Dissertation By

Kebede Hordofa Janko

The School of Graduate Studies

Addis Ababa U niversity

Baate (Wello) Oromo Phonology: Palatalization of Alveo-dental Consonants and Related Issues

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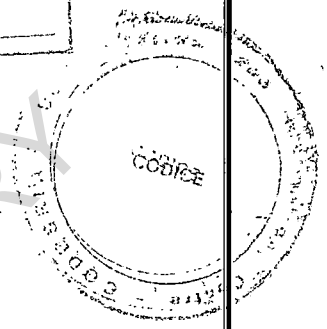

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BAATE (WELLO) OROMO PHONOLOGY: PALATALIZATION OF ALVEO-DENTAL CONSONANTS AND RELATED ISSUES

BY

KEBEDE HORDOFA JANKO

INSTITUTE OF LANGUAGE STUDIES

Approved by:

Takkele Taddesa
FBr Advisor

Baye Yimam
Examiner

Richard Hayward
Examiner

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Finally, I dedicate the thesis to our kids: Feyyu, Sinawwe and Natoli Kebede.

Table of Contents

List of charts, figure, diagrams and table

Signs, Symbols and Abbreviations used in the Thesis

abs	=	absolutive case
AN	=	Articulator Node
Caus $_1$	=	single causative suffix
Caus $_2$	=	double causative suffix
CN	=	Coronal Node
DN	=	Dorsal Node
fem	=	feminine
FG	=	Feature Geometry
imper	=	imperative marker
imperf	=	imperfective marker
LN	=	Laryngeal Node
Masc	=	masculine
Perf	=	Perfective marker
pref	=	prefix
PN	=	Place Node
Root	=	Root Node (= Phoneme)
SR	=	Surface representation
Suff	=	suffix
TPN	=	Tongue Position Node
UR	=	Underlying Representation
≠	=	delinking of association line
\ \	=	represenation of feature or node spreading (assimilation)
<	=	derives from
→ (↓)	=	becomes
∅	=	3 singular masculine marker or zero or deletion in rule formalism
3 sgm	=	3 singular masculine person
2 sg	=	2 singular person
1 pl	=	1 plural person
nom	=	nominative
*	=	marks ill-formed representation or historical form
{ }	=	either/or

Abstract

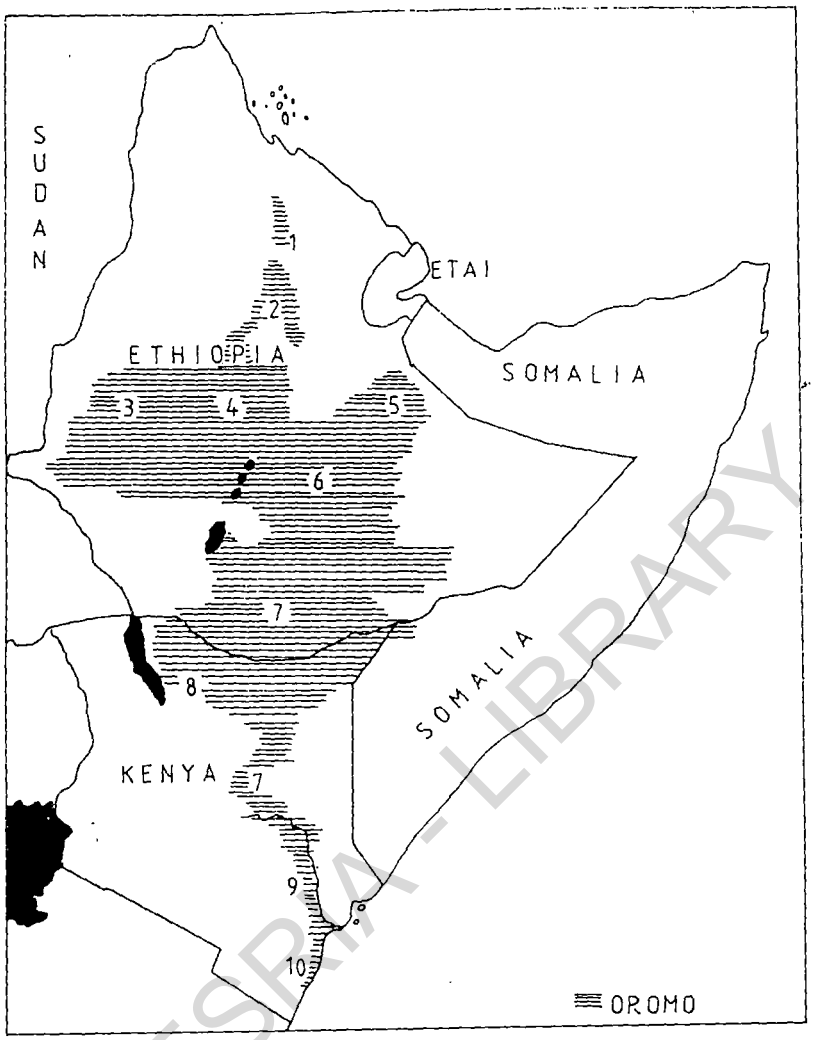
Wello Oromo is one of the least described dialects of the Oromo language. The thesis describes the palatalization process of alveo-dental consonants in respect with Baate (officially "Baati") variety of Wello Oromo.

Data were collected in two ways; by interviewing and by recording stories, conversations, etc.. The data are described in the framework of autosegmental phonology (see chapter 1.0).

A descriptive overview of roots, stems and affixes that are relevant in the discussion of the palatalization process is also given (see chapter 2.0). The process which changes root-final semi-vowel **y** followed by nasal consonant **n** to **ňň** is described in terms of recursive assimilatory process (see chapter 3.0). In previous work on Oromo, it is usually assumed that consonant **s** begins the causative morpheme of Oromo. And this **s** is thought to condition the palatalization of a preceding alveo-dental obstruent or lateral **l.** In this thesis, evidence is presented that the causative morpheme in Oromo begins with **i** and not with **s** at underlying representation (see chapter 4.0). This assumption, could, therefore, well account for the palatalization of the alveo-dental obstruents and lateral **l** (see chapter 5.0).

In general it is established that consonants, **n , l , d , t , t'** and **s** are palatalized in the environment of an underlying high front vowel **i** or palatal semivowel **y** that may or may not directly appear on the surface. This is also in agreement with universal assumptions about palatalization processes across languages. Also other related issues to the palatalization process are addressed in every chapter of the thesis.

It is hoped that the study adds to our knowledge of Oromo and may also provide further material and analysis towards comparative study of Oromo dialectology which is currently not well understood.



MAP Distribution of Oromo in Ethiopia and Kenya.

1. Raya Oromo
2. Wollo Oromo
3. Wellegga Oromo
4. Shoa Oromo
5. Harar Oromo
6. Arussi Oromo
7. Boraana Oromo
8. Gabra Oromo
9. Orma Oromo
10. Waata Oromo

1.0 INTRODUCTION

Wello Oromo is spoken in Wello province in North-Eastern Ethiopia. See the attached map adapted from Stroomer (1987). The particular cite chosen for the study is called Baate. And the choice is motivated by the assumption that "... the Oromo spoken around Batie is typical of Wello Oromo." (Hassen and Hayward 1980; P.55). Indeed I could see during the fieldworks that Baate is located at a cross-point for not only Oromos in Wello but also for other groups of people, the Amharas and the Afars; who met every Saturday, a big market day, for marketing at this town. In terms of present-day administrative boundary, Baate is included under Debub Wello "Southern Wello."

1.1 AIM AND SIGNIFICANCE OF THE STUDY

Wello Oromo is one of the least described dialects of the Oromo language. The thesis will hopefully enable us to understand some of its phonological properties and may even help us to show the relationship between the various Oromo dialects.

The specific aim of the thesis is to describe the palatalization process of alveo-dental consonants in respect with Baate variety of Oromo.

1.2 RESEARCH METHODOLOGY

Based on the model of Autosegmental phonology, the study attempts to determine the phonological rules that map the phonetic representation (PR hereafter) on to the underlying representation (UR hereafter).

Two methods were used to gather data. First items of interest in relation to palatalization processes of alveolar consonants are selected from previous studies. Then the items are translated into Amharic; the language used as a medium of elicitation during the fieldworks. The Amharic translations are further translated into corresponding Oromo forms by the language helper. This is done by reading out the forms prepared in Amharic to

the person. The Oromo items are also recorded in two ways; first on sheets of paper and then on to a cassette. This method is useful to check out possible transcription errors. Besides it is helpful to me to behave as if I were a non-native speaker[1], and only listen and record as the language helper utters so that I may not influence or bias his utterance.

In the second method stories, conversations, etc. were recorded randomly on cassettes. And this method is useful in obtaining unexpected material; that is, items which were not consciously included in the scheduled elicitation forms.

1.3 LITERATURE REVIEW

In this section I review two types of material. The first concerns previous studies on alveo-dental palatalization process. The second concerns theoretical models within which I am to frame the description of the palatalization process.

I begin by giving the consonant and vowel charts of Oromo with which I transcribe the thesis. I discuss the distinctive features involved in the palatalization process shortly. For a general work on Oromo distinctive features see Lloret (1988, p. 35).

CONSONANT : CHART I

OBSTRUENTS	LABIAL	ALVEO-DENTAL	PALATAL	VELAR	LARYNGEAL
Stop Vl		t		k	'
Vd	b	d		g	
eject.	p'	t'		k'	
impl		d'			
Fricative Vl	f	s	š		h
Vd					
Affricate Vl			č		
Vd			j		
eject.			č'		
SONORANTS					
Nasal	m	n	ň		
lateral		l			
vibrant		r			
Semivowel	w		y		

NOTES TO CHART I :

A consonant can be geminated (lengthened) and this is transcribed by two identical consonants in the thesis. Note also that the following conventions are used in the chart:

p', for I P A $p^{?}$, t' for $t^{?}$, d' for ɗ, č for ts, š for ʃ, č' for ts', k' for $k^{?}$ ň for ɲ, y for j, ' for ʔ, j for ǰ.

VOWEL : CHART II

Oromo has five short and five corresponding long vowels which are transcribed in the thesis as follows:-

SHORT VOWELS		LONG VOWELS	
i	**u**	**ii**	**uu**
e	**o**	**ee**	**oo**
a		**aa**	

1.3.1. FIXED STRESS

Oromo is a stress or a pitch-accent language. In stress language the primary stress is assigned to a fixed syllable in the word. Owens points out that "... in a pitch-accent [stress] system one can specify the tone on a single syllable and this one will be able to identify the overall tone pattern of the morpheme." (Owens, 1985; p.35). And he further states that "Oromo clearly conforms to...; pitch-accent definition." (Owens p. 35). He concludes that "... the syllable whose tone to be specified is the penultimate one." Nordfeldt's remark also agrees with Owens' observation: "In verbs, the root has the accent on the penultimate or ante- penultimate independently of the conjugation of the verb. "(Nordfeldt, 1947; p.14). The relevance of penultimate stress in Oromo with respect to the thesis is the fact that it induces deletion of a vowel which is assumed to be a carrier of weak stress in a nearby syllable.

We will come back to this in Section 4.3 in chapter 4.0 below.

1.3.2. PREVIOUS STUDIES

Hodson and Walker (1922) : This book is based on western variety of Oromo in Ethiopia. The authors state that in the formation of causative verbs in -**s**-, verbs that terminate the root in **d, d', t, t'** , change this "letter" to **č** (Hodson and Walker, 1923, pp. 65-60)[2].

Here is a sample taken from the book (pp. 65-66) (**č** is underlined below):

		SR		UR
(I)	a.	gačisiis -	"make abandon" <	gat - sis -
	b.	bičisiis -	"make buy" <	bit - sis -
	c.	fičisiis -	"make bring" <	fid - sis -

Gragg (1976): This book is based on Wellega Oromo, Western Ethiopia. In here, Gragg states that ".../ **s** / becomes / **č** / after a preceding / **I** / or alveolar or palatal, / **č'** / if it is glottalized. " (Gragg, 1976; p. 176). Examples are as given in (I) above except that Gragg doubles the palatal affricate - **čč** or if the consonant before **s** is glottalized - **č'č'**; a fact which Hodson and Walker did not recognize in (1922) above.

Hassen and Hayward (1980) : This is the only published work on Baate Oromo as far as I could review. In this article some linguistic evidence that is said to help reconstruct Oromo history is presented. The authors do not discuss the palatalization of alveo-dental consonants the thesis is treating [3].

Owens (1985): This is a book on Harar Oromo, Eastern Ethiopia, which Hassen and Hayward (1980) say has close relationship with Baate Oromo. Owens indicates that there are two forms of causative suffix; a single causative is characterized by **s** and a double causative by -**sis**. (Owens, p. 62) Owens shows that the single **s** or the first **s** of the double causative is realized by **č'**. One interesting problem which Owens raises reads as follows: "... there is **beeles** "make hungry", rather than **beelč'**.. I have no explanation for this." This will be discussed under 4.0 below.

Owens also notes that after non-glottalized dentals **t**, **d** the causative -**s** induces the change **d** / **t** to **č'č'** . (p.63).

Stroomer (1987): This book is a comparative work based on three Oromo dialects of Kenya. Stroomer points out that "verb stems ending in **t**, **d**, **d'** have -**č' i (i) s** - or -**si (i)s-**. Samples are given in (2) (**č'** is underlined below)(p.60):

(2)		**SR**			**UR**
	a.	hačisissa	"I make someone, steal, he etc."	<	hat - sis-a
	b.	bitačiisa	"I make someone buy something, he etc."	<	bit - at - sis-a
	c.	f uusisa	"I make someone take something, he etc."	<	fuud' - sis - a

Stroomer also points out that verb stems ending in a long consonant, in a consonant cluster, in **č** or **č'** have an epenthetic **i** if a consonant - initial suffix is added (p.54). (Compare this with rule (56) and the discussion related to it below in Section 5.2). He further notes that **č** which is derived before **s** of the causative morpheme is "...regarded as one phoneme." (p.14)[4]

Lloret (1987) : This is an interesting article based on the Western (Wellega) Oromo variety of Ethiopia. It is the most detailed study on the morphophonology of the causative verbs of Oromo. Lloret posits an **s** as a causative morpheme and other allomorphs of this form are conditioned by environments (p.141). According to her analysis, the palatalized form of the causative **s** is conditioned by a preceding root (or stem)- final alveo-dental consonant as the following quotation suggests (p. 148):

> First, **s** becomes **č** when it is preceded by an alveolar obstruent or lateral... Then, any alveolar obstruent assimilates to the following **č**.

Payton (1992) : This is an Orma Grammar Report that has not yet been published. Orma is a variety of Kenyan Oromo which Stroomer (1987) above has compared with other

Kenyan Oromo varieties. In particular Payton points out that "The causative suffix has allomorphs conditioned by its phonological and syntactic environment (p.8). Intransitive verbs take - **s**; transitive verbs take **-sis-** when the preceding syllable has a long vowel, and **siis-** otherwise." Payton states that a sequence of root or stem final **t** and **s** or **l** and **s** give **č**, while **č** and **c** (= consonant) sequence inserts an **i** in between (p.10).

In summary to the review of previous studies on palatalization, almost all authors assume that the causative morpheme - initial **s** conditions the palatalization of the alveo-dental consonant that precedes. Lloret in her analysis differs a bit from others in that as the quotation above suggests the alveolar obstruent or the lateral **l** conditions palatalization of the following **s** and on the second cycle the palatalized **s** (= **č**) regressively palatalizes the alveolar obstruent which according to her analysis has already conditioned palatalization of **s** to the **č** (Lloret, 187; p. 148). As regards the derivatives, the authors give different outputs, corresponding to different dialects. Gragg (1976), Owens (1985) and Lloret (1987) give two segments, **čč** and **č'č'**, derived from an alveo-dental consonant plus **s**, the later **č'č'** being derived from **t'** and **s** sequence at morpheme boundary[5]. Hodson and Walker (1922), Stroomer (1987) and Payton (1992) on the other hand give one segment in each case, that is **č** and **č'** derived from the same bases as in above.

1.3.3. THEORETICAL FRAMEWORK

In linear phonology, a feature matrix is meant to represent a single articulation or segment. But there is also a segment such as an affricate which is, while it is a single segment, made up of a sequence of two articulations. Such a complex segment is problematic for the linear representation since a feature matrix is assigned to a single articulation as pointed out already above:

> The problem with the feature matrix representation is that it does not allow the straight forward representation of two equal articulations within a single segment, ... Non-linear phonology, on the other hand, does allow the representations of

> articulations within a segment,... because unlike the feature matrix representation, it allows sequences of articulations within a single segments, represented by many - to - one mappings... (Sagey, 1990; p.3)

In the thesis, I follow the model of non-linear or autosegmental pholology basically for the reason given above.

