

**ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES
COLLEGE OF SOCIAL SCIENCES AND HUMANITIES
FACULTY OF HUMANITIES
DEPARTMENT OF LINGUISTICS**

**PHONOLOGICAL DESCRIPTION
OF
EASTERN TIGRINYA**

**BY
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June, 2011

Addis Ababa

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**A THESIS SUBMITTED TO THE DEPARTMENT OF LINGUISTICS OF ADDIS ABABA
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Abstract

Tigrinya is one of the modern Ethio-Semitic languages spoken in the Tigray region in Ethiopia and in the highlands of Eritrea. The language has varieties on whose divisions there is no complete consensus. This study considers Eastern Tigrinya, spoken in four woredas (districts), as a distinct variety. The study attempts to describe the phonology of the dialect and to identify its phonological distinctive features. The research also deals with phonological aspects of Tigrinya that have not been treated by previous studies. Apart from describing the phonology of Eastern Tigrinya, the following are the findings of the study.

1. Phonological features peculiar to Eastern Tigrinya
 - a) Consonant vowel metathesis
 - b) The palatal approximant /y/ replacing the high front vowel /i/ when it remains with another vowel after a consonant between them is deleted.
 - c) Approximant elision without any trace
2. Phonological features observed in Eastern Tigrinya as well as in the south eastern and southern varieties
 - a) The voiced bilabial stop /b/ intervocalically changes to the labiodental approximant [v]
 - b) The mid central vowel /ə/ following stem-initial velar stop /k/ or velar ejective stop /k'/ changes to the low vowel [a].
3. Phonological features obtained in Eastern Tigrinya and in the northern varieties
 - a) Spirantization of velar stops and velar ejective stops after a vowel
After a vowel, the voiceless velar stop /k/ and the velar ejective stop /k'/ change to the voiceless uvular fricative [χ] and the uvular ejective fricative [χ'] respectively. Similarly, the labialized voiceless velar stop /k^w/ and the labialized velar ejective stop /k'^w/ change to the labialized voiceless uvular fricative [χ^w] and the labialized uvular ejective fricative [χ'^w] respectively.
 - b) Spirantization of the velar stops and velar ejective stops after gutturals
The voiceless velar stop /k/ and the velar ejective stop /k'/ after a guttural change to the voiceless uvular fricative [χ] and the uvular ejective fricative [χ'] respectively. In the same manner, the voiceless labialized velar stop /k^w/ and the labialized ejective stop /k'^w/ change to the voiceless labialized uvular fricative [χ^w] and the labialized uvular ejective fricative [χ'^w] respectively.
4. A feature observed in Tigrinya but not treated in the previous studies
The alveolar nasal /n/ before the labialized velar stops /k^w, k'^w, g^w/ gets assimilated by the velar and the labial features [ŋ^w].

This thesis is dedicated to my beloved wife Kahsa Taddel

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List of Abbreviations

1	first person
2	second person
3	third person
ACC	accusative
adj	adjective
art	article
caus	causative
CONV	converb
dat	dative
epnt	epenthesis
E.C	Ethiopian Calendar
f	feminine
fut	future
ger	gerundive
IMPER	imperative
IMPF	imperfective
inst	instrumental
INTER	interrogative
juss	jussive
m	masculine
N	nucleus
nd	no date
neut	neuter
NOM	nominative
O	onset
Obj	object
pass	passive
PRF	perfective
pl	plural
POSS	possessive
R	rhyme
rel	relative
sg	singular
s/t	something

List of Symbols

→	becomes, rewrites as
*	unacceptable
-	morpheme category
--	deleted syllable (each hyphen represents a segment in the syllable)
()	enclose optional elements
•	syllable break
σ	syllable
//	enclose phonemes
[]	enclose phonetic segments, phonetic features
Ø	deleted segment
Ø	zero morph
:	long vowel or consonant

List of Tigrinya Phonemes

(the phonemes in parentheses are found in borrowed words)

Consonant Phonemes	Phonetic Representation
ሀ	h
ለ	l
ሐ	ħ
ም	m
ር	r
ስ	s
ሽ	š
ቅ	kʼ
ቈ	kʷ
ቐ	χʼ
ቐ	χʷ
ብ	b
(ብ)	v
ተ	t
ቸ	č
ን	n
ነ	ñ
እ	ʔ
ከ	k
ከ	kʷ
ኸ	χ
ኸ	χʷ
ወ	w
ዕ	ʕ

ʔ	z
ʃ	ž
ɸ	y
ɖ	d
ɖ̥	j
ɗ	g
ɗ̥	g ^w
ʈ	t'
ʈ̥	č'
(ʂ)	p'
θ	s'
ʈ̥	f
(ʈ)	p

Vowel Phonemes	Phonetic Representation
ɨ	ə
ɨ̥	u
ɨ̣	i
ɨ̤	a
ɨ̥̄	e
ɨ̥̄̄	ɨ̄
ɨ̥̄̄̄	o

CHAPTER ONE

Introduction

1.1 Background of the Study

Tigrinya (tigrīñña) is one of the modern Ethio-Semitic languages which is spoken by the Tigray-Tigriny people in the Tigray region of Ethiopia and in central as well as south Eritrea. In both Tigray and Eritrea, it serves as an official working language.

According to the population and housing census of the Federal Democratic Republic of Ethiopia Population Census Commission (2008), the Tigray Region has an estimated total population of 4,314,456, of which 2,124,853 (49.25%) are male and 2,189,603 (50.75%) are female (2008: 22 table 1). Urban inhabitants are 842,723 (19.5%) while rural inhabitants are 3,471,733 (80.5) (2008: 19, table 2.4). The Eastern zone is constituted from nine woredas of which the research was conducted in four of them; the woredas are: (a) Saesi Tsadamba (population = 138,043), (b) Hawzen (population = 118,648), (c) Kilde Awlalo (population = 99,688) and (d) Atsbi Wonberta (population = 112,264). The total population of the four woredas is 468,613 (2008: 58, table 3).

Tigrinya, with its large number of speakers in Tigray and Eritrea, has developed dialects. Although the term dialect is sometimes ambiguous, Fromkin et al. (2003: 445) generally define dialects as “mutually intelligible forms of a language that differ in systematic ways.” Going further, Chambers and Trudgill (2004: 5) identify the ways they differ and define them as “varieties which are grammatically ... as well as phonologically different from other varieties.”

Based on the preceding definition, dialects can be generally considered as varieties within a mutually intelligible language. But, according to Fromkin et al. (2003: 446), defining “mutual intelligibility” is not so easy. For example, Danes, Norwegians and Swedes can communicate with each other; but Danish, Norwegian and Swedish are considered three different languages. That is due to the fact that they are spoken in different countries. On the other hand, Mandarin and Cantonese, although not mutually intelligible to each other, are considered varieties of Chinese for the simple reason that they are spoken in one country and they use a single script. Hence, the distinction between dialect and language

is confusing. Nevertheless, suggested consideration is that dialects of a language are mutually intelligible varieties but manifesting systematic difference in vocabulary, pronunciation and grammar.

Regarding Tigrinya, varieties are observed in different regions where the language is spoken. Between places that are far apart distinctive varieties are encountered. The farther one goes from a point, the greater the difference would be. This is what scholars call *geographical dialect continuum*. The varied features observed between the dialects are phonological, morphological and lexical. Yikune Amlak (1999 E.C: 271) as well as Gebremedhin and Hailemichael (1991 E.C: 289) attribute dialectal variations in Tigrinya to geographical reasons. However, there is no clear-cut boundary among the varieties.

There are various works classifying the dialects of Tigrinya into different categories. Some scholars, for example, Girmay (1991) classifies the dialects of Tigrinya into Northern and Southern. He puts the Tigrinya spoken in Eritrea under the Northern category and the Tigrinya spoken in Tigray in the Southern. However, he considers the Tigrinya in Adwa, Axum and Shire as influenced by the Eritrean variety. Leslau (1939) classifies Tigrinya into Akkele Guzay, Hamasien and Adwa dialects. Leslau (1939: 66-67) points out phonological differences among Adwa, Akkele Guzay and Hamasien dialects of Tigrinya. Among the phonological differences, he claims that the voiceless palatal fricative /š/ is pronounced as [ʃ] in the Adwa dialect as in *kullušaŋ* 'all the time' while it is rare in Akkele Guzay and thus the preceding word is, for instance, pronounced as *kullusaŋ* 'all the time'. In Hamasien, the occurrence of /š/ depends on the presence of the high front vowel /i/ or the high-central vowel /ɨ/ as in [ʃ*im*] 'name' and [dək'*k'išom*] 'they slept'. The assumption is that the palatalized /š/ is derived from /s/. Similarly, the three dialects differ in the way the bilabial glide /w/ is pronounced. It is pronounced as the voiceless labiodental fricative [f] in Adwa as in *ħafti* 'sister', as the labiovelar approximant [w] in Akkele Guzay as in *ħawti* 'sister' and as the voiced bilabial stop [b] in Hamasien as in *ħabti* 'sister'.

Ghelawdewos (1991 E.C: 702–703) identifies three major dialectal divisions in Tigrinya: Tigrinya spoken around (a) Agame, Kilte Awlalo, Debre Damo, Shumezana and Tsorena; (b) Adwa, Axum, Shire and Adi Quala area of Seraye (Eritrea); and (c) Enderta with

parts of Temben. The study does not include Rayya, Hamasen, parts of Seraye and Akkele Guzay varieties.

According to Aba Ya-ekob (cited in Asmerom 1991 E.C: 726), Tigrinya may be divided into the dialect groups of: (a) Temben, Kilte Awlalo, Enderta, Agame and part of Akkele Guzay; (b) Rayya Azebo, Za'mel, Wajerat, Wegerat and Weldya; (c) Adwa, Axum, Shire, Hamasen Seraye and part of Akkele Guzay.

Different criteria have been suggested in different studies for classifying Tigrinya into dialects. However, phonological and morphological variations are considered as the major ones. According to Gebremedhn and Hailemichael (1991 E.C: 290), there are no syntactic differences among the varieties. Of the phonological and morphological differences, the former is widespread. Girmay (1991) distinguishes the Northern and the Southern dialects as /Z-/ group and /L-/ group dialects respectively. This is due to the fact that the relative clause marker (as in [1a]) and the negative marker (as in [1b]) in the Northern starts with /z-/ while in the South it starts with /l-/. Fitzgerald's study (online) on Phonological Variation in Tigrinya supports this assumption. His example below illustrates the dialectal difference (Fitzgerald p.2).

[1]

	Northern Tigrinya	Southern Tigrinya	Gloss
a)	<i>zɨ - gərəfə</i>	<i>li - gərəfə</i>	'who (msg) whipped'
b)	<i>bɨ - zəy</i>	<i>bi - ləy</i>	'without' (bold face is mine)

In the above example [1], the Z-L opposition shows the North–South dialectal variation, respectively, in Tigrinya.

Similarly, Yikune Amlak (1999 E.C) distinguishes between /D/ dialect and /Z/ dialect. According to Yikune Amlak, the Ofla dialect (Ofla and Za'mel are alternative names of a place including Korem and its surrounding) is a /D/ dialect since the relative clause marker begins with the sound /d-/ while in the other dialects the relative clause marker begins with /z-/. Yikune Amlak (1999 E.C: 273) provides the following examples.

[2]

Ofila dialect

di - s'əwəŋ - ə - ni

rel - call.PRF - 3msg - me

'who called me'

other dialects

zi - s'əwəŋ - ə - ni

rel - call.PRF - 3msg - me

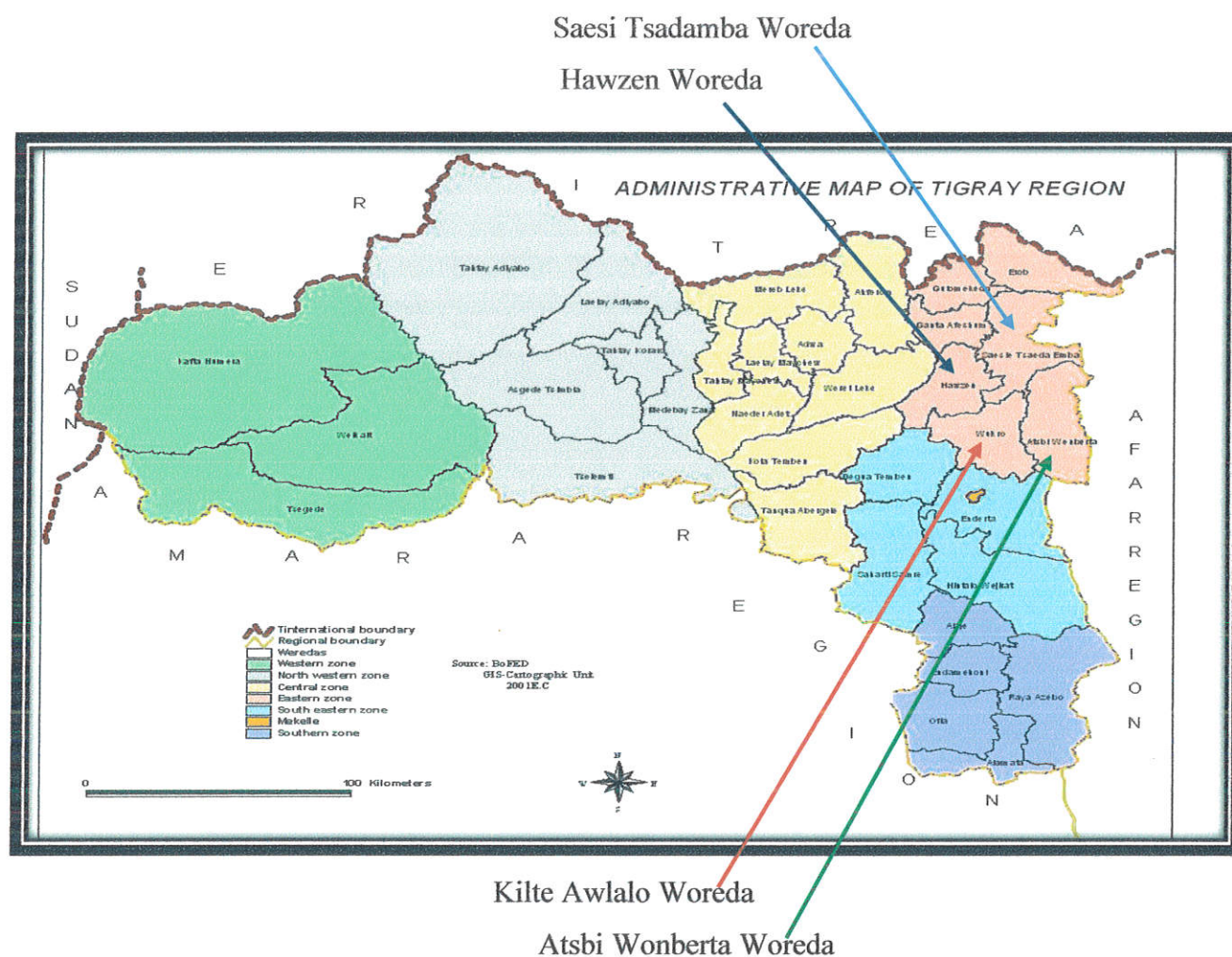
'who called me'

In view of the above disparities regarding the number of dialects and the identification of dialectal regions, Tigrinya varieties need to be studied further.

Regarding the phonology of Tigrinya, it is assumed that it began to draw attention since about a century and half ago (the information I have is back to Praetorius 1871). In the phonology part of his work on Tigrinya grammar, he describes the consonants and vowels of the language and some phonological processes.

