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## An introduction to the verbal system of Central Dangaleat

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**AN INTRODUCTION TO THE VERBAL SYSTEM  
OF CENTRAL DANGALEAT**

by

**Lawrence R. Burke  
Bachelor of Arts, Multnomah Bible College, 1984**

**A Thesis**

**Submitted to the Graduate Faculty**

**of the**

**University of North Dakota**

**in partial fulfillment of the requirements**

**for the degree of**

**Master of Arts**

**Grand Forks, North Dakota  
August 1995**

This thesis, submitted by Lawrence R. Burke in partial fulfillment of the requirements for the Degree of Master of Arts from the University of North Dakota, has been read by the Faculty Advisory Committee under whom the work has been done and is hereby approved.

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Stephen A. Marlett, Chairperson

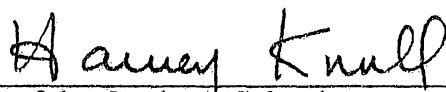
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Jim Meyer

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H. Andrew Black

This thesis meets the standards for appearance, conforms to the style and format requirements of the Graduate School of the University of North Dakota, and is hereby approved.

  
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## TABLE OF CONTENTS

<b>ACKNOWLEDGEMENTS</b> .....		vi
<b>ABSTRACT</b> .....		vii
<b>ABBREVIATIONS</b> .....		viii
 <b>CHAPTER</b>		
1.	<b>INTRODUCTION</b> .....	1
	1. Aims and Organization .....	1
	2. Time, Place and Conditions of Research .....	2
	3. The Dangaleat People .....	2
	4. The Dangaleat Language.....	3
2.	<b>OVERVIEW OF CENTRAL DANGALEAT PHONOLOGY</b> .....	10
	1. Syllable Structure.....	11
	2. Word Level Rules in Central Dangaleat.....	23
	3. Underlying Tone Patterns.....	25
	4. Consonant-Tone Interference .....	30
3.	<b>OVERVIEW OF THE CENTRAL DANGALEAT VERBAL SYSTEM</b> .....	35
	1. The Infinitive Form .....	36
	2. The Perfective Form.....	40
	3. The Perfective Past Form .....	43
	4. The Progressive Form .....	44
	5. The Habitual Form.....	47
	6. Three Polymorphemic Progressive Forms.....	49
	7. Singular Imperative .....	52
	8. Plural Imperative.....	53
	9. Hortative.....	55
4.	<b>TENSE, ASPECT AND MOOD IN PROTO-CHADIC</b> .....	57
	1. Reconstructing the Proto-Chadic Verbal System .....	57
	2. The Development of Imperfective in Chadic.....	61
5.	<b>THE RELATIONSHIP BETWEEN PROTO-CHADIC AND CENTRAL DANGALEAT</b> .....	65
	1. The Central Dangaleat Infinitive .....	66
	2. The Central Dangaleat Perfective Form.....	67
	3. The Singular Imperative .....	70
	4. The Plural Imperative and the Hortative .....	72

6.	THE DEVELOPMENT OF IMPERFECTIVE .....	76
	1. The Relationship between the Two Imperfective Forms.....	76
	2. Relating Central Dangaleat to Proto-Chadic .....	78
	3. Summary.....	81
7.	THE ORGANIZATION OF THE CENTRAL DANGALEAT VERBAL SYSTEM.....	83
	1. Defining Terms .....	83
	2. The Perfective and Perfective Past Forms.....	84
	3. The Imperfective Forms .....	87
	4. The Infinitive Forms.....	89
	5. The Imperative Forms .....	89
	6. Irrealis Mood .....	90
	7. Conclusion .....	91
8.	CONSONANT-TONE INTERFERENCE AND THE PERFECTIVE .....	93
	1. The General Pattern of Consonant-Tone Interference .....	93
	2. Consonant-Tone Interference and the Perfective.....	98
	3. Conclusion.....	109
APPENDICES .....		111
	Illustration 1 .....	112
REFERENCES.....		114

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## ABSTRACT

This thesis is an analysis of the verbal system of Central Dangaleat, an Eastern Chadic language spoken in central Chad. Following the general introduction in chapter 1, the second chapter provides a basic introduction to the phonological system of the Central Dangaleat verbal system, focusing especially on syllable structure and epenthesis, vowel harmony and the tone system. Special attention is given to the relationship between consonant quality and tone in the language. Chapters 3 through 7 attempt to relate the Central Dangaleat tense, aspect and mood system to the proposals concerning the development of aspectual categories in Chadic as a whole. In particular, in support of Wolff's dual hypothesis for the development of imperfective in present-day Chadic languages, I will provide arguments that the two types of imperfective in Central Dangaleat developed from two separate forms in the proto-language, namely the Proto-Chadic verbal-noun and pluractional forms. Finally, chapter 8 provides a more in-depth analysis of the way in which consonant-tone interference works in Central Dangaleat, focusing on certain more problematic forms and further defining the relative ordering of the various tone rules in the language.