In the framework of the autosegmental model, segments are divided into different levels or tiers. The skeletal tier represents quantity; a short segment has one element on the skeletal tier, while a long segment has two skeletal elements on the tier. An element on skeletal tier is represented by X. But it may also be represented by C or V. The latter representation is not preferrable, however, because C-V may also stand for consonant-vowel concepts. In the autosegemental model, however, the skeletal tier is assumed to be devoid of any feature including such features as C-V. (See Archangeli 1984; pp. 335-372; Van der Hulst and Smith 1982; pp. 2-8, Goldsmith 1990; p. 48).

An advantage of the autosegmental model is the fact that features can associate independently to the skeletal tier which means that assimilation rules such as palatalization can be represented as spreading of some feature over skeletal slots (see Archangeli 1988).

Szpyra (1992; p. 299) summarizes the basic framework of autosegmental model as follows. In the representations, F stands for Feature, X stands for skeletal slot and ø stands for deletion of element. In (3a), [F] associates with two skeletal slots, in (3b) two features dock on one skeletal slot, in (3c), [F] on the segmental tier facing X deletes, and in (3d), [F] on the segemental tier facing X remains flooting while the skeletal slot X that formerly corresponds to the [F] is deleted :-

(3) a. [F] b. [F] [F] c. ϕ d. [F]

/ \ \ /

X X X X ϕ

As briefly touched on in the above, assimilation of a feature to its neighbouring segment is accounted for by a spreading rule in autosegmental phonology. For a feature to

spread there must be a target which triggers the spreading. For the target to exist either some kind of phonological rule has to make it free of a feature or the segment has to be unspecified for that feature.

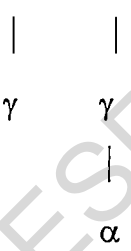
Rice and Avery formulate two theories of spreading in the following manner (1991; p. 106):

(4) a. "Spreading can occur only if the spreader is spreading to the same node that dominates it; that is a structural target must be present."

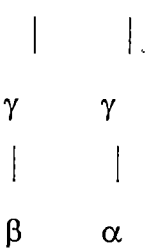
b. "A feature or node can spread only to an empty position."

Statements (4a) and (4b) above are also given graphically as follows. In the following A, B stand for segments on the skeletal tier. Also γ is an organizing node and α and β are dependents (see Section 1.3.3.1 below for the discussion of the notions of 'node' and 'dependent'):

(4) a.



b.



In (4a) spreading of α to γ can occur since γ is present in the representaion of (4a), but has no dependents, and is the structural node that dominates α. In (4b) on the other hand α cannot spread to γ because γ has the dependent β. For α to spread to γ an independent rule is needed to make γ free. These rules of spreading are important in the representation of palatalization processes in the thesis.

1.3.3.1. FEATURE GEOMETRY

Feature geometry is a recent development stemming from Autosegmental phonology. It organizes distinctive features into sets constituting natural classes. Such set structure is notationally represented via hierarchical trees called Feature Geometry. Each feature and each node of the feature in the tree constituents is a possible locus for a phonological rule. (See Pulleyblank 1988; p.234 and Paradis and Prunet 1991; p. 2).

In feature Geometry the highest structure is the skeletal slot which as I have reviewed in Section 1.3.3.0. above is represented by X. This level of representation encodes segmental length as I have also pointed out above. Paradis and Prunet review the constituents of Feature Geometry as follows (1991; p.4):

> The highest level of segmental organization is the timing unit, which encodes segemental length...The Root Node is quite similar to the traditional concepts of 'phoneme'. Two class nodes separate features involving laryngeal articulation (the Laryngeal Node) and those features articulated above the larynx (the Supralaryngeal Node). The Laryngeal Node dominates features encoding contrasts such as voice, glottalization, and implosion. The Supralaryngeal Node dominates all place features. Manner features do not form a constituent and are scattered throughout the geometry.

In the discussion of Feature Geometry the feature that is dominated by an immediate higher node or features is said to be a dependent of the immediately dominating node or feature. All nodes or features are assumed to stand on their own autosegmental tier. Features are binary in value while nodes are unary in the hierarchy. For instance [-anterior] contrasts with [+anterior] while a presence of class node called Coronal Node implies the absence of Labial Node or Dorsal Node (see Paradis and Prunet 1991; p. 4).

In the following section I give definitions of features on Feature Geometry tree which I will adapt for this thesis (see Diagram below). I focus on dependent features with particular emphasis on the Coronal Node and its dependent [anterior] features. For the rest of features in Feature Geometry across languages see Paradis and Prunet (1991).

1.3.3.2. DEFINITIONS OF FEATURES

1. Articulator (Node) dominates usually articulators called Labial, Coronal and Dorsal (Lahiri and Evers 1991; p. 87).
2. Place Node dominates Articulator Node and Tongue Position Node introduced by Lahiri and Evers (1991; p. 97). Tongue Position Node dominates the height features [high] and [low].
3. [± Continuant] : sounds produced with a primary constriction which allows the air to flow through the mid-sagittal region of the vocal tract are [+ cont] ; sounds produced with a sustained occlusion are [- cont] (Durand 1990; pp. 51-52).
4. [± Nasal] : Nasal sounds are produced by lowering the velum and allowing the air to pass out well through the nose; oral sounds are produced with the velum raised to prevent the passage of air through the nose (Durand 1990; p. 51).
5. [± Voice] : Sounds produced with vibrations of the vocal cords are voiced, voiceless sounds are produced with a glottal opening so wide that it will prevent vocal vibration if air flows through it (Durand, 1990; p. 54).
6. [± Constricted] : Constricted sounds are produced by adduction of the arytenoid cartilages causing the vocal cords to be pressed together and preventing normal vocal cord vibration; non-constricted (non-glottalized) sounds are produced without such a gesture. (Ejectives, implosives, glottalized or laryngealized consonants, vowels and glides are [+ constr]; all other sounds are [-constr] (Durand 1990, p.54).

7. [± Coronal] : In SPE (1968) the feature [+ coronal] is meant to characterize dental, alveolar and palato alveolar consonants as oppossed to labial, palatal, and velar consonants which are [-coronal]. However, this definition of coronal is disputed recently and a new definition is forwarded. For example, Young-mee states the following (Young-mee 1991; P. 176):

When faced with cross-lingusitic evidence that palatals pattern with dentals or alveolars rather than with labials and velars... the feature coronal could be redefined both articulatorily and acoustically to incorporate palatals.

He also points out that Lahiri and Blumstein (1984) proposed to include palatals along with palato-alveolar, dental, alveolar and rectroflex consonants under the Coronal Feature. (p. 176). In fact Lahiri and Evers argue that "the interaction of certain consonants and vowels in palatalization processes argues for a unitary set of features" (1991; p. 79). Also they point out that " ... a number of arguments were presented supporting the natural grouping of [+ coronal] Consonants, front vowels and palatal consonants including [j] based on phonological processes that treated these as a natural class (...)" (p. 81). As a consequence [+ coronal] was modified to group together dental, alveolar and palato-alveolar consonants with palatal consonants and front vowels. The redefinition of the feature coronal therefore also affected the traditional [back] feature which was used to specify along with [+high] & [- cons] the palatal glide y̲ and the high front vowel i̲ by its minus value. Lahiri and Evers essentially give two arguments to abandon the feature [back] (1991; p. 82):

> First the velar consonants (which must also be characterized by Dorsal) and vowels which are characterized by the dependent features of the Dorsal Node, do not function as a natural class in any phonological process. Second interaction of consonants characterized by coronal and front vowels cannot be expressed in terms of this representation.[6] The front vowels are "blind" to this feature since [back] is by definition dominated by the Dorsal Node alone. A familiar assimilation process

where alveolars or dentals become palato-alveolars before front vowels and [j] (...) can hardly be expressed as spreading if the segments do not share any feature. Thus under the present Feature Geometry proposed by Lahiri and Evers above the feature [back] is no more used.

8. [± anterior]; segments are also redefined as the Coronal segments are redefined, since coronal consonant articulation involves the feature values of Anterior. Previously Anterior segments were defined as follows (Durand, 1990; pp. 42-43): Anterior sounds are produced with a primary constriction located at or in front of the alveolar ridge, Posterior sounds are produced with a constriction behind the alveolar ridge. (Labials dentals and alveolars, palatals, velars, uvulars and pharyngeals are [-anterior]).

Recently, however, it has been found that [anterior] is a dependent feature of the Coronal Node, unlike in the previous conceptions such as in the preceding quotation. Keating points out that the feature Anterior "... divides coronals into more-front and more-back categories, determined by their place of articulation along, for example, the roof of the mouth." (1991; pp. 40-41). And further, Keating, based on research reports of others and on her own research presents the locations of anterior segments as in the figure below.

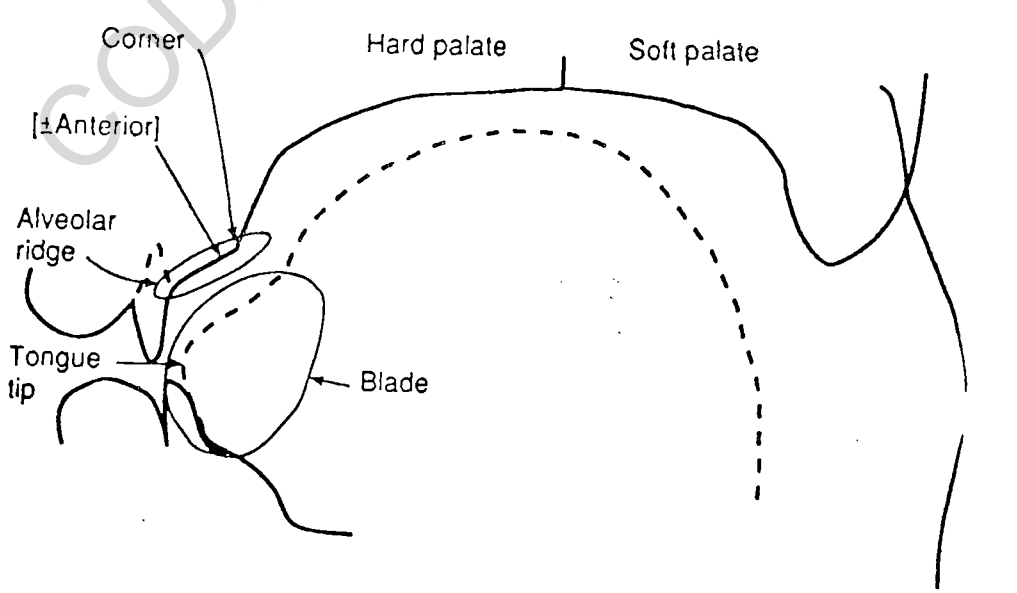


Figure : Overview of relevant anatomical distinctions: tongue tip and blade; alveolar ridge, corner, hard palate, soft palate; dividing point between [+anterior] and [−anterior].

Sagay also points out the following:

> Note, importantly, that [anterior] is defined as involving the tongue front. Thus, labials are not [+anterior], nor are velars [-anterior]. This differs from the definition in SPE, by which [anterior] referred solely to the point of constriction in the vocal tract, regardless of which articulator formed that constriction (Sagey, 1990; p. 208)

The [anterior] feature values are also proposed as dependents of Coronal Node in Lahiri and Evers who use the minus value to account for the alveo-dental consonant palatalization process. (see also (14) below):

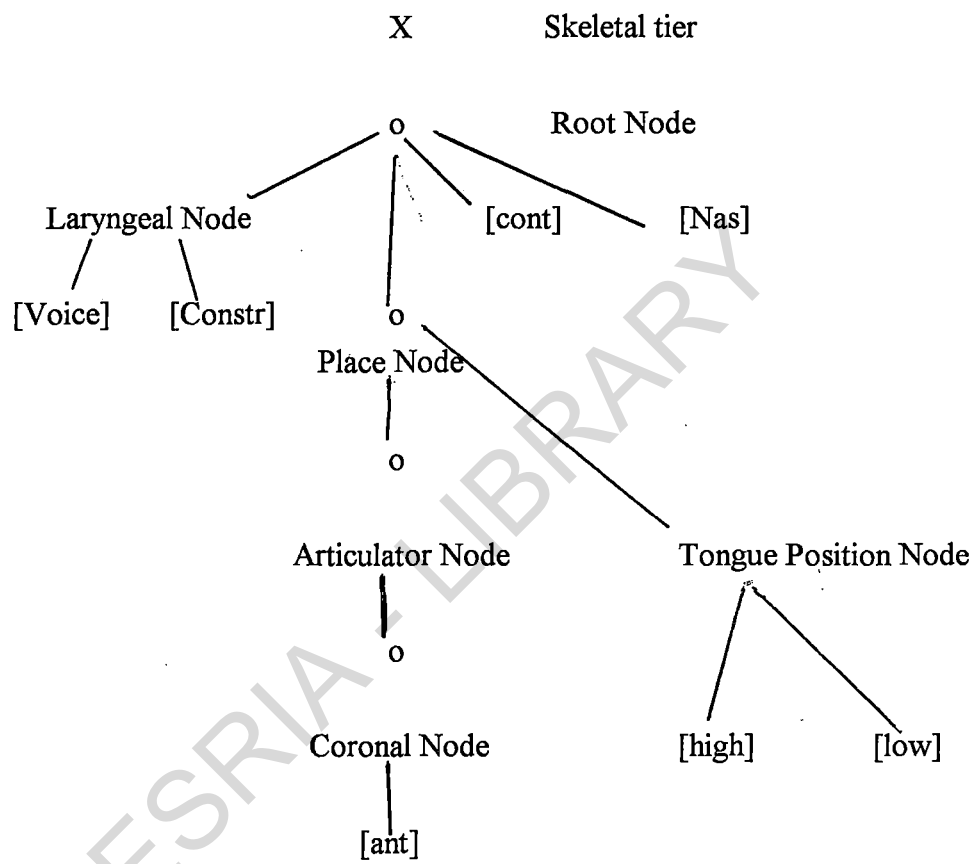
> From our view point, the assimilation [an alveo-dental consonant to palatal point of articulation] is easily explained since the target and the trigger are both coronal, the only change being the spreading of [-anterior], a dependent feature of this Articulator Node (Lahiri and Evers 1991; p. 91)

Compare also the view of the quotation with feature spreading rules (4) and the explanation given in relation to them under section 1.3.3.0 above.

Now, I will formalize the features defined above in terms of FG as in the Diagram below; based on Lahiri and Evers (1991). I have omitted from the tree features that are not relevant for the representation of the palatalization process. I refer the reader to the source above for further detail.

Diagram

Feature Geometry Adopted for the Thesis



Chapter 2.0

A Simple Descriptive Overview of Roots, Stems and Suffixes in Oromo Verb Formation

In this section, I will give a brief descriptive overview of roots, stems and suffixes that have connections with the palatalization process in the verbs of Oromo.

Two types of suffixes are identified: inflectional and derivational (on the differences, see Scalise 1988).

2.1 Inflectional Suffixes: Vowels

Inflectional vowel suffixes are not directly important to the palatalization process as we will see gradually in the process. But they are needed in that they give the final, fully formed words after the derivational suffixes, within which the palatalization process takes place, are attached to the base. In other words, it is for the sake of their completion of a derived word that we introduce them here.

Thus vowel suffixes are - **a** imperfective marker, -**e** perfective marker, and - **i** singular imperative marker. These suffixes are added at the final position of the verbal word as in examples of (5) below[7]:

(5)	a.	dʸeem - ø - a →	dʸeema [8]
		go - 3sgm- imperf	"he/it (will) go/goes "
	b.	dʸeem - ø - e →	dʸeeme
		go - 3 sgm - perf	"he/it went"
	c.	dʸeem - i →	dʸeemi
		go - 2 sg imper	" go! "

2.2 Inflectional Suffixes : Consonants

An inflectional consonantal suffix may mark person in a verb. The consonantal suffix precedes the perfect/imperfect marker that we saw in Section 2.1 above. For example, **n** marks **1** plural person and **t** marks **2** singular person in the following examples of (6):

(6)	a.	dʸeem - n - a →	dʸeemna
		go - 1pl - imperf	" we (will) go"
	b.	k'ab- n - a →	k'abna
		catch/have -1 pl - imperf	"we (will) catch/have"
	c.	dʸeem - t - a →	dʸeemta
		go - esg - imperf	" you (will) go"
	d.	k'ab - t a →	k'abda
		catch/have - 2sg-imperf	"you (will) catch/have".