Many studies on Tigrinya grammar, including phonology, have been conducted on different parts of Eritrea, central and southern Tigray. There is hardly any research work particularly on the phonology of Eastern Tigrinya.

Thus, for the purpose of this paper data have been collected from four eastern Tigray villages; they are: (i) Tegahne, (ii) Abraha we Atsbaha, (iii) Gormoddo and (iv) Diggum. The villages are from four woredas (districts). The woredas are respectively: (a) Atsbi Womberta, (b) Kilte Awlalo, (c) Saesi Tsadamba and (d) Hawzen. The Tigray region is currently divided into seven administrative zones: (1) Eastern zone, (2) Western zone, (3) North Western zone, (4) Southern zone, (5) South Eastern zone, (6) Central zone and (7) Mekele zone. The four Woredas identified for this study are found in the eastern zone. For the location of the Woradas, refer to the map below.



1.2 Statement of the Problem

Various studies have treated the phonology and the grammar of Tigrinya in the grammar of the language (Praetorius (1871), Leslau (1941), Tsehaye (1979), Kogan (1997), Tesfay (2002), Daniel (2000 E.C)). Some researches have also been conducted on the phonology of Tigrinya (Girmay (1983, 1991), Palmer (1957), Mohammad (1983), Fitzgerald (online)). However, researches so far conducted on Tigrinya do not reflect the particular phonological features of Eastern Tigrinya. Hence, my thesis attempts to fill this gap by way of deepening the existing knowledge about Tigrinya phonology.

1.3 Research Questions

The study seeks to answer the following basic research questions:

- What are the particular phonological features of Eastern Tigrinya?
- What specific phonological processes are observed in Eastern Tigrinya?

As yet, there is no full-fledged standard Tigrinya to compare the specific phonological features of Eastern Tigrinya with. There is, however, what is considered as 'Standard Tigrinya', that is the type of Tigrinya used for the purpose of the mass media and education. I have, therefore, used this version to compare Eastern Tigrinya with. I also make reference to the works on the non-Eastern dialects. Furthermore, I employ comparative data from the speakers of the other dialects.

1.4 Objectives

The thesis attempts to attain the following general and specific objectives.

1.4.1 General Objectives

The major objective of this study is to identify and describe the main phonological features of Eastern Tigrinya.

1.4.2 Specific Objectives

The specific objectives of the research are to identify and describe the specific features of the phonology of Eastern Tigrinya. That is, to identify and describe:

- i) Assimilation of progressive, fusional and distance types
- ii) The effects of gemination
- iii) Metathesis of vowels, consonants and vowel consonant
- iv) Vowel harmony

1.5 Significance

It is hoped that the results of this study will generally enrich the existing knowledge about Tigrinya which in turn could contribute to the study of Ethio-Semitic in general. Furthermore, the outcome of the study could serve as an input for further research in the field. In practical terms, teachers and students of Tigrinya as well those engaged in devising policy and material production related to the language may benefit from the study.

1.6 Scope

This research focuses on the phonology of Tigrinya spoken in four villages (Tegahne, Abraha we Atsbaha, Gormoddo and Duggum) which are found in four woredas of Eastern Tigray. The woredas are Atsbi Wonberta, Kilte Awlalo, Saesi Tsadamba and

Hawzen respectively. The concern of the study is to point out and describe the distinctive features of the phonology of Eastern Tigrinya, that is, its particular features related to phonological processes and syllables.

1.7 Limitation

The research is synchronic in its approach and does not deal with diachronic issues with respect to the phonology of Eastern Tigrinya. It does not also fully compare and contrast the phonology of Eastern Tigrinya with those of the other Tigrinya dialects. Comparison is made only in an attempt to identify the distinctive features of the phonology of Eastern Tigrinya. Moreover, the Tigrinya spoken around Adi Girat and Zalambesa has not been treated as that could reflect features resulting from the influence of the neighboring Eritrean variety.

1.8 Methods

Purely qualitative data were acquired from both primary and secondary sources by observation, recording and informal interviewing. Relevant information was obtained essentially from twelve native monolingual speakers of Eastern Tigrinya. I collected the data from the natural utterances of the twelve informants. The criteria for selecting the informants include that each informant should be from the respective villages in birth and domicile, should be 40-70 years old and monolingual. That was to ensure the authenticity of the data and avoid, as much as possible, influence from other dialects and languages. As mentioned in section 1.7 above, for comparison, data were also gathered from speakers of dialects other than the Eastern version.

CHAPTER TWO

Review of Related Literature

Since written documents on Tigrinya are of recent date (my information is since to Praetorius 1871), very little is known about the linguistic history of Tigrinya. Nevertheless, as indicated in section 1.2 of the preceding chapter, studies have treated the grammar and the phonology of Tigrinya and also the phonology of some dialects of the language.

Daniel (2000 E.C: 22-66), in his book, *zəbənawī səwasāw k'ank' a tigrīña* 'Modern Grammar of the Tigrinya Language', assigns a chapter to phonology and discusses, among others, sound pattern and some phonological processes. However, the researcher of the present study finds some of Daniel's descriptions questionable. According to Daniel (2000 E.C: 55-56), each letter of the four gutturals (laryngeal and pharyngeal sounds) in Tigrinya (ኀ (ʔa), ሀ (ʕa), ሐ (ha) and ሂ (ha)) influences a neighboring letter to its right and changes it to the fourth order (example, *mə ʕar* → *ma ʕar* 'honey'). It is true that a guttural sound influences the vowel of a neighboring consonant. The influence can occur on either side of the influencing sound unlike Daniel's claim that the influence takes place only in the right direction. Moreover, the influenced segment is normally the vowel of the target consonant and not a 'letter' as Daniel indicates. I have also observed that not only pharyngeals and laryngeals but also vowel sounds after them influence vowels preceding the gutturals. The influencing vowels include those which have themselves been influenced. Reference could be made to section 3.1.8.1 for a discussion on the influence of pharyngeal and laryngeal consonants.

Daniel (2000 E.C: 64-65) discusses the process of velarization where the alveolar nasal /n/ takes on a velar feature from a velar consonant /k, g, k'/ on its right (*/hankas/* → [*hankas*] 'limping'). Unfortunately, in the gloss of his book 'velarization' is taken for 'palatalization' (Daniel 2000 E.C: 333).

Girmay (1983) describes the consonants and vowels of Tigrinya including secondary articulation, gemination, syllable structure, phonological processes and suprasegmental features. He states that "geminated consonants are not simply phonetically long

consonants, geminating is phonemic in Tigrinya” (1983: 64). Accordingly, he points out that geminates in Tigrinya have two functions, lexical and grammatical as in the following example.

[1]

- | | | |
|-----|------------------|-------------------|
| i. | a) <i>habilu</i> | b) <i>habbilu</i> |
| | 'he persuaded' | 'he became blind' |
| ii. | a) <i>haba</i> | b) <i>habba</i> |
| | 'give me!' | 'give her!' |

In the above example [1 i] the voiced bilabial stop /b/ in its single form has one meaning and in its geminate form another meaning. Therefore, it manifests lexical distinction in its non-geminate and geminate forms. In [1 ii] the single and geminate forms of /b/ result in a grammatical difference. That is, the word in [1 ii (a)] has one grammatical interpretation while the word in [1 ii (b)] has another.

Girmay (1983: 3) indicates that his study was conducted on Enderta and Hulet Awlalo districts. But, Girmay does nothing regarding dialect variation in the two districts as they belong to two different dialect areas. For instance, in the Eastern dialect, the velar stop /k/ in the second person possessive marker, when preceded by consonants, except gutturals, is pronounced as [k]. In Enderta, this same morpheme in the same position is pronounced as [χ]. If the morpheme is preceded by a vowel or a guttural, it is pronounced as [χ] in both districts.

[2]

	Underlying representation	Surface representation	
		Eastern Tigrinya	Enderta
a)	<i>məs'ħaf - ka</i> book - 2msg.POSS 'your book'	[məs'ħafka]	[məs'ħafχa]
b)	<i>gəza - kum</i> house - 2mpl.POSS 'your house'	[gəzaχum]	[gəzaχum]

Girmay (1983: 67-76) in his discussion of paradigms of the possessive markers, does not show how the allophones [k] and [χ] of the initial consonant /k/ of the second person morpheme surface in Hulet Awlalo which is in the present day Eastern Tigrinya.

Girmay (1983: 64) also deals with the assimilation processes in Tigrinya. He discusses the complete and partial assimilations of consonants in Tigrinya. However, his assumption that the assimilation of homorganic consonants in Tigrinya is of the regressive type is open to question. As there are indications that progressive changes are also possible in Eastern Tigrinya including the variety of the Hulet Awlalo district. For example, in /mākaykɪtɪ/ ‘companion’ changing to [məχaykɪddi] the /-d-/ assimilates the /-t-/ which follows it. This is a progressive assimilation.

There is also a problem in the treatment of the voiced bilabial stop /b/. In the Eastern Tigrinya dialect (Hulet Awlalo is part of Eastern Tigrinya) /b/ is pronounced as labiodental approximant [v] in the environment adjacent to a vowel. Compare Girmay’s (1983: 18-19) observation and what the researcher of the present study considers for Eastern Tigrinya regarding the pronunciation of /b/ in the position adjacent to a vowel.

[3]

	Underlying	Girmay’s observation	Eastern Tigrinya
a)	/nəbri/ ‘tiger’	[nəbri]	[nəvri]
b)	/minbah/ ‘barking’	[minbah]	[minvah]

Similarly, Girmay (1983: 19) seems to overlook the fact that the voiceless velar stop [k] and what he considers its counterpart, the voiceless velar fricative [x] are in complementary distribution. The same problem holds true for the voiceless velar ejective [kʰ] and its counterpart, the ejective fricative [xʰ] with respect to their distribution. The following are among the examples he provided.

[4]

	Underlying	Girmay’s observation	Eastern Tigrinya	Enderta
a)	/mɪkbar/ ‘to respect’	[mɪkbar]	[mɪχvar]	[mɪχvar]
b)	/mɪkʰbar/ ‘to bury’	[mɪkʰbar]	[mɪχʰvar]	[mɪχʰvar]

Another problem with Girmay’s analysis is that the description about one vowel influencing another does not match with the data given. He states that “in Tigrinya, the front vowels are, generally, influenced by the back vowels /u/ and /o/.” But the influenced vowels given in the data are central. The following are examples taken from Girmay (1983: 66).

[5]

a)	/kəlbikum/	→	[kalbukum]	‘your dog’ [2mpl]
b)	/birilləʔu/	→	[birilluʕu]	‘flask’
c)	/karraʔu/	→	[karruʔu]	‘his knife’
d)	/birilləʔom/	→	[birilloʔom]	‘their flask’
e)	/karraʔom/	→	[karroʔom]	‘their knife’

As can be seen in [5 a-b] above, the influenced vowels are the central vowels and not front vowels. It is the central vowels (/i/, /ə/, and /a/) which turned into back vowels (/o/ and /u/).

Mohammed (1983) in his senior paper describes the phonology of Rayya Tigrinya. He shows the phonemic representation and phonetic realization of consonants and vowels. He also attempts to treat the syllable structure.

Palmer (1957) studies geminates in Tigrinya. He investigates the exponents of gemination. Palmer (1957: 141) describes the exponent of gemination in terms of duration, tenseness of articulation and position of articulation. Plural forms are employed for the purpose. But some of the geminates he presents are not acceptable to native Tigrinya speakers (Eastern Tigrinya speakers for example). Thus the geminates under Plural-2 in example [6] below from Palmer (1957: 142-144) are not permissible.

[6]

	Singular	Gloss	Plural-1	Plural-2
a)	<i>mənbər</i>	‘seat’	mənabir	mənabbir
b)	<i>mənkəs</i>	‘chin’	mənakis	mənakkis
c)	<i>məsk’əl</i>	‘cross’	məsak’il	məsak’k’il
d)	<i>ħarmaz</i>	‘elephant’	ħaramiz	ħarammiz
e)	<i>manka</i>	‘spoon’	manaku	manakku

In addition to the gemination problem in the last column of the above example, Palmer (1957) employs the velar stops [k, k'], where the uvular fricatives, [χ, χ'], should appear. Following a vowel, the voiceless velar stop /k/ and the voiceless velar ejective stop /k'/ are realized as voiceless uvular fricative [χ] and the uvular ejective fricative [χ'] respectively.

Tesfay (2002), in the phonetics and phonology chapter of his grammar of Tigrinya, deals with consonants and vowels, phonemes and allophones, phonotactics, syllable structure, phonological processes and the behavior of laryngeals, pharyngeals as well as the glides. For Tesfay (2002: 34), the realization of the voiceless velar stop /k/ as a voiceless velar fricative [x] (I consider it voiceless uvular fricative [χ]) and the velar ejective /k'/ as a velar ejective (fricative) [x'] (I consider it uvular ejective fricative [χ']) is a matter of being preceded by a vowel. But, in Eastern Tigrinya, the changes from /k/ to [χ] and /k'/ to [χ'] are possible also after pharyngeal and laryngeal consonants. Here are some examples.

[7]

a) *ʔa - ħk'ik' - u* → [ʔahχ'iχ'u]

caus - dissolve.CONV - 3msg
'he having caused to dissolve'

b) *mɨ - ʕk'al* → [mɨʕχ'al]

ger - shade.IMPF
'shading'

c) *mɨ - ms'aʔ - ki* → [mɨms'aʔχi]

ger - come.IMPF - 2fsg
'your coming'

In [7 c] above, we observe that the voiceless velar stop /k/ becomes the voiceless uvular fricative [χ] after a guttural consonant. In [7 a], the velar ejective /k'/ after the voiceless pharyngeal /ħ/ becomes the uvular ejective fricative [χ'] and also the velar ejective stop preceded by the vowel /i/ becomes the uvular ejective fricative [χ']. Similarly, in [7 b] the voiceless velar ejective stop /k'/ preceded by the voiced pharyngeal fricative /ʕ/ turns into the uvular ejective fricative [χ'].

Teweldebirhan (1991 E.C), in his treatment of the phonotactics of Tigrinya consonants, attempts to show the permissible patterns. He also gives data on the number of words which start with each consonant of the Tigrinya syllabary. Another attempt to describe the phonology of Tigrinya is included in the Tigrinya grammar of Tsehay (1979). Tsehay deals with such phonological items as syllable structure, stress and sound change among others. Tsehay (1979: 1) claims that the Asmara dialect “which is similar to the one spoken around the Axum-Adwa area, can be considered the standard variety.”

Tsehay (1979) and Girmay (1983) include stress in their studies. They point out that stress doesn't have any phonemic value in Tigrinya Tsehay (1979: 40) and Girmay (1983: 47). According to Tsehay (1979: 40), “primary stress in multisyllable words falls ... on the penultimate syllable ... whereas in two syllable words it falls on the last syllable.” The following are examples taken from Tsehay (1979: 40-41).

[8]

- a) *səlús* ‘Tuesday’
- b) *səlám* ‘peace’
- c) *nəgərúna* ‘they told us’
- d) *tʃʃgʃsti* ‘petience’

In Leslau (1941: 3) /h/ and /ʕ/ are treated as laryngeal and /t/, /tʰ/, /d/, /s/, /z/ and /sʰ/ as dental consonants. The former, /h/ and /ʕ/, are today distinguished as pharyngeals and the latter ones, /t/, /tʰ/, /d/, /s/, /z/ and /sʰ/, as alveolars. Regarding the palatal consonants, /š, ɲ, j, č, čʰ, and ž/, Leslau (1941: 4) considers them as being used for loan words mostly from Amharic. But according to Kogan (1997: 246-247) there are a lot of Tigrinya words with palatal sounds which do not have cognates in Amharic. The following are examples from Kogan.