## ABBREVIATIONS

$\sigma$	Syllable
1	First Person
2	Second person
3	Third person
ATR	Advanced Tongue Root
AUX	Auxiliary
CGMP	Complementizer
CTI	Consonant-tone interference
DTA	Default Tone Assignment
ex	Exclusive
F	Feminine
HAB	Habitual
HTS	High Tone Spread
IMPER	Imperative
in	Inclusive
INF	Infinitive
INTERR	Interrogative
IRR	Irrealis
LRS	Low Register Spread
M	Masculine
NEG	Negative
P	Plural
PL	Plural
PROG	Progressive
PST	Past
REP	Repetitive
S	Singular
SG	Singular
TA	Tone assignment
UR	Underlying Representation

## CHAPTER 1

### INTRODUCTION

#### 1. Aims and Organization

The subject of this thesis is the verbal system of the Central Dangaleat, a Chadic language spoken in central Chad. The purpose is, first of all, to provide a general overview of the Central Dangaleat phonological system and, second, to describe the tense, aspect and mood system of Central Dangaleat and to relate it to various proposals concerning the tense, aspect and mood system of Proto-Chadic and the development of aspectual categories in present-day Chadic languages.

The goal of chapter 2 is to provide a basic introduction to the phonological system of the Central Dangaleat verbal system, focusing especially on syllable structure and epenthesis, vowel harmony and the tone system. Special attention is given to the relationship between consonant quality and tone in the language.

Chapters 3 and 4 provide a general introduction both to the tense, aspect and mood system of Central Dangaleat and to the proposals concerning the development of aspectual categories in Chadic as a whole. The purpose of chapters 5 through 7 is to demonstrate the relationship between the more general proposals for Chadic and the Central Dangaleat system.

Finally, chapter 8 provides a more in-depth analysis of the way in which consonant-tone interference works in Central Dangaleat, focusing on certain more problematic forms and further defining the relative ordering of the various tone rules in the language.

While there is a relative wealth of information available on Western Dangaleat and Eastern Dangaleat; nothing has ever been published on the central dialect. Furthermore, those works that do exist in Western and Eastern Dangaleat are almost purely descriptive in nature.<sup>1</sup> This work goes beyond previously published accounts both in the attempt to explain to some degree how the phonological system of the language operates and to relate the tense, aspect and mood system of Central Dangaleat to the more general proposals for the development of aspectual categories in Chadic as a whole.

## **2. Time, Place and Conditions of Research**

The fieldwork for this study was accomplished in Chad from October 1992 to March 1994, in conjunction with our work with the Summer Institute of Linguistics. During this time a total of about 14 months was spent in the Dangaleat village of Koubo-Adougoul, 40 kilometers to the west of Mongo in the Guera prefecture. The time in the village was divided between language learning, language analysis and working with two different translation committees. The analysis is based on a corpus of just under 1000

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<sup>1</sup> The one exception is Wolff's (1989) relatively brief, but thought provoking review of Ebobissé (1979). The subject of Ebobissé's work is Eastern Dangaleat.

words, including over 500 verbs, and a total of thirteen texts (including procedural texts, dialogues and short stories).

### 3. The Dangaleat People

The Dangaleat call themselves *dàṅàl*.<sup>2</sup> They occupy the Dangaleat Canton of the Bitkine Subprefecture in an area known as ‘The Guera’ in central Chad (see maps in Appendix A). According to the 1993 government census there are just under 30,000 Dangaleat living within the canton. There is also a sizable population of Dangaleat living outside the traditional area, mostly in the towns of Bitkine and Mongo, as well as in Chad’s capital city of N’Djamena. There are fourteen officially recognized Dangaleat villages, the largest of which is Korbo with a population of nearly 8,000 (1993 census).<sup>3</sup> Other villages with at least 1000 inhabitants include Bara, Barlo, Korlongo, Koubo-Adougoul, Tchalo-Idéba and Tchalo-Zoudou.

The Dangaleat are primarily agriculturalists. During the rainy season the men grow millet or sorghum, together with smaller quantities of corn and rice. The women grow peanuts, ground peas (*Voandzeia subterranea*), sesame and okra. In the period immediately following the rainy season the men grow a variety of sweet potatoes in low lying areas that are flooded during the rainy season. Later still they plant tomatoes, also in low lying areas. The village of Koubo-Adougoul is especially known for its tomatoes.

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<sup>2</sup> *dàṅàl* in Western Dangaleat

<sup>3</sup> The 1993 census lists a total 44 villages in the Dangaleat canton. For villages to be officially recognized, however, they must have a village chief assigned by the canton chief.