Of particular interest to this thesis is the fact that **n** becomes **ňň** when it follows a root that finishes in palatal glide **y** as in (7) below. Also note that root-final **y** may be replaced by the laryngeal consonants **h** as in (7c) or **'** as in (7d). I will comment on this alternation of **y** & **'** in Section 3.1 below.

(7)	a.	booy - n - a →	booňňa
		cry - 1 pl - imperf	"we (will) cry"
	b.	giy - n - a →	geeňňa
		arrive - 1 pl - imperf	" we (will) arrive"
	c.	kaay/h - n - a →	keeňňa
		put - 1 pl - imperf	"we (will) put"
	d.	t aʔ - n - a →	teňňa
		sit - 1 pl - imperf	"we (will) sit"

e. d'agiy - n - a → d'ageňňa

hear- 1 pl - imperf " we (will) hear"

2.3 Derivational suffixes

A derivational suffix forms a verb from another root or stem verb, noun or adjective. Roots, stems and suffixes with such functions are given below:

2.3.1. Benefactive/reflexive

-at- : This suffix is called "benefactive-reflexive" (cf. Heine, 1980; p.50) or "middle voice verb" (cf. Stroomer, 1987; p.73). A verb stem derived by **-at-** suffix implies that one does something for one's own benefit. Except in 1 sg person, **- at -** is used with the rest of person to derive a verb stem from roots of other parts of speech (major categories). In 1 sg person - **ad'd'**- is used with roots however. Here is a table in which - at - and - **ad'd'**- are used to create a stem verb. In the table below, the noun root **dubb**- (cf. **dubbii** "speech" (noun)) is used as a base.

Table

An Example of Benefactive-Reflexive Stem Verb Derivation

	Person	UR	SR
sg.	1	dubb - ad'd' - a	dubbad'd'a "I (shall) speak (for myself)"
	2	dubb - at- t - a	dubbatta
	3 musc.	dubb - at - ø - a	dubbata
	3 fem.	dubb - at - ti	dubbatti
pl	1	dubb - at - n - a	dubbanna
	2	dubb - at - tani	dubbattani
	3	dubb - at - ani	dubbatani

The stem-final **t** of **dubbat** - "speak" (verb) in the Table above, for example, palatalizes to **č** when the consonant **s** of the causative morpheme, according to the traditional analyses, although I refute this in the thesis, or the infinitive marker **-uu** or **-aa** follows it as in (8) below. Note that the causative has a single causative marker (= $caus_1$) and a double causative marker (= $caus_2$) in the morpheme - by - morpheme gloss in the examples.

(8)	a.	dubbat - sis - ø - a →	dubba **č** isiisa
		speak - $caus_2$ - 3sgm- imperf	" he/ it (will) make (s) speak"
	b.	dubbat - uu/aa →	dubba **č** uu/aa
		speak - infinitive	" speaking/ to speak"

The processes in (8) above will be discussed in chapter 5.0.

2.3.2 Stative verb

(a)aw: This suffix derives a stem verb from a noun or an adjective root. The bilabial semi vowel **w** usually deletes in an intervocalic position. Compare mačcaae "he was drunk". Hassen and Hayward point out the following regarding a verb stem derived by adding an underlying stative suffix to the root:

> Oromo verbs of Conjugation III contain a derivational formative which reflects PEC *-aaw/*-oow (...). This element was originally suffixed in the formation of verbs from nominal or adjectival roots. (Hassen and Hayward, 1980; p.p 59-60)

Stems which are derived by means of the stative suffix is given in examples of (9) next:

(9)	a.	bee law -, cf;	beela
		"be hungry"	"hunger" (noun)
	b.	dukkanaaw -, cf;	dukkana
		"be dark"	"darkness"
	c.	booraw -, cf;	booruu
		"be muddy"	"muddy"

The derived stems in (9) above undergo interesting phonological processes. First, in each of the stems, the vowel **(a) a** varies its length with an opposite value of the vowel in the root before - **(a) aw**- That is, there is short-long or long-short syllable alternation between the root and the following suffix - **(a)aw**; infact the brackets in **(a)aw** is meant to indicate this alternation in vowel length. Compare the underlined vowel(s) in each of the roots with that of the suffix- **(a)aw** in (9) above. Second, when a person marker consonantal suffix such as 1 pl marker **n** follows the derived stem, the vowel **(a) a** that precedes **w** and **w** itself undergo various phonological processes: 1. Stem-internal vowel **(a)a** preceding **w** becomes **(o)o**, and 2. Palatal semivowel **y** is inserted in place of **w**. These processes are observable from examples of (10) below:

(10)	a.	beelaw - n - a →	beeloyna
		be hungry - 1pl - imperf	"we will be/are hungry"
	b.	mačaaw - n - a →	mačooyna
		be drunk - 1pl - imperf	"we will be/are drunk"

Contrary to the processes in (10) above, however, the derived stems in (10) followed by single causative marker **s** (see literature review in chapter 1) conditions the changes of vowel **(a)a** (before **w**) to **(e) e** and of **w** immediately preceding it to zero, that is, deletes it. Compare the following derivatives of (11) with that of (10) above:

(11)	a.	beelaw - s - ø - a →	beelessa
		be hungry - caus $_1$ - 3sgm - imperf	" he /it (will) make (s) hungry"
	b.	mačaaw - s - ø - a → mačeessa	
		be drunk - caus$_1$-3sgm-imperf	"he/ it (will) make(s) be drunk"

The process in examples of (10) and (11) above are taken as one strong piece of evidence to claim that the underlying form of the causative morpheme in Oromo is **is**. This will be elaborated with further pieces of evidence in chapter 4.0 of the thesis.

2.2.3 Causative Suffixes

According to most of the previous studies, single and double causative markers are given as **s** and **si (i)s** respectively. Lloret says that a causative morpheme is characterized by **s** . Hayward says that it is caracterized by - **is** - (cf. Lloret 1987). This controversy will be determined in chapter 4.0 below; as already pointed out in relation to the processes briefly touched upon in (10) and (11) above.

An interesting aspect of the causative morpheme is, as we have seen in a number of places, that a preceding alveo-dental consonant becomes palatal when followed by the morpheme as in the following examples of (12). Note that to form a double causative, the single causative marker is repeated in the examples (the palatalized consonant is underlined in the output)

(12) a. gal - s - ø - a → gaššša
go home/enter- caus$_1$-3sgm- imperf " he /it (will) make (s) go home/enter"

b. dubbat - sis - ø - a - → duubačisiisa
speak(forself) - caus$_2$ - 3sgm - imperf "he/it (will)make(s) speak (for himself)

c. fid - sis - ø - a → fičisiisa
bring - caus$_2$ - 3sgm-imperf "he/it (will) make (s) bring"

d. lit' - sis - ø - a → ličissiisa
enter - caus$_2$ - 3sgm - imperf " he/it will make, makes enter"

The palatalization process and related issues in examples of (12) above will be the subjects of chapter 5.0 below.

In the rest of the chapters that follow I will discuss palatalization, the main topic of the thesis.

Chapter 3.0
Palatalization of Alveo-dental consonants

As the term suggests, palatalization is an articulation of a speech sound at the palate. The term also implies that a segment previously articulated at a place different from the palatal area moves to this area for pronunciation. Lahiri and Evers state the following in this regard:

> The term palatalization suggests the environment of the palatal place of articulation, where the forward half part of the tongue is used to be the active articulator (Lahiri & Evers 1991; p. 80)

For a segment to be palatalized, Bhat describes the condition as follows:

> ... the environment that induces the change must be a palatalized environment,... it must be a front vowel, a palatal semivowel, or a palatalized consonant (Bhat 1978; p. 49)

The type of palatalization I describe in the study involves a place of articulation change within the coronal consonants. That is, alveo-dental consonants **n, t , d , t' , l & s** become palato - alveolar in the context of a palatalizer universally applicable as in Bhat 1978 above. I will begin with the alveo-dental nasal **n** .

3.1 Palatalization of n.

In Baate Oromo a root verb may end in palatal semivowel **y** followed (inflected) by consonantal suffix **n** as we saw in examples of (7) in section 2.1.1 above; repeated here:

(7) a.	booy - n - a →	booňňa
	cry - 1p1- imperf	"we (will) cry"
b.	giy - n - a →	geňňa
	arrive - 1p1 - imperf	"we (will) arrive"
c.	kaay/h - n - a →	keeňňa
	put - 1p1-imperf	"we (will) put"
d.	taˀ - n - a →	teňňa
	sit - 1p - imperf	" we (will) sit"

e. d'agiy - n - a → d'agenna
hear - 1p1 - imperf "we (will) hear)

Before giving my own analysis, it is necessary to review an account that has been given previously for more or less similar process of palatalization we see in (7) above. Such an analysis was given for Wellega Oromo, western Ethiopia (see Lloret, 1987, p. 151).

Thus in accounting for the change of **n** to **ňň** when precedded by root final palatal glide as in (7c) above for example, Lloret gives the following analysis.

First a rule that raised the root vowel **(a) a**, before **y** , to **(e) e**, applies as in (13b) below. Then the sonorant glide **y** implicitly losses its sonority and becomes obstruent **š** as in (13c) below. Finally, the obstruent palatal **š** regains its lost sonority and becomes palatal nasal **ň** preceding the consonantal suffix **ň** as in (13d) below. Lloret shows these derivations through taay - "sit" followed by **n** , 1p1, followed by - **a** imperfect marker as follows.

(13) a. "sit" taay - n - a.
↓
b. teeyna
↓
c. teešna
↓
d. [teeňňa]
" we (will) sit "

Obviously, there are problems with the derivational process in (13) above. To begin with, the assumption that **aa** first changes to **ee** before **y** as the process in (13b) indicates is unlikely. If this was the case, since the conditioning environment, that is, palatal glide **y** is already present in the root, **aa** would have been changed to **ee** without the need of affixing **n** after **y** (see footnote 12 for evidence). Second, the assumption that **y** changes to obstruent **š** in between vowel **aa** and the nasal **n** as in (13c) is even more problematic. Because there is no voiceless segment in the environment to assume that **y** acquires voiceless feature. In other words, the vowel **(a) a**, the palatal **y** itself, and the following consonant **n** are naturally voiced. Third, the order of rules application in which geminated

ňň derived from yn sequence as in (13d) is also not clear. Is it š in (13c) according to the derivational steps in (13d), which progressvely assimilates to the following consonantal suffix n and then becomes ň and is it this ň (derived from š before n) which palatalizes the n that has already "nasalized" š? Or is it the suffix n which assimilates, regressively, in palatal point of articulation to š and then becomes ň; then after influencing the preceding š to also become ň? If so how do we know that one of the two rules applies first and not the other? These are unsolved problems in the previous analysis. I therefore attempt to give my own account of the palatalization process that I believe is a better analysis in the following.

3.1.1 Present Analysis

A segment acquires a feature or features from another sources during derivation if it is underspecified for the feature(s) it acquires, at UR. Such acquisition of feature(s) is traditionally known by the term assimilation. Thus assimilation of feature(s) is motivated by lack of that feature(s) in UR. Booij reviews poser (1982) who points out this as follows:

> A segment not specified in the segmental core must obtain its specification by association with an autosegment (Booij 1984; p. 633).

Booij's view above is more elaborated by Stemberger and Stoel - Gammon:

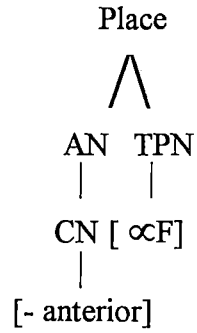
> ... in the unmarked case, assimilation will involve underspecified segments linking to a feature specified in other segments, as parts of a general goal of filling-in features. (Stemberger and Stoel-Gammon, 1991; p. 181)

Paradis and Prunet point out that "... the special status of coronals lies in the fact that they lack specifications for place features in UR" (1991; p. 3). The palatalization of the coronal consonants n, t, d, t', s, l and vowel (a)a assimilations of the features of the following palatal y as in examples of (7c) and (7d) above is therefore motivated by the assumption that they lack place features in their U R's[9]. In the rest of the section, I will present the palatalization (assimilation) of n to ň and then ňň. Then I will show how the root vowels i

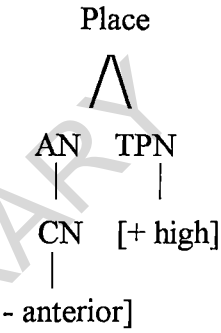
lowers to **e** and **(a) a** raises to **(e) e**. Finally I will comment on the **y/h** alternation we see at root- final position such as in (7c) above for example.

But before going into actual analysis, I present segment representations in terms of feature hierarchy discussed under Section 1.3.3.1 (compare also the Diagram) above. The following feature representations are based on the proposal of Lahiri and Evers (1991, p.90):

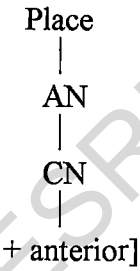
(14) a. Front Vowels



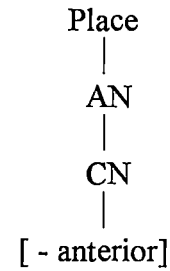
b. [Y]



c. Dental-Alveolar



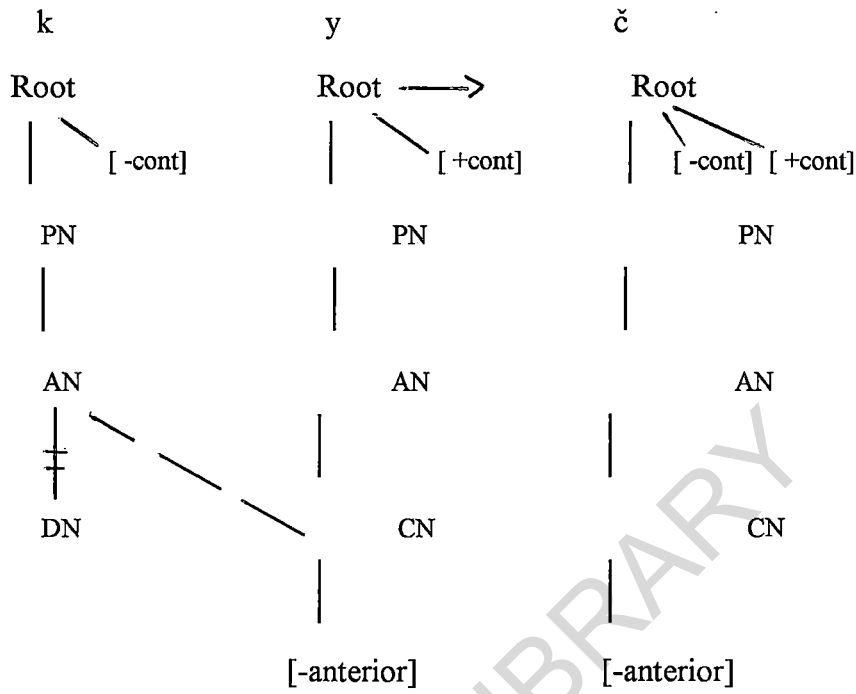
d. Palato - alveolar



e. Velar

In (14a) , [∝F] represents the different values of the features [high] and [low]. And based on the above proposal of feature representations, the proponents of the features hierachy represent the palatalization of velar **k** to **č** in the environment of **y** (see (14b) above) as follows.