[9]

	Tigrinya	Amharic	Gloss
a)	/čɨɨmi/	/ɨim/ [sʰim]	‘beard on the chin and around the lips’
b)	/ɨammuštə/	/ʔammist/	‘five’

(In this study, I use the symbols čʰ, h and tʰ for č, h and t respectively)

Studies on the phonology of Tigrinya, and in some cases on that of its dialects, have been surveyed in chapter two. In chapter three, I shall discuss the features of phonological processes in Eastern Tigrinya.

CHAPTER THREE

Phonological Processes

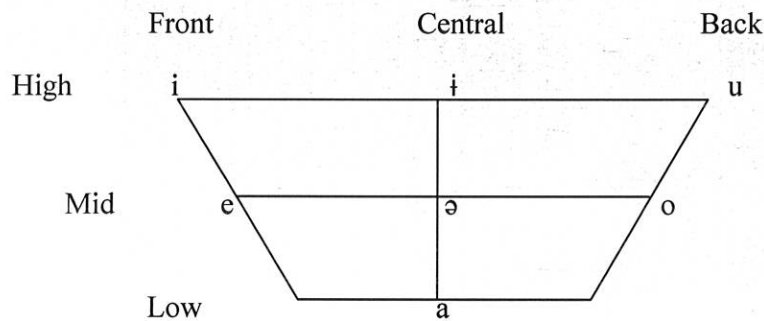
This chapter focuses on the main concerns of the research, that is, description of the phonological processes in Eastern Tigrinya. Phonological features discussed here in relation to Eastern Tigrinya may, in some cases, be found in the other dialects. However, I will attempt to show those peculiar to Eastern Tigrinya. Moreover, features appearing in the various dialects but which have not been treated in any of the previous studies on Tigrinya phonology will be revealed; for instance, the realization of the alveolar nasal /n/ before the labialized velar /g^w/ as in /hang^wəl/ → [h^wan^wg^wəl] 'brain'. Note that the alveolar /n/ takes on the velar, /ŋ/, as well as the secondary labial, /ŋ^w/, features from the adjacent labialized velar consonant /g^w/. This is a case of regressive or anticipatory assimilation.

Tigrinya consonants and vowels are important for the discussions that follow. Hence, the following two tables present symbols for Tigrinya consonants and vowels. They are based on Tesfay (2002: 25-31).

Tigrinya Consonants

Manner of articulation		Places of articulation									
		Bi-labial	Labio-dental	Alveolar	Palatal	Velar	Labio-velar	Uvular	Labio-uvular	Pharyngeal	Laryngeal
Stop	Voiceless	p		t		k	k ^w				ʔ
	Voiced	b		d		g	g ^w				
	Ejective	p'		t'		k'	k' ^w				
Nasal	Voiced	m	m̥	n	ɲ	ŋ	ŋ ^w				
Fricative	Voiceless		f	s	ʃ			χ	χ ^w	ħ	h
	Voiced		v	z	ʒ					ʕ	
	Ejective			s'				χ'	χ' ^w		
Affricate	Voiceless				č						
	Voiced				j						
	Ejective				č'						
Approximant	Voiced		ʋ		y		w				
Trill	Voiced			r							
Lateral	Voiced			l							

Tigrinya Vowels



In the table for consonants, I included the labio-dental nasal /m/, the labio-velar nasal /ŋ^w/ and the labio-dental approximant /v/. I changed the place of articulation of the velar fricatives /x, x[']/ to uvular fricatives /χ, χ[']/ and the labio-velar fricatives /x^w, x^{'w}/ to labio-uvular fricatives /χ^w, χ^{'w}/. I also altered 'glide' for 'approximant' and 'liquid' for 'trill' and 'lateral'.

3.1 Phonological Processes in Eastern Tigrinya

For different reasons, a sound in a word may change its features or add new features as a result of the influence from other neighboring sounds. It may be reduced or even deleted. It is natural that sounds of a language undergo changes. Among the alternations resulting from these processes are assimilation, dissimilation, elision, metathesis, gemination and reduplication. Among others, metathesis and elision are very common phonological processes in Eastern Tigrinya. Before going into the discussion of the preceding phonological processes, I shall first present the various phonetic shapes of sounds, that is, allophones which commonly occur in Tigrinya. The allophonic variations are generally encountered in Tigrinya but in some aspects are peculiar to the eastern version of the language.

3.1.1 Allophones

Allophones are different physical realizations of individual phonemes. In other words, allophones are variant realizations of individual phonemic segments without bearing meaning change to the morphological element. A phoneme shares some phonetic features with a neighboring phoneme and thus appears in a certain form. The same phoneme may assume another form in another environment. These variant forms are allophones. They

are mutually exclusive in their distribution. That is, allophones of the same phoneme do not appear in the same phonological environment. They are thus complementary in their distribution. Where one appears, the other does not. In the sections that follow, I examine the characteristics of various types of allophones in Eastern Tigrinya.

3.1.1.1 Allophones of the Velar Stops

The velar sounds: /k/, /k'/, /k^w/ and /k'^w/ have different realizations in different environments. For instance, depending on the environment, the velar stop /k/ changes its place and manner of articulation to the uvular fricative [χ]. On the other hand, the velar ejective stop /k'/ changes its place and manner features and becomes the uvular ejective fricative [χ'].

Before proceeding to see the allophones of the velar sounds in detail, let us look one important point regarding the velar sounds. Tesfay (2002: 26) considers [x, x', x^w, x'^w] as allophones of /k, k', k^w, k'^w/. But, in the present study, [x, x', x^w, x'^w], which are velar fricative, velar ejective fricative, labiovelar fricative and labiovelar ejective fricative are substituted by the voiceless uvular fricative [χ], the voiceless uvular ejective fricative [χ'], the voiceless labiouvular fricative [χ^w] and the voiceless labiouvular ejective fricative [χ'^w] respectively. The velar consonants /k, k', k^w, k'^w/ are four different phonemes. In the following set of examples, all the four words are similar except for one segment. It is that segment which distinguishes each word in meaning.

[1]

- a) *kaħ* 'dry'
- b) *k'aħ* 'attract'
- c) *k''aħ* 'knock'
- d) *k''^waħ* 'open eye'

In [1 a-d] above, each word is distinct in meaning as the result of difference in the initial consonant. Hence, each of the initial sounds is a phoneme in Eastern Tigrinya. The discussions below treat the allophones of each of the preceding phonemes.

i) Allophones of the voiceless velar stop /k/

The voiceless velar stop /k/ is realized as either [k] or [χ] in different environments as in the following example.

[2]

- a) *təkəl - ə* → [təχələ]
 plant.PRF - 3msg
 'he planted'
- b) *dəkim - u* → [dəχimu]
 tired.CONV - 3msg
 'he being tired'
- c) *ʔa - tkil - u* → [ʔatkilu]
 caus - plant.CONV - 3msg
 'he having caused to plant'
- d) *mɨ - dkam* → [mɨdkam]
 ger - tired.IMPF
 'becoming tired'

In [2 a and b] above, the voiceless velar stop /k/ is realized as the voiceless uvular fricative [χ]. Tesfay (2002: 34) indicates that, in Tigrinya, the voiceless velar stop /k/ is realized as the voiceless velar fricative [x] when preceded by a vowel. The assumption is due to the fact that the open approximation feature of the preceding vowel spreads to the following consonant, that is, to /k/ and the latter becomes a continuant, [x]. Elsewhere the /k/ appears as [k]. In Eastern Tigrinya, however, the voiceless velar stop /k/ is realized as either the voiceless velar stop [k] or as the voiceless uvular fricative [χ] of course, depending on position.

Word initially, /k/ is realized as [k] or [χ] in Eastern Tigrinya, as [k] in Adwa, Hamasen, Akkele Guzay and Seraye, as [χ] in Enderta while in Rayya as the voiceless laryngeal fricative [h]. In Enderta and Rayya, /k/ is realized as the voiceless uvular fricative [χ] word medially. In Eastern Tigrinya, Rayya and Enderta, word initially, the mid central vowel /ə/ is realized as the low vowel [a] after the voiceless velar stop /k/. The following example illustrates the realization of the velar stop /k/ in the different localities.

[3]

	Underlying Representation	Adwa	Eastern Tigrinya	Enderta	Rayya
a)	<i>mi - bkay</i> ger - cry.IMPF 'crying'	[miɸkay]	[miɸkay]	[miɸχay]	[miɸχay]
b)	<i>kəməy</i> how 'how'	[kəməy]	[kaməy] ([χaməy])	[χaməy]	[haməy]

In [3 a] above, the voiceless velar stop /k/ is realized as the voiceless velar stop [k] in Adwa and Eastern Tigrinya. The sound is preceded by the devoiced bilabial stop [ɸ] and the labiodental approximant [v] respectively. However, the sound surfaces as the voiceless uvular fricative [χ] in Enderta and Rayya. In [3 b], the word-initial voiceless velar stop /k/ is pronounced as [k] in Adwa. The sound surfaces optionally as either the voiceless velar stop [k] or the voiceless uvular fricative [χ] in Eastern Tigrinya. In Enderta and Rayya, it occurs as the voiceless uvular fricative [χ] and the voiceless glottal fricative [h] respectively. In [3 b], the mid-central vowel /ə/ after the word initial consonant segment is pronounced as the mid-central vowel [ə] in Adwa but as the low vowel [a] in Eastern Tigrinya, Enderta and Rayya.

In the above example [3], the weakening of the voiceless velar stop /k/ to the voiceless uvular fricative [χ] in Eastern Tigrinya, Enderta and Rayya (in Rayya, also to the voiceless glottal fricative [h]) is probably due to the influence of the vowel [a] that follows. Furthermore, the weakened form [χ] gets lowered to [h] in Rayya as the result of the influence of the low vowel [a].

As illustrated in the following example [4], in Eastern Tigrinya, the voiceless velar stop /k/ is realized as the voiceless uvular fricative [χ] after any one of the guttural consonants /h, ɸ, ʔ/ or a vowel.

[4]

- a) *mi - ħkak* → [miħχax]
ger - scratch.IMPF
'scratching'

- b) *maʔkəl* → [maʔχəl]
 center
 'center'
- c) *maʕkən* → [maʕχən]
 attic
 'attic'

In [4 a] above, /k/ is realized as [χ] in the position after a guttural and after a vowel. In [4 b-c], [χ] is the result of the presence of a guttural. We may thus conclude that the voiceless velar stop /k/ is realized as the voiceless uvular fricative [χ] when preceded either by a vowel or a guttural.

ii) Allophones of the velar ejective stop /k'/

The phonological environments which cause the voiceless velar stop /k/ to change to the voiceless uvular fricative [χ] also cause the velar ejective stop /k'/ to change to the uvular ejective fricative [χ']. Although these changes are concerning Eastern Tigrinya, they occur in the other dialects, too.

[5]

- a) *sək'al - ə* → [səχ'ələ]
 hang.PRF - 3msg
 'he hanged (s/t)'
- b) *mək'al - ə* → [məχ'ələ]
 divide.PRF - 3msg
 'he divided'
- c) *mɨ - sk'al* → [misk'al]
 ger - hang.IMPF
 'hanging'
- d) *mɨ - mk'al* → [mɨmk'al]
 ger - divide.IMPF
 'dividing'

The velar ejective stop /k'/ in [5 a-b] above is preceded by a vowel and realized as the uvular ejective fricative [χ'], whereas in [5 c-d] it is preceded by a consonant and is realized as [k']. As in example [5] above in relation to the weakening of (spirantization or

fricativization) /k/ to [χ] after a guttural, the velar ejective stop /k'/ also weakens to [χ'] after a guttural. Let us look at the following set of examples.

[6]

a) *ʔa - ħk'ik' - u* → [ʔaħχ'iχ'u]

caus - dissolve.CONV - 3msg

'he having caused to dissolve'

b) *mi - ŋk'al* → [miŋχ'al]

ger - be in a shed.IMPF

'being in a shed'

There are two /k'/ consonants in [6 a] above both realized as the uvular ejective fricative [χ']. The weakening of the first is caused by the influence of the guttural /ħ/ that precedes it while the weakening of the second is caused by the preceding vowel /i/. In [6 b], the change from /k'/ to [χ'] is the result of the influence of the preceding guttural /ŋ/.

iii) Allophones of the voiceless labiovelar stop /k^w/

In Eastern Tigrinya, the voiceless labiovelar stop /k^w/ is realized as the voiceless labiouvular fricative [χ^w] after a vowel or a guttural but as the voiceless labiovelar stop [k^w] elsewhere. This is, in fact, observed in the other dialects, too.

[7]

a) *tənk^wəl* → [təŋ^wk^wəl]

mischief

'mischief'

b) *ŋak^wət - ə* → [ŋaχ^wətə]

take a handful.PRF - 3msg

'he took a handful'

c) *mi - ŋk^wat* → [miŋχ^wat]

ger - take handful.IMPF

'taking a handful'

In [7 b-c] the voiceless labiovelar stop /kʷ/ is realized as the voiceless labiouvular fricative [χʷ] because in [7 b] it is preceded by vowel and in [7 c] by a pharyngeal consonant. In [7 a] /kʷ/ is pronounced as [kʷ] because it is preceded by consonant. What is interesting in [7 a] is that the alveolar nasal /n/ undergo two changes. On the one hand, it changes to the velar nasal as the result of the influence from the following velar stop /k/. On the other hand, it takes the feature of the secondary labial articulation /ʷ/ again from the following /kʷ/.

iv) Allophones of the labiovelar ejective stop /kʷ/

In Eastern Tigrinya as well as in the other dialects, the labiovelar ejective stop [kʷ] and the labiouvular ejective fricative [χʷ] are allophones of the labiovelar ejective stop /kʷ/. /kʷ/ is pronounced as the labiouvular ejective fricative [χʷ] after a vowel or a guttural consonant.

[8]

- a) *ħakʷən - ə* → [ħaxʷənə]
shake.PRF - 3msg
'he shook'
- b) *ʔa - ħkʷən - ə* → [ʔaħχʷənə]
caus - shake.PRF - 3msg
'he caused to shake'
- c) *təy - kʷərəs' - ə* → [təykʷərəs'ə]
neg - cut.IMPF - 3msg
'before he cuts'

In [8 a] above, the labiovelar ejective stop /kʷ/ is preceded by the low vowel /a/ and is pronounced as the labiouvular ejective fricative [χʷ]. Similarly, in [8 b], it is preceded by the pharyngeal /ħ/ and is pronounced as the labiouvular ejective fricative [χʷ]. In [8 c], however, it is realized as the labiovelar ejective stop [kʷ] since it is preceded neither by a vowel nor by a guttural. It is rather preceded by a consonant other than a guttural.

The next section, 3.1.1.2, discusses the various allophonic representations of the voiced bilabial stop /b/. In this category, I will identify an allophone relatively peculiar to the Eastern Tigrinya, that is, /b/ surfacing as the voiced labiodental approximant [ʋ].

3.1.1.2 Allophones of the Voiced Bilabial Stop /b/

In Eastern Tigrinya the voiced bilabial stop /b/ is realized as the voiced bilabial stop [b], the voiced labiodental approximant [v], the voiceless labiodental fricative [f] or as the labiovelar glide [w] in different environments. In the words /*bahli*/ ‘culture’, /*k’əlləb*/ ‘provisions’, /*ħəf bəl*/ ‘stand up!’ and /*ħasibu*/ ‘he thought’, the voiced bilabial stop /b/ is realized in different ways. We have four different pronunciations of the phoneme /b/ in the preceding four different words.

