenthetic /i/ also marks the final word as marking the instrument role as seen in 176b). The phonological characteristics of the epenthetic segment dictate and control the function of the suffix.

It will be observed from 175) and 176) that /a/ is inserted to monosyllabic verb forms while /i/ is used in disyllabic verbs, especially in suffix attachment.

3.2.1.2 Insertion of consonants

Zygis (2010) notes that epenthesis by insertion of consonants is analysed along three typologies: grammatical epenthesis- conditioned morphologically and syntactically, Prosodic epenthesis- at prosodic boundaries, and Phonetic epenthesis- surface representations of perceptual bases. In Endo, epenthetic /w/ and /j/ are primarily prosodically and phonetically conditioned; for example, the bilabial approximant /w/ is inserted in English loan words for purposes of regularizing them into the Endo CV structure. This is justified by the fact that in Endo,

Rule: there are no gliding formations, and where they are likely to surface in borrowed words, consonants are used to separate such gliding.

This is seen in 177) with a borrowed word from English and 178) from Kiswahili

	English	Endo	gloss
177)	taon	ta-w-on	‘town’
	jao	ja-w-o	‘theirs’
	CVVC	CVCVC	

On the other hand, epenthesis by /j/ helps to differentiate between some words in Endo from those in other Kalenjin languages. It is noted that Endo inserts /j/ in environments where a short vowel /e/ is followed by an equivalent long /e:/ (as it is in other Kalenjin languages)

	Other Kalenjin languages	Endo
178)	(a) tala-e:n	tala- j -e:n Gentle/polite
	(b) para-e:n	para- j -e:n Spacious

Epenthetic /j/ is also used to break VVV clusters, which usually occur when a short /a/ is followed by a long /e/ or when a long /a/ is followed by a short /u/ as it is in 179).

This can also happen by introducing /j/ when a long vowel is followed by a short one for ease of articulation, as it is in 179) below,

	Other Kalenjin languages	Endo
179)	(a) taau	ta: j u Start
	(b) aí:na	a j ínà 'recently'/I am

This strategy also affects the tonal pattern in a way that the insertion triggers high tone on the lengthened vowel (initially characterised by low tone) and thus the final pronunciation is affected, and in some cases the lexical class and semantic values. In 179b), the new form /a**j**ínà/, which originally assumed features of an adverb, seems to attain nominal and person features (first person singular). Thus could mean 'recently' or 'I am'

3.2.2 Elisions

An elision or deletion in languages is the opposite of insertion and involves the omission of one or more sounds (such as a vowel, a consonant, or a whole syllable) from a word. Procopy, strictly speaking, is the removal of a word's apocopy at the end, syncopy in the middle, and omission at the beginning. When an unaccented vowel or reduced consonant is removed from the center of a word in American English, it is known as syncopation. Two examples of such words are "believe," /bĭliv/ ĩ [bliv], and "family," /'faeməli/, where /h/ is removed before /l/. In French, apocopy occurs, for example, in 'long' [l³ü] (from [l³üĭ]) 'longe'. In both cases, deletion mainly aims at creating ease of speech production.

In Endo, deletion is used to help align loan words into their phonological patterns of CV(C), VCCV, or CV. For example, Krugger/krugə/ is the name of a white Boer who lived in Elgeiyo Marakwet some years back. Because /k+r/ are strange in the phonology of Endo, the speakers nativise it as 'uruka/. This is achieved by the deletion of the initial /k/ and the interchange of the positions of /u/ and /r/. There is also devoicing of /g/. All this is to facilitate ease of speech. In other instances, deletion is common for achieving contractions in phrasal structures. For example, syncopy happens in *kitepicha* 'we are sitting' and apocopy occurs in *lakwani* 'this child' where /i/ becomes deleted in both cases, resulting in /kitepcha/ and /lakwan/. The process involves the deletion of either vowels or consonant segments, depending on context.

3.2.2.1 Deletion of consonants

In most cases, in Endo, the deletion rule follows the pattern.

Rule: delete /p/ from the masculine and feminine prefixes found in names of people and in the locative prefix in place names.

This usually depends on whether the phoneme is a property of the prefix or belongs to the root. Generally, in Kalenjin, it is common to find proper names of people like *Chepkemoi*, *Kiprop*, and place names like *Kapcherop*, *Chepsongoch* that contain /p/. In such cases, /p/ is a property on the masculine /kip-/ and the feminine /tʃep-/, which ideally mark gender. For example, *kip-rop* “name of boy born in rainy season” and *tʃep-kemoi* “name of girl born at night”. It is also present in locative prefixes like *kap-logoi* ‘place where fruits are found’

- 180)** (a) kàp-tʃèròp
LOC-name of a place
Place name
- (b) kap-talamwa
LOC-locust
A place with many locusts

In other cases, it is a property of the root (words that begin with /p/), as in *pangau* ‘desolation’ and *pore* ‘honor’. In such cases, the prefix ends in /p/ and the root begins with /p/ as well. It is the one in the prefix that is deleted (to avoid geminates), and the remaining /p/ is voiced. Thus, *kibangau* ‘toothless’ and *kabore* ‘holy place.’ But in Endo, there is a deletion of /p/ from the prefixes in all names where it appears, although such deletion does not affect the gender aspect. Thus, Endo has names like *ki-rop* and *tʃe-kemoi* without /p/ in the prefixes.

While the process is phonologically important, the deletion of /p/ from the prefix also makes the final word assume a locative role. For example, the name /tʃe-*suman*/ ‘name of a girl’ may also have the same meaning as /tʃe-*suman*/ ‘name of a place’. In other cases, deleting /p/ triggers lengthening of the vowel in the prefix to compensate for the loss. This further attracts the H tone on the same syllable, which spreads across the syllables in the

root for harmony. The result of all this is that the final word is interpreted as a verb and no longer a noun.

- 181)** kà:-ʃè-ròp
 Pst-1P-tie
 We have tied

This is because in 180), the original locative function shifts and assumes the role of a past tense and aspect marker as seen in 181)

3.2.2.2 Deletion of vowels

Class 11 verbs (causative verbs) in Kalenjin have an IMP /i-/ and /o/ which are marked on the second person singular and the second person plural, respectively. For example, in verbs like i-pat ‘2S.dig’ and o-ryoon ‘2P sneeze’. The 2S /i/ prefix in Endo (unlike in Nandi and Keiyo) is deleted, while the 2P /o/ is reduced from low-mid to a low /a/. The language reduces one and deletes another as a way of isolating functions of the two to avoid creating conflicting roles. It is the deletion that triggers a lengthening of the vowel in the root to compensate for length.

	Other Kalenjin languages	Endo
182)		
(a)	i-te ŋɔŋ 2sg-put ground Put on the ground. Put on the ground	te: ŋɔŋ 2sg-put ground
(b)	I-koʃi ku: mat 2sg-give honey Give him/her honey. Give him/her honey	ko:ʃi ku: mat 2sg-give honey

Once the impersonal /i/ is deleted in Endo, the vowel in the root becomes lengthened and makes the verb acquire the role of aspect as opposed to impersonal. Thus, the new verb could be interpreted as *te: ŋon* ‘put down’ or *te: ŋon* ‘he is putting down’

3.2.3 Devoicing

Whenever Endo speakers are confronted with strange patterns in loan words that contain voiced plosives, devoicing of the same occurs.

Rule: Voiced plosives in loan words are devoiced to align with the phonology of the language, which does not have such sounds.

For example *kitabu* → /kitapu/, *gate* → /ket/. This is because Kalenjin languages do not have outright voiced plosives in their phonologies, but they arise through phonological conditioning. The voiceless plosives /t,p,k/ in Kalenjin acquire voice features whenever they follow nasal consonants, for example, in *konta* → *konda* ‘eye’, *empa* → *emba* ‘river of’ and *inken* → *ingen* ‘you know’. However, in Endo, when such words are prefixed by person markers, the nasal is first deleted and the remaining plosive is devoiced. This particularly affects words with prenasalised alveolar plosive /d/

	Other Kalenjin dialects	Endo
183)	(a) a-we- nda →	a-we:-ta 1s-go-IMPF I am going
	(b) i- nde →	te: 2s-put Put (imperative)
	(c) ɪŋɛ- ndɛ →	ɲɛ:-tɛ 3PS-REFL Him/herself

Deletion of the nasal warrants a lengthening of the vowel in the root word before devoicing plosive /d/. The process further introduces causative or instrument roles in the word because when such words are subjected to syntactic units, the final affix /-te/ means ‘because of’.

- 184)** (a) a-we-**ta** panit
 1S-go-CAUS witchcraft
 I am going away because of witchcraft
- (b) a-we-**ta** kari
 1S-go-INST car
 I am going by car

It will be observed that since Endo is a language that reduces word-initial vowels to /a/, where other Kalenjin languages retain the same, vowel harmony becomes easy to attain. For example, in 184a) and 184b), the first person marker /a/ at the beginning of the word harmonises with /a/ (the reduced form) in the middle of the word. The result is that, morphologically, the first and the second /a/ mark aspect and 1S respectively.

3.2.4 Consonant Fronting

Fronting is a phonological process where a sound in a word is pronounced farther to the front of the vocal tract when it should be pronounced towards the back of the mouth. In Endo, consonant fronting mainly involves velar, palatal, and alveolar consonants. For example, in other Kalenjin languages (like Nandi and Keiyo), some words start or end with the palatal /j/, but the same words in Endo start or start with /r/.

This is evident in the table below, which shows the lexical comparisons between Keiyo and Endo.

	Keiyo	Endo	Gloss
Noun	<i>mwaj, paj</i>	<i>mwar, par</i>	Oil, grain
Verb	<i>ja:t, waj</i>	<i>raat, war</i>	open, chop
Adjective	<i>jakwai</i>	<i>rakwai</i>	Fertile

From the table, there is a kind of fronting in which articulation shifts from the palatal region and becomes initiated on the alveolar ridge, thus changing palatal consonants to alveolar, thus /j/ becomes /r/

Rule: palatal glide /j/ is fronted and alveolarised after /a/ to maintain the characteristic low feature

Fronting for this case phonologically allows for place assimilation in order to ease articulation and also permit affix attachment. An example is the itive /-te/ in which case /t/ agrees in place with /r/ in the root.

- 185) **kar-te:**
 milk-ITV
 milk away
- mwar-in**
 oil-PL
 oil in many packagings

The indefinite /-in/ phonologically attaches to *mwar* ‘oil’ in Endo as a productive process, unlike *mwaj* ‘oil’ in the other Kalenjin languages, which construct the indefinite by deleting /i/ in the affix and lengthening the vowel in the word; *mwa:n* ‘oil-pl’

The study also observes that in Endo, the velars /ŋ/ and /k/ become fronted as palatal /tʃ/ when they appear word initially in words like /ŋge-pa/ ‘lets go’ and /keke:r/ ‘you saw’ which become realised as /tʃepa/ ‘lets go’ and /tʃeke:r/ ‘you respectively. This phonological process is also seen in /ke-/ , the perfective aspect marker, when it occurs after the past tense marker. For example, /ka-kepa/ ‘we have gone becomes /ka-tʃepa/ ‘we have gone’, and /ko-kesit/ ‘it has been taken’ also becomes /ko-tʃesit/ ‘it has been taken’. The researcher associates such fronting with the fact that when velar plosive /k/ in a free variation context with palatal fricatives, phonological economy prefers the latter. Thus, in Endo, where semantic values are not compromised, speakers opt to use the economical /tʃ/. Equally, whenever /k/ precedes /tʃ/, the former is automatically deleted for example in words like /mak-chi/ ‘wish someone...’ and /wek-chi/ ‘return to someone’ the surface forms are /machii/ ‘wish someone...’ and /weechi/ ‘return to someone’ respectively where /k/ is deleted with a compensatory lengthening of the vowel.

3.2.5 Coalescence

Kouneli (2019) observes that in Kalenjin languages, there is a regular phonological rule of vowel coalescence,

Rule: adjacent short vowels [a] and [i] merge into a long [e:], and this rule is independent of ATR vowel harmony.

The lengthening is aimed at retaining the initial phonological timing in the syllable articulation. Thus,

$$/a+i/ \rightarrow [e:]$$

It is also observed that in Endo, thematic affixes with [a] coalesce with [o] in the secondary affixes, resulting in a long [a:]. In such phonological situations, the vowel [a] in the thematic affix overrides [o] in the secondary affix and takes dominance as the surface realization. This could be attributed to the fact that Endo has a preference for the reduced [a] wherever it appears in competition with other vowels. The rule (reduca /i/ and /e/ to /a/ in word final positions) is manifested in the morphological operations of the verbal and thematic domains, where the secondary suffix's vowel merges with the vowel of the thematic prefix or suffix. The past tense morpheme's vowel merges with the second-person agreement prefix, as shown in the example below

- 186)**
- a) /là:k-wà-ít/ → [là:kwé:t]
child-TH-sec
'child'
 - b) /kà-í-tám/ → [ké:tám]
pst.curr-2sg-like
'you liked'
 - c) /kà-ó-pá/ → [kɔ':pà]
Asp.2P.go
Have you gone?

It is also important to point out that in Endo, for some words borrowed from Kiswahili, when the thematic suffix combines with the secondary suffix, and the vowel in the thematic is a high /u, i/, a regular phonological process of vowel lengthening occurs between the two short vowels instead of coalescence. Such a process of lengthening usually attracts a high tone on the resulting final vowel. For example,

- 187)**
- a) /sɔ̀`gàr-ɔ̀`-í`k/ → sɔ̀`gàrɔ̀` :k (L.L.-L-H → L.L.H)
sugar-th-sec.pl.obl
'sugar'
 - b) /kítàp-ú-ít/ → /kítàp-ú:t/ L.-L-H → L.H
book-th-sec.sg.obl
'book'

In both 187a) and 187b), there is coalescence of the L-toned thematic [u] with the H-tone secondary [i], and the result is a long [u:] that ends in H.