(15) Representation of k Palatalization (Lahiri & Evers 1991; p. 90)



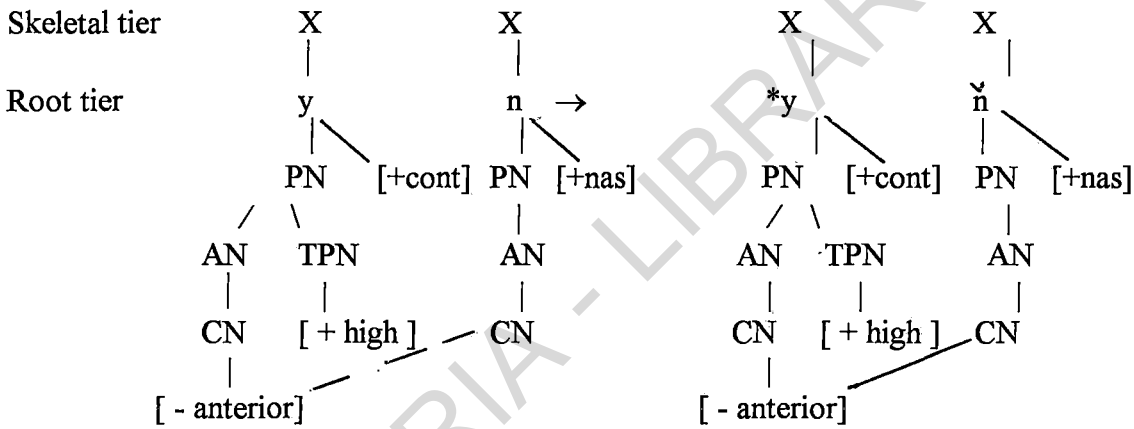
In(15), the Dorsal Node delinks and the Coronal Node along with its dependent [- anterior] spreads to the Articulator Node. The representation of alveo-dental consonant palatalization, however, differs from that of velar consonant shown in (15) above. Lahiri and Evers state this difference as follows:

> The type of palatalization, where dental-alveolar consonants become palato-alveolars, is viewed as spreading of [- anterior] within the Coronal Node. The trigger is usually a front vowel or [j] (...), both coronal segments in our description. Again, like the previous examples of velar fronting [(15) above KH], there is a shift in the place of articulation, but this time the primary articulator remains the same (Lahiri and Evers, 1991; p. 91)
>
> I will formalize the palatalization of n to ň & to ňň accordingly in the following section.

Thus, first the **1 p1** marker n that follows root-final (underlying) y palatalizes to ň in the derivation. This is formalized by spreading [- anterior] dependent feature of the

Coronal Node to the Coronal Node that is assumed to be underspecified for place of articulation feature at UR as we have reviewed at the beginning of Section 3.1.1 above. The spreading of features from root-final **y** is evidently bidirectional (see Goldsmith 1990, p. 30 for an account of a similar process), since the low vowel **(a) a** that comes preceding **y** also raises to **(e) e**, suggesting it has acquired features from **y** (see examples (7c) and (7d) above). (I will come back to this shortly). The spreading of [-anterior] to a Coronal Node as Lahari and Evers (p. 91) have pointed, therefore, is as follows.

(16) [- anterior] feature spreading to n



Rule (16) above derives an ill-formed cluster * **yn̆** . " ..., the generalization for the Oromo palatals is that a palatal cannot be followed by another consonant (...)" (Lloret, 1988; p. 22) (Compare also footnote 15 below). Thus I propose (16) is resolved by delinking **y** from the Root Node, followed by n̆ spreading to the x-slot which is free by now (see (4) above). Sagey points out that "... Gemination may be defined as spreading the Root Node (...)" (Sagey, 1990; p. 28)

Kaisse also states the following:

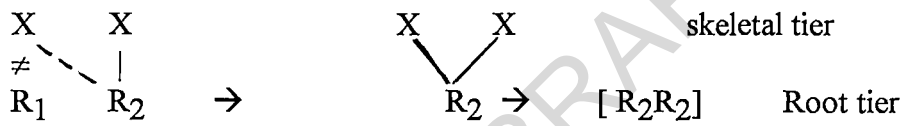
> If a segment loses several features such as its oral articulation (debuccalization) we may represent this reduction by delinking of the entire node dominating all oral cavity features (Kaisse 1992; pp. 313-314)

Again we find in Durand that the representation of such assimilation is effected by delinking and relink mechanism as follows:

> We need to be able to characterize process of total assimilation in which a whole segment assimilates all the features of a preceding/following segment. Thus total regressive assimilation can be formalized [...] where R_1 and R_2 on the Root tier are nodes from which all the other features hang. (Durand, 1990; p. 271).

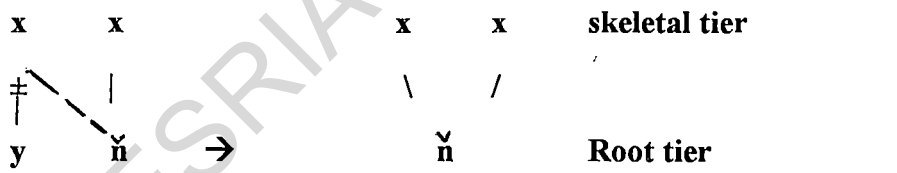
Thus, the total assimilation rule is represented by the following type of delinking and spreading rules according to the authors above.

(17) Total Assimilation (Example)



Following the system in (17) above, I may represent the assimilation of **yn̆** (cf. (16) above) change to **n̆n̆** as in (18) next.

(18) yn̆ Assimilation to n̆n̆



Example: (7a) booñña "we (will) cry" (from UR, booy-n-a)

To summarize, the derivation of **n̆n̆** from root final **y** followed by 1 pl marker **n**, I will restate the process through example (19) using the root "cry" as follows:

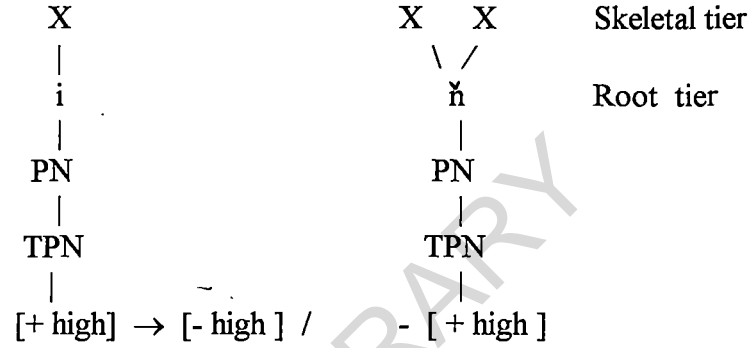
(19)	"cry" (verb)	booy - n	input
		↓	
		booy n̆ -	[- anterior] spreading rule (16)
		↓	
		[booñn̆ -]	y - Delinking and n̆ - spreading (18)

Example:	(7a)	booy - n - a →	booñña
		cry - 1 pl- imperf	"we (will) cry"

3.1.2 Vowel i Lowering and (a) a Raising to (e) e

In examples of (7b) and (7e) above, we have seen that high front vowel **i** lowers to **e** . Also in (7c) and (7d) we have seen that low vowel **(a)a** raises to **(e)e**. The fact that **i** lowers to **e** as in (7b) **geňňa** " we (will) arrive" < **giv - n - a** ' " arrive - 1 pl - imperf" might be represented as in (20a) below:

(20) a. **Lowering**



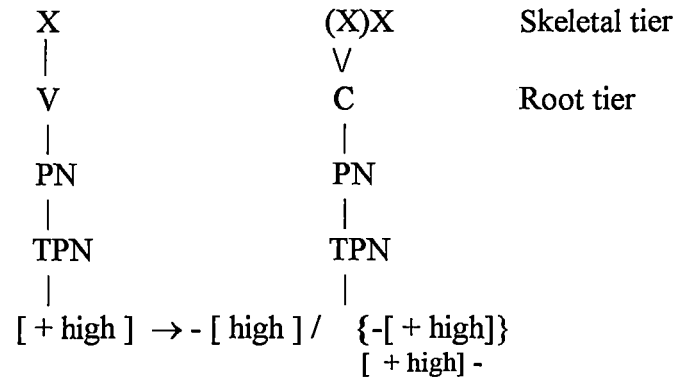
(20a) above says that high front vowel **i** lowers to **e** when geminated **ňň** follows it. However, it is not only high front vowel **i** that lowers. But also high front vowel **u** lowers when there is another derived [+high] segment in the environment as in a single example (20 b) below:

(20b) d u w - n a → d^{w}oona

die - 1 pl - imperf "we (will) die"

In (20b), **d^{w}** at initial of the derived form preceding [- high] **oo** is now [+high][10]. Therefore we may revise our rule (20a) above as follows; so that it captures for us the case in (20b) too. Note that the second [+ high] in the braces is to represent the environment that conditions **u** to **o** lowering. Note also that high vowels **i** and **u** on the one hand and high consonants **d^{w}** and **ňň** on the other are replaced by **v** and **c** respectively in the formalism for purpose of generalization:

(20a) Revised Lowering:



That two [+ high] features may not stand together on the same tier in certain derived words as (20a) predicts above is also evidenced further from the following vowel harmony process in Baate Oromo:

(21) a1. **baha** "I/he/it (will) get, gets out"

a2. **behe** "I/he/ it got out"

a3. **behi** "get out" (sg imper); but not * **bihi**

or waan **bohu** "I/he/it will not get out"; but not * **buhu**

b1. **taha** "I/he/it (will) become(s)"

b2. **tehe** "I/he/it became"

b3. **tehi** "You become" (sg imper); but not * **tihi**

or waan **tohu** "I/he/it (will) load(s)"; but not * **tuhu**

c1. **fa'a** "I/he/it (will) load(s)"

c2. **fe'e** "I/he/it loaded"

c3. **fe'i** "You load" (sg imper); but not * **fi'i**

Notice that in (a3), (b3) and (c3) of examples in (21) above, the root vowel never harmonizes with [+ high] of the suffix vowel i or u. This suggests that if a high vowel is derived, it is systematically lowered by the lowering (20a) (the revised one) above. This is what I claim to apply to **(a) a** which becomes **(e) e** in the final output as in the following subsection.

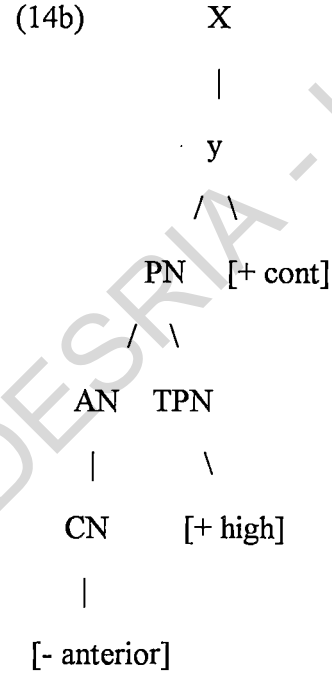
3.1.2.1 Vowel (a) a Raising to (e) e

One example in which **(a) a** raises to **(e) e** is (7c) **kaay/h - n - a** "put - 1 pl - imperf" which becomes **keeňňa** "we (will) put"[11]. To account for the process that changes **(a) a** to **(e) e** I propose the following analysis. First **(a) a** assimilates features of the root final **y** as it changes from low to the [-high] coronal vowel **(e) e**. Kaisse points out how to show such assimilation in the following manner:

> ... if one segment assimilates to another with respect to place, including coronality, and anteriority, we can show this by spreading all of the features grouped under place Node. (Kaisse, 1992; p. 314).

This is achieved by spreading PN of **y** in (14b) above to the root node (= **(a) a**) here. To repeat (14b) here for convenience, it is as follows:

(14b)

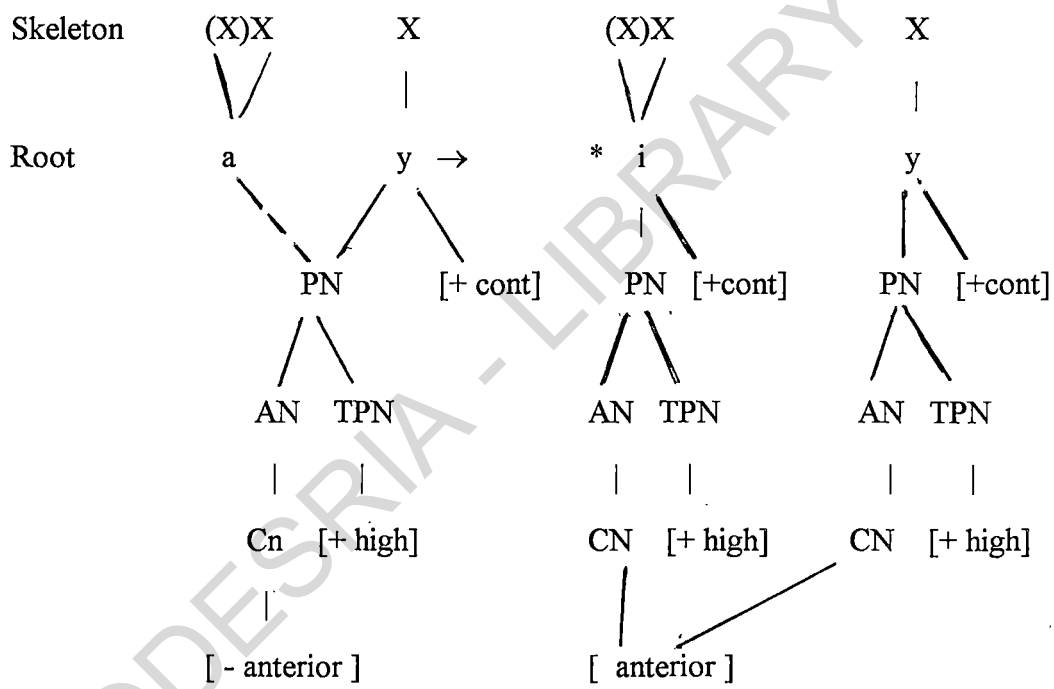


The representation of **(a) a** on the other hand is **x** linked to **(a) a** (= root) as it is not specified for place features at **UR** and hence no **PN** and therefore no subsequent features:

> Specification of just a root node is the representation of a maximally underspecified segment (Sagey, 1990; p. 206).

I, therefore, following the proposition of Kaisse (p.314) above, may represent the vowel **(a) a** raising rule by spreading the **PN** of the Root **y** which predicts that it spreads all the features hanging from it to the nucleus position of **(a) a**; the derivative of which should then be ill-formed* **(i) i** as in (22) below. Note here that **y** and **i** are distingushed only because they occupy different syllabic positions, that is; **i** on nucleus position and **y** on coda position. Otherwise they are specified underlying by the same features (see (14a) and (14b) above). I formalize this in (22) next:

(22) Place Node of y spreading to a(a)



The ill-formed * **(i) i** derived by (22) above is corrected by a further rule; Revised Lowering (20a) that has already applied to lower underlying **i** in example (7b) **giy - n - a** "arrive - 1 pl - imperf" which becomes **geňňa** " we (will) arrive" for example. Regarding the motivation for the lowering, the following observation by Yip may be relevant; note that if it is acceptable it also explains the process that rule (20a) above is formulated for:

> If a language has a general phonological rule that is blocked just when the output would contain a sequence of identical feature matrices, we can conclude that OCP

> [Obligatory Contour Principle] is operating to constrain derivations as well as underlying forms. (Yip, 1988; p. 65).

Thus, we see that both, the underlying vowel **i** as in (7b) "we (will) arrive" and the derived vowel **(i) i** in (22) above are equally subjected to lowering rule, formalized as Revised Lowering Rule (20 a) above.

I summarize the derivational process that I have proposed gives vowel **(e) e** from root vowel **(a) a** and **ňň** from **yn** sequence using example (7c) "put" below:

(23) "put" kaay - n - input
↓
kiiyň -[- anterior] spreading rule (16) and PN of **y** spreading rule (22)
↓
kiiňň - **y** - delinking and **ň** spreading rule (18)
↓
[keeňň -] - Revised Lowering Rule (20a)[12]

Example: (7a) keeňňa " we (will) put "

Similarily, the process in which an underlying root vowel **i** lowers as in (7b) giy - n - a "arrive - 1 pl - imperf" which becomes geňňa " we (will) arrive", might be summarized as in (24):

(24) "arrive" giy - n - input
↓
giyň - [- anterior] spreading rule (16)
↓
giňň - y - delinking and **ň** spreading rule (18)
↓
[geňň -] - Revised Lowering Rule (20a).