The voiced bilabial stop /b/ realized as the voiced bilabial stop [b]

[9]

- a) *bətr - i* → [bətri]
stick - epnt
‘stick’
- b) *bahl - i* → [bahli]
culture - epnt
‘culture’
- c) *ħəmbərt - i* → [ħimbirti]
navel - epnt
‘navel, center’

As seen in the preceding examples [9 a-c], the voiced bilabial stop /b/ appears as [b]. The final high front vowel [i] in all three cases is an epenthetic vowel inserted to break the word final clusters as the language does not permit more than one consonant at the end of a word. In addition, assimilation is observed in [9 c] when the underlying alveolar nasal /n/ has turned into the bilabial nasal [m] as the result of the regressive assimilation from the voiced bilabial stop /b/.

What is observed in the set of examples below is that the voiced bilabial stop changes to the voiced labiodental approximant [v].

The voiced bilabial stop /b/ realized as the voiced labiodental approximant [v]

[10]

- a) *k'alləb* → [k'alləv]
provisions
'provisions'
- b) *s'əbbib* → [s'əbbiv]
narrow
'narrow'
- c) *kəlb - i* → [kalvi]
dog - epnt
'dog'
- d) *ʔatban* → [ʔatvan]
snake.pl
'snakes'

In [10 a-b] above, /b/ is preceded by a vowel whereas in [10 c-d] a vowel follows it. We observe that the preceding or the following vowel causes the voiced bilabial stop /b/ to be weakened. Accordingly, the bilabial stop /b/ becomes the labiodental approximant [v] with place and manner changes.

In the environment where the bilabial stop /b/ is adjacent to the vowel /u / or the glides /w, y/, the resulting sound is labiovelar approximant [w].

The voiced bilabial stop /b/ realized as the labiovelar approximant [w]

[11]

- a) *ħasib - u* → [ħasiwu]
think.CONV - 3msg
'he having thought'
- b) *ruḃa* → [ruwa]
river
'river'
- c) *hib - u* → [hiwu]
give.CONV - 3msg
'he having given'

d) *ʕabʔyy - i* → [ʕawʔyyi]

large - epnt

‘large’

e) *ʔab - wišt' - i* → [ʔawwišt'i]

at - inside - epnt

‘in side’

In the above examples, we observe the voiced bilabial stop /b/ changing to the labiovelar approximant [w]. The change occurs in the intervocalic position, that is, as the result of the influence from vowels on either sides and which are approximant in their manner of articulation and likely to encourage approximation in an adjacent obstruent. If the weakened segment, the voiced bilabial stop /b/, is exposed in the environment to either of the glides /w, y/ or the high back vowel /u/, the resulting sound is the labiovelar approximant [w]. In other words, the bilabial stop /b/ is weakened by flanking vowels, partially assimilated by a following or preceding glide or a high back round vowel /u/. Whereas in [11 e], the bilabial stop /b/ is completely assimilated by the following labiovelar approximant /w/.

The voiced bilabial stop /b/ realized as the voiceless labiodental fricative [f]
[12]

a) *ħaf - bəl* → [ħaffəl]

rise - say(2msg).IMPER

‘rise!/ stand up!’

b) *kab - fətəna* → [kaffətəna]

from - exam

‘from exam’

In the preceding examples [12 a-b], the voiced bilabial stop /b/ is preceded or followed by the voiceless labiodental fricative /f/. Due to the influence from the voiceless labiodental fricative /f/, /b/ is totally assimilated and becomes the voiceless labiodental fricative [f]. The change is from [+ voice] to [– voice], from bilabial to labiodental and from [+ stop] to [+ sibilant].

In [12 a], the voiced bilabial stop /b/ is totally assimilated by a preceding voiceless labiodental fricative /f/ in which case the assimilation is progressive; in [12 b], the voiced bilabial stop /b/ is assimilated by the following voiceless labiodental fricative /f/ in which case the assimilation is regressive or anticipatory.

3.1.1.3 Allophones of the alveolar nasal /n/

Depending on environment, the alveolar nasal /n/ may be realized as the velar nasal [ŋ], as the labiodental nasal [ɱ], as the bilabial nasal [m] or as the alveolar nasal [n] (Tsfay 2002: 29). In addition to what Tsfay has said about the Tigrinya allophones of the alveolar nasal /n/, the labiovelar nasal [ɲ^w] and the palatal nasal [ɲ] are other realizations of the alveolar nasal /n/ in Eastern Tigrinya. The following examples illustrate the allophonic occurrences of the phoneme /n/.

The alveolar nasal /n/ realized as the labiodental nasal [ɱ]

[13]

a) *mənfəs* → [məɱfəs]

sprit

‘sprit’

The alveolar nasal /n/ partially assimilates with the voiceless labiodental fricative /f/ and becomes the labiodental nasal [ɱ]. The alveolar /n/ has lost its place feature and has become labiodental; but in its manner of articulation, it is still nasal and voiced.

The alveolar nasal /n/ realized as the velar nasal [ŋ]

[14]

a) *məngədd - i* → [məŋgəddi]

way - epnt

‘way’

b) *ħankas* → [ħaŋkas]

lame

‘lame’

- c) *ʃank'ər* → [ʃaŋk'ər]
 uvula
 'uvula'

The alveolar nasal /n/, in [14 a-c] above, appears before velar sounds and becomes a velar nasal [ŋ]. In the process, place assimilation has taken place on the alveolar nasal /n/ resulting in a change from alveolar to velar. That is velar feature of the velar consonant has spread back to the alveolar nasal /n/ and the process being regressive place assimilation.

The alveolar nasal /n/ realized as the bilabial nasal [m]
 [15]

- ʃɪnbabo* → [ʃɪmbawo]
 flower
 'flower'

The example in [15] above shows that the bilabial stop /b/ has influenced the preceding alveolar nasal /n/ thus causing /n/ to change to [m]. What has taken place is regressive partial (place feature) assimilation. That is /b/ has influenced /n/ with its labial feature changing it to [m]: but the latter retaining its voice and nasal manner features.

The alveolar nasal /n/ realized as the palatal nasal [ɲ]
 [16]

- a) *fɪɲjal* → [fɪɲjal]
 cup
 'cup (of coffee)
- b) *ʔaɲč'ɪwa* → [ʔaɲč'ɪwa]
 rat
 'rat'

In [16 a-c] above, the alveolar nasal /n/ comes before palatal sounds. In both cases the palatal sounds assimilate /n/ which precedes them. Consequently, the alveolar /n/ becomes palatal [ɲ] like its palatal neighbors /j and c'/.

The alveolar nasal /n/ realized as the labialized velar nasal [ŋ^w]

[17]

- a) *t'ənk^wali* → [t'əŋ^wk^wali]
wizard
'wizard'
- b) *həŋg^wəl* → [həŋ^wg^wəl]
brain
'brain'
- c) *tənk^wəl* → [təŋ^wk^wəl]
conspiracy
'conspiracy'

The alveolar nasal /n/ in [17 a-c] above becomes labiovelar nasal [ŋ^w] due to the influence from the adjacent labialized velar consonant that follows it. That is /n/ takes the velar and labial features from the complex articulations /k^w, g^w, and k^w/ and becomes the complex labialized velar nasal sound [ŋ^w].

The alveolar nasal /n/ realized as the alveolar nasal [n]

[18]

- a) *məndək'* → [məndəq']
wall
'wall'
- b) *nəbr - i* → [nəvri]
tiger - epnt
'tiger'

The alveolar nasal /n/ is realized as the alveolar nasal [n] elsewhere other than in the environments in examples [13-17] above. Here, the above [18 a-b] are only two of the "elsewhere" environments where /n/ is realized as [n].

3.1.2 Assimilation

Crystal defines assimilation as "a ... term ... which refers to the influence exercised by one sound segment upon the articulation of another, so that the sounds become more alike, or identical" (2003: 38). Similarly, Fromkin et al. (2003: 575) state that

assimilation is “a phonological process which changes feature values of segments to make them similar”. Also Fromkin et al. (2003: 301) indicate that assimilation increases the efficiency and ease of articulation.

There are three important points regarding assimilation. They are (a) phonemes affected (sounds which are affected by the rule), (b) phonetic change (phonetic feature changing according to the rule) and (c) phonological environment (the context or the phonological environment in which assimilation occurs) (Fromkin et al. 2003: 302).

Birjandi and Salmani-Nodoushan (2005: 132) identify three types of assimilation: (a) assimilation of place—when the place of articulation of one segment is changed as a result of the influence from the place feature of a neighboring segment, (b) assimilation of manner—when the manner feature of a segment is changed by the manner feature of the adjacent segment and (c) assimilation of voice—when a segment changes its voice feature due to the influence of the voice feature of the influencing segment. Assimilation could occur between adjacent or distant segments in a progressive or regressive direction. The influence of one segment over another may be partial or total.

Various studies have treated assimilation in Tigrinya. Tesfay (2002: 38-40) and Daniel (2000 E.C: 57-60) deal with assimilation in Tigrinya from the following perspectives: (1) regressive versus progressive assimilation, (2) distance versus contact assimilation, (3) partial versus complete assimilation and (4) fusional assimilation. They give less emphasis to progressive and fusional assimilation. From the viewpoint of Eastern Tigrinya, I will deal with progressive assimilation, distance assimilation and fusional assimilation. As far the rest of assimilation types are concerned, I consider that they have been given more attention.

3.1.2.1 Progressive assimilation

Progressive (perseverative) assimilation occurs when a feature of a segment spreads from left to right. Progressive assimilation is commonly observed in Eastern Tigrinya. The examples below show that a segment in the right is influenced by the features of a preceding segment.

[19]

- a) *mə - kayid - ti* → [məɣayiddi]
 inst - go - pl
 ‘companion’
- b) *mə - ħəmbəsi* → [məħəmməsi]
 inst - swim
 ‘swimming pole’
- c) *k’ətil - om - wo* → [k’ətilommo]
 kill.CONV - they.m - him
 ‘they having killed him’
- d) *dəw - bəl* → [dəwwəl]
 stand - say.IMPER
 ‘stand up!’

In example [19 a] the voiceless alveolar stop /t/ is completely assimilated by the features of the preceding voiced alveolar stop /d/ (*d, t* → *dd*). In [19 b] the bilabial nasal /m/ completely assimilates the voiced bilabial stop /b/ (*m, b* → *mm*). Similarly, in [19 c], the bilabial nasal /m/ totally assimilates the labiovelar approximant /w/ (*m, w* → *mm*). The case in [19 d] is not different where the labiovelar approximant /w/ assimilates /b/ (*w, b* → *ww*).

3.1.2.2 Fusional assimilation

In his discussion about fusional assimilation, Tesfay (2002: 39 - 40) shows how and why the mid central vowel /ə/ and the labiovelar approximant consonant /w/ yield the mid-back vowel [o]. Additionally, I will describe that the palatal glide /y/ and the alveolar nasal /n/ coalesce and result in the palatal nasal [ɲ]. Tesfay (2002: 26) indicates that /ɲ/ is rare and unpronounceable for many native speakers of Tigrinya. However, it is not rare in Eastern Tigrinya. It appears and is well-pronounced in such words as *ħak’əñña* ‘truthful’, *fīħñña* ‘bladder’ and *tarəñña* ‘on duty, in turn’. When the palatal glide /y/ and the alveolar nasal /n/ meet in an adjacent environment, they fuse and form the palatal nasal /ɲ/ as in the following example.

[20]

- a) *dayna* → [dañña]
 judge
 ‘judge’
- b) *wərə - yna* → [wərəñña]
 talk - adj
 ‘talkative’
- c) *məngo - yna* → [məŋgoñña]
 middle - adj
 ‘middleman, neutral’
- d) *ʔafə - yna* → [ʔafəñña]
 mouth - adj
 ‘speaker, talkative’

We can observe in the above examples that the glide /y/ merges with the alveolar nasal /n/ and together yield the palatal nasal coalescent /ñ/. Since the two segments (y, n) result in one segment [ñ], one slot remains open which is compensated by gemination, -ññ- in the word as in *dayna* ‘judge’ → *da-ña* → *dañña*.

3.1.2.3 Distance assimilation

Apart from the influence of a sound on an adjacent one, influence from a distance does also occur in languages. By distance is meant when intervening segment(s) appear between the interacting sounds. For example, the word *kʃuʔ* ‘wicked’ is pronounced as *kufuʔ*. In the latter form the first high-central vowel /ɨ/ has changed to the high-back vowel [u]. This is the result of the influence from the last high-back vowel /u/ from a distance. We may consider the following examples.

[21]

Underlying form	Eastern Tigrinya	Adwa	Rayya
a) <i>ħas'ib - at - i - ll - u</i>	[ħas'iwatillu]	[ħas'ib̥atillu]	[ħas'vatillu]
wash.CONV - she - epnt - dat - him			
‘she having washed for him’			

- b) *k'əbir - att - o* [k'awiratto] [k'əbɪratto] [χ'auratto]
bury.CONV - she - him
'she having buried him'
- c) *kab - šəw ʕattə* [kawšəwʕattə] [kabʃəwʕattə] [χašəwʕattə]
from - seven
'from seven'

In the examples above, in Eastern Tigrinya, the bilabial stop /b/ two processes in each case. Firstly, it has been weakened to labiodental approximant /ʋ/ as the result of influence from the adjacent vowel(s). Secondly, it has changed to the labiovelar approximant [w] due to the distant influence of a back vowel /u, o/ in [21 a and b]; and due to the distant influence of the labiovelar approximant /w/ in [21 c].

In the section that follows, we shall look at another process in which consonants assume similarity. This is the case of gemination.

3.1.3 Gemination

In phonetics and phonology, gemination occurs when a consonant is pronounced for an audibly longer time than a short consonant. Within the CV phonology, a geminate is represented as a single melodic unit associated to two prosodic slots. A geminate can be considered as a sequence of two identical segments of a sound in a morpheme. It could be a long consonant in a syllable or simply two identical segments in the adjacent syllables of a morpheme (Crystal 2003: 196-197).

Geminates in Tigrinya are very important phonological aspects. Almost all Tigrinya consonants, with the exception of gutturals, are amenable to gemination. Geminates may be phonemic and thus may have lexical or grammatical functions (Girmay 1983: 64). The same holds true for Eastern Tigrinya. I identify three types of phonemic geminates: (a) geminate within a morpheme, (b) geminate at morpheme boundary and (c) geminate by assimilation.

3.1.3.1 Gemination within a morpheme

Unlike, for instance, in Amharic there is no gemination within a syllable in Tigrinya. In Amharic, such a syllable as *labb* 'heart', which is also in this case a word, is possible in

which the final consonant is a geminate, *-bb*. Note that the consonant can be considered long *b*:. However, in Tigrinya, the cognate of the preceding word has a syllable structure of *lib.bi* 'heart'. This is due to the fact that the language does not permit word-final clusters and therefore inserts an epenthetic vowel [i]. Thus, the gemination of the consonant in the word is at a syllable boundary and the geminate can be represented simply as *-bb-*. The following set of examples is of geminates within a morpheme.

[22]

- a) *dərrəv - ə*
double.PRF - 3msg
'he doubled'
- b) *fəlləs' - ə*
chop.PRF - 3msg
'he chopped'
- c) *wəssəχ - ə*
add.PRF - 3msg
'he added'

In each of the above words, the geminate has no effect on meaning or grammatical function. In other words, it is not phonemic. Eastern Tigrinya has similarities and differences with the other dialects (Rayya and Hamasen dialects, for example). Let us look at the following examples.