Before the vowels coalesce, each has a specific morphological value. For example, /i/ in /kai/ marks the second person singular, while /o/ in /kao/ marks the second person plural, suggesting that /ka/ marks the past tense. Once coalescence takes place, the new coalesced /e:/ specifies that the action of the verb is induced externally by an unspecified force. Thus, coalescence has the capacity to shift the participant role from a known second-person singular to some unknown agent.

3.2.6 Back formation

Backformation is a morphological process that involves the reduction of affixes in order to either form a new word or to alter the grammatical status of the word. In English, for example, the verb ‘televise’ is formed when the noun ‘television’ omits the final syllable /-sion/ so that it remains three from four. It is a process of reducing affixes backwards. In Endo, back formation mainly affects names of places and people, and it is a way of coming up with less formal and phonologically simpler forms of the names. There are place names like *Ka(p)cherop*, *Ka(p)sowar*, and *Cherangani*, which become shortened to *kapchee*, *kapsoo*, and *cheraa*, respectively. This also happens with some names of people like *Cherotich*, *Kiplagat*, or *Cheruiyot*, among others.

In the same way, they become shortened to *Cheroo*, *Kiplaa*, and *Cheruu*, respectively. In both cases, the words do not change their semantic and grammatical states but act as morphological variants of the names. Phonologically, it will be observed that back formation affects names that end in consonants and have three or more syllables, and

reduces them to two. In most cases, the final syllable in such names contains the onset, nucleus, and coda, which become deleted. And when this occurs, it warrants that the syllable that comes at the end of the new word has the form onset and nucleus without coda. The effect of this is that the final vowel in the new form undergoes two phonological procedures; first, the vowel becomes lengthened, and secondly, it attracts high tone. Ideally, names of people and places have falling tones in the final syllables, thus [ʃ̀èròti^ʃ] and [kašòwa^r]. After back formation, they become [ʃ̀èró:] and [kašó:] respectively.

Back formation also happens with names of clans (which identify with some totems), and such names are truncated, though the semantic aspect is not interfered with. Some of these clan names include *terik* ‘whose totem is elephant’, *saniak* ‘whose totem is monkey’, and *talaa* ‘whose totem is frog/lion’, among others. People who belong to these clans refer to themselves as *terikin*, *saniakin*, and *talain*, respectively, with the suffix /-in/ that marks belongingness to the clan. However, the practice in the language is that this final part, /-in/, is deleted, and speakers prefer to refer to themselves with the direct names of the totems/animals. Thus, a person belonging to the ‘terik’ clan is not ‘terikin’ as should be, but ‘teriki’, which means the elephant. Speakers derive some sense of pride when they directly equate themselves to the totem as opposed to belonging to the clan named by the totem.

3.2.7 Vowel height reduction

Endo reduces and neutralizes the height of /-ee/ at the end of person markers to /a/. In previous chapters, I argued that Endo is a height-reducing language, and this feature separates it predominantly from other Kalenjin languages. In most cases, where /I/ appears in the other languages, the same is reduced to /a/ in Endo in several contexts. Here, I discuss

how /ee/ appearing at the end of person markers is also reduced to /a/, especially in post-lexical constructions.

Rule: Reduce /i/ and /e/ as non-corner taxing to /a/ the corner lax to conform to the reductionism rule in the language

The reason for such a reduction could be the fact that /ee/ functionally reinforces the same grammatical person already introduced by the lexical. In Keiyo, *a-tinye anee* ‘I have’ and *ki-tinye ahee* ‘we have’ display a case where the first person singular /a/ ‘I’ and first person /ki-/ ‘we’ are affixed to the possessive *tiny* ‘have’ respectively, and the *anee* is simply reinforcing the semantic value of /a/ while *ahee* reinforces /ki-/. In Endo, the words appear in a single unit as /a-tiŋaan/ ‘I have’ and /ki-tiŋʃaat/ ‘we have’. It will be noticed that the mid /ee/ is reduced to /aa/ and the initial length status is retained. According to Krivitskii and Podluzhnyi (1994), cited in Crosswhite (2004), reduction is grammatical and is intended to eliminate non-corner mid vowels /e, o/ in favor of corner /a/, for example [noyi] ‘legs’, [noya] ‘leg’. Arguably, any high vowels that appear word-finally in Endo reduce to a long /a/, which is obligatory.

3.2.8 Consonant weakening/ Lenition

Carr (1993) describes consonant weakening as a phonological process that involves a reduction in the degree of stricture in the articulation of a consonant. This means that weaker consonants are preferred to strong ones and thus voiced plosives could reduce to voiceless, while plosives and affricates may be reduced to fricatives. Akidda (2013) uses the phonological strengths of consonants proposed by Hyman (1975) and makes generalisations based on examples from the Egyptian language as follows;

The examples show that the insertion of /a/ at the initial position of words beginning with nasals leads to the introduction of an extra syllable with the nasal as the coda. Thus prosthesis could affect the tonal prosodies of vowels in the entire system as they harmonise for height or tongue root. According to Akidda (2013), the insertion of a vowel at the initial position (creating a new syllable) of Modern Standard Arabic words borrowed from English is because the Arabic syllable structure disallows word-initial consonant clusters; [stændəd] [ʔi+[stændəd]] [ʔistændəd] > [ʔistandard] ‘standard’, [strætədʒi] [ʔi+[strætədʒi+jja]] [ʔistrætədʒijja] > [ʔistra:ti:ɖʒijja] ‘strategy’

In Endo, prosthesis also applies as a process mainly used for nativising loan words from Kiswahili and English to the patterns of Endo CV and CVC. Words borrowed from English like *tractor* ['træk.tər] and *school* [sku:l] have two syllables and one respectively. Moreso, their syllables contain clusters with CC word initially as seen below,

t r æ k t ə	and	s k u: l
CCVCCV		CCVC

Because Endo disallows CC in the initial position of words, through prosthesis, such clusters are nativised by inserting high vowels /i, u/ between the consonants to result in CVCV. Thus, the words in Endo will read *tarakta* and *sukuul*

t a r a k t a	and	s u k u: l
C V C V C C V		C V C V C

It will be noticed from these examples that in Endo prothetic epenthesis ignites harmonic factors where the introduced vowel harmonises with the features of the already existing or is harmonized to take the features of the existing vowels. For the case of *træktə*, any mid vowel in the borrowed word is reduced in height to /a/ and thus *tarakta*. On the contrary,

borrowed words with high or high mid vowels retain their heights as in *sku:l* and *suku:l*. As it is in the case of Arabic, epenthesis, whether word-initially or medially, creates more syllables in the new word-form, which, when subjected to derivation and inflection processes, allows for prosodic features to apply as per the rules of the language.

3.3 Supra-Segmental Constraints on Word Formation

Vowels may be introduced or deleted, or in some cases, merged in a morphological process with the main purpose of compensating for empty features or for aligning phonological processes with the rules of a language. As this happens, the empty spaces left or the new features introduced trigger prosodic aspects, which in turn affect the patterning and assembly of affixes and thus affect the semantics of the resultant word-forms. This means that affixation is controlled not only by the affix segments but also by triggered suprasegmental features, which dictate the choices of affixes that attach, how they attach, and, by extension, determine lexical categories and grammatical fulfillments. In Endo, the prosodic features mainly include tone, length, and tongue root, as discussed below.

3.3.1 Tone

As argued earlier, Endo has mainly four tone patterns that are used for lexical and partly grammatical marking. These include high, high fall, low, and fall rise. High tone is associated with almost all monosyllabic verbs, while low tone characterizes monosyllabic concrete nouns. The rising and falling of tone is mainly used in phrasal environments and helps in avoiding vowel sequences and mostly at syllable boundaries. In Kalenjin languages, tone appears as a marked feature in verbs, adjectives, and nouns at level 1 in the affixation process. This means that non-affixed verbs usually enter into the affixation process with high tones, while nouns enter with low tones. For example, the verbs *kén*

‘deceive’ and *sús* ‘bite’ and the nouns *kèt* ‘tree’ and *tàny* ‘cow’ are H, H, and L, L respectively. It is also observed that almost all adjectives are characterized by H vowels, whether the adjective is monosyllabic or syllabic. For example, *ɲwá:n* ‘painful’ *pírír* ‘red’, *ángér* ‘brave’ or *ɲ’wé:n* ‘fast’. This initial characterization, in Lexical Phonology Theory, provides the base for level 1 features as the words enter as determined lexical forms.

The tone system in Endo is that of four main surface patterns: high tone (H), high fall (HF), low (L), and fall-rise tone (FR), and the roots usually have either underlying H or L. Out of these three basic tonal patterns, five tonal processes are realized under affixation. These include falling tone (HF) when an initially high tone falls. This happens, for example, when tone is used to change the semantics of a word, for example /pít/ ‘spray’ /pìt/ ‘germinate’ or when used to mark definite nouns that have long /a/ and /o/ like /maa^t/ and /koo^t/ respectively. A falling tone also surfaces when an affix with high tone attaches with a root with low tone, for example, when the second person singular prefix /ke-/ and monosyllabic verbs attach; /ké-na^m/ ‘you held’ and /ké-ra^l/ ‘you coughed’. Low rising (FR) occurs when affixes like the negator /ma-/ attach to roots, for example /mà-ɣp/ ‘I didn’t take’ and /mà-kě/ ‘I didn’t see’. In other cases, the falling is occasioned by states of being, for example, in words like /ùng’aăt/ ‘hidden state’ and /rùraăt/ ‘ripened’

For the case of Endo, many monosyllabic nouns that end in low /a/ or mid-low/o/ have low tone; /mà/ ‘fire’ and /kòr/ ‘stone’. On the other hand, monosyllabic adjectives and verbs are characterized by high tone; /ɲwa’n/ ‘painful’, /su’s/ ‘bite’. It is also observed that affixes have specified tones loaded on them before affixation. For example, the plural suffix /-ik/ and the definite suffix /-et/ both have a high tone. The suggestion here is that when affixes attach (with their different tonal patterns), processes of phonology like deletion and

coalescence cause tonal changes in order to allow for correct affixation. For example /mà/ ‘fire, which has L tone when affixed with the definite/-at’/, which has high tone, leads to loss of /e/ in the affix, retaining a long /a:/: /ma’:t/ with high. But the indefinite suffix /-wà/, which is low in tone, attaches to noun roots with high tone and creates a lowering effect on the final tone. For example, the root /la’k-/ ‘child’ becomes /làk-wà/ ‘a child’ but /la’kwe’t/ ‘the child’ depending on the suffixing tonal qualities. Hieda (1981) observes that in Nilotic languages, stems ending in sonorants do not lose their original H status like those ending otherwise. Thus, /káljá:ŋ/, which ends in nasal /ŋ/, retains its HH tones regardless of the affix that attaches.

3.3.2 Length

Length in phonology is a quantity feature that increases the duration of articulation over a segment. For this discussion, length is restricted to vowel quantity as opposed to geminates, which are rare in Endo. There are two ways of approaching length in the language: length without segmental triggers and length as triggered by affixation. The first refers to cases where vowels, mainly in verbs, become lengthened to create verbs from other verbs. For example, in *ral* ‘become burnt’ and *put* ‘destroy’ which become *raal* ‘cough’ and *puut* ‘pubic hair’ without a segmental affix introduction. We also notice that in the same way monosyllabic nouns become pluralized by lengthening the vowel, as in *ket* ‘tree’ which becomes *keet* ‘trees’.

Lengthening also occurs in monosyllabic verbs to derive other verbs. For example, in verbs with short vowels like /tár/ ‘finish’ and /nyár/ ‘deteriorate’, which become /tá:r/ ‘regurgitate’ and /nyá:r/ ‘dirty’ after lengthening of the vowels. It is also noted that the tone and tongue root features in the vowels are the same, save for the length. Another

derivational aspect is when length is used to form adjectives from other adjectives. For example, in the words /jam/ ‘enough’ and /ja:m/ ‘dry’, which are both adjectives.

The second way is to analyse length as a feature occasioned by processes of affixation that may include insertion, deletion, or coalescence. In many cases, these affect the nativization of borrowed words to align them with the rules of the language. First, lengthening may happen when vowels are deleted from affixes, and lengthening of the remaining vowel may occur to compensate for the loss of the segment. The other way is that two affixes may attach, and the vowels at their boundaries merge and result in a long vowel. Either way, length is also a morphological strategy that aids in word formation. It can be used to fulfil lexical or grammatical determination reasons. Miller (2001), for example, notes that in Tiipay, singular nouns inflect to their plural forms by lengthening the vowel in the root.

This is shown in the example below,

	Singular	Plural	Gloss Source
189)	u/is	u/i:s	to sneeze
	akkwi	a-ts-kwi:-p	to ask a question
	wiR	wi: R	to be stiff

In the case of Endo, one major function of length is that it is used to derive verbs from adjectives as follows. This affects mainly bisyllabic adjectives where the second vowel in the root becomes lengthened as seen below,

	Adjective	Verb
190)	lápkey ‘bright’	lápkey: ‘brighten’
	Somsom ‘smelly’	somso:m ‘make to be smelly’
	pèpér ‘foolish’	pèpé:r ‘fool’

It will be noticed that both vowels in the adjective roots have HH tones, while the derived verbs have LH. The researcher attributes the lowering of tone on the first vowel of the derived verb to the fact that the second vowel in the adjective already had an H tone, and once the same vowel is lengthened in the verb, it further attracts extra lengthening, which phonologically becomes a challenge in articulation. To address such, the lengthened vowel retains the H tone, and that of the first vowel is lowered.

In Endo, length is an effective strategy for inflection, and as Kouneli (2021) puts it, the addition of the causative morpheme *i* obligatorily causes lengthening of the vowel in the root of verbs.

This can be seen in the example below,

- 191)**
- a) *ì- lu':l kè:t.*
 caus. fall tree
 ‘make the trees fall.’
 - b) *ì-já:m lak-o:k*
 caus-pit-child-pl
 ‘make children quarrel.’

The verbs /*lu*/ ‘fall’ and /*jam*/ ‘pit’ have short vowels in their unmarked forms but inflect to mark the causative through lengthening.

The length of the vowel in the root vowel also determines whether a noun is nominative or agentive. This means that, if the noun that follows the verb is nominative, then the vowel in the root is short. However, if the noun after the verb is agentive, the vowel in the root usually has a long vowel. For example.