Throughout the year the women gather plant food and firewood. Men and women, as well as many children, herd livestock (primarily goats). Men also work as weavers or tailors; women often make pottery.

#### 4. The Dangaleat Language

The Dangaleat themselves call their language *dàŋlā*.<sup>4</sup> Greenberg (1963) refers to the language as Karbo; however, this is simply a variation on the name of the main Dangaleat village, which is officially named Korbo. Elsewhere in the literature, the language is commonly referred to either as Dangaleat or Dangla (cf. Newman 1990). According to Newman (1990:4), the complete classification of Dangaleat is as in (1).

(1)	<b>Phylum</b>	<b>Family</b>	<b>Branch</b>	<b>Subbranch</b>	<b>Group</b>	<b>Subgroup</b>
	Afroasiatic	Chadic	East	B	Dangla	a

Other languages that are in the same subgroup include Eidiya, Migama, Jegu and *Majum*.<sup>5</sup>

#### 4.1 Orthography

In this thesis I will generally make use of the standard International Phonetic Association (IPA) characters. The one exception is that I will use the character *y*, instead of *j* for the median palatal approximant. In regard to vowels, Central Dangaleat has seven

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<sup>4</sup> The name of the language (*dâŋlā* in Western Dangaleat) is actually the feminine singular form of the more general name *dâŋâl*.

<sup>5</sup> Alio has produced a grammar and lexicon for Bidiya (1986 and to appear). Jungrathmayr has published a lexicon for Migama (1992).

contrasting short and long vowels (cf. Fédry 1971b:1ff and Ebobissé 1978:15), as in (2).<sup>6</sup>

In word medial position, however, the contrast between the various vowels is practically non-existent; with very limited exceptions, only the high vowels occur in this position (*u* before a bilabial consonant and *i* elsewhere).<sup>7</sup>

(2) Short vowels	Long vowels
i	i:
e	e:
ε	ε:
o	o:
ɔ	ɔ:
a	a:

The various consonants in Central Dangaleat are as in (3).

(3)	Bilabial	Alveolar	Palatal <sup>8</sup>	Velar
Plosive – voiceless	p	t	c	k
– voiced	b	d	ɟ	g
Fricative – voiceless		s		
– voiced		z		
Implosive <sup>9</sup>	ɓ	ɗ	ɟ	
Nasal	m	n	ɲ	ŋ
Approximant	w		y	
Lateral		l		
Trill or flap <sup>10</sup>		r		

<sup>6</sup> Although Montgolfier (1973) did not distinguish between *e/ε* or *o/ɔ* in his dictionary of the Eastern Dangaleat, Fédry (in Abbakar 1975:11) argues that although it is difficult to find many minimal pairs, the contrast is relevant for Eastern as well as Western Dangaleat. The same could be said of Dangaleat as a whole. In the framework of Generative Phonology, *o* and *e* have the feature +ATR (advanced tongue root), whereas *ɔ* and *ε* have the feature -ATR.

<sup>7</sup> The only known exceptions to this rule are a limited number of borrowed words (such as *tàmdátùm* ‘tomato’), and the Imperative Plural formation when a pronoun is added (for example, *bīrònté* ‘Show us!’).

<sup>8</sup> Fédry (1971b:32) states that the consonant *c* in Dangaleat is neither an affricate, nor a palatalized consonant, but rather “une occlusive dorso palatale, le dos de la langue touchant directement le palais dur.”

The three tones in Central Dangaleat are represented as in (4).

(4)	High tone		'
	Mid tone		-
	Low tone		`

#### 4.2 Dialectical Differences

Although only Western Dangaleat and Eastern Dangaleat are normally mentioned in the literature (cf. Fédry 1974; Newman 1990:4), recent survey work and comparative studies would indicate that at least a three-way distinction is called for (Bagwell, Bebb and Chesley 1992).<sup>11</sup> In regard to tone distinctions, Central and Eastern Dangaleat stand in contrast to Western Dangaleat. In other ways, however, Central Dangaleat is much closer to Western Dangaleat.

Fédry (1974) was the first to note the “systematic inversion of tone” between Western and Eastern Dangaleat. He demonstrated that a word with the surface tone pattern low-low in Western Dangaleat regularly has the pattern high-high in Eastern

---

<sup>9</sup> There is some debate regarding whether or not implosives in Dangaleat and in Chadic as a whole should be characterized as voiced or not. Contrary to Ladefoged's (1964:6) claim that implosives may generally be characterized by a “*mode particulier de vibration des cordes vocales*,” Carnochan (1952, as quoted by Fédry 1971b:46) claims that experimental evidence from Hausa demonstrates that implosives in this language are realized without vibration of the vocal cords.