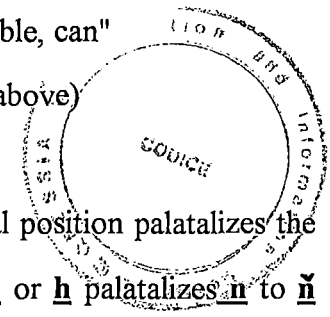
Example: (7 b) geňňa " we (will) arrive"

A final point to be raised concerns the alternation of root final **y** with **h** or the fact that a verb root finishing in a laryngeal consonants **'** or **h** followed by **n** 1 pl palatalizes to **ňň**. Here are examples:

(25) a. ta' - n - a → teňňa (compare, ta'a "I, it, he sits")
sit - 1 pl - imperf "we (will) sit"

b. dandah - n - a → dandeňňa (compare, dandaha " I , he can")
can/be able - 1 pl - imperf "we (will) be able, can"

c. kaay/h - n - a → keeňňa (same as (7c) above)
put - 1 pl- imperf " we (will) put"



In (25) above, it appears as if the glottal consonant at the root-final position palatalizes the following **n** to **ň** which then becomes **ňň**. But to assume that **'** or **h** palatalizes **n** to **ň** which also becomes **ňň** as we see in (25) is unnatural since there is no palatal features articulated at the laryngeal node. Moreover, we recall in Bhat 1978 above that for palatalization the environment should be a front vowel, a palatal glide **y** or a palatalized consonant. Hassen and Hayward point out the following regarding the glottal consonants in particular **h**; at root-final position:

> Many instances of intrusive **h** appear stem- finally in verbs... with one or two exceptions, verbs of conjugation IV have to be traced back to forms with stem-final **y** . (Hassen and Hayward, 1980; p. 57)

Hassen and Hayward go on to say that the earlier presence of **y** in all dialects of Oromo "... is occasionally witnessed by palatalization in members of the verb paradigm containg consonantal person marker." (p.57). This suggests the underlying root-final consonant is not the surface glottal **'** or **h** we see in examples of (25). From alternations, "the underlying form is equivalent to one of the alternates." in terms of synchronic analysis (Schane 1973; p. 78).

Thus, I propose that we may assume the underlying form of a root verb ends in palatal glide **y**, regardless of the surface alternation of this glide **y** with laryngeal **'** or **h**; given that when consonantal suffix such as **n** suffixed to the root, a palatalization of the added consonant follows. Thus I may say that in examples of (25) above underlying **y** is followed by 1 pl marker **n** and hence a palatalized **ňň** is resulted following the regular derivational process that I proposed in relation to the attested root - final **y** plus **n**. See (23) and (24) above for example.

Chapter 4.0

Evidence Towards the Underlying Form of the Causative Suffix in Oromo

In Section 2.3.3 above it has been pointed out that there is controversy regarding the form of the causative suffix in Oromo. Hayward 1976, reviewed in Lloret 1987, holds the view that a causative verb in Oromo has unique underlying form " ... which he considers to be **[is]**." (Lloret 1987; p. 144). Lloret, however, disagrees with this form of the causative in that she says that " ... the underlying form of the causative morpheme is /s/ not /is/ ".

In this section, I will present evidence that there is an **i** at the initial position of the causative morpheme of Oromo. Based on the arguments here, I discuss the palatalization process in alveo-dental (obstruent) consonants in chapter 5.0 below. Lass states the sources of evidence to justify abstract analysis in the following manner:

> We need some external or substantive criteria for justification [of abstract analysis]. If we want to make a serious decision about how a speaker might `represent' a linguistic form (...), we must draw upon independent criteria: Evidence from `areas such as typology, language history, ... and the like. Or at least there's a respectable tradition that claims that this is how we ought to go about (Lass 1984, p. 215)

In light of such an approach, I will draw evidence from the Baate dialect itself, from other closely related Cushitic languages and from typology in order to determine that there must be an **i** at the initial position of the causative morpheme. Thus let us look at examples in (26) below:

(26)	a.	gal - s →	gašš-,	b.	bul - s →	bušš-
		enter - caus$_1$	"make enter"		pass night - caus$_1$	"make pass night"
	c.	bit - sis - →	bičisiis - ,	d.	naat - sis - →	naačisiis-
		buy - caus$_2$	"make buy":		eat - caus$_2$	"make eat"
	e.	fid - sis - →	fičisiis -	f.	barbaad - sis - →	barbaačisiis -

	bring - caus$_2$	"make bring"		look for - caus$_2$	"make look for"
g.	lit' - sis - →	lič'isiis - ,	h.	fit' - sis - →	fič'isiis-
	enter - caus$_2$	"make enter"		finish - caus$_2$	"make finish"

Examples in (26) above suggest that there must be a palatalizer that begins the surface -**s**- or -**sis**-. Otherwise we cannot account for the palatalizing feature, since it is unnatural to assume non-palatally articulated **s** -as it is usually assumed (cf. Lloret 1987, for example)- can spread palatal feature to the root-final consonant in the inputs of (26).

Another piece of evidence comes from the phonological process that arises when a stative verb stem is followed by the causative suffix of Oromo (see also Section 2.3.2 above). Thus in Baate a stative verb with a general meaning "be x" can be inflected by consonantal suffixes such as **n** 1 pl; or **t** 2nd singular, for example. The same stem of the stative verb can also be inflected by causative morpheme of Oromo whose initial begins or rather is represented by the consonant **s** usually (see Section 1.3.2 above). In (27) to (31) below, **n/t** is inflected to the stem of stative verbs given under (**a**)'s while **s** is inflected to the same stems under (**b**)'s. A stem of the stative verb usually ends in **w**; at least underlying as its round feature spreads to the stem-internal vowel **(a) a** in (**a**)'s below (cf. Hassen and Hayward 1980; p. 60, Gragg 1976; p. 177, Black 1974; pp. 66-67), Owens 1985; p. 248).

(27)	a.	mačaaw - n/t - a →	a'· mačooyn/ta
		be drunk - 1 pl/2sg - imperf	"we/you (will) become, are drunk"
	b.	macaaw - s - ø - a →	b'·mačeessa
		be drunk - caus$_1$ - 1sg/3sgm - imperf	" I/he/it (will) make, makes he/it makes drunk"
(28)	a.	ajaaw - n/t - a →	a'·ajooyn/ta
		smell bad - 1 pl/2sg - imperf	" we/you (will) smell bad"
	b.	ajaaw - s - ø - a →	b'·ajeessa
		smell bad - caus$_1$ - 1sg/3sgm - imperf"	make smell bad"
(29)	a.	waan mi'aaw - n - e →	a'·waan mi 'ooyne
		neg(perf) be sweat - neg(suff)	"is / was not sweatened"
	b.	mi 'aaw - s - ø - e →	b'·mi 'eesse
		be sweat - caus$_1$ - 1sg/3sgm	"I/he/it (will) make, makes sweat"
(30)	a.	bee law - n/t - a →	beeloyn/ta
		be hungry - 1pl/2sg - imperf	"we/you (will) become are hungry"

	b.	beelaw - s - ø - a - →	beelessa
		be hungry-caus$_1$-1sg/3sgm - imperf	"I make, he makes hungry"
(31)	a.	had'd'aaw -n/t - a →	had'd'ooyn/ta
		be bitter-1pl/2sg-imperf	"I/he/it (will) make, makes be bitter"
			(in one's way of speech for example)
	b.	had'd'aaw- s - ø - a →	had'd'eessa
		be bitter - caus$_1$ - 1sg/3sgm - imperf	"I/he/it (will) make, makes be bitter"

In examples of (27) to (31) under **(a)**'s above, stem- internal vowel **(a)a** becomes **(o)o** when person marker **n, t**, follows the stem. This suggests that **w** is an underlying form of the stem - final consonant. In **(b)'s** , however, this **w** is deleted without leaving its traces on the preceding stem-vowel as in **(a)**'s. Instead the stem vowel **(a)a** changes to **(e)e** when the consonant **s** follows. A parallel vowel raising process has been observed in some examples of (7) above. For example in (7c) **kaay**- " put" **aa** raises to **ee** as in the corresponding **keeňňa**" we (will) put". In **(b)**'s of (27) to (31) above also, we notice that **(a)a** raises to **ee** before the consonant **s**.

From this we hypothesize that there must be an underlying **i** or **y** before the consonant **s** that follows. The fact that **(a)a + i** and **(a)a + u (w)** sequences become **(e)e** and **(o)o** respectively in the derivations of (27) to (31) above has also been reported from elsewhere.

For Bantu languages, Goldsmith points out the following:

> The result of juxtaposing two vowels is a long vowel here, and if the first is the low vowel **a** and the second is a high vowel (i.e **i** or **u**), then the quality of the composite vowel is a mid vowel. ... Thus **a + i** becomes **e** and **a + u** becomes **0**."
> (Goldsmith 1990; p. 242)

In conclusion, the process in **(b)**'s of (27) to (31) above in which stem - internal **(a)a** becomes **(e)e** when the causative morpheme; which is usually analyzed as **s** , follows the stem - final **w** suggests that there is an **i** or **y** that should begin the causative morpheme.

That is, it should be - **is** - or - **ys** -. This assumption is supported by the process in which, when root final **y** as in (7c) **kaay** - "put" above is followed by consonantal suffix **n** for example **aa** raises to **ee** while **y** merges with **n** that follows it and becomes **ňň** (for detail see chapter 3.0 above) as in **keeňňa** " we (will) put". Besides, similar process has been reported for Bantu languages in which sequences of **a+i** and **a+u** become **e** and **o** respectively as we saw in Goldsmith 1990 above.

If the above assumption is correct, the deletion of stem-final **w** before the causative suffix that follows (cf. (**b**)'s above) may be accounted for as follows. For example, to derive (30b) **beeless** - "make be hungry"[14], the stem **beelaw**- "be hungry" is inflected by underlying form of the causative morpheme **is**. This places the stem-final **w** in an intervocalic position as in **beelaw-is** - " be hungry - caus$_1$ "

Then **w** is weakened to zero (deleted) (Note also that high glide **y** deletes in between vowels of the same height; compare, **giya** " I (will) arrive, he/it (will) arrive, arrives" with **gee** "he/it arrived" in Baate Oromo). The deletion of **w** then makes the stem-internal vowel **(a)a** contiguous with the underlying vowel **i** that begins the causative morpheme, that is - **is** - . Then as already indicated **(a)a-y** (see examples (7c) above) or **a+i** (see Goldsmith 1990) sequence results in **(e)e**.

4.1 Evidence From Vowel Length Dissimilation

In Baate Oromo there is a vowel length dissimilation rule that applies when a certain stem is inflected by vowel - initial suffixes as in examples of (32) to (34) below (for a similar process in other dialects of Oromo see Gragg 1976; p. 177, Owens 1985, p. 63, Lloret 1987; p. 153 for example).

In examples of (32) and (33) the vowel at the initial position of every affix, indicated after the hyphen is said to be part of the affix at the underlying level. That is to say, in each of them, the vowel is not inserted by rule, but is part of the affix. The vowel **(i)i** in examples of (34), however is argued to be inserted by what Lloret calls a " Morphological Epenthesis rule" given after the examples below (Lloret 1987; p. 146). Note that the underline in the

examples below is to show vowel length alternation between the syllables in contiguous at morpheme boundary:

A. Plurals

(32)a.	nama	b.	'ijoolle	c.	gaango	d.	muc'aa
	"man"		"boy"		"mule"		"baby"
	n am-oota		'ijooll-ota		gaangoli		muč'-ooli
	"men"		"boys"		"mules"		"babies"

B. Stative Verbs

(33)a.	bʸeel -aw	b.	mač - aaw-
	"be hungry"		" be drunk"
	urg - aaw		d'iit - aw-
	"Smell good"		" Swell"

C. Double causative

(34) a.	k'aps-iis-	b.	dʸeems-is-
	"make catch" (fire for eg.)		"make go"
	dipxs-iis-		d'iips-is-
	"make be anointed"		"make push"

The process shown by the underlined vowels in examples of (32) to (34) above is such that "... the affix has a long vowel if the vowel in the preceding syllable is short, and a short vowel if the preceding vowel is long (Lloret 1987, p. 153). This alternation in the syllable length is formulated as follows.

Vowel Length Dissimilation rule (Lloret 1987, p. 152)

(35) affix [v(v) $\rightarrow$ V$_{-\alpha \text{ long}}$/ V$_{\alpha \text{ long}}$ c(c) + -

Also the vowel **(i)i** before **s** in (34) above is inserted by the following "Morphological Epenthesis" rule (36) according to Lloret.

"Morphological Epenthesis" rule (Lloret 1987, p. 146)

(36) $\phi \rightarrow$ i(i) / [affix s - s.

As already pointed out above, the vowel at the initial position of the affixes in (32) and (33) is part of the affixes in the underlying form. The vowel **(i)i** in examples of (34), however, is inserted by rule (36) as claimed by Lloret above. However the fact that the vowel (i) i in (34) undergoes the vowel length dissimilation rule (35), just like other underlying vowels of the affixes in (32) and (33) suggests that **i** must be in the underlying form of the causative suffix. This might be clearer through the following presentation. In (37) below, vowel length dissimilation (35) above applies to the affix in the input since the vowel is part of the underlying form of the affix. But to examples of (38) below, this rule does not apply because vowel **i** is not , on a par with the underlying vowels of affixes in (37), assumed to be part of the underlying form of the causative morpheme. That is to say; it is inserted by rule (36) late in the derivation according to Lloret 1987 above. But if **i** is in the input, as I argue it should be, it gives the well-formed structure as in examples of (39) next (the ill-formed structure is starred in (38) below):

	Input		**Rule**	**Output**
(37)	a.	beel-aw hunger (noun) - stative	Vowel Length Dissimilation (35)	beelaw - "be hungry"
	b.	'urg - aw - smell (noun) - stative	" " "	urgaaw- "smell good"
(38)	a.	dʸeem -s - s - go - caus$_1$- caus$_2$	_____	* dʸeem -s-s-
	b.	kolf - s - s - laugh - caus$_1$ - caus$_2$	_____	* kolf -s-s-
(39)	a.	dʸeemis - is - go - caus$_1$ - caus$_2$ -	Vowel Length Dissimilation (35)	dʸeemsis- " make go"

b. kolfis - is - " " " kolfis iis-

laugh - caus$_1$ - caus$_2$ "make laugh"

Thus, from the fact that **i** can undergo vowel Length Dissimilation rule (35), just like an underlying vowel of vowel-initial suffixes as we see in examples of (32) and (33) above, we may conclude that **i** is in the underlying form of the causative morpheme in Oromo.

4.2 Evidence From Related Languages

In this section, I will draw evidence from other languages genetically related to Oromo (see Black 1974 and Bender (ed) 1976). Chomsky and Halle point out the following as regards evidences traced from genetically related languages:

> It should be observed that every different dialect may have the same or a very similar system of underlying representations. It is a widely confirmed empirical fact that underlying representations are fairly resistant to involve late phonetic rules. If this is true, then the same system of representation for underlying forms will be found over long stretches of space and time." (SPE 1968, p. 49).

Similarly Schane states that the underlying form in a present day language may be an extension of a historical form. In his words, this reads as follows:

> ... the underlying forms in the contemporary language frequently coincide with earlier attested forms for that language, and that the synchronic phonological rules may correlate with diachronic sound changes. (Schane 1973, p. 91)

Hence the following pieces of evidence from related Cushitic languages of Ethiopia suggests the idea that there is vowel **i** at the initial position of the causative marker in Oromo:

1. In Afar, a branch of Lowland East Cushitic Languages group, " The common Afro-Asiatic Causative verb is normally formed ... with the suffix **is** for intransitive

verbs..." (Bliese 1980, pp. 129-130). In the following the causative morpheme is underlined.

Examples :

(40)	a.	bay - is 's - e →	bayis'se
		lose - caus - you - perf	"you lost"
	b.	fax - is - s -aa - 'na →	faxiss aa'na
		boil - caus - you - imperf - pl →	"you boil" (plural)
	c.	bar - is - 's - e →	bar is'se
		teach - caus - you - perf	"you taught"

2. In Sidamo, a Highland East Cushitic Language (cf. Bender (ed) 1976), an **i** may appear both before a single causative and double causative morphemes as in (41) below (Abbebe, no date):

(41) a. but' - is - su - h - e
poor - caus$_1$ - they - you - perf.
"they made you poor"

b. but' - isiis- su - h - e
poor - caus$_2$ - they - you - perf.
"they got someone to make you poor"

c. bett - ho wot'e soy - isiis - ummo
boy - for/to - money send - caus$_2$ - imperf
"I got someone to send the money to the boy"

3. In Bilan, an Agew Language, **i** has been indicated before **s**, as in the following examples of (42) (Appleyard 1980, p. 3) (ə = schwa):

(42)	a.	ankəl - is -,	(b)Sax - is - ,	(c)	q^{w}al - is -
		to love - caus.	to take - caus.		to see - caus-
		"cause to love"	"cause to take"		"cause to see, show"

4. In Somali, the causative morpheme is realized as **i (y)**, **is** or sometimes as **š** (Giorgio Banti 1993, Personal Communication)

We notice in examples of (40) to (42) and also in observation of Giorgio Banti 1993 above, that **i** forms part of the causative morpheme in related languages. In summary, we have seen the following pieces of evidence in the present section:

1. A stative verb stem in the UR, beelaw "be hungry" for example, becomes beeloyna "we are hungry" or beeloyta "you (sg) are hungry" when **n/t** personal suffix follows it. However, this stem becomes beeless - "make be hungry" when the surface causative consonant **s** follows. On the other hand we have noticed that, for example, in (7c) kaay-n-a "put - 1pl - perf", the root vowel **aa** becomes **ee** as in keeňňa " we (will) put", just like **a** of the stem beelaw - "be hungry" which becomes also **e** as in beeless- "make to be hungry". The fact that stem vowel **(a)a** raises to **(e)e** in both examples suggests that there is vowel **i** (or palatal **y**) before the consonant **s** as already proposed in Hayward at the beginning of this section.