[23]

	Standard	Eastern	Rayya	Hamasien
a)	ḥayyal strong 'powerful, strong'	ḥayyal	ḥayyal	ḥayal
b)	k'əyyir - u change.CONV - 3msg 'he having changed'	k'əyyiru (χ'əyyiru)	χ'əyyiru	k'əyru

- c) k'əs'iŋ - u k'as'iŋu (χ'as'iŋu) χ'as's'iŋu k'əs'iŋu
punish.CONV - 3msg
'he having punished'
- d) k'ətɪl - u k'atɪlu (χ'atɪlu) χ'attɪlu k'ətɪlu
kill.CONV - 3msg
'he having killed'

Regarding the medial consonant of the above words, Eastern Tigrinya has similarity with Rayyan in [23 a and b] and differences in [23 c and d]; while with Hamasen similarity in [23 c and d] and difference in [23 a and b].

As mentioned above (page 31), in Eastern Tigrinya and in Tigrinya in general, geminates may cause lexical difference or alteration in grammatical function. Below, words in the left with no geminates differ in meaning from those in the right with geminates.

[24]

- i. a) s'ələy - ə b) s'əlləy - ə
influence.PRF - 3msg pray - 3msg.PRF
'he influenced' 'he prayed'
- ii. a) k'ənəy - ə b) k'ənnəy - ə
tune.PRF - 3msg live long - 3msg.PRF
'he tuned up the music' 'he/ it lasted, lived long'

In addition to causing meaning difference, geminates can also change the grammar of a morphological unit as in the following example.

[25]

- a) wɪsəd - a b) wɪsədd - a
take.IMPER - 2fpl take.IMPER (msg) - her
'take!' 'take her!'

In both [25 a and b] above, the verbs are imperative. But in [25 a] the subject is second person feminine plural while in [25 b] the subject is second person masculine singular and there is a third person feminine singular object. There is obvious grammatical difference between [25 a] and [25 b] as the result of the formal difference in the non-

gemination and gemination of /d/. The second /d/ in [25 b] that causes gemination is a compensation for the deleted /ʔ/ which is underlyingly present in the final morpheme, /-ʔa/ '3fsg.obj'.

3.1.3.2 Gemination at morpheme boundary

When identical segments are in contact at a morpheme boundary, they are pronounced simultaneously and result in a geminate. Contact geminates are not true geminates and some scholars call them 'fake' or 'apparent' geminates (Crystal 2003: 197). Here are some examples of geminates resulting from concatenation of two identical consonants across morpheme boundary in Eastern Tigrinya.

[26]

- a) *wəgən - na* → [wəgənnə]
 relative - 1pl.POSS
 'our relative'
- b) *mīrak - ka* → [mīrakka]
 calf - 2msg.POSS
 'your calf (baby of cow)'

The geminates in the preceding examples are not 'true' geminates. In both [26 a and b], each segment which contributes to the formation of a geminate belongs to a different morpheme. However, the meeting of the identical segments at the boundary of the morpheme results in the formation of the geminate. For example in [26 a], *n-n* meet at the juncture of the two adjacent morphemes, *wəgən* and *-na*, and form the geminate *-nn-*.

3.1.3.3 Gemination by assimilation

Assimilated geminates occur when a sound totally assimilates an adjacent sound at a morpheme boundary. Like the ones in section 3.1.3.2, they are not 'true' geminates because one of the segments is different in the underlying form. But as a result of total assimilation at morpheme boundary they become geminate of identical sounds. So assimilated geminates are 'fake' geminates. There are plenty of examples of such geminates in Tigrinya.

[27]

a) *mḥrus' - zərʔ - i* → [mḥruzzərʔi]

selected - seed - epnt

'improved seed'

b) *kab - fətəna* → [kaffətəna]

from - exam

'from exam'

In the above example [27 a], the first segment of the second element of the compound word, that is segment -z-, totally assimilates the preceding -s'- sound of the first element of the compound. The process thus, results in the geminate -zz- as in [mḥruzzərʔi]. Similarly, in [27 b], we obtain the geminate -ff-.

According to Tesfay (2002: 43) if object marker morphemes are attached to the stem of jussive or imperfective forms, gemination may occur as in the examples below.

[28]

a) *yḥmarḥ + om* → [yḥmarikkom] 'let him [surrender] them'

b) *sḥbər + o* → [sibərro] 'break it!'

In the examples above, the last consonant of the stem becomes geminated when the third person masculine plural and the third person masculine singular object markers are attached as in [28 a and b] respectively. But what causes -k and -r to be geminated? This is an important question. For instance, in [28 a], the jussive /yḥmarḥ/ has a syllable structure of CV.CV.CVC. When the third person masculine plural object marker /-om/ is suffixed the stem becomes /yḥmarḥkom/ with a syllable structure of *CV.CV.CVC.VC. But the last syllable is not permissible in the language; it does not have an onset. Therefore, the stem final consonant -k spreads to the onset position of the third person masculine plural object marker morpheme /-om/. Then phonetically, the voiceless velar stop -k becomes geminated -kk- [yḥmarḥkkom]. The same happens to the alveolar trill -r at the end of the stem in [28 b].

3.1.4 Metathesis

I have observed that in Eastern Tigrinya speakers change the sequence of segments within a word without changing meaning. Vowel metathesis, consonant metathesis and vowel-consonant metathesis are encountered. Let us look at each process in the discussions below.

3.1.4.1 Vowel metathesis

In examples [29 a-c], different vowels switch their underlying positions. Below I compare Eastern Tigrinya words with their counterparts in the relatively standardized version which is used in educational materials, literature and the mass media.

[29]

	Standard	Eastern Tigrinya
a)	<i>k'əddam - ay</i> first - 3msg 'first'	<i>k'addəmay</i>
b)	<i>mədošša</i> hummer 'hummer'	<i>modəšša</i>

As seen in the above examples, the sequence of the vowels in the first and second syllables is switched in Eastern Tigrinya. It appears that the weaker central vowels are relegated to the second syllables.

3.1.4.2 Consonant metathesis

Like what we have seen above in the case of vowel metathesis, consonants also switch their position without changing the meaning of a word. Unlike the vowel metathesis, in consonant metathesis the underlying sequence of consonants within a stem is predictable but speakers change this sequence unconsciously, that is, without being motivated by the phonology. Here are some examples.

[30]

a)	<i>maryam</i>	→	[mayram]
	Mary		
	'Mary'		

- b) *šaḏš - ay* → [šaḏday]
 six - msg
 'sixth'
- c) *rŋy - u* → [riyʔu]
 see.CONV - 3msg
 'he having seen'

The switched consonants in the examples above do not follow uniform phonological similarities in view of syllable, manner and place of articulation in the underlying form.

3.1.4.3 Vowel consonant metathesis

In Eastern Tigrinya, speakers switch /ə/ and /y/ and change the arrangement /əy/ to [yə]. The mid-central vowel /ə/ switches its position with the palatal glide /y/ when they are in the /əy/ sequence. The /əy/ sequence is changed to [yə] and the combination is realized as [e]: perhaps a compromise result between /y/ and /ə/ where [e] shares the front feature of /y/ and the mid feature of /ə/. The following examples illustrate the vowel-consonant metathesis.

[31]

- a) *səbir - u* → səØiru → səyru → syəru → [seru]
 break.CONV - 3msg
 'he having broken'
- b) *bəyn - ən* → /byənən/ → [benən]
 alone - 3fpl
 'they alone'
- c) *ʔabəy* → /ʔabyə/ → [ʔave-]
 where
 'where'

A word-final /əy/ undergoes metathesis as in [31 c] above. However, the form /ʔabyə/ also represents another word meaning 'I denied'. Therefore, the switch between the mid central vowel /ə/ and the glide /y/ in /ʔabəy/ 'where' takes place only when another morpheme follows it, as in the examples below.

[32]

ʔabəy - ʔall - o → /ʔabəy--llo/ → /ʔabyəlllo/ → [ʔavello]

where - present.INTER - 3m/ neutsg

‘where is he/ it?’

In the following sections, we shall look at a process where vowels assume similarity. The process is known as vowel harmony.

3.1.5 Vowel harmony

Vowel harmony is a phonological process where “all vowels in a word share certain features” Crystal (2003: 215). The process is analogous to assimilation; but it is not simply the case of one vowel assimilating the other. Vowel harmony is the case of all the vowels of a word looking alike in certain features or in totality. Unlike in other varieties, in Eastern Tigrinya the features of a back vowel harmonize over the features of all central vowels in a word. This is illustrated in the examples below.

[33]

a) *wələd - t - om* → [woloddom]

parent - pl - their.m

‘their parents’

b) *s’əwəŋ - ə - om* → [s’owoŋom]

call.PRF - he - them.m

‘he called them’

c) *s’raḥ - u* → [suruḥu]

work - his

‘his work’

d) *s’rrə - ʔu* → [surruʔu]

trousers - his

‘his trousers’

In [33 a and b] above, the mid-central vowel /ə/ shares the features of the back vowel /o/. A similar process is observed in [33 c and d] where the first two vowels assume features

of the high-back vowel /u/. Girmay (1983: 66) seems to look at vowel harmony in a different way. Let us look at one of his examples.

[34]

kalbɨxum → [kalbuxum] ‘your [mpl] dog’

The example above shows that the high back vowel /u/ influences the preceding high central vowel /ɨ/ but not the low vowel /a/. However, vowel harmony is a case where all the vowels in a word share common features.

Unlike the phonological processes of one segment influencing another or segments switching positions, we will observe cases of segment or syllable deletion or elision in the section that follows.

3.1.6 Elision

Elision refers to a loss of vowel, consonant or a syllable in connected speech. In Eastern Tigrinya, speakers are observed dropping a segment or a syllable from a word in speech. For clarity, I have divided elision into segment elision and syllable elision.

3.1.6.1 Segment elision

A segment can easily be deleted or elided in a word without influencing the meaning of a word. Consonant segments are more likely to be elided in words. The following are examples from Eastern Tigrinya for word medial and word final elision.

[35]

- a) *ħawy - u* → *ħaØyu* → [ħayu]
cure.CONV - 3msg
‘he having been cured/ healed’
- b) *bħəy* → *bikəØ* → [bixə]
cry (msg).IMPER
‘cry!’

If the high front vowel /i/ remains with another vowel after deletion of a consonant, it is changed to the palatal glide [y] to hold the onset position of the deleted consonant. This is peculiar to the Eastern Tigrinya. The process is illustrated in the examples below.

[36]

a) *məs'iʔ-u* → *məs'iØu* → [məs'yu]

come.CONV - 3msg

'he having come'

b) *t'əfiʔ-ə* → *t'əfiØə* → [t'əfyə]

lost.CONV - 1sg

'I having been lost'

In [36 a and b] above, after the glottal stop /ʔ/ is deleted, the high front vowel /i/ becomes /y/ to hold the onset position of the last syllable. However, in Adwa, Hamasen, Seraye and in what is presumed standard dialect, no deletion takes place in the above words. In Rayya, on the other hand, it is the high front vowel /i/ that is deleted as seen in the following example.

[37]

məs'iʔ-u → [məs'ʔu]

come.CONV - 3msg

'he having come'

3.1.6.2 Syllable Elision

The preceding discussion treated segment elision; this section handles syllable elision. The examples below show surface forms of words missing one of their underlying syllables.

[38]

	Phonemic form	Syllable structure	Syllable elision	Phonetic form
a)	<i>ʔɪntay</i>	ʔɪn.tay	/---.tay/	[tay]
	what			
	'what'			
b)	<i>kab - ʔabəy</i>	kab.ʔa.bəy	/ka-...bəy/	[kavəy]
	from - where			
	'from where'			

- c) *məs'əʔ - ə* *məs'ə.ʔə* /*məs'ə.--*/ [*məs'ə*]
 come - 3msg.PRF
 'he came'

Deletion can happen to both open and closed syllables at any position in a word. In example [38 a] above word-initial closed syllable, *ʔin-*, is deleted; but in [38 b] word-medial open syllable, *-ʔa-*, including the coda of the first syllable, *-b*, are elided. In [38 c], the word-final open syllable, *-ʔə*, is deleted. In the next section we will examine how different phonological forms freely occur in the same environment.

3.1.7 Free variation

Free variation is the free alternation of segments in the same environment without changing the meaning of a stem. According to Durand (1990: 8), "if two phones can be substituted for each other in the same environment without destroying the identity of the lexical item under consideration, they can be said to be free variations of the same phoneme." Crystal (2003: 188) also defines free variation as a term "... referring to the substitutability of one sound for another in a given environment, with no consequent change in the word's meaning."

In Eastern Tigrinya, there are a lot of pairs of sounds which alternatively replace each other in the same environment without causing any meaning change. Let us look at the following summary.

The velar ejective stop [k'] and the uvular ejective fricative [χ']

[39]

- a) [*k'arn - i*] ([*χ'arni*])
 horn - epnt
 'horn'
- b) [*wərək'ət*] ([*wərəχ'ət*])
 paper
 'paper'

The voiceless velar stop [k] and the voiceless uvular fricative [χ]

[40]

	Word initial voiceless velar stop	Alternative voiceless uvular fricative [χ]	Gloss
a)	[kɪdan]	[χɪdan]	dress, cover
b)	[karra]	[χarra]	knife

The voiceless alveolar fricative [s] and the voiceless palatal fricative [ʃ]

[41]

	Standard	Eastern Tigrinya	Enderta	Hamasen	Adwa	Gloss
a)	[samba]	[samba] ([ʃamba])	[ʃamba]	[samba]	[samba]	lung
b)	[kissav]	[kissav] ([kiʃʃaʕ])	[kiʃʃaʕ]	[kisab]	[kissab]	until
c)	[hassət]	[hassət] ([haʃʃət])	[hiʃʃət]	[hassot]	[hassot]	false

The alveolar ejective fricative [sʰ] and the palatal ejective affricate [tʃʰ]

[42]

a)	[sʰəgʷr - i]	([tʃʰəgʷri])
	hair – epnt	
	‘hair’	
b)	[ʃɪnsʰəyt - i]	([tʃɪncʰəyti])
	wood - epnt	
	‘firewood’	
c)	[kʰurrasʰ]	([kʰurracʰ])
	cut	
	‘piece’	

The pharyngeal [ħ] and the laryngeal [h]

[43]

a)	[ħəzi]	([həzi])	‘now’
b)	[ħiggi]	([higgi])	‘law’

The initial alveolar nasal [n] and the lateral approximant /l/

[44]

- a) [nav-] ([lav-]) 'to'
- b) [ni-] ([li-]) 'for, to, ACC'

The voiced palatal affricate [j] and the voiced palatal fricative [ʒ]

[45]

- a) *mənjak* → [məñjaχ] ([məñʒaχ]) 'annoying, pestering'
- b) *bojb^waj* → [bojb^waj] ([boʒb^waʒ]) 'coward'

3.1.8 The Influence of Consonants on Vowels

The influence of consonants that is treated here is, in fact, a subset of assimilation. In assimilation, we saw that one sound segment influences the articulation of another and results in the two becoming alike or identical. What I am going to examine here, in relation to Eastern Tigrinya, is only cases where a set of consonants influence vowels. Among such influential consonants in Tigrinya are pharyngeals, laryngeals and glides (Leslau 1941: 12-13; Kogan 1997: 428 and Tesfay 2002: 47-52). In the sections that follow, brief descriptions of the process in which the consonants influence vowels are presented.

3.1.8.1 Gutturals influencing vowels

Laryngeal and pharyngeal consonants change the realization of neighboring high front /i/ and mid central /ə/ vowels.