<sup>10</sup> Although further research is needed, Central Dangaleat seems to pattern with Western Dangaleat in that the trilled *r* and the flapped *r* are in free variation (cf. Fédry 1971b:60). With some words, however, one or the other pronunciation is preferred, perhaps due to influence from Arabic. In Eastern Dangaleat the trilled *r* and the flapped *r* are separate phonemes (Montgolfier 1973:10; Fédry 1974:5).

<sup>11</sup> Fr. Serge Semur, previously with the Catholic mission in Korlongo and now working in N'Djamena, was the first to point out the existence of three distinct dialects. It is possible that the three Dangaleat languages do not constitute one language at all, rather two (Eastern Dangaleat versus Western/Central Dangaleat).

Dangaleat, as demonstrated in (5a). A word with the surface tone pattern high-low (or high-low-low) in Western Dangaleat, on the other hand, predictably has the pattern low-mid (or low-low-mid) in Eastern Dangaleat, as in (5b). In terms of these basic tone patterns, Central Dangaleat patterns with Eastern Dangaleat.<sup>12</sup>

(5)	Western	Eastern and Central	
a.	màkè	máké	'to pound'
	ààlè	áálé	'to attach'
	àrmè	ármé	'to lack'
	bùgùmè	búgúmé	'to silence'
b.	álè	àlē	'to cry'
	éèlè	èèlē	'to pass the day'
	âmsè	âmsē	'to mix'
	ábìrè	àbìrē	'to blow'

In addition to the systematic inversion of tone between the Western Dangaleat and Central/ Eastern Dangaleat, there are differences in the number and types of tone as well. Central and Eastern Dangaleat have three surface tones (high, mid and low). Western Dangaleat, however, has only two surface tones, but allows for complex tones or tone glides (high-low and occasionally low-high).

Although the Central and Eastern Dangaleat pattern together in terms of surface tone patterns, lexically and morphologically Central Dangaleat is much closer to the Western Dangaleat. For example, there are 161 verbs in my data base that correspond to

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<sup>12</sup> Although Fédry's initial comparison was between Western Dangaleat and Eastern Dangaleat, the general inversion of tone between Western Dangaleat and Central Dangaleat is even more striking, due to the much higher percentage of apparent cognates and the fact that the phenomenon of consonant-tone interference operates in a parallel fashion in both Western Dangaleat and Central Dangaleat.



the pattern (C)VCV. Comparing these forms in Central and Western Dangaleat, 154 apparent lexical cognates could be found (96 percent). Comparing Central and Eastern Dangaleat, however, only 118 apparent lexical cognates could be found (73 percent). Morphologically, disregarding the tonal anomalies, the verbal systems of Western and Central Dangaleat are almost identical. There are a number of significant differences, however, in relation to the Eastern Dangaleat, as illustrated in (6) with the word *pile* which means 'to open'.<sup>13</sup>

(6)	Western	Central	Eastern
Infinitive	pílè	pìlè	pìlè
Perfective	ḡá pílè	ḡà pìlè	ḡà pìlè
Perfective Past	ḡá pìltè	ḡà pìltí	—
Durative	ḡá píláw	ḡà pìlāw	—
Durative Past	ḡá pìliyò	ḡà pìlíyó	—
Durative Iterative	ḡá pìlgùwè	ḡà yà pìlgúwé	ḡàà pìlààwē
Durative Iterative Past	ḡá pìlgiyò	ḡà pìlgiyó	ḡà pìlààwē
Habitual	ḡá pílá	ḡà pìlā	ḡà pìlā
Imperative	pìlú	pìlū	pìlù
Imperative Durative	—	—	pìlāāwù

### 4.3 Previous Research

As mentioned above, the subject of this thesis is Central Dangaleat, which has not previously been described. In regard to Western Dangaleat and Eastern Dangaleat, however, much work has been done. For example, a dictionary for both Western Dangaleat (Fédry 1971c) and Eastern Dangaleat (Montgolfier 1973) has been produced, both of which are over 350 pages in length.<sup>14</sup> In addition, Fédry has published a phonology

<sup>13</sup> The various forms for Western Dangaleat are from Fédry 1971c and the forms for Eastern Dangaleat are from Ebobissé 1979.

<sup>14</sup> Fédry's dictionary (1971c) includes a brief grammatical introduction.

of Western Dangaleat (1971b), two comparative studies (1974 and 1977) and several other articles (1969, 1971a, 1981). Ebobissé's work has focused on Eastern Dangaleat, including a study of the verbal morphology (1979), a list of verbs (1987) and other related articles (1978, 1980, 1985). More recently, Shay (1994) has published a brief study of complementation and modality in Eastern Dangaleat. Finally, two collections of stories have been published (Akouya 1983 for Western Dangaleat and Djimet 1978 for Eastern Dangaleat) and two primers intended to help educated Dangaleat learn to read and write their language (Abbakar et al. 1975 and Sopoye 1982, both for Eastern Dangaleat).