2. Vowel Length Dissimilation rule (35) above applies to underlying vowels of vowel-initial suffixes as in mačaaw. "be drunk" and beelaw- "be hungry" for example. The same rule is also applying to **i** in the double causative verb as in dʸeemsis "make go" and kolfisiis - "make laugh". The fact that vowel **i** in the double causative stem undergoes vowel length dissimilation rule on a par with underlying vowel of vowel-initial suffixes as in examples of (32) and (33) above suggests that **i** is part of the underlying form of the causative morpheme in Oromo (for the first *i* retention in "make laugh" above see Section 5.3 and also footnote 15 below).

3. In Baate Oromo, an alveo-dental obstruent or lateral **l** is palatalized when a causative suffix with surface manifestation **s** follows it. A parallel form in other related Cushitic languages suggests that there is an **i** before this **s** of Oromo. This suggests that the causative suffix **is** has undergone further phonological process whose reflex is attested in the palatalized forms of alveo-dental consonants in Oromo. After all, the synchronic

palatalization of an alveo-dental consonant before the surface **s** is evidence in itself for the assumption that there is an **i** or **y** that begins the causative morpheme, since palatalization of a consonant is universally in the environment of such "Palatalizing segment" (see Bhat 1978).

Thus, I assume, along with Hayward, that there is an **i** before the consoanat **s** in the causative morpheme of Oromo. And this **i** palatalizes an alveo-dental obstruent **l, s, t, d, or t'** that precedes during suffixation. But there is one apparent problem that arises because of the assumption that there should be **i** at the initial position in the causative suffix. If that is true, how is it that **i** disappears in derivatives such as (34a) **k'apsiis** - "make catch" above from, according to the present assumption, **k'ab** - followed by the causative suffixes - **is** - **is** - "$caus_1$ - $caus_2$". I will try to clarify this problem under the heading "Syncopation" first and return to account for the palatalization process.

4.3 Syncopation

In Section 1.3.1 above, I have pointed out that the penultimate syllable bears stress in Oromo and this stressed syllable has an influence on a nearby (weak) syllable. As such the **i** that begins the causative suffix of Oromo at UR may delete when the stressed syllable is in the environment. In this case we are dealing with the process known as Syncope or Syncopation. Syncope or Syncopation is formative- internal deletion which is said to be used most frequently for vowel loss (cf. Lass 1984)· Anthony describes the circumstances under which syncopation applies:

> Loss of Vowels (and therefore syllable) is especially common in language with strong stress on one syallable of a word. As a result of the emphasis on the stressed syllable, other syllables in the word tend to become reduced (or "slurred") and may be eventually lost..., when a medial vowel drops, the process is called "Syncope" (Anthony, 1972; p. 80)·

Syncopation occurred in the development from Latin to French, for example, according to Schane(1973, p. 157). Thus in words with antepenultimate stress-where the stress is on the third syllable from the end of the word-the penultimate vowel, or the vowel between the stressed and final vowels, was dropped as in example of (42) below. In the example, / = stressed syllable, ∂ = schwa, ɛ = half open low-front vowel.

		Latin	**French**	
(42)	a.	Pópulum	Póeplə	"people"
	b.	tábula	táblə	"table"
	c.	Pérdere	Pérdrə	"to lose"
	d.	árborem	árbrə	"tree"

In fact, in Afar, McCarthy, who reviews Bliese 1981, indicates that Aussa and Shewa dialects of Afar show a general syncopation rule as follows.

> Syncope is more general and can apply to the vowels of some closely bound suffixes (the bene- factive - **it** and causative - **is**) (McCarthy 1986 b; pp. 20-22)

The following examples in (43) show this process.

(43) a. as-is-é-yo → asséyyo "I will cause to spend the day"

b. xas-is-é-y-yo → xasséyyo "You will cause him to motion".

An interesting aspect of (43) to this thesis is, the fact that **i** , at the beginning of the causative suffix - **is**, exactly as I claim here for Oromo, deletes or is invisible on the surface in some cases. Thus for Oromo, we may formulate a syncopation rule, in which unstressed **i** in the causative morpheme in such as examples of (34) above deletes. Note that synchronically I have not recorded any suffix that begins with this vowel **i** and therefore this information has to be included in the rule below by specifying consonant **s** that remains after syncopation deletes **i** from underlying - is - :

(44) Syncopation rule[15]

i → ø / C v (v) c_1 + - c_2 , where c_1 ≠ č, č' or optionally **i** and c_2 = s.

[-stress]

To recapitulate what has been said so far in Section 4.3 above, I have claimed that syncopation (44) deletes vowel **i** of the causative **is** on the surface and that is why we do not see it directly on the surface in certain forms such as (34a) k'apsiis - "make catch" < k'ab- is - is -. In the rest of the sections, I will discuss the palatalization process this underlying vowel **i** triggers where it can.

Chapter 5.0

Palatalization of An Alveo-dental Obstruent and Lateral l

In chapter 4.0 above, I have tried to show that **i** begins the causative suffix of Oromo at UR. I have also claimed that this **i** is deletatble on the surface as formalized by rule (44) above in certain cases. In this chapter, I will show that this **i** induces palatalization in the alveo-dental consonants (excluding the nasal **n** & implosive **d**). I will begin with the palatalization of root-final **l** as follows.

5.1 l and s Palatalization

Lateral **l** may finish a verb root as in (45) next. See also examples (26a) and (26b) above:

(45) a. bul - ø - a → bula

pass night - 3sgm - imperf "he / it (will) pass, passes a night"

b. gal - ø - a → gala

enter/arrive - 3sgm - imperf " he/it (will) enter/arrive, enters/arrives"

c. tol - ø - a → tola

be nice - 3sgm - imperf "he/it(will) be is nice"

d. d'al - ø - a → d'ala

give birth - 3sgm-imperf "he/it (will) give, gives birth"

e. 'ool - ø - a → 'oola

stay a day - 3sgm - imperf "he/it (will) stay a day, stays a day"

Roots in (45) above can be inflected by single causative ($caus_1$) - **is** - and this gives the following result in which a geminated voiceless palatal frictive šš is created (šš is underlined in the output):

(46) a. bul - is - → bušš-

pass night - $caus_1$ "make pass a night"

b. gal - is - → gašš-

enter/arrive - - $caus_1$ "make enter / arrive"

c. tol-is - → toǰšš-

be nice - caus$_1$ "make be nice"

d. d'al- is - → d'ašš-

give brith - caus$_1$ "make give birth"

e. 'ool - is - → 'ooššš -

stay a day - caus$_1$ "make stay a day"

For the derivation of palatal šš attested in examples of (46) above, I propose the following analysis: First, the causative suffix initial vowel **i** spreads its [- anterior] feature to the root final **l** which then becomes **y**. That this is so is observable in speech of Wellega Oromo, Western Ethiopia. Compare the following:

a. maal inni → maayinni? "what is that?"

b. gal - i → gayi " arrive/enter!" (imper sg).

A more productive example might be cited from Amharic, a semitic language of Ethiopia, as a language universal evidence. Thus, when a feminine marker - **i** in the imperative is suffixed to a stem that finishes in **l** ; **l** changes to **y** as in, for example, the following (ɨ = high central and ∂= Schwa in Amharic below):

a. bɨl - i → bɨyi "you (fem) eat" (imper);

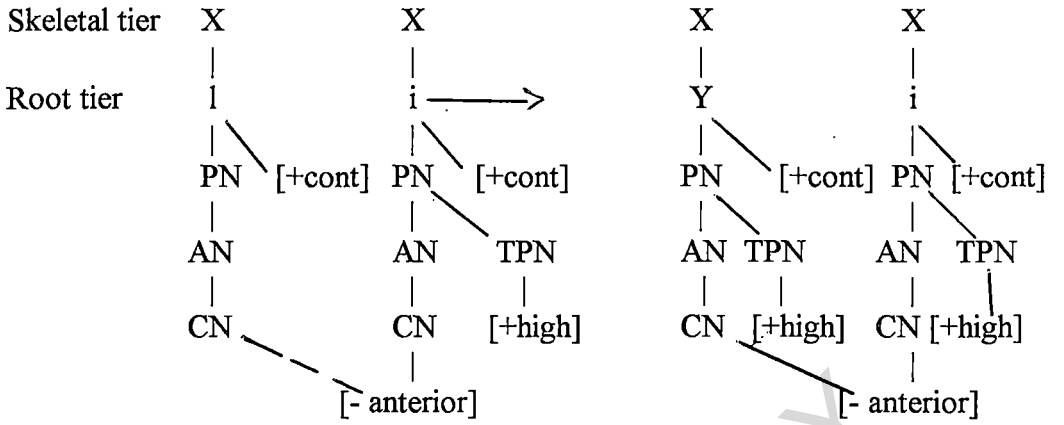
b. b∂l - i → b∂yi "you (fem) say" (imper),

c. sal - i → sayi "you (fem) draw (a picture)" (imper).

That [- anterior] of **i** spreads leftward to root final **l** and not rightward to the **s** that follows as in **l - is** - is also evidenced from the palatalizations in the sequences **t - is** - , **t' - is** - and **d - is** - which become **čis, č'is** and **čis** - respectively. These will be discussed in the subsections immediately following the present section.

If the argument above regarding the **l-is** changes to **šš** holds, I may proceed to represent the process in terms of FG. Thus **l - i** changes to **yi** is represented as in (47):

(47) [- anterior] of i spreading to l regressively



[- anterior] Spreading (47) above is followed by syncopation (44) above which removes **i** that palatlizes **l** to **y** , that is from the sequence **yis**. Rule (44) is repeated here for convenience:

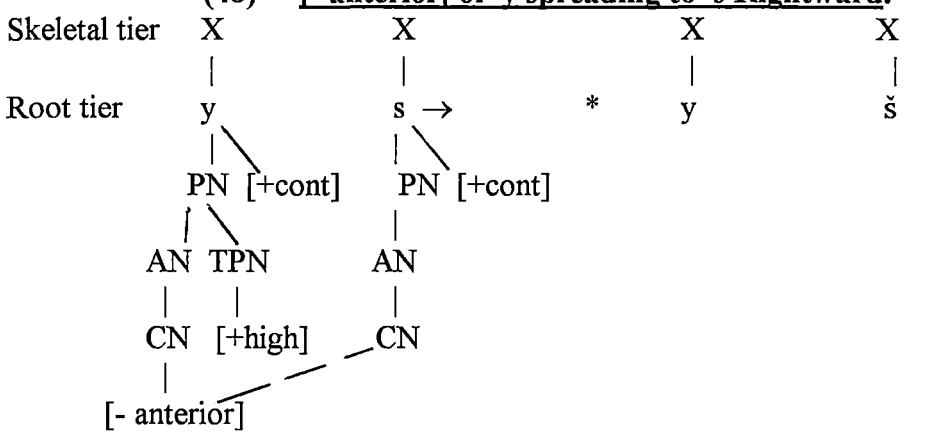
(44) i - syncopation

$i \rightarrow \emptyset / C\ V(v)\ C1 + - c_2$; where $c_1 \neq$ č, č' or optionally j and c_2 = s

[- stress]

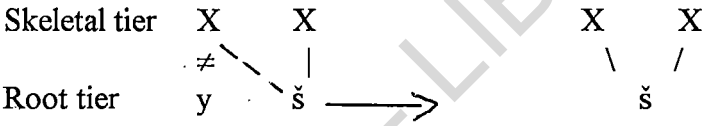
After application of rule (44) **yis** would be **yš**. This is followed by another rule which palatalizes **s** to **š**. I propose this palatalization of **s** to **š** is triggered by [-anterior] spreading from **y** < from **l-i** previously. Evidence for this assumption comes from **yn** sequence as in examples of (7) above in which first **y** spreads its feature rightward to **n** palatlizing it to **ň** (see rule (16) above.). Similarily **y** spreads its [-anterior] to **s** and changes it to **š**. Finally the **y** deletes from the Root node and hence **š** that follows spreads to the free x - slot. This gives geminated **šš** that we see in the outputs of examples in (46) above. I will formalize the processes mentioned above as follows:

(48) [- anterior] of y spreading to s Rightward.



(48) above derives ill - formed cluster * **yš** which does not agree with Oromo Phonotactics (compare footnote 15 below). Therefore further rule, rule (49) below, corrects this ill-formed sequence:

(49) **y - Delinking and s - spreading leftward**



Spreading (49) produces well-formed geminated ***šš*** as in examples of (46) above.

To summarize, the sequence of segments **l-is** becomes ***šš*** after a number of derivational processes have been applied to it. The rules involved and the derivational steps that have been proposed in the foregone section are restated through example (50) below in which the root "pass a night" plus single causative suffix - **is** - used:

(50)	"pass a night"	bul - is -	input
		↓	
		buyis	[- anterior] spreading to l (47)
		↓	
		buyøs-	i - syncopation rule (44)
		↓	
		buyš -	[- anterior] of y spreading to s (48)
		↓	
		[bušš -]	y - delinking and š spreading (49)

Example: (46) **bušša** "he/it (will) make, makes pass a night"

5.2 Palatalization of d

A root verb may end in a voiced alveo-dental obstruent **d** as in examples of (51) next:

(51) a. fid - ø - a → fida
bring - 3sgm-imperf "he/it will bring, brings"

b. yaad - ø - a → yaada
think/worry - 3sgm - imperf "he/it will think/worry, thinks/worries

c. barbaad - ø - a → barbaada
find - 3sgm - imperf " he/it will find, finds"

d. farad - ø - a → farada
pass judgment - 3sgm - imperf" he/it will pass, passes judgment"

e. nagad - ø - a → nagada
run business - 3sgm - imperf " he/it will run, runs business"

f. did - ø - a → dida
refuse - 3sgm - imperf " he/it will refuse, refuses"

d at root final position in example of (51) above, followed by the causative suffix -**is** palatalizes to **č** or **j** as in (52) next (**č** or **j** is underlined below):

(52) a. fid - is - is - ø - a → fi**j**isiisa/ fi**č**isiisa
bring - caus$_1$ - caus$_2$ - 3sgm - imperf " he/ it will make, makes bring"

b. yaad - is - is - ø - a → yaa**j**isiisa/ yaa**č**isiisa
think/worry-caus$_1$ - caus$_2$ - 3sgm - imperf "he/it will make, makes find"

c. barbaad - is - is - ø - a → barbaa**č**isiisa
find - caus$_1$ - caus$_2$ - 3sgm- imperf "he/it will make, makes find"

d. farad - is - is - ø - a → fara**č**isiisa
pass judgment- caus$_1$ - caus$_2$ - 3sgm - imperf "he/it will make, makes run business"

f. did - is - is - ø - a → di**č**isiisa.[16]
refuse - caus$_1$ - caus$_2$ - 3sgm - imperf "he/it will make refuse, makes efuse"