- 192) a) kà- pét ku'màt
Pst-get. lost honey
'The honey disappeared.'
- (b) kà- pê:t ku'màt.
pst-get. lost honey
'I lost the honey.'

A complex case of length is argued by Hannah (2023), who, in studying Guébie, demonstrates that negation (in negative contexts) is achieved when there is the addition of a high tone to the end of the tonal melody of the subject. This becomes possible when the preceding subject has a low tone. But when it has an H tone, this forces vowel lengthening to maintain the subject's high tone as well as the high tone of the negative morpheme. As a result, the negative can be realized phonologically and has a length-dependent realization. If there is a relative clause in the subject position, this occurs on the bare noun or a relative clause marker. Otherwise, there would be no distinction between positive and negative contexts if the vowel were not prolonged in negative contexts. One way to interpret this type of alternation is to see the negative contributing a floating H tone that docks at the subject's right edge.

3.3.3 Tongue root

Bakovic (2003) notes that harmony is generally a feature agreement relation that manifests between vowels that occur within a word and holds that such vowels must share common phonological features. The tongue root relates to front or back vowels and how they influence each other in different affixes. Rose and Walker (2011) refer to this kind of harmony as palatal, and the target is usually unidirectional depending on the language or the source of harmony. Following the rule of harmony, dominant morphemes will always

make the others adapt the quality of the dominant one. Optimality Theory (OT) provides tools for such relations and states that;

Adjacent segments must have the same value of $[\pm\text{hf}]$; a $[+\text{ATR}]$ in the root or the suffix forces all vowels in the word to become $[+\text{ATR}]$.

(Bakovic, 2003).

However, this feature identity constraint suffers from violation in certain contexts that do not permit tongue root harmony, and this could be attributed to harmony-resistant vowels. For example, in Ura (Bassene 2003:260), noted that the vowel /a/ is opaque to harmony when it occurs in the final syllable of a word because there is a constraint that prevents it from undergoing in word-final syllables in the language.

Van De Hulst (2018) agrees that ATR harmony is typical of Nilotic languages and that it is quite common in Kalenjin to use tongue root distinctions to signal grammatical functions. For example, in Kipsigis, the word *tàríit* ‘bird’ has the vowels /a/ and /i/ with a $[-\text{ATR}]$ feature but forms the plural by changing the value of the tongue root to $[+\text{ATR}]$, thus, *tàríit* ‘birds’

Regular adjectives in Endo can form their plural by the addition of the $[+\text{ATR}]$ suffix $[-\text{e:n}]$, which changes stems with $[-\text{ATR}]$ vowels to become $[+\text{ATR}]$ due to the dominant $[+\text{ATR}]$ harmony property. It is also observed that the change could be the other way round, from $[-\text{ATR}]$ to $[+\text{ATR}]$, and all this happens without the introduction of a physical morphological property.

	Singular	Plural	gloss
193)	ájɪ̀ɲ $[-\text{ATR}]$	á'ɲɪɲ $[+\text{ATR}]$	‘tasty’
	tórò:r $[+\text{ATR}]$	tórô:r-è:n $[+\text{ATR}]$	‘tall’
	jɔ̀:s $[-\text{ATR}]$	jô:s-è:n $[+\text{ATR}]$	‘old’

While the above example shows regular plural formations with the dominant [+ATR], it is also possible to witness irregular formations that display unique phonological changes to the stems. The example below helps in following,

	Singular	Plural	gloss
194)	ò:	ê:tʃ-è:n	‘big’
	jà	jâ:tʃ-ε` :n	‘bad
	lè:l	le` :làtʃ	‘white’

In these examples, it is noted that though there is a change from –ATR to +ATR as expected, [ê:tʃ-è:n] ‘big-pl’ is formed by a suppletive change, while [râ:tʃ-ε` :n] ‘good-pl’, and [le` :làtʃ] ‘white-pl’ change to the stem. We also notice that in the first example, [-e:n] does not behave as a dominant [+ATR] suffix as it does with all other adjectives, and so does not cross its features to the vowel in the root. Also, the case of lè:l and le` :làtʃ ‘white’, there is a change from a [+ATR] stem to become [–ATR] in a derived form

This suggests that in a morphological process, some stems or affixes attach with specific tongue-root features, and where a dominant [+ATR] vowel appears, it will spread its features to vowels in the neighboring syllables as a rule.

3.4 Other Constraints on Word Formation

Although this study is ideally concerned with morphological and phonological intricacies, the researcher finds it wise to also consider certain aspects that, in some way, contribute to word formation. These other processes cumulatively contribute to the inputs for the application of morphological and phonological rules. For example, the category of the word determines the application of rules in level 1 and subsequently influences all other rules that follow. The two constraints are the lexical category of the word and the grammatical function of the word.

3.4.1 Lexical determination

In discussing the interaction of phonology and morphology, the starting point is the nature of the base form of the word before it becomes inflected or undergoes derivation processes. In Lexical phonology theory, roots of words are the genesis of morphological building and carry the basic characteristics of words in the form of precoded suprasegmental features. This means that largely monosyllabic roots have pre-determined underlying phonological features that provide early signals to the form/category of the word. The addition of affixes, therefore, conforms to the preset lexical standard. An example in Endo is the word *ám* ‘eat’, which is already pre-coded with high tone and –ATR, which determines it as a verb. On the other hand, *kòr* ‘stone’ has a low tone and pre-determines it as a noun.

This kind of initial loading of phonological features prepares the roots for the first round of affixation, which restricts them to lexical, lexical-specific type of affixes.

- 195)**
- | | |
|-----|-----------------------------------|
| (a) | ko-am
Pst-eat
He ate |
| (b) | kor-ik
Stone-DEF
The stones |

An example in Endo is to consider how tone, as a marker, allows the nominal modifiers like demonstratives and adjectives to inflect for the nominative case. First, it is observed that tones in the nominative have opposite tone value in the oblique. Demonstratives (mainly monosyllabic) usually agree in case and in number with their head noun. For example, in their oblique forms *ɲì* ‘this’ and *ʈɪ* ‘these’ have low tone while *ná:n* ‘that’ has high tone.

	oblique	nominative	gloss
196)	na` :n H	na` :n L	‘med.sg’
	nì L	ní H	‘prox.sg’
	tǃù L	tǃù H	‘prox.pl’

But when they are subjected to the affixation process, we notice that in the nominative, their tones take the opposites; H, H, and L respectively and resulting in words shown below;

- 197)**
- (a) là:kwà:-nn
child-prox.sg.obl
‘this child’
 - (b) là:kwà:-nà:n
child-prox.sg.obl
‘that child’

In this example, demonstratives that are L in the oblique surface as H in the nominative, and those that are H in the oblique surface as L in the nominative. This suggests a rule that reverses the tonal patterns when independent demonstratives enter into affixation.

The above examples show that in Kalenjin, tone determines the lexical category of words and, more so, the affixes that can attach. For example, H tone /kén/ ‘wait’ is a verb, while L tone /kèn/ ‘pot for shelling’ is a noun. This technically determines the different affixes that attach to each. For example,

- 198) a)** **ka-ken**
 R.Pst-wait
 I waited
- b)** **Ken-ushek**
 Mortar-pl
 Mortars

It is also important to note that different affixes enter with different tonal properties. When this happens, it means patterns in other affixes are influenced; for example, the verb ‘ken’ has a high tone, but the prefix ‘ka-’, which marks tense, has a low tone. Being the dominant affix, it makes the high tone in the root change to a low tone, and the final form has all vowels with low tones

199) kà-kèn
 R.Pst-wait
 I waited

We also find that other processes, like deletion and insertion, trigger changes in tone patterns. For example, in some cases, the deletion of consonants creates a long vowel, and this may lead to the raising of tone.

For example,

200) mor ‘wound’
 mor-ok /mo:k/

In this case, /r/ is deleted, triggering lengthening of /o/ and further attracting a high tone on the eventual vowel.

In some instances, in the process of coalescence, two high tones end up with a falling tone when each of the two syllables has a high tone. This means that when a high-toned stem attaches with a high-toned primary suffix, the result is an HF tone pattern.

201) mu’k+à+i’t → mu’k-ê:t
 Lid-Prim-Def
 The lid

On the contrary, a low-toned stem plus a high-toned primary suffix creates a high tone pattern because there is deletion of the primary affix, which leaves a low /a/ in the root and

a high in the suffix. According to Hieda (1982), when a low tone is followed by a high tone, the two tones are simplified to a high tone. As a result, phonologically high tones on the right impact the low on the left to create the final H.

202) mà+à+i't → ma':t
 Fire-prim-Def
 The fire

3.4.2 Grammatical function

According to Dimmendaal (1983), one way of differentiating nouns in a language is to analyse the morphophonological behavior of i- found in Class II verb stems. Specifically, this aspect is responsible for differentiating the absolute nouns from the nominative in Kalenjin languages. Absolute verbs naturally have L tones, for example, in words like /kèr/ 'close' and /pàr/ 'kill', and in their nominative forms, such words retain the same low tone patterns as seen in the example below,

203) kèrè lakwe 'he closes the house'
 wàsè mà:t 'he scoops coal'

But when the prefix i- attaches to verbs in Endo, it is found to mark either perfective or imperative depending on the tonal pattern. Verbs that begin with high-toned i- suggest that the root will bear a low tone and must be completed by another high-toned i- to make the structure grammatical. However, the final i- increases valency of the verb, as in a) or not, but generally makes the verb attain a progressive role, thus marking habituality/regularity as shown below.

204)a) í-kàt-ì
 ?-greet-ipfv
 'He/she greets...

- (b) í-pút-í lakwe
 ?-fall-ipfv child
 ‘the child falls’

205)a-ting-an

1sg-have-1sg

Me I have

I have

In both 204 and 205, the person markers /i/ and /a/ appear at the beginning and at the end of the words. In 202, /i/ marks the imperfective in both cases, while /a/ in 203 marks 1sg in both. Circumfixes in the language, as person markers, appear in Class II verbs and increase valency by either one or two, depending on the way tone is marked. For example, in 203, there can be two scenarios of valency as follows:

ì-kàt-ì (John Kibet) ‘John is greeting Kibet’ *íkátí* (John) ‘John is greeting’

In the first case, where tone is LLL, John is greeting Kibet, while in the second case, somebody is greeting John. In the first, there are two arguments, but the second requires only John.

It is also argued that ideally 204) would be read as /a-ting/, but speakers prefer to use the repeated form probably for affirmation. Dimmendaal prefers to treat it as an empty mora and says that it is an epenthetic vowel used for filling empty slots. The challenge with this is that, in Endo, omission of the suffixing marker would render the syntactic function of the word as imperative, as seen in 206) below,

- 206)(a)** ì-pu’t
 Imp-fall
 ‘fall!’

- (b) ì-mbu’s
 Imp-breath’
 breath!

In this example, I mark 2S and the imperative and not 3S imperfective as would be the case if the circumfixation suffix had appeared. This would suggest that circumfixation in the language is not emphatic but rather for person marking and valence specification

3.4.3 Competing affixes

In some way, word formation may be affected by affixes that compete for selection in specific domains. Booij (2005) argues that the choice between competing affixes may be naturally determined by the prosodic features that characterize the individual affixes. Vis a Vis those in the root forms. For example, in Dutch, the deverbal nominalizer has two forms: /-er/ and /aar/, which are allomorphic in function. Research has revealed that in this language, /aar/ is used after stems that end in unstressed coronal /l, r, n/ as the final consonant, while /er/ is used elsewhere. This is shown in a) and b) below.

207)

- | | |
|----------------------------------|--------------------------------------|
| a) bedel /be:dəl/ ‘to beg’ | bedel-aar /be:dəla:r/ ‘begger’ |
| luister /lüystər/ ‘to listen’ | luister-aar /lüystəra:r/ ‘listener’ |
| reken /re:kən/ ‘to compute’ | reken-aar /re:kəna:r/ ‘computer’ |
| b) bezem /be:zəm/ ‘to sweep’ | bezem-er /be:zəmər/ ‘sweeper’ |
| verdedig /vərde:dəγ/ ‘to defend’ | verdedig-er /vərde:dəγər/ ‘defender’ |
| bak /bək/ ‘to bake’ | bakk-er /bəkər/ ‘baker’ |

This phenomenon is also witnessed in Endo, where some affixes that mark a common aspect compete and become determined by prosodic factors. For example, nouns that end in /a/ have two possible forms of the demonstrative marker: the nasal /-n/ and the /i/. The choice for /n/ is made possible when the noun form is the final word in a sentence, while /i/ applies when the noun is followed by an object, and it helps in avoiding possible CC clusters not permissible in the language. For example,

208)

- a)

tuku-choon	kopo	lakwa- n
thing-DEM	poss	child-DEM

 Those things belong to that child

ma-mare kecha-**n**
 NEG-want sheep-DEM
 I don't want that sheep

- b)

tinge	lakwa- ni	perek
POSS	child-DEM	water

 This child had water

- c) al-de kecha-**ni** kipa
 sell-ITV sheep-DEM for sure
 Sell this sheep for sure

In 208 b), fast speech would likely end in surface realisations of the form /n+p/ in /lakwa-**ni** perek/ which would require the inserted /i/ to break the unacceptable cluster. The second case would result in /n+k/, which in the sentence would create taxed movement from nasal to velar. To solve this, there is a need for the insertion of /i/ for a phonological free production.