## CHAPTER 2

### OVERVIEW OF CENTRAL DANGALEAT PHONOLOGY

In the analysis of the Central Dangaleat verbal system it is helpful to group verbs according to their surface syllable structure and tone patterns, as represented in (1).

(1)	Tone pattern	Syllable structure	Infinitive	
	High-High	CV	té	‘to eat’
		(C)VCV	bíré	‘to pass’
		(C)V:CV	gó:té	‘to cover’
		(C)VCCV	ármé	‘to lack’
		(C)VCVCV	búgúmé	‘to be silent’
		(C)V:CVCV	dá:wíyé	‘to heal’
		(C)VCCVCV	gármíné	‘to envy’
	Mid-Low	(C)VCV	gāďè	‘to flee’
		(C)V:CV	bō:bè	‘to pour out’
		(C)VCCV	ōrǰè	‘to grind’
		(C)VCVCV	kōkīďè	‘to hammer’
		(C)VCCVCV	gōmpīǰè	‘to fill’
	Low-Mid	CVV	ďèè	‘to kill’
		(C)VCV	ďēcē	‘to draw’
		(C)V:CV	gà:rē	‘to show’
		(C)VCCV	àmsē	‘to confuse’
		(C)VCVCV	ècìrē	‘to dig’
	Low-Low	(C)VCV	sìďè	‘to swallow’
		(C)V:CV	à:ďè	‘to follow’
		(C)VCCV	sàyďè	‘to clear’
		(C)VCVCV	ǰèkìďè	‘to stand on tip-toe’

In this chapter I propose that despite the wide diversity of syllable and tone patterns represented in the surface forms in (1), all Central Dangaleat verb stems may be reduced

to only one vowel (either long or short) and up to three non-initial consonants.<sup>1</sup> I propose furthermore that each verb form is marked underlyingly either by a low tone or no tone at all.

This chapter is organized into four main sections. The first section describes the syllable structure constraints that operate in the language and the methods that are employed to correct underlying syllable structure patterns that are disallowed in the surface manifestation. The second section describes two word level rules: a rule of vowel harmony and a rule of word final devoicing. The third section describes the basic tone system in Central Dangaleat. Finally, section four describes the relationship between consonant quality and tone.

### 1. Syllable Structure

In the analysis of Central Dangaleat syllables presented here I will attempt to follow the Prosodic Theory of syllable structure as developed in Itô 1989. The Prosodic Theory, as applied to Central Dangaleat, is based upon the following general principles and parameters of prosody:

---

<sup>1</sup> In considering the various types of UF's in Central Dangaleat, it should be mentioned that the UF's of the vast majority of Central Dangaleat verbs (around 95 percent) follow one of three patterns: either (C)VC-, (C)V:C- or (C)VCC-. As for the verbs of the type CV:, scholars agree that there are a total of less than ten such verbs in Dangaleat (cf. Fédry 1971c and Ebobissé 1979). Verbs of the type (C)V:CC or (C)VCCC are more common; however, many of them are either borrowed words or are composed of more than one morpheme.

1. The Maximality principle holds that “units are of maximal size, within the other constraints on their form” (Prince 1985 as quoted in Itô 1989:219).

2. The Directionality parameter dictates that “syllable mapping proceeds directionally from left to right or from right to left” (Itô 1989:220).

3. Finally, the principle of Extraprosodicity allows that a segment at the edge of a prosodic domain can be ruled extrametrical.

Building upon the general principles of prosody outlined above, Itô argues that “syllabification is based on templates and wellformedness conditions” (1989:221). As an example of a syllable template, Itô gives the syllable template CVX for Cairene Arabic, where the ‘X’ in the coda position indicates that the coda position may optionally be filled either by a consonant or a vowel. Itô lists three types of well-formedness conditions, as follows:

1. The Sonority Sequencing principle dictates that in any syllable “there is a segment constituting a sonority peak that is preceded and/or followed by a sequence of segments with progressively decreasing sonority values” (Selkirk 1984:116 as quoted in Itô 1989:221).

2. The Onset Principle “serves as a guiding principle for syllabification throughout the derivation so that onsetless syllables are avoided whenever possible” (Itô 1989:223). Itô adds that “many languages strengthen the Onset Principle ‘Avoid onsetless syllables’ to the Strict Onset Principle ‘Onsetless syllables are impossible’.” Itô suggests that the domain in which all syllables must satisfy the Onset Principle “starts from the head . . . of

the initial syllable” (1989:237). Hence, according to the theory, a language may permit onsetless syllables in the word initial position, but still adhere to the Strict Onset Principle.<sup>2</sup>

3. Finally, the Coda Filter restricts those segments that may occur in the coda of the syllable.

In introducing the above principles, Itô states that “syllable templates and sonority theory characterize syllable-internal wellformedness, while the onset principle and the coda filter also have transsyllabic consequences” (1989:221).