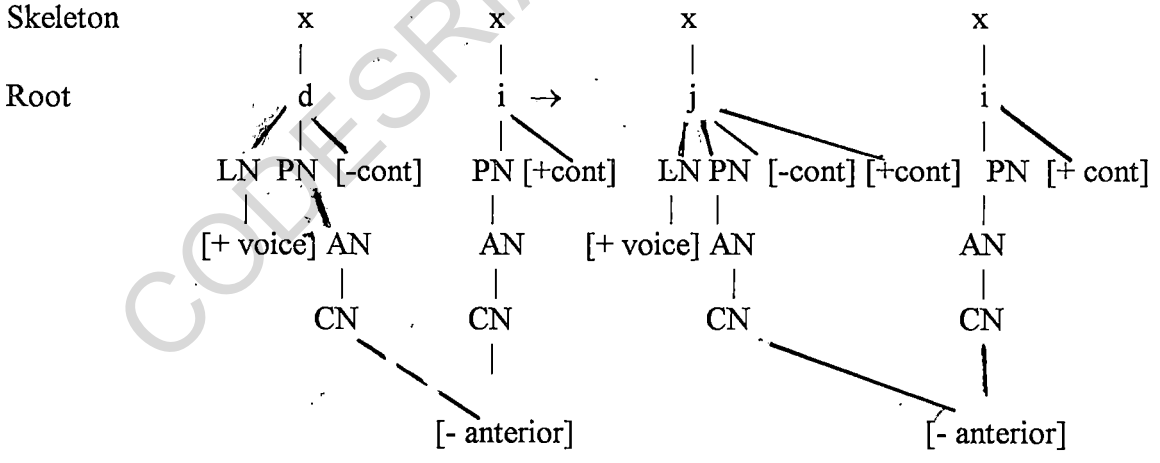
What makes the change of **d** to a palatal segment in (52) above interesting is the fact that **d** can become voiceless **č** (**d** to **j** in the environment of a palatal segment is common. See Bhat 1978). For **d** to **j** palatalization, first, I propose that [-anterior] of the following **i** as in **d-is** in (52a) and (52b) above will spread regressively to **d** (see rule (54) below). **d** to **č** palatalization, however, requires further process, as I suggest it next. First **d** palatalizes to **j** before **i**. Then **i** deletes by rule of syncopation, formulated as (44) above. In stress

languages like Oromo, Hooper reports that " ... in many cases vowel deletions take place even where unacceptable syllables result" (1976; p, 227). This rule of syncopation, however, facilitates for a postlexical rule that devoices j to č, which therefore derives the č such as we see in (52) above. That is j followed by s becomes č.[17] This is acheived by `feature changing mechanism, which delinks [+ voice] of j in the environment of [- voice] of s ..."the `feature- changing' operations always result from delinking followed by spreading." (Young-mee, 1991; p. 173)

That such voice assimilation may occur postlexically is also reported for Slovak languages in which yer has been deleted as in the following quotation:"Certain postlexical rules such as voicing assimilation apply to the outputs of yer deletion" (Michael and Rubach) 1987; p. 486)

Thus the processes which derive j or č from the sequence d-i described so far might therefore be formalized by the following series of representations:

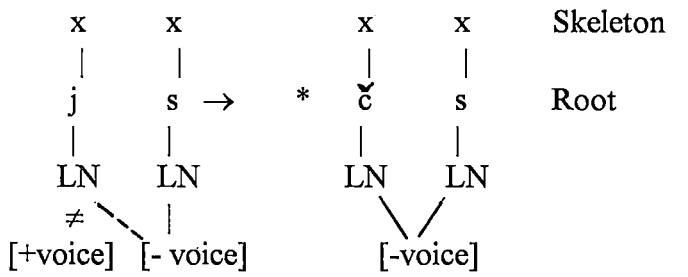
(53) Representation of d to j Palatalization



(44) i - Syncopation

$$i \underset{[-\text{ stress}]}{\rightarrow} \emptyset \;/\; C\ V(V)\ C_1 + \text{ - } C_2;$$ where: 1. $C_1 \neq$ Č, č or j optionally, and 2. C_2 = s. ($\rightarrow$1)

(54) [+ voice] - Delinking and [-voice] spreading Regressively



Rules (53) , (44) and (54) in that order, produce ill-formed cluster * čs again. I propose an epenthetic rule inserts **i** to break the cluster to **č is** which is a well-formed sequence as in the examples of (52). Gussmann points out the following in this regard:

> ... there are situations where underlying or intermediate sequences cannot be parsed into permissable well-formed syllable. Different remedial procedures or repair strategies(...) seem to be used to bring such unsyllabified segments into conformity with the licencing requirements; one of them is the creation of degenerated syllables with slots for which no segmental material is available, which are subsequently filled by epenthesis (Gussmann, 1992; p. 40)

Regarding the assumption that the underlying vowel, (**i** in Oromo here) may delete by syncopation and a similar vowel may be inserted on the surface to break impermissable cluster that is created due to the syncopation, there is supporting hypothesis:

> Both phenomena, syncopation and epenthesis, must be connected in some ways. Our hypothesis is that the favorite epenthetic segments should be the favourite syncopated segments (Beland and Favreou, 1991; p. 211)

We recall also that "... in many cases vowel deletions take place even where unacceptable syllables result" as Hooper has pointed out on p. 227 above in this section. And this is corrected by an epenthetic rule which inserts **i** in SR as Gussmann has already noted above also.

If this argument is acceptable we may proceed to formulate an epenthetic rule which inserts **i** in between an affricate followed by the consonant **s** which remains after syncopation has deleted the underlying **i** as in (56a) next:

(55) a. i - Epenthesis

$\emptyset \rightarrow$ i / C_1 - C_2 ; conditions:

1. C_1 = [-cont, +cont]
2. C_2 = s

Rule (55a) says that an **i** is inserted between an affricate followed by **s**. However, the following examples in (55b) suggest that an epenthetic rule in Oromo is more general than rule (55a) above captures; that is when a stem or root final two consonants are followed by a consonantal suffix vowel **i** may also be inserted (**i** is underlined below):

(55) b. 1. 'ooww-t - a → 'oowwita
be hot - 2 sg - imperf "you (will) be hot"

2. kolf - n - a → kolfina
laugh - 1p1 - imperf "we (will) laugh"

3. č'ab-is - t - a → č'apsita
break - caus 1 2sg- imperf "you (will) make, break"

Therefore we may expand rule (55a) to also account for the data in (55b) above as follows:

(55)c. Revised **i** - Epenthesis rule

$\emptyset \rightarrow$ i / { C_1, C_2 C_2 , C_3 C_4} - C5; condition:

C_1 = [-cont, +cont]

Rule (55c) says the following in words. In between an affricate followed by a consonant or in between a geminate consonant followed by another consonant or in between a cluster made up of two non-identical consonants followed by another consonant, an epenthetic vowel **i** is inserted. Notice that C_1 (= affricate) is behaving as two consonants since it also triggers **i** insertion as c_2 c_3 and c_3 c_4 followed by c. This suggests that Oromo affricates are made of the sequence stop-fricative (See sagey, 1990; p. 53 for similar openion regarding

Polish affricates). Finally, compare also Stroomer 1987 above, in Section 1.3.2, who points out that vowel **i** in the environments formalized in (56 c) above is an epenthetic for Kenyan Oromo.

To summarize, we have seen that root-final voiced alveo-dental obstruent **d** palatalizes to **j** or **č**. We may restate the process followed to derive these palatal segments as follows; using the root verbs (52a) "bring" and (52 c) "find" followed by causative suffixes **- is - is** "caus $_1$-caus$_2$" in each cases as in (57):

(57)a. "bring" fid - is - input to caus$_1$ stem derivation
↓
fijis - [- anterior] spreading to d (rule(54))
↓
fijis - is - input to caus$_2$ stem derivation
↓
[fijisiis -] - vowel Length Dissimilation rule (35)
"make bring"

Example:

(52a) **fijisiisa** "he /it will make, makes bring";

(57)b. "find" barbaad - is - input to caus$_1$ stem derivation
↓
barbaajis - [-anterior] spreading to **d** (rule 54)
↓
barbaaj s - **i** - syncopation (44)
↓
barbaač s - [+voice] - delinking and [-voice]
↓ spreading rule (54)
barbačis - **i** - Epenthesis rule (56c)
↓
barbačis - is - input to caus$_2$ stem dervation
↓
[barbaačisiis -] - vowel Length Dissimilation rule (35)
"make find"

Example:

(52c) **barbaačisiisa** "he/it will make, makes find"

5.3 Palatalization of t

A verb root or stem may end in an alveo-dental obstruent t. We have seen already some examples in relation to (8) above. More will be given in the present section.

5.3.1 Root or Stem - final t Palatalization

The following are examples of root or stem final t. The t comes before 3 sgm marker , ø , as in (56) next:

(56) a. bit - ø - a → bita

buy - 3 sgm - imperf "he/it will buy, buys"

b. kut - ø - a → kuta

cut-3sgm - imperf "he/it will cut , cuts"

c. solaat - ø - a → solaata

pray - 3sgm - imperf "he/it will pray, prays"

d. dubbat - ø - a → dubbata

speak - 3sgm-imperf "he/it will speak, speaks"

When the i - initial causative suffix follows t in (56) above, t palatalizes to c as the following corresponding examples show (č is underlined below.):

(57) a. bit - is - is - ø - a → bičsiisa

buy - caus$_1$ - caus$_2$ - 3sgm - imperf "he/it will make, makes buy"

b. kut - is - is - ø - a → kučsiisa

cut - caus$_1$ - caus$_2$ - 3sgm - imperf " he/it will make, makes cut"

c. solaat - is - ø - a → solaačsa

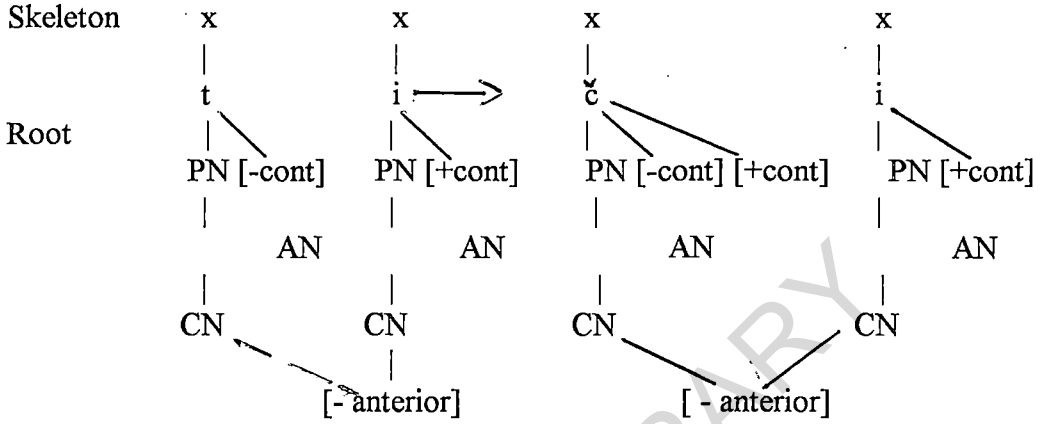
pray - caus$_1$ - 3sgm - imperf " he/it will make, makes pray"

d. dubbat - is - is - ø - a → dubbačsiisa

speak - caus$_1$ - caus$_2$ - 3sgm - imperf"he/it will make, makes pray"

To account for the palatalization of t to č as in čis in the outputs of examples in (57) above, I propose the following analysis: First i that follows t as in the input t - is in (57) above spreads its [-anterior] to t regressively. This process is represented in (58) below.

(58) [-anterior] of i Spreading to t



(58) above derives affricate č as indicated by the arrow. Note that the underlying i which conditions the change of t to č is not deleted as it satisfies the requirement that č must not be followed by s (see footnote 15 below) as the actual outputs in examples of (57) above also show. Hooper reports that such processes are not uncommon as in the following quotation:

> Vowel deletion processes are common in stress languages, and at times these deletions are blocked if the result would be unacceptable syllable... But in many cases vowel deletions take place even where unacceptable syllables result (Hooper, 1976; p. 227)

Retention of an underlying vowel , has also been reported from elsewhere:

> Synchronic vowel epenthesis rules have more than one historical source. In some cases the epenthetic vowel was originally epenthetic (eg. Spanish /e/ word-internally before / Sc/ clusters, as in /estar/; cf. Latin 'Stare') ... In other cases, the vowel was originally present but was deleted in all but a few environments (for syllable structure reasons) but the data are now synchronically analysed as involving

epenthesis. Such is the case with Schwa insertion in English (...). All plurals once ended in / ∂z / , but the schwa lost except after /t/ and /d/ (Stemberger 1992; p. 92).

Compare also observations reported in footnote 15 below.

Similarly we may assume that the underlying i is retained in Oromo in some cases such as we see in examples of (53) above. Thus if this is acceptable t becomes č before i as in (57 a)bit-is- which becomes bičis- ; this stem will further serve as an input to the derivation of double causative stem: "... the result of every layer of derivation is itself a lexical item... [and] cyclic rules apply only to derived representation" (Kiparsky, 1982; p. 132).

Therefore, to bičis - an output of root verb bit - "buy" (see (57a) above) plus single causative marker -is-, is added. This means that the input to double causative stem is of the form bičis-is-. To this form Vowel Length Dissimilation (35) above applies and the final output (57a) bičisiis- "make buy" for example, will be derived.

In summary, the palatalization of t to č and related process that we saw in Section 5.3 above may be recapitulated through the following derivational example using root-verb "buy" and the causative suffixes -is-is- "caus$_1$ - caus$_2$":

(59)	"buy"	bit - is	input to caus$_1$ stem derivation.
		↓	
		bičis -	[-anterior] of i spreading to t (58)
		↓	
		bičis -is	input to caus$_2$ stem derivation
		↓	
		[bičisiis-]	vowel length dissimilation rule (35).
Example:	(57a)	bičisiisa	"he/it will make, makes buy".

5.4 Palatalization of t'

Few cases of verb roots that finish in the glottalized alveo-dental obstruent **t'** have been recorded. As usual the root is given before 3sgm marker, symbolized by slashed zero, ø, as in (60) below:

(60) a. fit - ø - a → fit'a
finish - 3sgm - imperf "he/it will finish, finishes"

b. t'uut' - ø - a → t'uuta
suck-3sgm-imperf "he/it will suck, sucks"

c. lit' - ø - a → lit'a
enter - 3sgm - imperf "he/it will enter, enters"

d. falat' - ø - a → falat'a
tear - 3sgm-imperf "he/it will tear, tears (for wood)"

e. lawwat' - ø - a → lawwat'a
exchange -3sgm-imperf "he/it will exchange, exchanges"

t' in examples of (60) above palatalizes to **č'** when the causative suffix-initial vowel **i** follows as in (61) next (**Č'** is underlined in the outputs below):

(61) a. fit' - is - is - ø - a → fi'**č'**isiisa
finish-caus$_1$ - caus$_2$ - 3sgm- imperf "he/it will make, makes finish"

b. t'uut'- is - is - ø - a → t'uu**č'**isiisa
suck- caus$_1$ - caus$_2$ - 3sgm- imperf "he/it will make, makes suck"

c. lit' - is - is - ø - a → li**č'**isiisa
enter - caus$_1$ - caus$_2$ - 3sgm - imperf "he/it will make, makes enter"

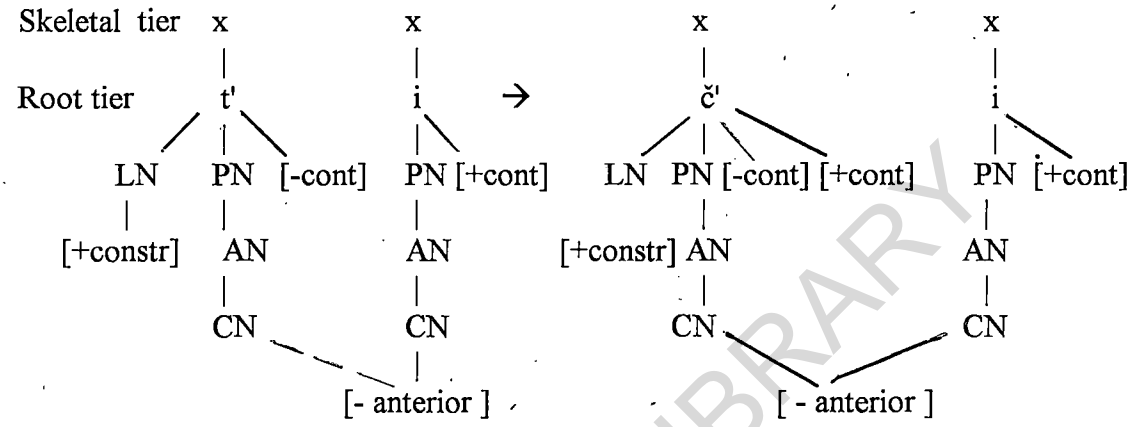
d. falat' - is - is - ø - a → fala**č'**siisa
tear- caus$_1$ - caus$_2$ - 3sgm - imperf "he/it will make, makes tear (for wood)"

e. lawwat' - is - is - ø - a → lawwa**č'**isiisa
exchange - caus$_1$ - caus$_2$ - 3sgm- imperf "he/ it will make. makes exchange"