Booij (1997) also argues that there is non-native allomorphy, which (through localization to a language's rules) may lead to the borrowed forms getting inflected using more than one morpheme. To show this phenomenon, he gives an example in Dutch, where non-native words have two allomorphs, with one being the unpronounceable and not able to form a proper phonological form. For example,

209)

filter	[-native]	filtr-eer	'to filter'
filter	[+native]	filter-en	'to filter'

In this example, the non-native stem 'filtr' cannot be licensed prosodically since monosyllabic stems with combinations like /tr/ violate the sonority sequence in Dutch

because the presence of /r/ occasions extrasyllabicity through prosodic licensing of /r/, and thus /filtr-eer/. However, for native realization of ‘filtr’ as a word in the language, the default schwa is inserted to realize /filtər-/. Notice that there is a difference in syllabic counts in the two cases. The above process in Endo may take place when some borrowed words enter into inflection processes in a way that suggests allomorphy. A case in point is the Kiswahili word *kisikiri* ‘fire place’. Normally, borrowed words take the indefinite plural /-in/ as in *kisikir-in* ‘fireplaces’. However, the definite plural suffixes come in two types, /-ik/ and /-shek/, and each is realized phonologically differently. The latter involves first deleting the indefinite marker to allow for attaching the definite plural suffix, but with the raising of tone on the last vowel of the root.

Thus,

210) *kisikiri* → *kisikiri-ǰék*
 fireplace fireplaces

The second way is to attach definite /-ik/, which would have required either dropping the indefinite plural marker /-in/ or phonologically modifying it to allow for /-ik/. However, none of this happens, and the two forms, /-in/ and /-ik/ follow each other in the inflection as shown below,

211) *kisikiri* → *kisikir-í:n-ík*
 fireplace the fireplaces

In this example, the /-ik/ as a syllable is usually characterized by a high tone and influences the vowel in the indefinite affix to also become high. This scenario points to the fact that allomorphy in the language partly affects word formation and, by extension, semantic associations. In Kipsigis, while it is possible to choose between *koru:k* ‘women’ and *koru:shek* ‘women’ because they refer to the same entity, the latter is considered insulting

and disrespectful, and speakers prefer the former. And this would mean that allomorphy may be tied to the socio-cultural needs of the speakers of a language.

The research also points out that in Endo, the reflexive and the reciprocal are marked by the same suffix /-keey/, which in some way brings about competition, especially for semantic interpretation. While Crystal (2008) describes reflexives as processes where the subject or the object relates to the same entity, Kiridalaksana (1985) says that reciprocal is about verbs whose meaning is related to reciprocity in which both parties are involved in an action or event. This means that reflexives are expected to point out to an individual performing an activity themselves and reciprocal to a second part that is involved.

This can be seen below;

212)

- a) uṇak-keey lakweet
Hide-REFL child
The child is hiding itself
- b) pira-keey lakook
Fight-REC children
The children are fighting

In 212a), it is clear that it is the child hiding itself, and in 212b), we see the children involved in the fighting. To the contrary, some reflexive/reciprocal constructions may not clearly demarcate whether the parties involved are one or several and thus whether we are dealing with a case of reflexivity or reciprocity. The two examples below may help observe this.

213)

- a) i-paaru-keey taarushek
PROG-introduce-REFL/REC initiates
The initiates are introducing themselves
- b) chama-keey taarushek
fine/love-REFL/REC initiates
the initiates are fine/loving each other

From 213a) and 213b) in the foregoing examples, sometimes it becomes difficult to determine when /-keey/ marks reflexivity and when it marks reciprocity. And this arises when it is possible to interpret a syntactic form in both ways. In a) for example, we wonder whether each initiate takes turns to introduce themselves and thus reflexivity, or whether one takes time to introduce the rest. On the same note, are they all appearing at once in public to be seen by parents (in a ceremony called *kelap euun*- allowing them to eat using their hands). In b), also, *chama-keey* would mean the initiates altogether are fine, or they are individually fine, or they love one another. The researcher therefore makes the point that because the REFL/REC marking by /-keey/ occupy the same morphological position, some contexts create some kind of competition between the two for syntactic and semantic determination.

3.4.4 Phonologically motivated periphrasis

Periphrasis is defined by Haspelmath (2022) as the substitution of lengthier, multi-word statements for single words. In circumstances where one or fewer words would have sufficed, it is generally preferred to use more words. To be more precise, it refers to the usage of one or more function words to convey meaning that would otherwise be possible by clitic or by appending an affix to a word. In English, for instance, the superlative and comparative terms like '*happier*' and '*loveliest*' are inflected but can be expressed through periphrasis as '*more happy*' and '*most lovely*.' Another example is how English selects the

expanded forms of negated auxiliaries instead of their contractions. These include words like ‘is not’ or ‘will not’ instead of ‘isn’t’ or ‘won’t’. The suffix /-ology/, which is attached to nouns to suggest ‘the subject of science’, usually helps to attain shortened forms of words instead of the long ones. For example, in words like *soci-ology*, *climat-ology*, and *pen-ology*. However, in some cases, the suffix phonologically becomes untenable when attached to some words like **computology*, to mark *computer science*. Multiplicative numerals in English also use /-ice/ like in *twice* and *thrice*, but not phonologically possible for higher numbers, which require periphrastic usages, thus *fourth time* and *ninth time*.

Westney (1995) also argues that periphrasis occurs when there is lexical substitution, where a totally different lexeme is used in place of a missing inflectional form. For example, in English, the primary auxiliary *be* replaces modals *can* and the two cannot co-exist in a common environment, thus, *can/be able*.

Although periphrasis is a feature characteristic of analytic languages, in some way, it also appears in agglutinative languages, particularly when used for reinforcing ideas or in circumstances where the inflected form competes with an undesired semantic form of a word. For example, the counting system in Endo dictates that the coordinating conjunction /ak/ ‘and’ separates digits that occupy the ‘tens’ paradigm from those in the ‘hundreds’. This can be seen, for example, in *pokol ereny ak sisiit* ‘two hundred and eight’. A phonological lumping of the last two words would have resulted in *pokol erenysisi:t*, ‘two hundred eight’, whose meaning is different from the intended. To avoid the semantic distortion, speakers in the language prefer to use the longer form with many words rather than the shorter one.

Moreso, periphrasis is used as a strategy that aids in providing more details when a speaker makes an insult or wishes someone else bad omen. In the language, speakers have the option of using the short forms like *i-mei* ‘may you die’ or *i-teny* ‘may you suffer’, but instead, it is common to find them using longer forms of the said words, and thus, *susin ndaara netom kekeer* ‘may you die’ and *iteny kour ter nemeengen per* ‘may you suffer’. It will be noticed that, though the meaning is more or less the same, the force of the insult is contained in the introduced figuratives, leading to the selection of the longer form.

Another case of periphrasis relates to the deficiency of detailed descriptions for certain traits of human beings or animals in Endo. For example, the word *wawa* simply implies a young mammal and does not specify which kind of mammal. This compels speakers of the language to use more words with *wawa* as a way of trying to give specifications of the type of animal. For example, *wawa kecha* ‘young one of sheep’, *wawa siran* ‘young one of antelope’, and *wawa ng’omuyaan* ‘young one of dick dick’. This also relates to the use of euphemistic expressions in the language, which are almost purely periphrastic because the speakers intend to offer more words that create a positive impression from the undesired forms. Words like *kweet* vagina and instead the longer expression is preferred, thus *itip koko* ‘ear of grandmother’.

3.5 Summary of the Chapter

The chapter was aimed at responding to the demands set out in the second objective of the study, which was to examine processes of phonology that are triggered when inflectional and derivational affixes attach to bases and roots in the language. The discussions first centred on describing basic word forms and how affixes are attached, and the emerging phonological processes like deletion, epenthesis, reduction, and devoicing that help aid the

affixations. The second part of the chapter discussed suprasegmental aspects that result from the interplay of affix attachment and phonological processes. Such suprasegmentals as tone, length, and tongue root adjustments eventually affect the affixation process. Lastly, the chapter has briefly discussed categories of words, grammatical function, and competing affixes as factors outside morphology and phonology that affect the affixation process.

CHAPTER FOUR

INFLUENCES OF MORPHO-PHONOLOGICAL INTERACTION ON LEXICAL, SEMANTIC, AND MORPHOLOGICAL ORDER

4.1 Introduction

While chapter two addressed the first objective of describing inflectional and derivational affixes in Endo, chapter three focused on the second objective, which is on how affixes attach and the phonological processes triggered to align the affixes according to the rules of the language. In this current chapter, I address the third objective of the study, which is about analyzing the result of the interaction of morphology and phonology in word building in Endo. Specifically, the chapter is organized into four sections with 4.2 analysing complexities that relate to lexical interpretive challenges arising from harmonic aspects, deletion and insertion of segments, and coalescence. Section 4.3, on the other hand, analyses semantic complexities, and section 4.4 focuses on novel morphological stackings that arise from prosodic features, category of succeeding words, and doubling of morphological forms. The last section, 4.5, makes a summary of the contents discussed in the chapter

4.2 Lexical Interpretive Challenges

Kaisse argues that “the morphological make-up of a word has considerable influence on its pronunciation” (2005: 25). Thus, while speakers of Endo may find nouns like *par* ‘land’, *ein* ‘river’ and verbs like *chap* ‘make’, *ap* ‘take’ as easy to pronounce and categorise, such words to some extent, when subjected to the process of affixation, create other possible levels of lexical and semantic interpretation. Such scenarios may be occasioned by triggered phonological processes that apply to correctly align morphological units. These

could include features that spread from vowels in a stem or from an affix, or in some cases, consequences of empty traces left after the deletion process. Others could arise due to processes of inserting vowels and/or consonants in lexical forms. This means once all phonological and morphological conditions have been fulfilled, the final product becomes the subject of multiple lexical interpretations.

4.2.1 Vowel harmony and feature spreading

Dimendaal (2002) argues that harmony is a special case of assimilation and thus a constraint where only vowels with common phonological features are allowed to occur across a lexical form. Zwarts (2003) notes that, in Endo (and other Kalenjin sub-groups), harmony mainly affects the tongue root and is intended to assist speakers in attaining phonological agreement of vowels in the string. There are two major classes of tongue root: the dominant +ATR and the recessive – ATR (Rottland 1982) and marked/unmarked (Lodge 1995), respectively. +ATR vowels are adaptive, and when they occur in a word, all other – ATR vowels harmonize to +ATR. Such cases are witnessed when processes like insertion take place. For example, inserting /a/ between verb forms generates some kind of reduction, which in the language marks repeated activity. This process entails duplicating a verb in its original form, as seen in the example below;

	Verb	Reduplicated	gloss
214) (a)	kít ‘create a chamber’	kít-á-kít	create chambers severally
	sír ‘develop rashes’	sír-á-sír	develop rashes severally inwards
b)	sír ‘write’	sír-á-sír	Write and write
	kít ‘scrutinize’	kít-á-kít	‘scrutinize on our part’

It is observed from the examples that the insertion of /a/ affects the vowel patterns of the original verb. As earlier argued, vowels in monosyllabic verbs are characterized by high

tone and could either be front or back vowels depending on the precoded meaning facilitated by the tone. And since the language is harmonic, insertion of /a/ must also align with the qualities of the vowels in the string. This therefore suggests that, if the vowel in the verb is +ATR, then the inserted vowel also becomes +ATR for harmony. This is the same for –ATR, which also becomes –ATR. In 212a), the vowels in the verb are +ATR and dictate a front, while in 212b) the vowel is –ATR, requiring an epenthetic –ATR. Such a change of the tongue root of vowels, through harmony conditions, from advanced to retracted, impacts the semantics of the final word output differently. For example, while the advanced tongue root has the effect of marking recurrence and repeated action as seen in 210a), the retracted tongue root, on the contrary, marks motion and, in example 210b), towards the speaker, making the affix attain features similar to those of a ventive marker. It is also important to point out that, since /a/ and /ɑ/ are phonemic in the language, they affect different semantic values where /a/ in 212a & b) marks repeatedness but /ɑ/ in the same examples marks action towards the speaker (ventive).

Thus, whilst epenthetic /a/ and /ɑ/ are useful for affixation, they occasion other semantic interpretive perspectives which speakers may not have intended. An example is /sìr-á- sír/- “develop rashes” and *sìr-á-sír* “writing directed to us”

Another example is when the vowel /i/ is inserted between a lexical verb and itive /-te/ (marks motion away from the speaker center). Epenthetic /i/ in this case phonologically helps avoid the /tt/ cluster inter-vocalically because it is disallowed in Endo. For example,

215)(a)	ɲut-te:	ɲùt-í-té:	‘spit far from speaker’
	sìt-te:	sìt-í-té:	‘take away’
(b)	ɲot-tɛ:	ɲòt-i-té:	‘spit with’
	sìt-tɛ:	sìt-i-té:	‘take with’

However, while the example in 213a) fulfills the degemination function, -ATR epenthetic /ɪ/, on the other hand, makes the resulting suffix attain the features of the INST role as seen in 213b). At times, it is even difficult to point out with clarity the lexical category or meaning of monosyllabic verbs in Endo. For example

216)pit - germinate
pɪt – spray

While interpreting /pit/ sounds direct to the speakers, /pɪt/ becomes problematic since, with other phonological aspects constant, it could be interpreted in two ways: as spray and as many sprayers. Thus, as a verb and as a noun

- | | |
|----------------|--|
| | Adjective |
| 217)(a) | rel-i:t
White-ear
White eared |
| | tili:l
clean (adj) |
| | Verb |
| (b) | rel-i:t
White-CAUS
Cause to be white |
| | tili:l
clean: CAUS
cause to be clean |

This data shows that the adjectives in 217a) contain vowels with –ATR, while the vowels in the verb in 217b) are +ATR. This difference indicates the harmonic influences that vowels have on each other within a word. If a dominant +ATR vowel appears in a word or in an affix, then all other vowels in the word adapt and harmonize to the new feature.

Since Endo is a language sensitive to prosodic processes, any phonological modifications on the segments technically become a source of morphological misinterpretation. Thus, the effects of vowel harmony extend to both lexical and semantic statuses.

Harmony across word boundaries also reveals instances of morphological changes as occasioned by influences of tongue root features in the separate words. An example is the adverb (degree) *kpa:t* ‘real/true/indeed’ which in isolation has +ATR vowels. Such adverbs are preceded by monosyllabic adjectives or nouns, some of which contain –ATR or +ATR. Either way, harmony is dictated across the syntactic unit.