When the mid central vowel /ə/ is preceded by the laryngeal or pharyngeal consonant, it is realized as a low vowel [a] (Leslau 1941: 12, Kogan 1997: 428). In the following examples we shall see /ə/ changing to [a] in the stem of a perfective and a converb as the result of the influence of a pharyngeal or laryngeal.

[46]

- a) *məhar - ə* → [məharə]
 teach.PRF - 3msg
 'he taught'

- b) *ʔasir - u* → [ʔasiru]
 tie.CONV - 3msg
 'he having tied'

Normally, the vowel pattern of a triradical third person masculine singular perfective Tigrinya verb is *-ə-ə-ə* as in *k'ətəl-ə* 'he killed'. Similarly, that of a triradical third person masculine singular converb is *-ə-i-u* as in *k'ətil-u* 'he having killed'. However, the vowel patterns of the following perfective and converb involving gutturals are *-ə-a-ə* and *-a-i-u* respectively (*məhar-ə* and *ʔasir-u*). In both cases the low vowel [a] replaces the mid central vowel /ə/. That is due to the influence of the low guttural consonants (*h*, *ʔ*) on the mid central vowel /ə/ coming after each one of them. Otherwise, as indicated above, the vowel pattern of the perfective verb in Tigrinya is as in *k'ətəl-ə* and that of the converb as in *k'ətil-u*.

Nevertheless, the rule does not affect the final mid central vowel, *-ə*, and the high back vowel, *-u*, of the perfective and converb respectively. Neither is a simple vowel, they are morphemes. While the former, *-ə*, represents the third person masculine singular in the perfective structure, the latter stands for the same purpose but in the structure of a converb. Let us look at the examples below.

[47]

- a) *wəddəʔ - ə* [wəddəʔə]
 finish.PRF - 3msg
 'he finished'
- b) *fəriḥ - u* [fəriḥu]
 afraid.CONV - 3msg
 'he having been afraid'

The examples above, show that the guttural consonants (*h* and *ʔ*) do not affect the vowel which follows each of them (*-ə*, *-u*). The latter are morphemes as glossed in the examples and are not liable to be affected by the gutturals that precede them.

In a syllable closed by laryngeal or pharyngeal, the mid central vowel /ə/ is realized as the low vowel [a] (Leslau 1941: 12, Kogan 1997: 428). That is, in a syllable with a laryngeal or pharyngeal coda, the nucleus /ə/ changes to [a]. The examples below illustrate this.

[48]

a) *sʔəħ* → [sɪrəħ]

work (msg).IMPER

‘work!’

b) *bʔəʕ* → [bɪlɐʕ]

eat (msg).IMPER

‘eat!’

The vowel pattern in an imperative triradical third person masculine singular verb is normally -*ʔə*- (as in *sʔəħ*! ‘clean!’). But in the preceding examples we observe -*ʔa*- (as in *sɪrəħ*, *bɪlɐʕ*). The emergence of [a] substituting /ə/ is due to the influence of the guttural consonant. Both gutturals are in a coda position in the second syllables of the stems.

The mid central vowel /i/ in a word initial syllable followed by a syllable whose onset is a guttural and whose nucleus is the low vowel /a/, is realized as the low vowel [a], (/i/ → [a]). In the examples below, the high central vowel /i/ in the instrumental prefix morpheme, /bi-/, is realized as the low vowel [a] ([*baʔargi*]) due to the influence from the low vowel [a] after the guttural segment in the following stem, /-*ʔadgi*/. The surface representation of the construction in Eastern Tigrinya is *bʔ ʔargi* where /d/ is replaced by /r/.

[49]

bʔ ʔargi → [baʔargi]

inst - donkey

‘by donkey, on the back of a donkey’

The mid central vowel /ə/ in the initial open syllable of a triradical third person masculine singular perfective verb such as /s'əħəfə/ 'he wrote' is realized as the low vowel [a]. Nonetheless, the central vowel after the guttural is primary in the change to the low vowel [a]. Let us look at the process in the example below.

[50]

s'əħəf - ə → /s'əħəfə/ → [s'əħəfə]
 write.PRF - 3msg
 'he wrote'

Similarly, in the following example, the mid central vowel /ə/ is realized as the high central vowel [ɪ] if the vowel after the guttural is the high front vowel /i/. That is due to the influence of the high feature of the high vowel /i/ to change from mid to high; /ə/ → [ɪ].

[51]

səħin - u → [sɪħinu]
 lack.CONV - 3msg
 'he having lacked'

If a guttural onset in an ultimate syllable position of a word is preceded and followed by the mid central vowel /ə/, two types of changes happen on the preceding mid central vowel /ə/: (i) it is deleted if preceded by a non-geminated consonant, (ii) it is deleted if preceded by a geminated consonant but the slot is filled with the high central vowel [ɪ] to avoid cluster. Let us look at the following examples.

i) The mid central vowel /ə/ is deleted if preceded by a non-geminated consonant.

[52]

Phonemic form	Syllable structure	Phonetic form
<i>məṛəħ - ə</i>	mə.ṛə.ħə	[məṛħə]
lead.PRF - 3msg		
'he led, chaired, managed'		

- ii) The mid central vowel /ə/ is deleted if preceded by a geminated consonant. But the slot is filled with the high central vowel [ɨ] so as to break consonant cluster.

[53]

Phonemic form	Syllable structure	Deletion	Phonetic form
wəddəʔ - ə	wəd.də.ʔə	wəddʔə	[wəddɨʔə]
finish.PRF - 3msg			
‘he finished’			

3.1.8.2 Semivowels influencing vowels

Some vowels are influenced when they make contact with the glide consonants. The resulting vowel shows either a compromise feature with the input vowel and the semivowel or dissimilation. The influence of semivowels on vowels is observed in the following three environments.

When the high central vowel /ɨ/ is adjacent to the labiovelar approximant /w/, it becomes the high back vowel [u] (Leslau 1941: 13, Kogan 1997: 428). Here are examples.

[54]

- a) *wɨsəd* → [wusəd]
take (msg).IMPER
‘take!’
- b) *yɨ - wsəd* → [yuwsəd]
2msg - take.JUSS
‘let him take’
- c) *mɨ - ws’aʔ* → [muws’aʔ]
ger - leave.
‘leaving’

When the mid central vowel /ə/ is adjacent to the labiovelar approximant /w/, it is realized as the mid back vowel [o] (Leslau 1941: 12, Kogan 1997: 428).

[55]

- a) *hawəs - ə* → [hawosə]
mix.PRF - 3msg
'he mixed'
- b) *wədd - a* → [wodda]
son - 3fsg.POSS
'her son'
- c) *tə - wəddiʔ - u* → [towoddiʔu]
pass - finish.CONV - neutsg
'it having been finished'

The high front vowel /i/ is realized as the high central vowel [ɨ] when it is adjacent to the palatal glide /y/ (Leslau 1941: 13, Kogan 1997: 428) as in [56 a] below. However, I consider that /i/ is deleted in the position adjacent to /y/ as in [56 b] below since its phonetic role is close to [y]. But in the environment of a geminated -yy- which in turn is adjacent to another consonant, /i/ cannot be dropped since an impermissible could emerge. It rather undergoes dissimilation and changes to [ɨ].

[56]

- a) *k'əyyir - u* → [k'əyyɨru]
change.CONV - 3msg
'he having changed'
- b) *sətiy - u* → [sətyu]
drink.CONV - 3msg
'he having drunk'

In [56 a] above, /i/ changes to [ɨ] possibly, as indicated above, to distance its quality (dissimilate) from /y/ and is retained to avoid cluster. As in [56 b], if /i/ is deleted in [56 a], we would have *k'əyyru* which would mean that the word would have a consonant cluster of -yyr-. Therefore, retaining the vowel slot is imperative so as to have acceptable syllables with the vowel /i/ dissimilated to [ɨ] – *k'əy.yɨru* (CVC.CV.CV).

3.1.8.3 Velars influencing vowels

In Eastern Tigrinya, including Enderta and Rayya, (as I have observed from the speech of my consultants Birhan and Nigus), word initial /k/ and /k'/ influence the following mid central vowel /ə/ to change to [a]. The change holds also when the voiceless velar stop /k/ changes to the voiceless uvular fricative [χ] and the velar ejective stop /k'/ changes to the uvular ejective fricative [χ'].

[57]

- a) *k'ətəl - ə* → [k'atələ]
kill.PRF - 3msg
'he killed'
- b) *tə - kəfit - u* → [təχafitu]
pass - open.CONV - neut
'it having been opened'
- c) *tə - k'əs'il - u* → [təχ'as'ilu]
pass - burn.CONV - neut
'it having been burnt'
- d) *kətəma* → [katəma]
town
'town'

3.1.9 Special Behavior of Semivowels

Semivowels in Eastern Tigrinya exhibit such special kinds of behavior as the following. The geminated labiovelar approximant /w/ and the palatal approximant /y/ are subject to change into the geminated voiced labiovelar stop [gg^w] and to the geminated voiced palatal affricate [jj] respectively. Let us look at the examples below.

[58]

- a) *ʔəwwə* → [ʔigg^wə] 'yes'
- b) *k'əyyih* → [k'əjjih] 'red'

In [58 a] above the labiovelar approximants, ww, lose their labial feature and become the voiced velar stop -gg-. The labial feature of -ww- is retained on gg as a secondary articulation, -gg^w-. In the case of [58 b], the palatal approximants -yy- change to the

voiced palatal affricates *-jj-*. In both [58 a] and [58 b] the change is strengthening. In the former, the approximant geminate, *-ww-*, changes to a geminate stop with secondarily retaining the labiovelar feature, *-ggʷ-*. In the latter, the approximant geminate, *-yy-*, changes to a geminate stop, *-jj-*.

Non-geminated semivowels may be omitted as in the following examples.

[59]

a) *mɨ - wdak'* → [mɨdaxʰ]

ger - fall, fail.IMPF

'falling, failing'

b) *kəyəd - ə* → [kədə]

go.PRF - 3msg

'he went'

In [59 a], the semivowel *-w-* is deleted while in [59 b] the semivowel *-y-* elides along with the vowel that follows it.

In this chapter, we have seen various phonological processes which manifest distinct features of Eastern Tigrinya. Vowel consonant metathesis is, for example, peculiar to the Eastern Tigrinya. The next chapter also deals with other phonological factors related to the syllable structures of Eastern Tigrinya which again contribute to the distinctiveness of the eastern dialect.

CHAPTER FOUR

Syllable Structure in Eastern Tigrinya

4.1 Syllable

Different scholars define the concept of syllable from different viewpoints. Birjandi and Salmani-Nodoushan (2005: 19) define syllable generally from the viewpoint of constituent elements.

“The sounds that result from one chest pulse form a syllable. In its minimal form, a syllable consists of a vowel. In addition to the vowel, a syllable may consist of one or more consonants that appear on either or both sides of the vowel.”

Birjandi and Salmani-Nodoushan consider that it is the component parts that are important in the consideration of the syllable. Furthermore, from the functional perspective of the components, Birjandi and Salmani-Nodoushan define syllable as follows (2005: 20).

“A syllable is a phonological unit composed of one or more phonemes. Every syllable has a nucleus which is usually a vowel (but which may be a syllabic liquid or nasal). The nucleus may be preceded by one or more phonemes called syllable onsets and followed by one or more phonemes called the syllable coda.”

On the other hand, Zec (2007: 162) sees the syllable simply as “...representational device that encompasses principles of segment sequencing.” Zec further notes that the sequence of strings is “highly constrained”.

Other similar definitions could be cited. Yet, there is no fully agreed definition. That is, probably, why Ladefoged (1975: 281) states that a syllable is “a unit of speech for which there is no satisfactory definition.” Lodge (2009: 222) summarizes the definition of syllable from phonetic and phonological viewpoints. Phonetically, he defines syllable on the basis of the properties of sounds (such as sonority, aspiration, length, stress and pitch) and the articulatory effort needed in order to produce them. Phonologically, on the other hand, he considers the activities of the speaker and the ways sounds combine in individual languages to produce typical sequences.

Tigrinya permits only CV and CVC syllable structures (Kogan 1997: 428, Tesfay 2002: 44). The language does not allow two or more consonants word initially or word finally (Tsfay 2002: 47; Kogan 1997: 428). When two consecutive consonants appear word medially, the first consonant is coda of the previous syllable and the second consonant is onset of the next syllable. A cluster of three or more consonants never appears word medially. When a cluster of consonants appears, an epenthetic high front vowel [i] is inserted.

Phonological processes discussed in chapter three dealt with change of features on segments as a result of the influence from the feature(s) of the neighboring segment. However, phonological processes treated in this chapter are in view of their influence on the syllable structure.

In the following sections I will deal with the number of syllables in Tigrinya words, the syllable structure of words with geminated sounds, syllable and suffixation and also syllable reduplication.

4.2 Syllables in a word

In Eastern Tigrinya, syllables in words can be one or more. The number of syllables may increase with inflection. Let us look at words with different number of syllables.

4.2.1 Monosyllabic words

In Eastern Tigrinya, there are many nouns and verbs (mostly converbs and imperatives) which have only one syllable. Almost all monosyllabic words have CVC syllable structure. I found hardly any monosyllabic word with only CV structure except for discourse expressives such as *ʔa* ‘really’. Here are some examples of monosyllabic words.

[1]

i. Nouns	ii. Verbs
a) <i>ħaw</i> ‘brother’	a) <i>kəf(bələ)</i> ‘he sat’
b) <i>dəm</i> ‘blood’	b) <i>kid</i> ‘go’

4.2.2 Disyllabic words

Words with two syllables can have both syllables open (CV.CV) as in [2 a], both syllables closed (CVC.CVC) as in [2 b], open-closed (CV.CVC) as in [2 c] or closed-open (CVC.CV) as in [2 d] below.

[2]

	Word	Syllable Structure	CV Structure
a)	<i>naʃ - a</i> come.IMPER - 2msg 'come on!'	na.ʃa	CV.CV
b)	<i>gənzəb</i> money 'money'	gən.zəv	CVC.CVC
c)	<i>gʷaħat</i> morning 'morning'	gʷa.ħat	CV.CVC
d)	<i>ħaft - i</i> sister - epnt 'sister'	ħaf.ti	CVC.CV

There are also many words which have two syllables in the surface representation but three syllables underlyingly. The reduction is caused by either assimilation or deletion. This is exemplified below.

[3]

wəs'əʔ - ə (wəs.s'ə.ʔə) → wəs'ə-- → [wəs'ə] (wəs.s'ə)
 leave.PRF - 3msg
 'he went out'

In the example above, the last syllable of the underlying representation is deleted in the surface representation. That is *wəs.s'ə.ʔə* changes to *wəs.s'ə*. In Eastern Tigrinya, it is not unusual that a guttural or a semivowel inter-vocalically or with a vowel as a syllable gets dropped in the word structures of the language.

The following example [4] is another type of elision but with a more complex process. First, in [4 a], the glide, *w*, merges with the following mid central vowel, *ə*, and together result in the mid back vowel, *o*. Then, since the language does not permit consecutive vowels, the weaker one, *ə*, gets deleted. Thus, the underlying trisyllable word *məwətə* (*mə.wə.tə*) becomes a bisyllable *motə* (*mo.tə*) on the surface. The same is true for the palatal glide /y/ and the mid central vowel /ə/ in [4 b] below.

[4]

- a) *məwət - ə* → *məotə* → [motə]
 die.PRF - 3msg
 'he died'
- b) *rɨyəsə* → *riesə* → [resa]
 corpse
 'corpse (dead body)'

Similar deletion processes apply to the following words, too. Nevertheless, in these words a consonant is first dropped and two consecutive vowels remain. Since the language does not allow vowels in sequence, one of them, /i/, changes to [y] as shown below.