### 1.1 The Syllable Template in Central Dangaleat

The maximal template for Central Dangaleat syllables may be represented as CVVC, where the sequence VV may only be lined to a single vowel quality. This template encompasses the four types of syllables illustrated in (2).<sup>3</sup> Note that with a word such as *àsē*, the Onset Principle dictates that the syllable boundary be located before the *s*. Hence, the word initial syllable of the verb *àsē* is composed of only one segment (the vowel *a*).

(2)a. CV		b. CVV	
à.sē	‘to come’	à:.dē	‘to follow’
bí.ré	‘to pass’	gà:.rē	‘to show’
c. CVC		d. CVVC	
ár.mé	‘to lack’	ē:m.gā	‘ate it’
sà.y.dē	‘to clear’	bó:b.tí	‘poured out’

---

<sup>2</sup> Itô acknowledges that omitting the onset in the word-initial syllable “does not follow straightforwardly from the theory” (1989:237).

<sup>3</sup> Syllables of the type CVVC occur almost exclusively in words composed of more than one morpheme. Also, I am presenting VC syllables as a subtype of the pattern CVC, etc.

## 1.2 The Syllable Onset

With the exception of word-initial position, onsetless syllables are impossible in Central Dangaleat. Hence, Central Dangaleat adheres to the Strict Onset Principle. In addition, vowel clusters are not permitted. In the course of a derivation, therefore, if two distinct vowels are juxtaposed, a problem of syllabification results. For instance, in Central Dangaleat, when a suffix that begins with a vowel is added to a verb stem that ends in a vowel, just such a situation arises, as illustrated in (3).<sup>4</sup>

(3)	dè: 'to kill' <sup>5</sup>	té: 'to eat'
a. Progressive /stem-PROG/	/dè:-aw/	/té:-aw/
b. Plural Imperative /stem(IMPER)-IMPER.PL/	/dà-ò/	/tá-ò/

The Strict Onset Principle dictates that a word such as \**dè:āw* is non well-formed in the language. For this reason, some sort of 'repair' strategy is needed to bring the word into conformity with the well-formedness constraints of the language.

In Central Dangaleat, the repair strategy is to add an epenthetic consonant between the two vowels, as illustrated in (4) and (5). Note that with the verb *àsē* (which means 'to come'), no epenthetic consonant is needed, since the verb itself ends in a consonant. With the verbs that end in a vowel (such as *dè:*), however, the insertion of an epenthetic

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<sup>4</sup> The morphemes *-ò* and *-aw* are the only morphemes in Central Dangaleat verbal system that begin with a vowel. All other morphemes begin with a consonant and hence do not trigger consonant epenthesis.

<sup>5</sup> There are two allomorphs of each of the verbs that end in a vowel in Central Dangaleat. The allomorph that ends in an *a* is used with the Habitual, Imperative and Hortative forms and the *ee* (*ee*) allomorph is used elsewhere.

consonant (*w*) brings the word into conformity with the well-formedness constraints of the language.

(4)a. Underlying Form	/às-ò/ /stem-IMPER.PL/	/dà-ò/ /stem(IMPER)-IMPER.PL/
b. Epenthesis	—	dàwò
c. Other rules	àsò	dàwò
(5)a. Underlying Form	/às-aw/ /stem-PROG/	/dè:-aw/ /stem-PROG/
b. Epenthesis	—	dè:waw
c. Other rules	àsāw	dè:wāw

The complete list of those verbs that pattern with *dè:* in Central Dangaleat are listed in (6). Although they are few in number, they are important in that they are used for such everyday tasks as eating, drinking and giving birth.<sup>6</sup>

(6)	Infinitive <sup>7</sup>	Plural Imperative	Progressive	
	dé:	dáwò	dé:wáw	'to smell'
	té:	táwò	té:wáw	'to eat'
	dè:	dàwò	dè:wāw	'to kill'
	lè:	làwò	lè:wāw	'to place'
	nè:	nàwò	nè:wāw	'to be ripe'
	sè:	sàwò	sè:wāw	'to drink'
	wè:	wàwò	wè:wāw	'to give birth'

<sup>6</sup> Given the dictionaries that are available in both Western and Eastern Dangaleat, the list of verbs in (6) may be exhaustive. According to Ebobissé (1987:123), Eastern Dangaleat has nine monosyllabic verbs. Fédry 1971c) lists eight for Western Dangaleat. Only seven of these forms occur in Central Dangaleat, however.