- 218) (a) *rel kpa:t*
 wolf real
 A real wolf
- (b) *rel kpa:t*
 White real
 white indeed

It will be noticed that in 218a) vowels in /*kpa:t*/ ‘real/indeed’ in isolation are +ATR and remain so once the word follows *rel*, which also contains vowels with +ATR. This is different in 218b), where the word *kpa:t* (with +ATR) follows an adjective *rel*, which contains –ATR vowel and being the dominant, influences the vowels in the word *kpa:t* to –ATR as well. Such post-lexical crossing of the tongue root occasionally has semantic effects on the neighboring words, as in *cha:pai rel kpa:t* ‘I fed a real wolf’ vs *tyonyi ko rel kpa:t* ‘this animal is completely white’. The former ‘*rel*’ is preceded by a lexical verb, while the latter ‘*rel*’ is preceded by an auxiliary form

Data also shows that adjectives change to nouns through a nominalizing suffix /*jɔ*/, which contains an –ATR vowel.

When it attaches to adjectives, it does not adapt the features of the vowels in the stem.

219)(a)	lalan	lala:ŋ-jɔ
	warm	warm-NOMLZ warmth
(b)	ʃapaj	ʃpa:jɔ
	slippery	slippery-NOMNL slipperiness
(c)	tenden	tende:n-jɔ
	thin	thinness

The suffix fails to spread its feature to the vowels on the stems, which are all +ATR. This suggests that there could be a possibility of the context playing a role. An –ATR that occurs peripherally and especially in the extreme right may not easily spread its features backwards compared to those occurring at the initial positions. It is also noticed that although the tongue root hasn't spread, the length has been affected on the vowel closest to the opaque morpheme. This also indicates further that the opacity of features is, in a way, compensated for through other factors like length and tone.

4.2.2 Deletions

Deletion in the language also affects the way lexical items are determined and categories because the traces left by deleted elements are filled by prosodic features, which in turn affect the entire form. To begin with, roots and bases in the language have specific prosodies that by default typify the lexical category of the word before affixation. Generally, monosyllabic nouns have low tones like L /pèt/ “daytime” while verbs are largely with high tones like H /pét/ ‘disappear’. When such bases enter into affixation, they influence the attaching affixes to conform to the default tone patterns either by way of deleting certain segments or by lengthening for proper affixation. This is because

technically, it is hard to delete any segment from the monosyllabic bases. For example, when the prefix /ki-/ is affixed on L /pèt/, the result is /ki-pèt/, which is either a male name or an adjective describing a meal taken in the afternoon. In the same way, the voiceless /p/ (which follows a H /i/) is mostly deleted from proper names in the language and does not affect the phonological states of the neighboring /i/ and /r/.

However, the output is LL /kìrɔ̀p/ denotes either a proper name (kìrɔ̀p) ‘male name’ or pst+verb (ki-rɔ̀p) “he weaved”.

- 220) -rɔ̀p
pst-weave
He weaved, name

It is also possible that the deletion that occurs across word boundaries influences how bordering words are determined and hence the roles assigned to them.

- 221) (a) awet-an kel
Go-1S leg
I am walking
(b) awet-a: kel
Go-1S place
I am going to kel

Deletion of nasl /n/ lengthens the preceding vowel /a/ and makes the root be considered as the name of a place and thus an adverbial instead of the initial noun meaning “leg”. Also, notice that in a) it assigns the Instrument role, and in b) it acts as a complement of the verb

4.2.3 Coalescion

In earlier sections, I argued that coalescence is a feature in Endo that aids in aligning affixes through phonology, although it comes with lexical interpretive challenges. For example, when the first person singular /a/ is attached to action verbs like *pai* ‘feed’ and *am* ‘eat’,

the structure increases arity and there is a need for an extra argument to be attached. The new argument is usually an instrument that can be seen in the example below

- 222) a-pai-e kir
 1S-feed INST
 I am feeding with something

This example suggests that there is a coalescence of i+e to a low /a/, which will create a long /aa/. This, in turn, will attract high tone thus /á/ and the new structure looks as follows

- 223) à-pá: kír
 1S-feed
 I am feeding something

In such a process, the added argument /kir/, which was initially an instrument, is possibly interpreted as a direct object of the verb, making it appear as receiving the action as opposed to giving the action.

4.3 Semantic Challenges

One process responsible for semantic interpretive challenges is reduplication. It is observed that reduplicated forms of some words have either long vowels or an intervening /a/ between the duplicated forms. The differences affect different meanings as shown in examples sap vs. sa:p ‘to heal’ 224a and 224b below.

- 224)(a) ki:-Ø- sAp-A:-sAp -i Kíbê:t.
 pst.dist-3-heal-lk-heal-ipfv Kibeet.nom
 ‘Kibeet healed (himself) over and over.’ (anti causative)
- (b) ki:-Ø- i-sA:p-sA:p -i Kíbê:t Kìp-làngàt.
 pst.dist-3-cl2-heal-heal-ipfv Kibeet.nom Kiplangat
 ‘Kibeet was healing Kiplangat over and over.’ (Causative)

Since verbal reduplication reflects event plurality, it is reasonable to assume that it is directed towards tiny *v*, the head in charge of event semantics. These results support the interpretation that Class II is the spelling out of a small *v* head since Class II information for alternating verbs (i.e., vowel lengthening) is available before the application of reduplication.

Second, according to Lodge (1995:36) and Avery and Rice (1989), feature spreading in Kalenjin happens in such a way that, under all conditions, dominant morphemes must always spread their +ATR specification to the underspecified, adaptive morphemes, and opaque morphemes will prevent any spreading of [+ATR] because they are already lexically specified. According to Dimmendaal (2009: 167), neutral/transparent affixes (do not block harmony) and all bound morphemes in Kalenjin are integrated into the vowel harmony system.

225)

kɛ:-pɪ:t	ke:-pi:t
inf-grow	inf-spray
to grow	to spray

This example shows that in both syllables, the vowels are either +ATR or –ATR, and that the morpheme with dominant features (affix or stem) conditions the other to share the dominant feature.

The infinitive in Endo bears a low tone and is also –ATR, which makes it a (DOM), and when this is introduced to verb stems (as Dimmendaal exemplifies in 221), it spreads the two features at the same time but differently, as occasioned by the lexical category of the word in question. Apparently, there appears to be a condition that warrants tongue root

features to be fulfilled and spread first before tonal features can apply. This is seen in 226) below, aspects.

226)

kè:-pí:t	kè:-pì:t
inf-grow	inf-spray
to grow	to spray

The successful spreading of tone will depend on whether the spread of the tongue root was successful, though in some cases, where the tongue root fails to spread due to the opacity of the vowels, tone becomes a remedy to account for the semantic detail of the word. An example is the Ventive in Endo, which is an -ATR affix and capable of triggering harmony across vowels. However, the reflexive in the language is opaque and doesn't allow the -ATR features of the ventive to pass.

227)

kì-wìr-ò-kè	kì-wír-ú-ké
Pst-throw-VEN-refl	Pst-throw-VEN-refl
You threw yourself this way.	It threw itself this way.

All vowels in the table change tongue root qualities except the reflexive, which is opaque. Though this is the case, tone determines the eventual status of the lexical output. Notice that the past tense marker /kɪ-/ and the root /-wɪr-/ both have vowels with –ATR features. The reflexive is –ATR in both cases. To differentiate meaning, it is not only the /o/ and /u/ that help do this, but tone as well. The reflexive in this example lacks harmony with the vowel elements in both the verb root, the ventive, and the past.

Other affixes that do not explicitly obey the harmony feature include:

The negator /**ma:**/, distant past /**ki:**/ and recent past /**ka:**/ *e.g*

- 228) (a) **ma:-tər**
 NEG-see
 Didn't see
- (b) **ka:-kʊ-mər**
 RPST-3IMP-problem
 It has become problematic
- (c) **ki:-ma-mər**
 DPST-NEG-problem
 It never became a problem

The examples in 228a, b, c) show cases where it is possible to have words with vowels containing mismatches in their tongue root qualities. This means that the tongue-root qualities of the vowels in the word stems or roots may differ from those in the affixes and suggest a complete disharmony. Although Dimmendaal (2002) suggests that these may not be affixes as such but tenseless auxiliaries, I argue that they are affixes whose failure to harmonize in one parameter has been compensated for by length. Neutrality or opacity of affixes therefore not only depends on whether the tongue root feature can pass or not, but must be assessed alongside tonal effects and length as well. This means that some morphemes could be opaque to the tongue root but transparent to tone and length or vice versa.

In Endo, the infinitive /**kɛ-**/ being a dominant morpheme, changes the tongue root states of surrounding vowel qualities. The word /**ɲit**/ 'fill' has a +ATR vowel. When affixed by infinitive/**kɛ-**/, which has –ATR vowel, the result is:

- 229) **kɛ-ɲit**
 INF-identify

This word does not mean ‘to fill’ as expected, but could as well mean ‘to identify’.

Related to feature spreading is the case of floating features. Ideally, when a segment is deleted, all phonological properties associated with the segment are also deleted. For example, in ‘kirop’, medial /p/ has been deleted from the original ‘kiprop’ and does not alter the semantic structure of the word. However, deletion of sound segments or affixes from some words in Endo does not automatically delete the morphological or phonological values of such deleted forms. This implies that a segment may be deleted, but its phonological values are retained within the word and spread to other sounds on the left or on the right, depending on whether it is the affix or the stem that contains the dominant features. For example, the ventive /u/ (which is –ATR) spreads its feature to vowels in the root word so that all have the same tongue root aspect. When it is deleted, the feature is retained, which then affects the interpretation of the final word

- 230)(a) wir-u → wi:r
 throw-VEN throw in this direction/many throwers
- (b) ap-u → a:p
 Take-VEN brings/many people who bring

In the two examples, –ATR spreads to the other vowels in the root words and makes them –ATR as well. The result brings in a number as a new line of interpretation other than the ventive, and it means that the word has changed from a verb to a noun. The feature is also witnessed when the imperative –ATR /ɪ/ is deleted from verbs, and its feature spreads to the vowel in the root, leading to a change from verb to noun as a second interpretive level.

- 231)(a) ɪ-kɛt → kɛ:t
 IMP-strangle strangle/many stranglers
- (b) ɪ-lɛp → lɛ:p
 IMP-think think/many thinkers/buttock

In some cases, the introduction of the infinitive warrants deletion of the ventive /ʊ/, which makes the –ATR feature float back to the vowel in the stem. Since the infinitive /kɛ/ is also –ATR, there is a context where two –ATR vowels follow each other in the string, resulting in (- - ATR), which is phonologically difficult to articulate. It is this extra feature that marks the ventive in the absence of the segmental /ʊ/.

- 232)(a) ap-ʊ
 take-VEN
 Take in the speaker's direction
- (b) was-ʊ
 scatter-VEN
 scatter in speaker direction

Another process that leads to semantic interpretive challenges is insertion. It was argued in Chapter 4 that direct insertion at times introduces segments that come with dominant prosodic features like tongue root or tone, which forces harmonization across the vowels in the word. Monosyllabic verbs in the language, like /tar/ “finish”, /sir/ “write”, enter into fixation with H tone, but monosyllabic nouns like /kor/ “stone” and /key/ “tree” have L tone. When these verb bases form new words through reduplication, an epenthetic +ATR /i/ is inserted between the reduplicating for, thus creating an inserted LHH

- 233)til-á-tíl penda
 chop meat
 chop the meat

The original form /tíl/ “cut” has changed to “cut severally”, thus “chop”. This extended meaning of the word is occasioned by the inserted /i/.

When the epenthetic vowel is –ATR, it influences all the others to harmonise as back vowels. So in this case

- 234) tíl-á-tíl
many choppers

There is a difference in meaning here where, while the basic semantics aspect is chop, there is a shift from the action to the subject. All this is based on the pethnetic element.

The vowel /i/ can also be inserted between a lexical verb and itive /-te/ (marks motion away from the speaker center) to prevent /tt/ cluster inter-vocally because it is disallowed in Endo. For example,

- | | | | |
|----------|---------|-----------|-------------|
| 235) (a) | ɲut-te: | ɲùt-í-té: | ‘spit away’ |
| | sit-te: | sìt-í-té: | ‘take away’ |
| (b) | ɲot-tɛ: | ɲòt-i-té: | ‘spit with’ |
| | sit-tɛ: | sìt-i-té: | ‘take with’ |

In 235a), epenthetic /i/ helps to degeminate the /tt/ cluster, but in 235b) -ATR epenthetic /i/ also marks the final word as marking instrument role. The phonological characteristics of the epenthetic segment dictate and control the semantic function of the suffix.

4.4 Novel Morphological Order

Aronoff and Fuhrhop (2002), Hay (2002), and Booij (2002) have argued that the phonological properties of affixes play an important role in accounting for the restrictions on affix assembly in many languages. They further note that the more an affix violates prosodic output conditions, the more such an affix will be avoided, and such avoidance creates gaps in the assembly that complicate natural patterning.

Morpho-phonological interaction makes a significant contribution to the order in which affixes in a language attach. It is true that phonological properties of the base or root of a

word, and their precoded prosodic features, largely affect the way primary and secondary affixes are attached. In English, the past tense morpheme /-ed/ and plural morpheme /-s/ are largely influenced by whether the end consonant in the base word is voiceless or voiced. While such morphophonological rules are useful in making affixes attach properly, they can also lead to changes in the order of affixes. For example, Kabak (2007) discusses Suspended Affixation (SA) (incomplete forms act as if they were complete) in Turkish and shows that a morpheme is physically suspended from affixation, and the remaining form remains grammatical. The suspension creates a blank and thus a space where an affix was expected. According to him, a) below has subject agreement markers (gid-er and gor-ur) while b) has suspended such markers. However, in both, the structures are grammatical.

- 236)(a) gid-er-Ø-iz go-aor-cop-1pl g"or-ur-Ø-iz
 see-aor-cop-1pl ve and al-ır-Ø-iz buy-aor-cop-1pl
 'We go (there), see (it) and buy (it)'
- (b) gid-er- g"or-ur- ve al-ır-Ø-iz
 go-aor see-aor and buy-aor -cop-1pl
 'We go (there), see (it) and buy (it)'

The arrangement of affixes can also be influenced by morphophonological processes such as consonant mutation or vowel harmony. If an affix causes the base word's vowels to shift, that information may be used to establish the order of affixes in languages that have vowel harmony.