[5]

- a) *ħamim - u* → *ħaØimu* → [ħaymu]
 sick.CONV - 3msg
 'he having become sick'
- b) *ħarir - u* → *ħaØiru* → [ħayru]
 burned.CONV - 3msg
 'he having been burned'
- c) *gədīd - u* → *gəØidu* → [gəydu]
 aggravate.CONV - neut
 'having been aggravated'

4.2.3 Trisyllabic words

Most of Tigrinya verbs are trisyllabic. There are also many nouns with three syllables. Below are some examples of trisyllabic words both in the underlying and in the surface representations.

[6]

	Phonetic Form	Syllable Structure	CV Structure
a)	[ʃassərtə] 'ten'	ʃas.sər.tə	CVC.CVC.CV
b)	[kuʃi ššo] 'ball'	ku.ʃiš.šo	CV.CVC.CV
c)	[hasəχa] 'worm'	ha.sə.χa	CV.CV.CV
d)	[hamləway] 'green'	ham.lə.way	CVC.CV.CVC

The syllable representations of the above trisyllabic words indicate that even if the words have equal number of syllables, they vary in the structures of their syllables. For instance, *ʃas.sər.tə* has CVC.CVC.CV structure whereas *ku.ʃiš.šo* has CV.CVC.CV, that is, the former word has close-close-open syllable while the latter open-close-open. The words in [6 c and d], *hasəχa* and *hamləway*, are CV.CV.CV and CVC.CV.CVC respectively.

4.2.4 Quadrisyllabic words

There are plenty of words with four syllables in Tigrinya. Words like *təχ'aləsə* 'he fought', *ʔak'k'aməmə* 'he mixed different ingredients' and *təmbərkəχə* 'he kneeled down' have four syllables each with CV.CV.CV.CV, CVC.CV.CV.CV and CVC.CVC.CV.CV structure respectively.

4.2.5 Pentasyllabic words

The following words have five syllables each. The syllables in the words are all open.

[7]

- a) *təwəʃaʃal - ə*
 agree.PRF - 3msg
 'he made agreement'

- b) *taməyayət* - ə
 discuss.PRF - 3msg
 'he discussed'

Although rare, there are also words with more than five syllables in the language such as *təytəwə ʃaʃalə* (*təy.tə.wə.ʃa.ʃa.lə*) 'he without making agreement' and *latəməsəχ'aχ'ələ* (*la.tə.mə.sə.χ'a.χ'ə.lə*) 'getting complex'

4.3 Syllables of Words with Geminated Sounds

Geminate consonants are normally identical adjacent segments of sounds in a single morpheme. However, according to Crystal (2003: 196), a geminate sequence cannot be regarded simply as a long consonant since one of the consonants in a geminate falls in the coda position of one syllable and the other in the onset position of the next syllable. That is, the geminate consonants are divided into two adjacent syllables. Such geminates are what are sometimes known as 'fake geminates.' In the sections that follow, I will discuss the various kinds of geminates in the syllable context.

4.3.1 Non-lexical geminates

Non-lexical geminates occur at syllable boundary in a morpheme. Such geminates do not have a single consonant counterpart where the morpheme with the geminate has one meaning and the morpheme with a single similar consonant has another meaning. That means, in this case, a geminate is not a factor in causing meaning difference. It is, therefore, non-lexical. Here are examples.

[8]

	Phonetic Form	Syllable Structure
a)	[libbi] 'heart'	lib.bi
b)	[ʃaddi] 'birth place'	ʃad.di

The geminates in the above words appear word finally. But since the language does not permit word-final clusters, the epenthetic [i] is attached to break the cluster. Consequently, the words become bisyllabic in structure, /libb/ → [lib.bi] 'heart' and /ʃadd/ → [ʃad.di] 'birth place'.

4.3.2 Lexical geminates

Lexical geminate is a doubling of identical consonant segments in a word where doubling contributes to the meaning of the lexeme. In the following examples, the word in [9 a] with a single *-l-* means one thing while the word in [9 b] with a geminate, *-ll-*, means another. As for syllabification, the former has three open syllables while the latter one a closed syllable and two open ones.

[9]

	Word	Syllable Structure
a)	<i>ħaləf - ə</i> pass - 3msg.PRF 'he passed'	ħa.lə.fə
b)	<i>ħalləf - ə</i> exceed - 3msg.PRF 'he exceeded'	ħal.lə.fə

In Eastern Tigrinya as well as in the other dialects, geminated segments protect a syllable or part of it from reduction. In [10 a] below, the vowel /i/ with the glide /y/ gets deleted as its function here could be satisfied by the glide. However, in [10 b], the vowel /i/ is retained as it is possibly protected by the preceding gemination (*-ll-*). Because, if /i/ is deleted, the geminate, *-ll-*, along with the glide, *-y-*, would result in a cluster. Therefore, the retention of /i/ is necessary. Let us look at the following illustration.

[10]

	Phonemic form	Phenetic form
a)	ħaliy - u (ħa.li.yu) favor - 3msg.CONV 'he having favored'	ħalyu (ħal.yu)
b)	ħalliy - u (ħal.li.yu) keep - 3msg.CONV 'he having kept'	ħalliyu (ħal.li.yu)

4.3.3 Concatenated geminates

As seen earlier, Crystal (2003: 197) defines concatenated geminates as “fake or apparent geminates, where identical segments have been made adjacent through morphological concatenation”. Concatenated geminates result from the contact of identical consonants at a word or morpheme boundary. Such segments seem geminates but they are identical segments of two different morphological units.

Concatenated geminates do not have any influence on the structure and number of the preexisting syllables in Tigrinya; because no change happens upon the segments in contact and in syllabification the segments are separated into their respective syllables. In pronunciation they sound as a geminate because they are pronounced immediately one after the other. When the adjective /s'əllim/ 'black' is followed by the noun /mɨrɑχ/ 'calf (baby of a cow)', it gives the phrase [s'əllimmɨrɑχ] 'black calf'. The two adjacent /m/ sounds are pronounced immediately after one another. But in syllabification they split into the two words: s'əl.lim mɨrɑχ.

4.3.4 Assimilated geminates

Assimilated geminates occur when one segment totally assimilates another adjacent homorganic segment at a syllable or morpheme boundary. Except for the changes upon the assimilated segments, no change happens on the structure and number of the syllables. In the underlying representation, the third radical of /šəwət'-ti/ 'sellers' (-ti is plural marker), the third radical is ejective, /t'/. However, it is realized as the plosive [t] in the surface representation due to the influence from the neighboring plosive segment /t/ at morpheme boundary. The word is, thus, pronounced as [šəwət-ti].

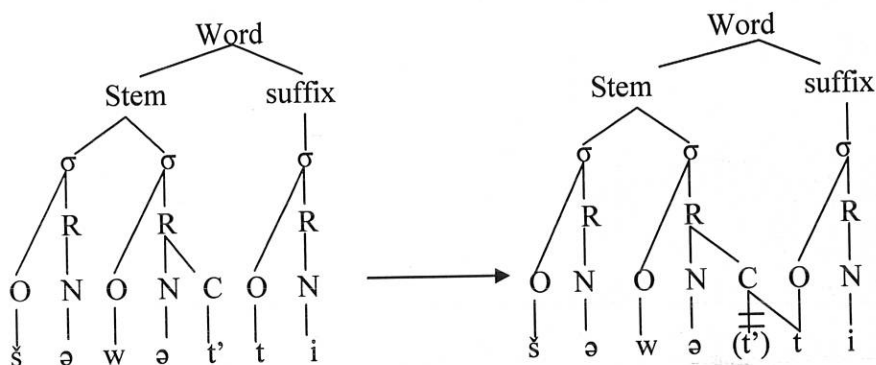
When we syllabify the word, it looks like šə.wət'.ti in the underlying representation and šə.wət.ti in the surface representation where the word has three syllables with a CV.CVC.CV structure both in the underlying and surface representations. There is no change on the structure and number of syllables. The formation of the assimilated geminate, -tt-, can be summarized as:

[11]

$\text{\textit{\text{šəwət}}}$ - $\text{\textit{ti}}$ $\longrightarrow$ $[\text{\textit{\text{šəwətti}}}]$
 sell - pl
 'sellers'

The process can also be diagrammatically illustrated as follows.

[12]



4.4 Syllable and Suffixation

When a third person objective marker morpheme is suffixed to a verb, the word exhibits an interesting change on its syllable structure. In such suffixation, either of the following phenomena happens to a word.

- 1) The last consonant of a word is geminated if the word ends in a consonant.
- 2) A deleted segment in the surface representation is recovered from the underlying representation.

Geminating of the last consonant

When any of the third person object markers (/o/ 3msg, /a/ 3fsg, /om/ 3mpl and /ən/ 3fpl), is suffixed to an imperative verb with a consonant at the end, the last consonant is geminated. Accordingly, for example, when the third person singular masculine object marker /o/ is suffixed to the imperative verb $k'\text{\textit{ʔal}}$ 'kill!', this verb cannot directly take the object morpheme /o/ and form new structure because, as seen below, the object morpheme appears to be a syllable on its own. But this is not permissible according to the syllable types of Tigrinya.

[13]

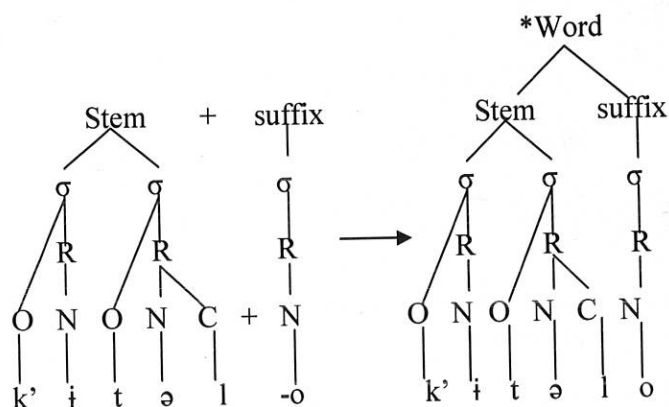
$k'\#əl + -o \longrightarrow *[k'\#ələ] *(k'\#.əl.ə)$

kill.IMPER - 3msg

‘kill him!’

This disallowed structure can also be seen from the following diagrammatic representation.

[14]



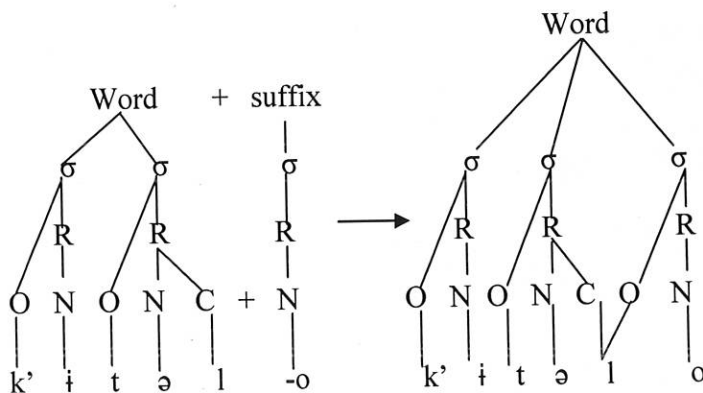
In the tree diagram above the last syllable which consists only a nucleus is impermissible in Tigrinya. The syllable lacks a consonant in the onset position. Therefore, to obtain an acceptable syllable structure, the last consonant of $k'\#əl$ should spread to the onset position of the syllable with only a nucleus. Thus, $k'\#əllo$ will have acceptable syllable structure as also exhibited by the tree diagram below.

[15]

$k'\#əl - o \longrightarrow [k'\#əllo]$

kill - 3msg.IMPER

‘kill him!’

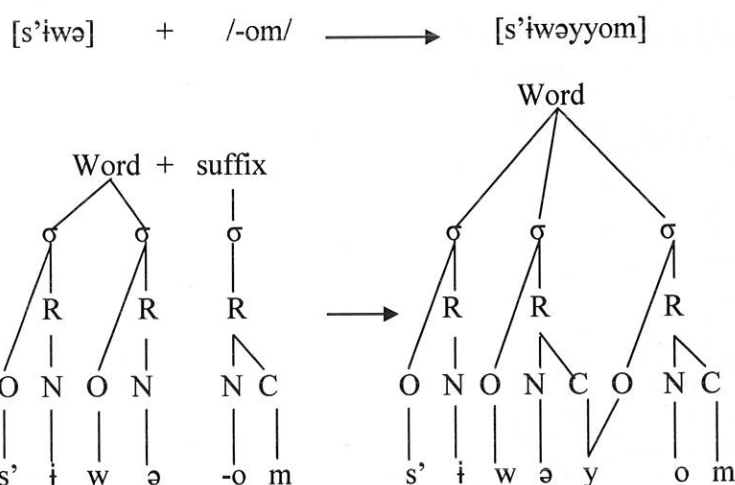


Therefore, when the third person masculine object marker /-o/ is suffixed to a stem ending with a consonant, the last consonant should be geminated. This applies to the third person singular feminine as well as the third person masculine and feminine plural object markers, too.

Recovering the underlying representation

A word final segment that had been reduced before the suffixation of a third person object marker, is recovered from the underlying representation during suffixation. For instance, when the third person masculine plural object marker /-om/ is suffixed to the word *s'Awə* 'tell!', the form *s'Awəyyom* 'tell them!' is obtained with /-yy-/ inserted as shown below.

[16]



Why and how is the geminate -yy- obtained? The response to the first question is to satisfy syllable permissibility. To answer the second question we need go to the underlying representation where we find the word final consonant /y/ as in */s'Awəy/* 'tell'.

As in the case of *k'ʔəl*, *s'Awəy* also ends with a consonant and it is syllabified as *s'Awəy*.

When the suffix object pronoun *-om* is attached, we get *s'Awəy + om*. To avoid the lack of onset in the last syllable, the coda of the preceding syllable, *y-*, spreads to the onset position of the next syllable as illustrated above.

4.5 Reduplication

Reduplication is a phonological process involving the repetition of part or the whole of a form. In Eastern Tigrinya a syllable or part of a syllable of a word is reduplicated and results in a word structure with an altered meaning. Native Tigrinya speakers of the eastern version are observed carrying out reduplication word initially, word medially and word finally. Examples of reduplication are provided below which result in syllable increment.

4.5.1 Word initial reduplication

Usually, word initial reduplication involves the repetition of CV at the beginning of the word. The CV could be an open syllable proper or the onset and nucleus of a closed syllable as in examples [17 a and b] below.

[17]

	Word	Syllable structure	Reduplication	Syllable structure
a)	<i>bəliʃu</i>	bə.li.ʃu	bəbbəliʃu	bəb.bə.li.ʃu
	‘he ate’		‘he ate again and again’	
b)	<i>dəngis’u</i>	dən.gi.s’u	dəddəngis’u	dəd.dən.gi.s’u
	‘he shocked’		‘he was shocked repeatedly’	

The examples above show that after the reduplicated initial CV of each word, the initial segment of each word is geminated. In the reduplicated form of each word, the first syllable has a CVC pattern then the remaining part, the original word, is syllabified accordingly. Thus the reduplicated word in [17 a] has the syllable pattern of CVC.CV.CV.CV while in [17 b] CVC.CVC.CV.CV.

4.5.2 Word medial reduplication

Word medial reduplication takes place in relation to the medial syllable. For instance, in a triradical verb, if the medial syllable is open, the vowel is changed to the low vowel [a] but if the mid syllable is closed, only the onset along with the nucleus is considered and the latter is changed to [a]. These reduplications are put immediately before the syllable they are drawn from. The reduplicants have the sense of ‘complete action’. Let us look at the following examples.