<sup>7</sup> Although further research is needed, the Infinitive form of this class of verbs would appear to be identical to the underlying form. In this case the marker of the Infinitive of verbs of this class would be a zero allomorph.



### 1.3 The Syllable Coda

Any consonant but an implosive may occur in the coda of the syllable in Central Dangaleat, as demonstrated by the examples in (7).

(7) Coda	Form	
Semivowels	gáw.né	'to cultivate'
	sày.dè	'to clear'
Approximants	ár.mé	'to lack'
	dāl.dè	'to spoil'
Nasals	àm.sē	'to confuse'
	dēŋ.gè	'to barricade'
Voiceless Obstruents	ós.ké	'to arrange'
	rét.ké	'to jump'
Voiced Obstruents	díg.tí	'to be numerous'
	bō:b.gā	'poured it out'

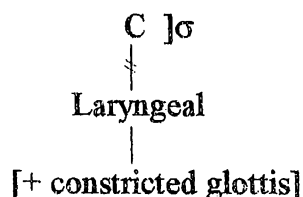
Examples with an implosive in the coda position such as the hypothetical examples in (8) are unattested.

(8) Coda	Form
Implosive	*óɗné
	*bíftí

In the case of Central Dangaleat there is evidence to suggest that the fact that there are no examples of implosives in the coda of the syllable is due not to a restriction on what segments may be syllabified into the coda position (a Coda Filter), but rather to a sound change that takes place after an implosive has been in fact syllabified into this position.

Note that with the examples *sàyàt* and *gátké* (10), the implosive consonant *ɗ* is syllabified into the coda position, but is realized in the surface manifestation as a voiceless plosive (*t*). The relevant rule may be formalized as in (9).

## (9) Loss of Laryngeal Features



(10) a. Underlying Form	/sàyd-e/ /stem-INF/	/sày-a-d/ /stem-HAB/	/gad-e/ /stem-INF/	/gad-ké/ /stem-2FS/
b. Loss of Laryngeal Features	—	sàyàt	—	gatké
c. Other rules	sàydè 'to clear'	sàyàt	gadè 'to flee'	gatké

## 1.4 Vowel Epenthesis

The maximal syllable template of Central Dangaleat (CVVC) does not permit syllables of the type CVCC or CCVC. For this reason, a problem of syllabification results whenever an underlying form contains a series of three (or more) juxtaposed consonants. In Central Dangaleat this occurs whenever a suffix that begins with a consonant is added to a verb stem that ends in a consonant cluster. Two such examples are given in (11a). In each case, when the suffix is added, the final consonant of the verb stem cannot be syllabified either with the preceding syllable (*\*tawk.te*) or the syllable that follows (*\*taw.kte*). In Central Dangaleat, this problem of syllabification is resolved by the insertion of an epenthetic vowel, as demonstrated in (11b).<sup>8</sup> The function of the epenthetic vowel is to 'repair' the syllable structure in accordance with the syllable template of the language.

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<sup>8</sup> The epenthetic vowel is *i*, unless the following consonant is labial, in which case the vowel is *u*.

(11)		/˘ -tawk-té/	/˘ -ams-tí/
	a. Underlying form	/PRF-stem-1Pex/	/PRF-stem-PST/
	b. Epenthesis <sup>9</sup>	˘ tawkité	˘ amsití
	c. Other rules	táw.kí.té 'to resemble us'	ám.sí.tí 'to confuse us'

That the vowel in the word medial syllable of a word such as *táwkité* is not a part either of the underlying form of the verb stem or the two suffixes is demonstrated by the forms in (12) and (13). The vowel in question is only present when the conditions for epenthesis are met.

(12)		Infinitive	Progressive	Habitual
	a. Underlying form	/tawk-e/ /stem-INF/	/tawk-aw/ /stem-PROG/	/taw-a-k/ /stem-HAB/
	b. Surface form	táw.ké	táw.káw	táwák
(13)		1P pronoun	Past	
	a. Underlying form	/bir-té/ /stem-1Pex/	/bir-tí/ /stem-PST/	
	b. Surface form	bír.té	bír.tí	

There is one obvious difference between the infinitive verb forms in the two columns in (14). All of the verbs have the same number of non-initial consonants, but they differ in the number of vowels. Ignoring the final vowel (*e/e*) that marks the infinitive, all of the verbs in the first column only have one vowel, whereas all of the verbs in the second

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<sup>9</sup> Note that with the verbs in (11), the epenthetic vowel is located between the second and third consonants (CCiC). This would suggest that the Directionality parameter in Central Dangaleat is set from left-to-right. When the second vowel in the cluster is a nasal consonant (CNC), however, the epenthetic vowel is located between the first and second consonants (CiNC), as in *árimtí* 'lacked' or *élimtí* 'disgusted'. Hence, Directionality alone is not sufficient to predict the location of the epenthetic vowel in each instance. More research is needed.