Following lexical insertion, deletion, or other phonological processes, constraint interaction in narrow phonology leads to deviant ordering.

Order of affixes (and morphemes by extension) follows language-specific rules, and such order must satisfy the semantic, phonological, and syntactic aspects of the particular

language (Hyman, 2003, p. 245). Baybee (1985), for example, describes the morphological order from Quechua and indicates that *aspect* morphemes occur much closer to the verb stem than *tense* and *Mood* come closer to the stem than person markers. Although each language has unique linguistic patterns and realizations, Bauer (1988) (cited in Niamh 2011), describes some universalities that govern morphological ordering and the principle states that, '*Aspect markers occur closer to stems than both tense and mood*'

However, according to Kirchner (2010) and Zimmermann (2017), affixes that lack segmental content but consist solely of prosodic material are likely to float and usually have implications for the way in which the remaining segmental exponents are linearized. To them, affixes that mark the excessive reduplicants (too much) in Kwak'wala, e.g., *mə-mi:χkən*, 'sleep too much', are realized segmentally as /mə-/, but with an underlyingly empty syllable. This produces a distinct pattern from what is expected by epenthesising the schwa and copying the closest root consonant, in this case /m/, to acquire segmental substance.

Additionally, Paster (2009) demonstrates how metathetical processes in Doyayo, Niger-Congo, can occasionally cause segments to be rearranged, leading to deviant ordering effects. For example, the augmentative {-m}, which always comes first, appears after {z} in some constructions.

Thus, the order changes from Rec+**V+Adj** to Rec+V+Adv

237)

- a. [[haa] m] → *haa-m*, 'several turned sour',
- b. [[[haa] z] m] → *haa-m-z*, 'several turned sour rapidly' (**haa-z-m*)

This study shows that there are situations that occasionally require violation of basic morphological rules of order that deviate from the norm, which, according to Mithu (1999), are occasioned by:

- a) Initial grammatical and semantic positions of the morphemes in question. According to Dimendaal (1983), affixes historically were full lexical elements and followed a pattern that fulfilled both grammatical and semantic values. Those closest to the roots (derivatives) are the oldest, and those at the peripheries (inflections) are recent additions. For this reason, some languages will realize affixes that follow such historical patterns as opposed to the basic pattern.
- b) Trapped inflectional affixes will tend to move from expected positions in situations where the post-inflectional elements, like reflexives and interrogatives (in syntactic construction), have also turned into affixes and attach to the word string. The introduced affix also distorts the expected basic order.

In Endo, the way affixes attach to stems/bases determines their order of occurrence, and in some cases, the basic order is occasionally violated. These violations are discussed at the nominal and verb levels below.

4.4.1 Nominal affix order

I earlier argued that the case in Endo is nominatively marked and that tone is used to tell (in a syntactic structure) which noun is the subject and which is the object. This suggests that there are two possible orders of subject and object: Subj+Obj or Obj+Subj, depending on the tonal marking. For example,

- 238) (a) pìr-è chésúmán chèrònò
Beat-Prog SubjObj
Chesuman beats Cherono
- (b) pìrè chèsùmàn chérónó
Beat-Prog Obj Subj
Cherono beats Chesuman

Apart from the subject and object order, I also discuss how the major affixes that occur with nominal elements change their order in affixation. These include: demonstrative, possessive, definite, singular/plural, nominative, and feminine/masculine. Zwarts (2003) presents the basic nominal affix pattern in Endo shown below:

LOC-NOM-GEND – **ROOT** - POSS-DEM-DEF-NUMB-NOM

This pattern suggests that LOC, NOM, and GEND markers are prefixed on stems while POSS, DEM, DEF, NUMB, and NOM are suffixed. NOM is a free affix that can occur either as a prefix or a suffix, or both. All these affixes do not occur at the same time, but whenever they do (not possible), each occupies the position identified in the template.

- 239)(a) ko-ŋe-rono
LOC-FEM-root
House of Cherono
- b) keti-ŋun-det
Root-POSS-DEM
My trees
- c) kap-chep- **muk**-a-aut-a koko
LOC-FEM-Root-SG-DEF-POSS grandma
The place belonging to Grandma is used for making guard caps

The distinction between obligatory and optional affixes that attach to nouns (and other categories in general) is complicated by the occurrence of supra-segmental affixes like tone

and tongue root at the same time as the segmentals. Thus, what surfaces on the templates are largely patterns displayed by segmental affix forms. It is therefore possible that an affix is not shown on the order template, yet it occurs in the process of affixation and is only shown by prosodic marks.

240) tʃɔːr
thieves

In this case, it is difficult to point out in the template the mandatory and optional affixes since three supra-segmental affixes occur at the same time. For example, in /ket-itʃu:n-det/: -ATR as a derivative and length have been applied alongside H tone as PL markers. Thus /tʃu:n/ assumes roles of plural and person marking at the same time. This leaves the question as to which is to be accounted for at the very position.

4.4.2 Verbal Affix Order

In Endo, segmental affixes that attach to verbs follow the following order:

TENSE-NEG-MOTION-PERS- **ROOT**- DER-ASP-OBJ-SUBJ

The tense marker is usually at the left periphery, while OBJ and SUBJ markers appear to the extreme right. PERS, DER, and ASP markers attach much closer to the root as identified in other Kalenjin languages like Keiyo (Chelimo 2010). In Endo, examples of this basic order are shown below:

- 241) (a) ki-ma:-i-wir-chi-na:
DP-NEG-2SG-throw-DAT-3IMP/PL/SG
You were not throwing to him/her/them
- (b) ka-tʃe-tum-tʃaɪ
Pst-1PL-sing-DAT.3IMP
We have sung for them

- (c) ma-ki-ap-ta: per
 NEG-1PL-take-ITV.ASP water
 We are not taking away water

It is important to note that in 241a), the final affix /na:/ can mark several aspects at the same time: 3IMP plural or 3IMP singular. In 241b), /ʃatʃ/ marks dative as well as aspect, while the last affix /ta:/ in 241c) marks both itive and aspect. Going by the normal verb affix order, roots are usually immediately followed by derivatives or aspect markers. But in example 241a), number markers reappear while they are ideally supposed to be prefixed. In 241c), an itive, which is a motion affix, appears as a suffix while in the verb order template, it is supposed to be prefixed. This departure from the normal verb order is occasioned by three factors in the language: supra-segmental features, the category of the word that follows, and the quality of the vowel.

4.4.2.1 Supra-segmental features

There are many operations (inflectional and derivational) that are implemented by the use of suprasegmental morphemes instead of the segmental ones. Tone, length, and tongue root in Endo act as independent morphemes. For these reasons, slots/paradigms that are ideally reserved for certain segmental affixes remain empty when suprasegmental markers are used instead of the segmental.

- 242) (a) kwa-ke:r chor-ik
 pst-see thief-pl
 I saw thieves
- (b) kwa-ke:r cho:r
 pst-see thief-pl
 I saw thieves

In 242a), the plural is marked by a segmental /-ik/, but in 242b), this plural is marked by length on the noun. The absence of the segmental plural marker means that the slot remains unoccupied so that the expected order, base+Pl simply becomes base.pl. It is also realized that there are instances when the possessive marker, which is naturally affixed on the noun and followed by the definite marker, occurs after the definite marker in certain constructions. This suggests base+Poss+Def or base+Def+Poss. What determines the difference is that if the base ends in /a/, it attracts the possessive /ap/ and creates a lengthened/a:/.

If the base ends in /e/, then it is followed by the definite /-te/

- 243)(a) lakwa: koko
 child-DEF grandmother
 child of grandmother
- (b) lakw-**ap-te:** koko
 child-**POSS-DEF** grandma
 the child of grandma

In the examples, the order of affixes changes to either Root-POSS, Root-DEF, or Root-**POSS-DEF** instead of Root-DEF-POSS. The fact here is that the predictability of the nominal is difficult because supra-segmental morphemes assume the roles of segmental affixes, which are deleted in the long run, distorting the linear arrangements of such affixes.

4.4.2.2 Category of succeeding lexical forms

The lexical category of the item that follows the verb element dictates the shape and order of the affixes on the verb. If valency-changing elements like nouns follow a verb, then the former dictates that INST must attach to the verb in question.

- 244)(a) ki-ma-sir-**e kala:m**
 Pst-NEG-write-INST pen
 I was not writing with a pen
- (b) ki-ma-pir-e **salwandi**
 Pst-NEG-punish-CAUS foolishness
 I didn't punish them for their foolishness

The nouns /kala:m/ and /salwandi/ occur as direct objects of the verb, and this suggests that the preceding verb can only accept instrument or causative affixes for the sentence to make sense. On the contrary, if a verb is followed by a valency-maintaining word like an Adverb, then the verb requires that an ESS affix be attached to the verb.

- 245)(a) ki-ma-sir-e **kara:m**
 Pst-NEG-write-ESS well
 I was not writing well
- (b) ki-ma-sir-e **ɣoj**
 Pst-NEG-write-LOC ground
 I was not writing on the ground

While *kalam* 'pen' in 245a) and *salwandi* 'foolishness' in 245b) are nouns that increase valency by one, *kara:m* 'well' in 245a) and *ɣoj* 'ground' in 245b) are adverbs which do not increase the valency of the root. Those that increase valency dictate that the order would be: Pst-NEG-INST/CAUS, while non-valency increasing words will require Pst-NEG-ESS/LOC,

Each of these affects the affixes attaching to the verbs, which may be different from the expected order. These examples suggest that the order of affixes on verbs is not only affected by phonology but also by post-lexical categories.

4.4.2.3 Front/ backness of vowel

Other than the lexical category of succeeding words, the affix order on verbs is also affected by the tongue root. This happens when a dominant vowel enters the string and spreads its –ATR features across the verb. It is possible that the meaning of the root of a verb and affixes attached to it can change (without affecting its orthography) by changing the quality of vowels from +ATR to –ATR.

- 246)(a) ki-ma-wir kir
 Pst-NEG.1S-ITV something
 He didn't throw a stone at something
- (b) ki-ma-wir kir
 Pst-NEG.3S/P-VEN something
 He didn't throw something this way

In 246a), all vowels are +ATR, while in 246b), all vowels are –ATR. Although the orthographic presentation remains the same, it is observed that the meaning portrayed in a) is different from that in b), and this is attributed to the shift in tongue root and thus a change in the quality of the vowel from +ATR to –ATR. This means that while /wir/ in 246a), functions as an active and /ma/ marks negator /1S, in 246b), /wir/ changes role and is ventive, while /ma/ in 246b) marks NEG/3S/P. It would be expected that the initial order remains Tense-NEG-ITV-OBJ, but a change in the tongue root has brought about another order: Tense-NEG-VEN-OBJ. Motion affixes are usually attached as suffixes:

- 247) (a) wir-te
 Throw-ITV
 Throw away
- (b) wir-u
 Throw-VENs
 Throw to me

Thus tongue root as a morpheme shifts the position of the Motion affix from the suffix position and contains it within the verb root meaning. Instead of --- ROOT-MOTION, we have --- ROOT.MOTION

4.4.2.4 Circumfixation and Morphological Order

Some morphological markers tend to be physically realised more than once within the same construction. This mainly arises in Endo through the presence of an affix that marks an aspect split between the first part and the last part of the word. In this case, the split affix attains two complementary roles where one is reduced to an emphatic element which can actually be omitted without affecting the general sense of the verb form (since the remaining affix can mark the intended sense in full). An example of this marking occurs with the first person singular, as shown below.

- 248)(a) **ɑ-tɪŋ-ɑn** kari
 1S-POSS-1S car
 Me I have a car
- (b) **ɪ-ɲɛ-ndɛ**
 2S-pron-REFL
 You yourself

In 248a), it is observed that the first person singular marker /-an/ attaches to the possessive /tɪŋ/ but is split as /a/, which comes before the possessive and /-n/ after it. It is the same in 248b) where /ɪ/ the prefix and /-ndɛ/ the suffix circumfix the pronoun. In both cases, each of these affixes does not introduce a new aspect but simply creates emphasis on the element marked. Thus, while the prefix /ɑ-/ marks 1S and /ɪ-/ 2S, the related suffixes /-n/ and /-ndɛ/ are for emphatic reasons. The speakers of the language usually have the discretion to decide whether or not to have both or omit the emphatic element. Such an occurrence creates

challenges in determining the order of morphemes because it is not clear whether to place them as prefixes or as suffixes.

4.5 Summary of the Chapter

The chapter has largely discussed the manner in which the interaction of morphology and phonology becomes responsible for interpretive challenges at the lexical and semantic levels, and how the order of morphemes is affected. The discussion began by considering processes of phonology like deletion and insertion, and suprasegmental realisations such as length and tone, and how they affect the interpretation of final words. As for semantic aspects, the discussion focuses on the way floating and spreading features influence neighboring segments and the effect they pose semantically. The chapter has shown that insertion of segments like the vowel /i/ or /a/ as either +/-ATR, or deletion of consonant/vowel segments like /p/ from nouns has a bearing on the interpretation of the lexical and semantic form of the resultant forms. This, by extension, also distorts the default order of affixes in the language. The discussion also showed that prosodic features like tone and tone occasionally float and spread from one affix to another due to deletion or insertion, or coalescence, and further affect the nature of words in the language.

CHAPTER FIVE

LEXICAL PHONOLOGY AND NATIVE SPEAKER ADAPTABILITY

5.1 Introduction

It is observed that when the inflectional system of a language is quite rich, lexemes realized may have quite a number of forms. Unfortunately, some of these inflected forms of the established lexemes are not stored in the lexical memory of speakers. This implies that it is possible in some languages, like Endo, to effect affixation, and the result is inflected or derived forms, which may not be in the memory of the native speakers. In Chapter 3, there are presentations of affixation patterns whose lexical results are unpredictable because of the complexities occasioned by prosodic aspects that manifest as affixation processes occur. It also implies that default patterns and order of affixes in the language are changed by factors of length, tone, and tongue root, which in turn generate novel lexemes that appear either complex or with multiple semantic interpretations.