[18]

	Word	Syllable structure	Reduplication	Syllable structure
a)	<i>bələfə</i> 'he ate'	bə.lə.fə	bələləfə 'he ate all'	bə.la.lə.fə
b)	<i>təfas'iyu</i> 'it was closed'	tə.fə.s'i.yu	təfas'as'iyu 'it was totally closed'	tə.fə.s'a.s'i.yu
c)	<i>wəsidna</i> 'we took'	wə.sid.na	wəsasidna 'we took all'	wə.sa.sid.na
d)	<i>k'əs'iŋkinana</i> 'you (fpl) punished us'	k'ə.s'iŋ.ki.na.na	k'əs'as'iŋkinana 'you have already punished us'	k'ə.s'a.s'iŋ.ki.na.na

4.5.3 Word final reduplication

There are two types of stem final syllable reduplication. (i) a closed syllable repeated without any formal change. The reduplicated construction gives the sense of 'intensively completing an action'. (ii) a closed syllable repeated with its vowel changed to the low vowel [a]. The reduplicated form is a noun and has the sense of 'a number of little things'. These are illustrated below.

[19]

- i. Reduplication of a stem final closed syllable without any change

	Phonetic form	Syllable structure	Reduplication	Syllable structure
a)	[s'irig] 'clean'	s'i.rig	s'i.rig.rig 'clean completely'	s'i.rig.rig
b)	[siɔir] 'break'	si.ɔir	si.ɔir.ɔir 'break completely'	si.ɔir.ɔir

- ii. Reduplication of a stem final closed syllable with its vowel changed to [a]

	Phonetic form	Syllable structure	Reduplication	Syllable structure
c)	[ʔisir] 'tie'	ʔi.sir	ʔi.sir.sar 'a piece of tie'	ʔi.sir.sar
d)	[wisix] 'add'	wi.six	wi.six.sax 'a piece of additional'	wi.six.sax

Another type of word final reduplication involves a word final syllable repetition with a special insertion. If the final syllable is open, its vowel changes to the low vowel [a].

Then *m-* with the copied nucleus and coda of the first syllable of the word is inserted. Let us consider example [20 a] of the set below: *k'əldi* → *k'əl.di* → *k'əl.da* → *k'əl.da.məl*. Then the final syllable of the word is attached: *k'əl.da.məl.di*. it has the sense of 'a bit of jock.' Below are more illustrations.

[20]

	Phonetic form	Syllable structure	Reduplication	Syllable structure
a)	[k'əldi] 'jock'	k'əl.di	k'əldaməldi 'a bit of jock'	k'əl.da.məl.di
b)	[sɪrk'i] 'theft'	sɪr.k'i	sɪrk'amɪk'i 'a bit of theft'	sɪr. k'a.mɪ.k'i
c)	[k'əllil] 'easy'	k'əl.lil	k'əllilməl/lil 'a bit of s/t easy'	k'əl.lil.məl.lil
d)	[gəffih] 'wide'	gəf.fih	gəffihməffih 'a bit of s/t wide'	gəf.fih.məf.fih

In example [20 a and b] the final open syllable is inserted with the nucleus changed to [a], that is, as *-da-* and *-ka-* respectively. But in [20 c and d], the final closed syllable is inserted without alteration, that is, *-lil-* and *-fih-*. Then, as in [20 a and b], in [20 c and d] also *m-* along with the copied nucleus and coda of the first syllable of the word is attached. The formation of [20 c], for example, appears as follows.

k'əllil → *k'əl.lil* → *k'əllilməl* → *k'əllilməl/lil*

The chapter, as seen in the discussion, has treated the syllable structures of Eastern Tigrinya. Accordingly, number of syllables in a word, syllables of words with geminated sounds, affecting syllable structure and reduplication have been dealt with. The next chapter, which is the final, will summarize and conclude the thesis.

CHAPTER FIVE

Summary and Conclusion

5.1 Summary

This study organized in four chapters apart from this one, attempts to describe the phonology of Eastern Tigrinya and identify the phonological distinctive features of the dialect. The first chapter sets the context and framework of the study. The chapter incorporates such a basic point as the classification of Tigrinya into various dialects by previous studies. The chapter also provides preliminaries projecting what are to follow in the subsequent chapters. Previous studies related to the present research are reviewed in chapter two. Researches on the phonology of Tigrinya and of the different varieties of the language have been surveyed.

The main concerns of the study are addressed by chapters three and four. The two chapters focus on two major aspects of the phonology of Eastern Tigrinya. These are phonological processes and syllable structure. Chapter three deals with such phonological processes as assimilation, vowel harmony and elision among others. Chapter four treats issues related to syllables such as factors affecting the number of syllables in a word, causes of changes in syllable structure and effects of reduplication on syllables and their structures as well as word meaning. Furthermore, the study deals with the phonological features of Tigrinya which are not treated in the literature.

5.2 Conclusion

While describing the phonology of Eastern Tigrinya, I came across four sets of phonological features that have not been treated by previous studies. The first set concerns Eastern Tigrinya, the second concerns Eastern Tigrinya along with south western and southern varieties, the third involves Eastern Tigrinya along with the northern varieties (Adwa, Axum, Shire, Akkele Guzay, Hamasen and Seraye), the fourth involves Tigrinya as a whole, that is, all the dialects of the language.

1. Features peculiar to Eastern Tigrinya
 - a) Consonant vowel metathesis

This is a case of adjacent consonant and vowel switching their position as in the following example.

səbiru → *səØiru* → *səyru* → *syəru* 'he having broken'

As can be seen in the example, the central vowel *-ə-* and the glide *-y-* change their sequence from *-əy-* to *-yə-*. In fact, the change in the word is not limited in this. It further changes to the form [*seru*] where the metathesized segments, *-yə-*, merge and result in [e]. Thus the underlying /*səyru*/ surfaces as [*seru*]. The surface representation of the same word is, for example, in Adwa (North) [*səyru*] where the merger of the central vowel /ə/ and the glide /y/ does not take place.

- b) The glide [y] replacing the deleted high front vowel /i/

When the high front vowel /i/ remains after a consonant gets deleted, in the environment given in the example below, it is replaced by the glide [y] so as to avoid the impermissible vowel sequence.

məs'iŋu → *məs'iØu* → [məs'yu] 'having come'

- c) Semivowel elision without leaving trace

A semivowel in an underlying representation may elide in a surface representation.

ħawyu → [ħayu] 'he having been cured'

The preceding features resulting from phonological process are, as indicated above, distinctive to the Eastern Tigrinya.

2. Features manifested in Eastern Tigrinya, in south eastern and southern varieties

- a) The voiced bilabial stop /b/ inter-vocally changes to the labiodental approximant [v] as in the example below.

ʔabəy → [ʔavəy] 'where'

- b) The mid central vowel /ə/ after a stem initial velar stop /k/ or velar ejective stop /k'/ changes to the low vowel [a] as in the following examples.

kəlb → [kalvi] 'dog'

k'əmš → [kamiš] 'dress'

3. A feature manifested in Eastern Tigrinya and the northern varieties

In Eastern Tigrinya and the northern varieties (Adwa, Axum, Shire, Eritrea) spirantization of the velar stops takes place after a vowel or a guttural

a) Spirantization of the velar stop after a vowel

A velar stop after a vowel changes to a uvular fricative as in the examples below

/k/ → [χ] *təkələ* → [təχələ] 'he planted'

/k'/ → [χ'] *də k'k'ik'* → [dək'k'iχ'] 'fine (particle)'

/k^w/ → [χ^w] *nək^wal* → [nəχ^wal] 'hole'

/k^w/ → [χ^w] *bək^wələ* → [bəχ^wələ] 'it sprouted'

b) Spirantization of the velar stop after a guttural

A velar stop after a guttural changes to a uvular fricative as shown below.

/k/ → [χ] *mʰkak* → [mʰχax] 'scratching'

/k'/ → [χ'] *mʰk'al* → [mʰχ'al] 'being in a shed'

/k^w/ → [χ^w] *mʰk^wat* → [mʰχ^wat] 'taking a handful'

/k^w/ → [χ^w] *mʰk^wan* → [mʰχ^wan] 'shaking'

4. A feature observed in Tigrinya but not treated in the literature

The alveolar nasal /n/ followed by the velar stop /g/ normally gets assimilated by the velar feature and becomes velar nasal [ŋ]. It has been observed in Tigrinya that the alveolar nasal /n/ followed by the labialized velar stops gets assimilated by the velar feature and also takes the labial feature, as in the example below.

hang^wəl → [haŋ^wg^wəl] 'brain'

References

- Asmerom G. Silase (1991 E.C). məhawir ʔakadami k'wank'wa tigrīña. In Mekonen Mehamed, Muluwerk K/ Mariam, Selemon Enquay and T/ Haimanot H/ Silasie (eds.). *Məs'naŋʔat K'əddamay Simpoziyem K'wank'wa Tigrīña*; Birhanina Selam Printing Press. 718 - 737
- Bakovic, Eric (2007). Local Assimilation and Constraint Interaction. In Lacy, D. Paul (ed.). *The Cambridge Handbook of Phonology*. New York: Cambridge University Press. 335 - 352
- Birjandi, P. and Salmani-Nodoushan, A.M. (2005). *An Introduction to Phonetics*. Teheran: Zabankadeh Publications.
- Chambers, J. K and Trudgill, Peter (2004). *Dialectolog*, Second edition. New York: Cambridge University Press.
- Crystal, David (2003). *A Dictionary of Linguistics and Phonetics*, Fifth edition. Oxford: Blackwell.
- Daniel, Teklemariam (1991 E.C). How do we standardize the dialects of Tigrinya. In Mekonen Mehamed, Muluwerk K/ Mariam, Selemon Enquay and T/ Haimanot H/ Silasie (eds.). *Məs'naŋʔat K'əddamay Simpoziyem K'wank'wa Tigrīña*; Birhanina Selam Printing Press. 267 - 281
- Daniel, Teklu (2000 E.C). *Zəbənawi Səwasəw K'wank'wa Tigrīña*. Second edition. Mekele: Birana printing enterprise.
- Durand, Jacques (1990). *Generative and Non-Linear phonology*. London: Longman.
- Federal Democratic Republic of Ethiopia Population Census Commission (2008). Summary and Statistical Report of the 2007 Population and Housing Census. Addis Ababa.
- Fitzgerald, Colleen M. (nd). More on Phonological Variation in Tigrinya. <http://ling.uta.edu/~colleen/ICES15-Tigrinya.pdf>
- Fromkin, Victoria. Hyams, Nina and Rodman, Robert (2003). *An Introduction to Language*, Seventh edition. Massachusetts: Thomson Corporation.

- Gebremedhin Simon and Hailemichael Abera. (1991 E.C). *tigrīñña kəm məmhari k'wank'w'a*. In Mekonen Mehamed, Muluwerk K/ Mariam, Selemon Enquay and T/ Haimanot H/ Silasie (eds.). *Məs'naŋtat K'əddamay Simpoziyem K'wank'w'a Tigrīñña*; Birhanina Selam Printing Press. 284 - 306
- Ghelawdewos Araya (1991 E.C). Tigrinya A Sociolinguistic Approach. In Mekonen Mehamed, Muluwerk K/ Mariam, Selemon Enquay and T/ Haimanot H/ Silasie (eds.). *Məs'naŋtat K'əddamay Simpoziyem K'wank'w'a Tigrīñña*; Birhanina Selam Printing Press. 698 - 708
- Girmay Birhane (1983). The Phonology of Tigrinya; A generative approach. MA thesis. Addis Ababa: Addis Ababa University.
- Girmay Birhane (1991). Issues in the phonology and morphology of Tigrinya. PhD Dissertation. Montreal
- Kogan, Leonid E. (1997). Tigrinya. In Hetzron, (ed.). *The Semitic Languages*. London: Routledge. 424-445
- Ladefoged, Peter (1975). *A Course in Phonetics*. New York: Harcourt Brace Jovanovich, inc.
- Leslau, Wolf (1939). Observations sur quelques dialects du Tigrigna: (dialects d'Akkele Gouzay, d'Adoua et du Hamasen). *Journal Asiatique*. Paris v.231: 63 - 115
- Leslau, Wolf (1941). *Documents Tigrinya (Éthiopien Septentrional): Grammaire Et Textes*. Paris: Librairie C. Klincksieck.
- Lodge, Ken (2009). *A Critical Introduction to phonetics*. London: MPG Books Group.
- Mohammed Siraj (1983). The Phonology of Rayya Dialect of Tigrinya. BA Senior Essay. Addis Ababa: Addis Ababa University.
- Palmer, F. R. (1957). Gemination in Tigrinya. *Studies in linguistic analysis; Special volume of the Philological Society*. Oxford: Blackwell. 139 - 148.
- Praetorius, Franz. (1871). *Grammatik der Tigrīñasprache in Abessinien*. Hildesheim: Goerg Olms Verlag.
- Tesfay Tewolde. (2002). *A Modern Grammar of Tigrinya*. Rome.

- Teweldebirhan Gebregziabiher (1991 E.C). gurbitinna dims'itat ʔab k'ʷank'ʷa tigrīñña. In Mekonen Mehamed, Muluwerk K/ Mariam, Selemon Enquay and T/ Haimanot H/ Silasie (eds.). *Məs'naʃtat K'əddamay Simpoziyem K'ʷank'ʷa Tigrīñña*; Birhanina Selam Printing Press. 228 - 251
- Tsehay Teffera (1979). Reference Grammar of Tigrinya. PhD Dissertation. Washington D. C: George Town University.
- Yikune Amlak Mezgebe (1999 E.C). gidə midiya ʔab mift'ar miʔxul ʔafʔinda. In Berhe Haile, Gebre-Ab Barnabas, G/ Egziabher Bihon, Getahun Mesele, Selemon Enquay and T/ haimanot H/ silasie (eds.). *Wəʃ'iʔit Kəydi Məbbəl Kal ʔay Wəʃlan Məs'naʃtat in K'ʷank'ʷa Tigray.*: Planography Printing Press. 264 - 283
- Zec, Draga (2007). The Syllable. In Lacy, D. Paul (ed.). *The Cambridge Handbook of Phonology*. New York: Cambridge University Press. 261 - 194

Appendix

List of Informants

i)

Informants for Eastern Tigrinya

R.No	Name	Village	Woreda
1	Ato Muez Gebrehiwet	Tegahne	Atsbi Womberta
2	W/o Birikti Yebyo	Tegahne	Atsbi Womberta
3	Ato Desta Asefa	Tegahne	Atsbi Womberta
4	W/o Gidey Hagos	Gormoddo	Saeai Tsadamba
5	Ato Desta Girmay	Gormoddo	Saeai Tsadamba
6	W/o Tekien Hailemariam	Gormoddo	Saeai Tsadamba
7	Ato Girmay Hadera	Abraha we Atsbaha	Kilte Awlalo
8	Ato Alem Hagos	Abraha we Atsbaha	Kilte Awlalo
9	W/o Tsehainesh Hiluf	Abraha we Atsbaha	Kilte Awlalo
10	Ato Gebregiorgis Kahsay	Duggum	Hawzen
11	W/o Letebirhan Hailu	Duggum	Hawzen
12	W/o Mitslal Alemayu	Duggum	Hawzen

ii)

Informants for the other dialects

R.No	Name	Dialect
1	W/o Birhan Hailemariam	Enderta
2	Ato Abraha Girmay	Adwa
3	Ato Nigus Weldezgu	Rayya
4	Ato Amanuel Halefom	Hamasen

iii)

Informant for Amharic

W/t Meseret Atnafu