Č' derived in (61) above is articulated, of course as is with **t'**, also with constricted glottis, in addition to articulation at alveo-dental point. This segment is, therefore, distinguished from the plain alveo-dental obstruent **t** by [+ constricted] glottis (see Durand 1990; p. 54 above). To change the alveo-dental ejective **t'** to palatal ejective affricate **č'**, the Laryngeal Node (LN) is specified, therefore, by the feature [+ constricted] while the Coronal Node

(CN) is assumed to be underspecified for place feature at UR. As usual, therefore, [- anterior] of **i** that follows **t'** as in **t'-is** in the input of (61) above spreads regressively to the underspecified CN changing **t'** to **č'**. This is represented in (62) next:

(62) [- anterior] of i spreading to t' regressively



[- anterior] spreading (62) above gives **č'** as the output indicates. This means **t'-is** of the input becomes **č'** is in the output as examples of (61) above indicate. Thus, the resulting output, for example (61a) **fič'is** - is derived in the first cycle of suffixation. This is the form of single causative stem and it serves further as a base for suffixation of the double causative ($caus_2$) stem formative **- is -**. Vowel Length Dissimilation rule introduced in (35) above lengthens the initial **i** of this suffix which then completes the derivation of the double causative stem. That is (61a) **fič'is-is** - becomes **fi'č'isiis**- "make finish" by rule (35). Rule (35) is repeated here as follows for convenience:

(35) Vowel Length Dissimilation rule

affix $[V\,(V) \rightarrow V_{-\alpha\,\text{long}} \;/\; V_{\alpha\,\text{long}}\;\; C\,(C) + -$

To summarize, the derivation of ejective palatal affricate **č'** from **t'-is** sequence, I use, for example, the root "finish" followed by the causative suffixes **-is-is-** "$caus_1$ - $caus_2$" below:

(63) "finish" fit'-is- input to caus$_1$ stem derivation

↓

fič'is - [-anterior] of **i** spreading to **t'** (62)

↓

fič'is - is - input to caus$_2$ derivation

↓

[fič'isiis-] -Vowel Length Dissimilation (35)

Example:

(61a) **fič'isiisa** "he/it will make, makes finish"

5.5 Residue

In (8b) of Section 2.2.1 above we have seen that benefactive- reflexive stem final **t** palatalizes to **č** when infinitive marker (= Verbal Noun (VN for short) vowel - **aa / uu** follows. Here are more examples (**č**s underlined below):

(64) a. hojjet-aa/uu →hojje**č**aa/uu

work (verb) - VN "working/to work"

b. kad'at - aa/uu → kad'a**č**aa/uu

beg- VN "begging / to beg"

c. dubbat-aa/uu → dubba**č**aa/uu

speak- VN "speaking / to speak"

d. jaalat - aa / uu → jala**č**aa/uu

love - VN "loving/ to love"

An interesting aspect about the palatalization of stem final **t** in (64) above is the fact that **t** palatalizes when followed by back vowels - **aa/uu/**. So far we saw that **t** and other alveo-dental consonants palatalize when palatal **i** or **y** appears in the environment. Therefore, we may examine a "hidden palatalizer" instead since these back vowels **aa/uu**

have no [-anterior] feature to spread to t in order to palatalize it to č as is the case through out sections in chapter 5.0 above. I propose that the source of the "hidden palatalizer" is located preceding the consonant t underlying. One piece of evidence comes from the following process in which yt sequence in Baate corresponds to č in the Waata dialect of Kenyan Oromo (See Stroomer 1987). yt and č are underlingly in (65) below:

		Baate	Waata
(65)	a.	mačooyta	mačooča "you (will be) are drunk
	b.	ajooytaa	ajooču "rotten" (fem)
	c.	mi'ooytuu	mi'oočuu "sweet" (fem)

We notice in (65) above that yt in Baate has developed to č in Waata. This shows that, t has been palatalized to č when preceded by y which actually deletes afterward in Waata. In fact an independent piece of evidence that there is i before t in the benefactive - reflexive suffix itself, comes from Afar, a sister language with Oromo within Lowland East Cushitic group. Bliese describes the form of the benefactive- reflexive suffix as follows (See also the quotation from McCarthy above (1986, pp 20-22 who also quotes from Bliese and gives it for the suffix) for Afar:

> Regular verbs may take a benefactive affix indicating personal involvment or benefit (...). The suffix is high vowel i plus t. (The vowel is i expect after a stem u, in which case it is u, ... The vowel deletes when in an unstressed open syllable after monosyllabic roots in Aussa and Shewa dialects. (Bliese, 1981; p.p. 132-134)

Thus, based on the facts that yt becomes č in (65) above and the benefactive suffix has i preceding t in Afar, we may assume that the palatalizer of t in Baate Oromo is vowel i and it is located preceding it at UR as proposed above at the beginning. However, since i is not directly attested on the surface at this position, we may say that it has been deleted from the Root tier while its terminal feature [-anterior] remains floating. This assumption is supported by the fact that t palatalizes to č, only when a back vowel - aa/uu follows it,

synchronically. Sagey, reviewing Girard 1971, points out that a similar process has occurred in the development of Eselexa from Proto - Takanan:

> * **i** in sequences (c) **i cv** $_{back}$ causes palatalization of the consonant immediately following; * **i** in sequences (c) v i c v $_{back}$ causes palatalization and becomes absorved in the palatalization of the following consonant (Girard 1971, p. 38, quoted in Sagey, 1990; p. 82)

Accordingly, we may conclude for Baate Oromo that benefactive - reflexive stem-final **t** is palatalizable by spreading [- anterior] historically traceable to **i**, as attested in Afar, when the stem is followed by back vowel - **aa/uu.** But there are problems which this study does not solve. First, why is it that, if **i** precedes **t,** in the benefactive-reflexive suffix, this **i** deletes first of all ? Second, we notice that vowel **a** comes preceding **t** on the surface as in (64) above. The question is then, why is it that vowel **a** is inserted in a slot formerly assumed to have been occupied by the vowel **i** ? Third, why is it that only back vowels **- aa** and **-uu** condition the reassociation of the feature of historical (underlying) **i** with **t** and not, for example, mid front vowel - **ee**[18]? Because of these unanswered problems, I will leave the issue of the palatalization of **t** in the benefactive reflexive suffix for further investigation.

Chapter 6.0
CONCLUSION

The organization of the thesis is introduced in chapter 1.0 above. This chapter consists of two parts; the part which discusses the aim, significance and the research methodology on the one hand and the literature review on the other.

The literature review consists of three subparts; literature concerning previous work on Oromo and literature concerning the theories of analysis and definitions of features. In previous work on Oromo, generally speaking, it is assumed that the causative verb of Oromo begins with the consonant **s**. As such it is assumed by the same scholars that when this consonant **s** is added to a root or stem verb, it induces palatalization of the preceding alveo-dental consonants.

Central to the theoretical framework in the literature review is the autosegmental phonology. In this framework it is assumed that there are various tiers along which the different structure of speech sounds are organized. There is what is called the x - slot. Every other distinctive features of a speech sound, and this includes the articulator nodes, on the other tiers converge on this tier of x-slots by Universal Association Convention. The organization of the different tiers along with the interrelationships between features is technically called Feature Geometry. As such, assimilation process such as palatalization is represented by spreading the trigger feature or node to the target structure by broken lines on the FG (Compare spreading theories (4) above).

Descriptive overview of roots, stems and suffixes that are important to the thesis is given in chapter 2.0.

Palatalization of alveo-dental nasal **n** is discussed in chapter 3.0 . Here when **n** is suffixed to **y** - final root verb, it becomes **ň** and then **ňň** after a number of rules have applied to it.

Pieces of evidence which show that **i** begins the causative suffix of Oromo are given in chapter 4.0. There are four such pieces: First in Baate Oromo, an alveo-dental consonant is palatalized when the consnsonant **s** in the causative suffix follows it. Second, when stative stem - verb is followed by the same consonant **s**, the vowel **(a)a** in the stem is raised to **(e)e**. But when the same stem is followed, say for example, by 1pl **n**, it becomes **(o)o**. Third, there are vowel-initial suffixes in Oromo whose vowels are shortened or lengthened depending on the length value of the root or stem vowel that precedes it immediately in an opposite manner. That is, if the preceding syllable is short, the suffix vowel is lengthened and vice versa. Such long-short vowel alternation at morpheme boundary also applies to the vowel **i** in the causative suffix variant **- siis** in terms of the traditional analysis. This is possible only if **i** is part of the underlying form of the causative suffix variant, since the rule short-long syllable alternation applies in the case of vowel initial suffixes to underlying vowels. Fourth, evidence from other cushitic languages shows that either there is still a vowel **i** at the begining of the causative variants or it has undergone certain phonological processes. Note that in case where **i** does not appear on the surface, be it in a palatalized form or not, it is proposed that Syncopation has applied to it in Oromo.

Based on the arguments that **i** begins the causative suffixes of Oromo in chapter 4.0 above, the palatalizaion of alveo-dental obstruent or lateral **l** is desrcribed in Chapter 5.0. Accordingly it is shown that **i** as in **- is -** at UR spreads regressively its [-anterior] to root or stem- final alveo-dental obstruent or lateral **l** which then becomes palatal. Various related processes are also discussed by the ways here and elsewhere in the chapters.

In general, we saw that **n** , **l** , **d** , **t** , **t'** and **s** in Baate Oromo of Wello are palatalized in the environment of an underlying segment **i** or **y** that may or may not directly appear on the surface. And this agrees with the universal of alveo- dental consonants palatalization process outlined in Bhat 1978.

Footnotes

1. I speak the variety of Wellega Oromo, Western Ethiopia.

2. Underlines here and elsewhere in the thesis are all mine. In the sources, they are given in italics.

3. They do discuss what they call "Labio-Velar-palatalization". This involves the changes of underlying stem final -**(a)a w** to -**(o)o y** when followed by a coronal consonant as in

   mačaaw - "be drunk" followed by **t** (2sg), followed by - **a** becomes **mačooyta** "you (will be) are drunk". It is not in my scope to account for the process that derives this form in the thesis.

4. In fact, here and elsewhere, strictly speaking , **č**or **č'** can not be referred to by the term "phoneme", as it is a derived form (Of course there may be phonemic affricate **č** or **č'** in other position in the words). I understand it to mean, in this context, that "phoneme" means a "single complex segment." For further comment, see Section 5.1 below, particularly the discussion given in relation to rule (56).

5. A cluster of two consonants such as affricates **čč** means that the first **č** closes a syllable while the second **č** opens a following syllable in the same word. In other words, the first **č** is syllabified to occupy coda position while the second **č** is syllabified to occupy onset position in the syllabe structure.

   In Oromo, **č** does not begin a word. Gragg points out that "... the phoneme /**č**/ was not found in initial position in any Oromo words." (Gragg 1982; p. 74). Universally it is assumed that a syllable structure conforms with the word structure of a language. Hyman states this as follows:

> The basic assumption in phonological approaches to the syllable is that there is an intimate relationship between word structure and syllable structures. Thus, ideally, the same sequencial constraints which operate at the begining of a word should be operative at the begining of a syllable, even if this syllable is word-internal (Hyman, 1975; p. 189)

Lass also holds a similar view with Hyman's above:

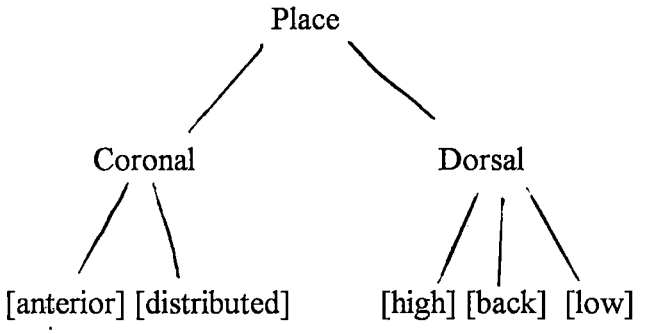
> No syllabification should yield syllables that are not canonical monosyllables in the language in question. (Lass 1984; p. 265)

Thus, if ***č*** does not begin a word in Oromo as Gragg 1982 points out above and if word structure constraints also apply to a syllable structure as Hyman and Lass point out above, then the second ***č*** which as pointed out above, should occupy an onset position during syllabification cannot be derived in Oromo. Akinlabi also points out that a lexical rule does not derive a structure which does not exist in the underlying form:

> One of the charactersitics of lexical rules is structure preservation; namely, they do not create structures that do not exist in underlying structures. I interpret this to include forbidding lexical rules from creating non underlying canonical structures (Akinlabi, 1993; p. 143)

In light of the above arguments, therefore the derivation which produces double affricate ***čč*** is problematic in Oromo as some previous authors above have assumed.

6. This refers to the following feature geometry (p. 85):



7. Note that the emphatic marker **hin** - can be used with affirmative verb in imperfect tense as in **hindʸeema** "he/it (will) go/goes"

8. Secondary palatalization, that is, superposed **ʸ** on a primary articulation such as in **dʸeem-** "go" has been recorded sporadically. Here are some examples:

   a. bidʸeen "food" (nom), b. bʸeeni "go" (2sg imper)

   c. bʸeexa "I (will) know, he/it knows", d. dʸeebiha "I (will) return he/it returns"

   e. sʸeeta "you (sg) (will) think, take for grant" g. dʸeeraa "long, tall" (musc)

   f. d'ʸeebuu "thirst" (abs.),

   Note also that ... "for Boorana and Orma [Kenyan Oromo] some cases of a palatal onglide

   [ʸee] have been observed" (Stroomer, 1987; p. 28).

9. As further evidence of vowel **(a)a** underspecification for place features universally, Stemberger points out that "... vowel underspecification may be related to phoneme frequency cross lingusitically." (1992; p. 493). If this proposition is correct we may say that vowel **(a)a** in Oromo is one such a vowel since a number of previous studies have shown this: Elliston points out that for Wellega Oromo, Western Ethiopia, " The /a:/ phoneme accounts for 80% of the lengthened vowels." (1975,

p. 6). Also Owens states that " The low vowel is clearely the unmarked vowel." (Owens, 1985; p. 17)

10. I will not go in to the detail as it is not central to my thesis.

11. There is also a second **keeňňa** "ours".

12. Note that vowel **(i)i** lowering rule (20) applies after rule (18) which changes **yň** to **ňň** has applied. Evidence comes from (7a) **booy - n - a** "cry - 1p1 - imperf" which becomes **booňňa** "we (will) cry". Here we notice that **yň** changes to **ňň** while the root vowel **oo** shows no height shift.

13. The root with final **y** is taken from Yesuf, while the root with final **h** is taken from Suleman (Both are my language helpers).

14. Note that for Harar Oromo, Owens has said that he does not have explanation for a similar form (See Section 1.3.2 above)

15. Where $\underline{c_1}$ = **č**, **č'** or optionally; **j** syncopation (44) may not apply since otherwise it becomes * **čs**, * **č's** of ***js**. Lloret points out that "..., the generalization for the Oromo Palatals is that a palatal cannot be followed by another consonant (...)" (Lloret, 1988; p.22). The alternative is to assume the underlying **j** is carried on to the SR. Kenstowicz and Kisseberth point out the same analysis as the following quotation suggests:

> If the morpheme happens to appear in a context which calls for the application of no phonological rules, then the PR [Phonetic Representation] of the morpheme in such a context is identical to the UR (Kenstowicz and Kissebeth, 1979; p. 181)

In addition, compare the English plural in which it is said (p. 181) that historical **ɨ** as in **ɨz** is retained if the stem ends in a sibilant as in «bush [ɨz]».

16. An alternating form, **dissiisa**, has also been recorded. I propose this is derived as follows: First, **d** (or its palatalized version **j**) deletes from the Root Node. Then **s** spreads regressively to the x-slot from which **d** (or **j** < **d - i**) followed by syncopation (44) above which after **d** to **j** palatalization may delete) delinked. This gives geminated **ss** as attested in the form.

17. Assimilatory devoicing like this is not uncommon. For example look at the following regressive devoicing of a consonant in English (Lass, 1984; p. 175): a. [hə∂eftu:] "have to", [ju:stu:] "used to.

18. For example look at the following:

(1) a. **dubbate** "he spoke", b. **d'ufe** "he came"

We can join (1a) and (1b_) as in (1c) below and no palatalization of the stem final **t** occurs, even though **ee** follows it: (1c) **dubbatee d'ufe** " he spoke and came"

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DECLARATION

I, the undersigned, declare that this thesis is my work and that all sources of material used for this thesis have been acknowledged.

Name: Kebede Hordofa Janko

Signature: _____

Place: Addis Ababa University

Date of submission: 28th June 1994