The chapter discusses strategies that enable native speakers ‘maneuver and adapt to lexical and semantic challenges that are occasioned by interactions of morphology and phonology. Under natural circumstances, native speakers of a language generate acceptable lexical forms subconsciously and without strain. To begin with, Section 5.2 discusses pre-determined phonologies and how, in the LP theory model, stems and other affixes enter into affixation with prosodies already assigned in Level 1 so that speakers become aware of which affixes to correctly attach. The theory assumes that all word forms entering Level 1 of the template are phonologically uninflected but already loaded with some prosodies that suggest some semantic values.

Section 5.3 discusses the importance of post post-lexical level of LP as a final scanning stage, where elements that follow a derived or inflected form are used to confirm the category and semantic value of the question words. Section 5.4 presents the lexicon and its usefulness in checking the well-formedness of words through compositionality and non-compositionality. The section also discusses how the underlying grammar (mental lexicon) is a useful faculty for the predictability of lexical forms and their semantic inputs. The last part is section 5.5, which gives the summary of the discussions within the current chapter.

5.2 Predetermined Phonologies

Kenstowicz (1994) argues that in LP theory, the underlying level is the level of lexical insertion, where words are basically made up of underived forms and are bare morphemes. This forms the initial cycle in the word formation process. At this level, many of the morphemes may not qualify as lexemes because, semantically, they appear ambiguous. This means that in any language, including Endo, ambiguity may not arise at the underlying level since words are assumed to carry some predetermined phonological rules even before entering into Level 1 of affixation. As such, native speakers already attach some phonological value to the underived words at this initial level.

A	B
249) ket /kèt/ 'tree'	ket /két/ 'drive'
kor /kòr/ 'stone'	kor /kór/ 'bake'
ter /tèr/ 'pot'	ter /tér/ 'scatter'

This data shows that in A, the underived noun forms already have a default –ATR vowels with L tone bearing on the syllables. In B, all the verb forms have +ATR vowels with H tone bearing on the syllables. To the Endo native speakers, this initial difference provides hints on which affixes to apply at level one. In other words, the determination of the affixes

to select at this point is made more accurate and almost predictive by the qualities of the vowels in underived forms. This is because in Endo, at the underlying level, roots are already derived for the category. According to Mohanan (1982), in LP theory, agglutinative languages solve initial problems of affixation and word formation at the underived stage.

250) a) /kò:r-ìk/ ‘stones’

kòr	
kòr-ík	PL /-ik/ is introduced.
kòr-ík	-ATR vowel in root assimilates /i/ to /ɪ/ for harmony
kòr-ìk	H on affix is reduced to L also for phonological harmony.
kòr-ìk	Stones

4 /kór-í:k/ ‘bakers’

kór	
kór-ík	PL /-ik/ is introduced.
kór-ík	HH is maintained
kór-ík	Bakers

In 250 a), a -ATR vowel has L tone on the syllable of the root word. The plural affix /-ik/ comes with a +ATR high vowel. The vowel in the root being dominant, assimilates the one in the affix into –ATR, and this also warrants a change of tone in the affix from H to L. The result of this is LL –ATR vowel quality

In 250 b), both the root and affix have vowels with H on +ATR. This affixation is phonologically simple, as there are no assimilatory constraints.

How native speakers select between the tonal patterns is determined by the type of vowel on the root. Naturally –ATR on vowels found in roots suggests that the word form is a noun, while those that contain +ATR are mainly vowels.

5.3 Post-lexical Scanning

Within LP Theory, Post Lexical is the level beyond a word, and according to Pierrehumbert (1980), it involves phrases and sentences. In the notes of Sereno et al (1992), the process of lexical access involves the activation of a lexical entry, which makes the contents of that entry available for further processing. This means that a lexical form that has already passed the Lexical stage is accessed for information that provides information about a word's orthographic, meaning, and syntactic features.

At the phrase level, inflectional and phrasal rules dictate that elements occur according to the syntactic rules of a language. According to Pulleyblank (1983), a lexical item must fulfil the rule of structural preservation at this level. It means that if a word was passed from the lexical level as a noun, then at the post-lexical lexical it is expected that it displays features of a noun. Thus, if an error of supra-segmental choice occurred at the lexical level, a native speaker will quickly notice such an error when the word is applied at post lexical and can go back to correct. As a remedy, Kiparsky (1982), Mohanan (1986), and Goldsmith (1993) argue that the ultimate output and acceptability of a phonological process in a language need to be tested post-lexically for correctness of morphological and phonological fulfilments and native speaker interpretation

a)	b)
251) ka-i-rok Pst-2S-finished	→ ke:-rok Pst-finished
You are ready (by self),	you are finished by (other external force....)

In 251) a), attachment of remote PST marker /ki/ to the 2S warrants coalescence that results in a lengthened /e:/ in b). This becomes a challenge since, as isolated affixes, they create the semantic force of action by self, but once length is phonologically introduced, meaning

changes to action by an external force. To clarify the semantic position, words that occur next to the word in affixation need to be considered.

252) ke:-rok ʃepe?

Pst-ready go

Are you ready we go

The word *ʃepe* 'we go' helps in understanding that /ke:-rok/ is an activity by the self

253) ke:-rok na-me-tiŋa kir

Pst-finished REL-NEG-have thing

If you have nothing, then you are finished

In this second example, the clause after /ke: rok/ suggests that somebody else is going to mete out some harsh punishment on the subject for not having anything. Thus, the meanings of /ke: rok/ become clearer when speakers appeal to syntactic factors.

In Endo time, in the past, it is understood in spaces of recent, distant, and remote. The future is also fragmented into the near future and distant future. Each of these different sets of time dictates the use of different segmental affixes, consequently evoking different supra-segmental aspects. The recent past marker /ka-/ attaches to 1S and 2P (in Endo, both begin in /a/) and phonologically lengthens the /a:/. To the native speaker, appealing to the next word in the sentence may not be necessary since they have a clue as to the time the action occurred. In such a case, it is the created length that signals the recent time in the past.

254) a) ka:am-iʃa kitokuara

R.pst-eat-ESS this morning

I have just eaten this morning

b) ko:m-iʃa kitokuara

D.Pst-eat-ESS yesterday morning

I had eaten yesterday morning.

In 254 b) /o/ in the affix /ko-/ which marks some distant past, dictates that /a/ is merged, and the result is a long /o:/ which is semantically different from /a:/. To the native speaker, whether other words are provided or not, the interpretation of such affixes is quite clear. Without the lengths in these words, meaning would change to reflect 3S and not 1S as is.

It is also true that in Endo, some VPS are followed by AdvP (place), while other VPS could be followed by ADVP (manner). In scenarios like these, native speakers can tell the distinction between the prosodic qualities of vowels in the VPS and use this information to identify the type of phrase that will follow. Usually, adverbs of place follow VPS with vowels characterized by HH tones. Adverbs of manner follow VPS of vowels with LL tones

- 255) a) ʃáwétá: **káu**
 pst-go- 1P home
 I was going home
- b) ʃáwètà: **mùtjo**
 Pst-go-1P
 I was going slowly

There is a rule at the phrase level that occasions that VPS characterized by HH be followed by phrases that also display similar features. One of these is the adverb of place. On the contrary, adverbs of manner mainly have LL tone patterns. This study observes that vowel harmony is used here to arrange and affect phrase order according to the Endo patterns.

Ireland & Pennebaker (2003) suggest that checking for the correct output of words is done post-lexically, and this is facilitated and controlled by factors that are beyond the speaker. Some of these factors gender of the speaker/audience and the memory capacity/repetition of lexical information. They argue that if a conversation proceeds between a man and a lady,

then there are certain words that the man will select which may not feature if the conversation were between a man and a man.

256) James: hallo Jane. You look **pretty** this morning
Jane: **Aaaw**, thanks

In 256), James selects the adj ‘pretty’ since the respondent is a lady. It would sound awkward in Endo to use the same adjective when a man is talking to another man.

In Endo, Words like *churuktekei* ‘rinse oneself’ and *lyelda* ‘take a nap’ are used when referring to males, while the equivalents *yunkei* ‘bathe’ and *ru* ‘sleep’ are used in reference to females. These are perpetuated by socially embedded stereotypes and beliefs in the community, which hold that women bathe but men just run water on their bodies. Equally, it is women who sleep, but men just take a nap.

Clark (1996) also argues that words are filtered in sentence structures through the influence of audience designs. This means that any communicative behavior or construction is specifically tailored by the speaker to suit the demands of either the interlocutor or the needs of the interlocution. By so doing, elements of construction, including the lexical forms, are tailored to achieve this end. If the idea is to persuade, then specific words that achieve persuasion are selected.

257)(a) Lotuma: Soti, **tos** keting’a ropiyo itoretoon?
(Soti, would you be having some money with you at the moment?)

(b) Soti: oooi, lekwani, mating’a panienyi
(Sadly, my son, I do not any)

The word **tos** ‘would you’ is considered polite and appropriate for persuading others into accepting requests placed on them

5.4 Underlying Mental Grammar

The lexicon, also known as mental grammar, is the language user's mental repository for linguistic data that cannot be represented by rules. The knowledge of regular and irregular forms of the language that Endo speakers possess, as well as the underlying prosodic elements in word creation, are the topics of this discussion. This means that speakers of Endo can predict lexical semantic forms based on their structural presentation and their prosodic features, whether the form is regular or otherwise, because it is assumed that they already have in their knowledge phonological, syntactic, and semantic information for every word form. This knowledge is made possible through the lenses of non-compositionality and compositionality.

5.4.1 Non-compositionality

According to Anderson et al. (2022), language units whose meaning cannot be inferred from their parts are stored in the mental lexicon. As a result, it is impossible to infer a structure's meaning from its constituent pieces (non-compositional meaning). For instance, in English, free morphemes such as *go*, *goose*, and *luck* have non-compositional meanings, meanings that cannot be divided into smaller components. Therefore, they get stored in the lexicon as full blocks. The same argument considers affixes as having non-compositional meaning, and so morphemes like *-s*, *-ly*, *un-*, *-er*, and so on also get stored in the lexicon with specific meaning.

The point here is that the meaning of words and morphemes is stored in the lexicon and is predicatable, and such a structure is likely based on some regular rule. For example, in English, the plural *-s/z/* turns into [iz] after sibilant (high-pitched, hissy) consonants. Thus, Endo speakers can intuitively determine the semantic and lexical status of words in the

language because such words already exist in their lexicon. This further implies that words that may have the potential of posing lexico-semantic challenges due to prosodic aspects can be correctly interpreted by the native speaker by simply appealing to the lexicon. For this case, speakers can tell that /pit/ is “germinate” but /pɪt/ is “spray” without looking at the prosody for checks.

This also means that compound constructions are non-compositional and their semantic interpretation entails the whole string and not the sub-parts. For example, semantically, *hot dog* does not refer to ‘a dog which is hot’ but rather some kind of ‘bun’. Note that, prosodically, *hot* and *dog* in isolation bear stress word initially, but when compounded, stress is deleted from *dog* and magnified on *hot*. Experience and mastery of such words by speakers creates retention and is stored in the lexicon to the extent that disambiguation, in some cases, may not be by phonology or morphology but by their structural states.

For this reason, in some idioms like ‘*over the moon*’ meaning is established through considering the complete sequence of all the words in the structure and not the individual words. When, for example, someone says that they are *over the moon*, they do not literally suggest being *over the moon*, but in spoken North American English, this means *extremely happy*. In Endo, if we consider *pìrìr meLt* ‘red head’ as isolated words, then the tone marks are LLH, but the structure is taken as an entity, the tones become *pìrìr mét* HHH and it means ‘name of a person’

Thus, figurative language use in Endo is determined by the lexicon. Compound words that may appear in proverbs and sayings as contradictory in the language are correctly determined, as seen in the example below,

- 258)(a) kochi ng'ony
Give down
Surrender
- (b) machei keel
Silent leg
Long journey

I also argue here that apart from the lexicon storing regularities of prosodic features and their usefulness in predicting words and their meaning, irregular inflected forms of words, which do not rely on prodies, are also stored. For example, in English, the past tense of *go* is *went* and not **goed* and the plural of *goose* is *geese*, and not **gooses*. Several irregular words in Endo are not derived by regular morphology but rather by mere speaker intuition and memory. Examples are plural markings in words like *arte* 'goat' and *nego* 'goats', *tany* 'cow' and *tich* 'cows'. This is because the speaker has memorized both regular and irregular rules in their language's mental grammar.

5.4.2 Compositionality

Other lexical words with compositional meaning include skater, unluckily, reclassification, and other multimorphemic words whose meanings can be inferred from their constituent components. For example, *skate* and *-er* for skater; *un-*, *luck*, *-y*, and *-ly* for unluckily. The idea is that a speaker intuitively memorises the meaning of the specific parts of the word together with their individual meaning. For example, in Endo, a speaker decodes that when prefix /ke-/ is precoded with –ATR, it marks Past tense, but one with +ATR marks Aspect. At this point, the speaker needs to correctly assign the affix to the right lexical form. Such information is largely memorized in the lexicon as a sub-part based on the semantics of the language. It also implies that speakers memorise the rules that allow for correct morpho-phonological and morpho-syntactic attachment of the subparts. In this case, a speaker, for

example, is intuitively aware that infinite /ke-/ in Endo has a low tone and attaches to verb bases that have high tones, whether monosyllabic or disyllabic, -ATR or +ATR. Thus, /ke-pit/ “to germinate” and /ke-pit/ “to spray”

According to Seidenberg et al (1982), cited in Yego (2009), one way of enhancing language learning is that, when speakers are confronted with ambiguous structures, correct interpretations are recalled from memory and appropriate meaning is assigned while suppressing all the incorrect ones. This ability transcends age and is learned from childhood, such that children as young as 5-year-olds can access parameters of a language through memorization of all the linguistic knowledge of words, including the pronunciation, the syntactic, and the semantic aspects of the language.

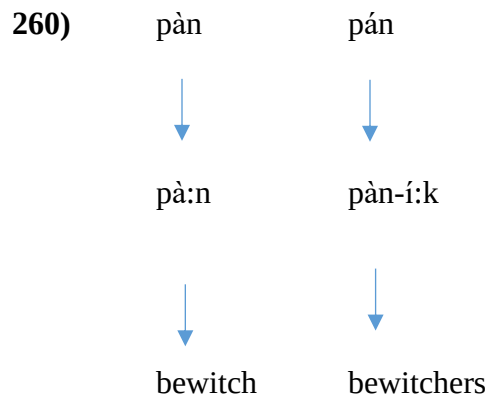
Rapp and Goldrick (2007) argue that competence in compositional, non-compositional, and grammatical rules of grammar in a language becomes stored in long-term memory through habitual interaction with such words and rules. This is facilitated by activities like observation, naming of items, and reading, speaking, and general repetitions. For example, relating lexical features with certain aspects in the physical world to familiarize oneself with lexical and post-lexical aspects of the word. Accurate selection eventually allows for correct morphological development and finally correct post-lexical usage.

Bock (1986) also introduces the idea of priming, where a correct word in a language is repeatedly used in various discourses, while an unacceptable/ill-formed word is rarely used. This is an automatic and unconscious mechanism that permits native speakers to recount features that are commonly used in the language. Speakers are exposed on a daily

basis to structures that are mapped in their memory and reproduced mainly through greetings, wishes, leave-taking, and imperatives.

- 259)(a) kirop: chamegei ma-chemutai?
Hello mother of Chemutai
- (b) chemutai: karaam sana wera-chebet
Hallo to you son of Chebet

Endo is a language that relies heavily on tone, length, and tongue root to bear meaning, and this means that words can share orthography but belong to different categories or have different meanings. Hence, the speaker uses supra-segmental aspects as clues to determine the category of words and consequently single out affixes that go with them. This mental experience helps to attach relevant affixes that conform to the correct aspects of grammar.



In example 260) above, though the two words have similar spelling, the native speaker, through the knowledge of tone distribution, can differentiate the two classes of nouns: count and non-count. Count nouns take the plural affix marker /-ik/ while the non-count nouns use length on the vowel in the root. This distinction helps to avoid cases where wrong affixes are used on wrong words.

Once the mind is clear on the category of word and the correct affixes to attach, post-lexical constructions can then be done successfully.

a)	b)
261) ʔe-pan ʔiʔ	pan-it ʔa aŋer
INFIN-bewitch somebody	witchcraft-DEF REL effective
to bewitch somebody	with effective witchcraft

Though these words are physically similar at the UR level, the speaker considers a) as a verb and assigns it +ATR, which gives room for attaching INFIN. In b), the speaker mentally considers it as a noun, assigning it –ATR and allowing for attachment of the DEF. Once the determination of lexical category is successful, mental grammars assign correct affixes, and syntactic constructions are successful.

The model below shows how the mind assigns these categories:

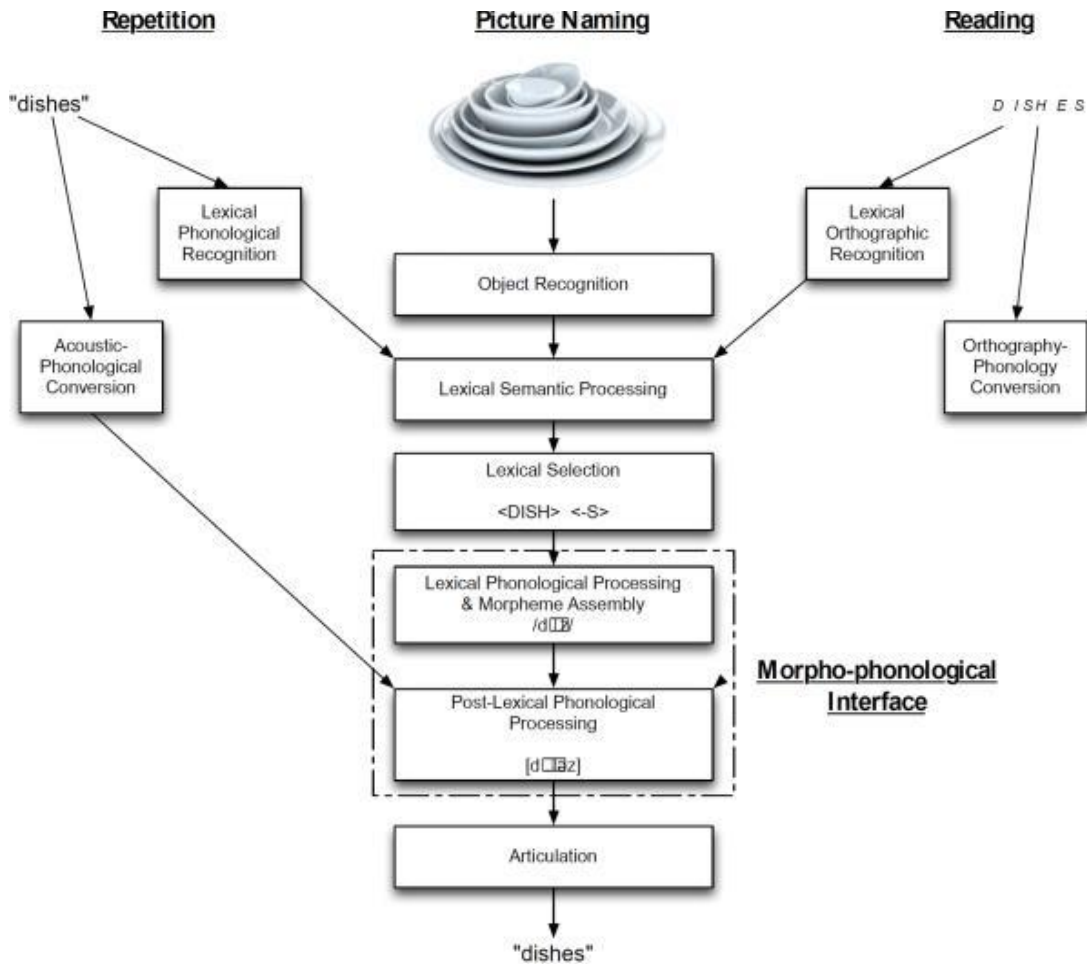


Figure 2: Spoken production cognitive architecture

Adapted from Rapp & Goldrick (2007)

It will be noticed from the above figure that the two stages lumped and labelled morpho-phonological interface are largely based on cognitive semantic processing and lexical selection that eventually determine the morphological selections and phonological processes.

5.5 Summary of the Chapter

The chapter was intended to offer a discussion on the different options available to the Endo native speakers with regard to the challenges occasioned by the interaction of morphology and phonology as affixes align. The chapter has described how predetermined phonologies in the minds of speakers act as a way of checking for the correct assignment of appropriate suprasegmental features to words and morphemes. Before affixation, the lexical categories of words are already known to the native speaker (via predetermining phonology), and subsequent affixes can then attach following appropriate lexical and semantic rules. The chapter has also shown how the speaker's underlying mental grammar is used to predict and determine the nature of words and their affixation patterns in the language. Speakers can achieve this through experiences of interaction with the words in their day-to-day lives. Finally, the chapter has considered the viability of the post-lexical level in LP Theory and has shown that in certain cases, words may be processed correctly through all the relevant levels in LP Theory but end up with interpretive complexities.

CHAPTER SIX

FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

6.1 Introduction

This study was intended to find answers to questions that relate to the interaction of morphology and phonology. These questions were:

- i) How are inflectional and derivational affixes selected and distributed across word categories in Endo?
- ii) To what extent do processes of deletion, epenthesis, reduction, and coalescence, among others, facilitate inflection and derivation in Endo?
- iii) How do the processes of deletion, epenthesis, reduction, and or coalescence, among others, affect lexical, semantic, and morphological order in Endo?
- iv) How adequate is Lexical Phonology Theory in addressing the interaction of morphology and phonology in word building in Endo?

To establish answers to the above concerns, descriptions and discussions on various affixes used in the language were discussed in Chapter 2, while selection and affixation, as well as semantic and structural effects, are discussed in Chapters 3, 4, and 5. This current chapter makes a summary of the discussions in Chapters 2 to 5. The first part of this chapter provides the findings of the study, while the second part concludes, with the last part suggests recommendations for further research.

6.2 Summary of Findings of the Study

- i) Inflection and derivation in Endo are achieved by the use of both segmental and prosodic affixes. Bases are monosyllabic and enter into affixation with precoded prosodic features, which determine the nature of secondary

morphemes to attach, and such affix selection is determined by the lexical category of the word, the phonetic features of segments at affix boundaries, and the semantic values of the roots/stems. In all circumstances, derivational segmental affixes apply first (before prodic) and closest to the roots (to determine category) before inflectional affixes that occur peripherally.

- ii) As affixes attach in Endo, phonological processes such as deletion, epenthesis, and coalescence, among others, are triggered to facilitate correct affixation as per the rules in Endo. Deletion of consonants avoids undesired consonant clusters in borrowed words and may trigger lengthening of vowels to maintain articulatory timing. Epenthesis may introduce vowels to break CC clusters, especially word-initially, and to affect the repetitiveness of an activity. Coalescence collapses vowels to a single unit to ease articulation but creates length, affecting tone and, by extension, semantic components. The first person singular in the language double occurs in a single morphological construction- prefixed **(a)** and suffixed **(-an)** - with the suffixed form acting as a reinforcement of the prefixed form. Compounding, reduplication, and metathesis as morphological processes undergo prosodic changes as they are used for both derivation and inflection. Some affixes attach like negator **/ma:-** /, INF **/ke-/**, and VEN **/-o/** are DOM opaque and do not harmonise their tongue root features to vowels in all contexts.
- iii) While phonological processes like deletion and epenthesis are responsible for proper affixation, they contribute to lexico-semantic interpretive complexities and create new morphological patterns. Changes in tonal qualities, tongue root,

and length occasioned by deletion or epenthesis technically cause re-alignment/re-ordering of morpheme patterns and consequently contribute to semantic and lexical interpretive challenges. The LOC /è:/ attaches to verbs and tone changes from L to H, leading to new morphological marking-INST and CAU. Verb order in Endo is: **Tense-Neg-Motion-Pers- ROOT- Der-Asp-Obj-Subj**, which could change to **Tense-Neg-INST/CAUS-Pers- ROOT- Der-Asp-Obj-Subj** due to morpho-phonological interaction.

The usual noun affix order is: **Loc-Nom-Gend- Root- Def-Poss-Dem -Numb-Nom**. This can also be **Loc-Nom-Gend- ROOT- Poss-Def-Dem -Numb-Nom**, depending on how phonology and morphology interact.

- iv) Roles of affixes in Endo overlap depending on the nature of tone and tongue-root on the vowels in the affix. A single affix may mark more than one aspect of grammar, like **number**, **gender**, and **tense** at the same time. Lexical Phonology theory provides a templatic process for word formation through strict cyclicity and level-based rules. Some words in Endo (generated through the template) result in complex lexico-semantic interpretive challenges. Thus, more data may need to be tested with the theory to further verify how it accounts for Endo suprasegmental factors that result in words that are interpretable in more than one lexical category and semantic state.

6.3 Contribution to Knowledge

Phonological processes in the world's languages are ideal for achieving correct affixation and word formation based on rules and patterns of a specific language. Based on this universality, the study makes the following two contributions of knowledge;

- i) That in Endo, the inter-connection of phonology and morphology in word formation triggers suprasegmental features which in turn result in some words with interpretive complexities at lexical and semantic levels.
- ii) That Lexical Phonology Theory (LP) provides three principles for checking plausibility in word formation: Strict Cyclicity, level Ordering, and Structure Preservation. With these principles, suprasegmental features in Endo word formation result in some words with interpretive complexities. The study, therefore, notes that LP theory sounds rigid to unpredictable interpretations in certain instances.

6.4 Conclusion

The above findings help to make the following general conclusions:

- a) Derivational and inflectional affixes are selected based on three factors: the lexical category of the word, the phonetic characteristics of segments at affix boundaries, and the semantic values of the words.
- b) As segmental affixes attach to roots and stems in the language, phonological processes like coalescence, deletion, or epenthesis that help regularise the attachments trigger changes in length, tongue root, and tone of the vowels in the new words, and such suprasegmental changes further generate new and unpredictable semantic values and morphological patterns.

- c) INF, NEG, and VEN in Endo are –ATR and opaque, and when they occur in a derivational or inflectional process, vowel harmony is unpredictable and unguaranteed because they do not harmonise with +ATR vowels in a string.
- d) Person and number markers like 1S, 1P, 2S, and 2S can double occur within a word, and when this happens, the prefixed form marks both person and number, while the suffixed form serves as an emphatic element.
- e) Lexical Phonology Theory largely focuses on strict cyclicity and level ordering as principles for word formation, but does not consider the effects of multiple occurring prosodic features in determining the final formedness of words in agglutinizing languages like Endo.

6.5 Recommendations

This study aimed to make an analysis of how processes of phonology, like deletion, epenthesis, coalescence, and reduction, among others, facilitate the attachment of affixes in Endo following the rules of the language. The study also analysed how Lexical Phonology Theory accounts for this morpho-phonological interaction using the principles of strict cyclicity, level order, and structure preservation. The results have shown that though the processes of phonology are useful in affixation, they trigger and affect prosodic features like length, tongue root, and tone in lexical formation, which in turn contribute to complex lexico-semantic interpretive structures and new morphological arrangements, which are aspects isolated from the arguments for the Lexical Phonology Theory.

In view of the above, this study recommends that further research/more data be collected from other Kalenjin languages on the interaction of morphology and phonology in word formation in order to help contribute to the claim I make here that triggered prosodies lead

to lexico-semantic interpretive complexities and new morphological order of the final outputs. Further, I recommend that more data on word formation through segmental and prosodic features (from Kalenjin languages) be analysed using the principles of strict cyclicity, level order, and structure preservation as stipulated in Lexical Phonology Theory, to further observe how the theory accounts for some words that are well-formed but deviate from lexico-semantic fulfillments and morphological arrangements of a language.

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