column have two. Furthermore, with the verbs in the second column, the second vowel is always either *i* or *u* (*u* before a bilabial consonant and *i* elsewhere).<sup>10</sup>

(14)	CVCCV	CVCVCV
ōzbè	'to stir up a fire'	búgúmé 'to be silent'
óské	'to arrange'	àpìlē 'to reimburse'
rétké	'to jump'	òzìlē 'to worship'
àmsē	'to confuse'	módíré 'to consider'
dēngè	'to barricade'	pífíré 'to give a lot'
ármé	'to lack'	àmìlē 'to turn'
dāldè	'to spoil'	kúníyé 'to take place'
gáwné	'to cultivate'	jálíyé 'to consider'
sàyǎè	'to clear'	óríyé 'to cry out'

Despite the difference at the surface level between the verbs in the two columns above, I propose that the underlying forms of all roots in Central Dangaleat have only one vowel and up to three non-initial consonants. If this is so, then the second vowel in a word such as *búgúmé* is not a part of the underlying form, but rather is an epenthetic vowel. There are at least three reasons for arguing for this position. First, both the existence and the quality of the word medial vowel is always predictable, as will be demonstrated below (see (18)). Because it is predictable, there is therefore no inherent reason why the word medial vowel must be present in the underlying form. The second reason for arguing that the word medial vowel in a word such as *fálíyé* is not a part of the underlying form is made clear by comparing the various forms in (15). Note in the Habitual forms, there is no difference between the two verb classes.

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<sup>10</sup> The rule whereby *i* becomes *u* before a bilabial consonant apparently applies only to epenthetic vowels (cf. *címé* 'to pull' and *ípíré* 'to resemble').

(15)	Infinitive CVCCV	Habitual CVCVC	Infinitive CVCVCV	Habitual CVCVC
	gáwné	gáwán	ǰálíyé	ǰáláy
	ármé	árám	àmìlè	àmāl
	rétké	réták	búgúmé	búgám

If one posits that the word medial vowel in a word such as *ǰálíyé* is a part of the underlying form of the verb stem, one is forced to explain why it is no longer evident in the Habitual form. If, however, the vowel in question is not a part of the underlying form, no explanation is needed. It doesn't drop out because it wasn't there to begin with. It is added where needed according to the syllable structure constraints of the language.

The final argument for the epenthesis analysis relates to the two ways in which the Singular Imperative is marked in Central Dangaleat. The marker of the Singular Imperative in Central Dangaleat is either *-u* or *-a-* depending on the type of verb stem, as demonstrated in (16).

(16)	Infinitive	Singular Imperative	
	bíré	bírú	'Pass!'
	gāǰè	gāǰù	'Flee!'
	ǰá:wé	ǰá:wú	'Walk!'
	bō:bè	bō:bù	'Pour!'
	ármé	árám	'Reconcile!'
	sǰǰè	sǰǰàc	'Move forward!'
	àmìlè	àmāl	'Leave!'
	búgúmé	búgám	'Be quiet!'

In the epenthesis analysis, a straightforward rule can be given for the use of the *a* allomorph. The *a* allomorph is used with all verb stems of the type (C)VCC. In contrast, if one posits that the word medial vowel is a part of the underlying form, one must state the rule differently. The rule for the use of the *a* allomorph must include a reference to two

different types of verbs, both (C)VCC and (C)VCVC. Of course, as with the Habitual forms, a separate rule is also needed to explain why the vowel in the underlying form is not present at the surface level.

The argument that all Central Dangaleat verb stems underlyingly contain only one vowel is based upon the premise that the presence or absence of other vowels is predictable. Returning to the two lists of verbs, repeated in (17), and focusing on the two non-initial consonants, note that with the verbs that pattern with *gáwné*, the second consonant (*n*) is never more sonorant than the first (*w*).<sup>11</sup> With verbs that pattern with *ǰálíyé*, however, the second consonant (*ǰ*) is always more sonorant than the first (*ǰ*).

(17)	UF	Infinitive	Infinitive	UF	
‘to trap’	ozb	ōzbè	òzìlē	ozl	‘to worship’
‘to arrange’	osk	óské	àpìlē	apl	‘to reimburse’
‘to jump’	retk	rétké	búgúmé	bugm	‘to be silent’
‘to confuse’	àms	àmsē	módíré	modr	‘to consider’
‘to barricade’	ǰɛŋg	ǰɛŋgè	píǰfíré	pǰfr	‘to give a lot’
‘to lack’	arm	ármé	àmìlē	aml	‘to depart’
‘to spoil’	dald	dāldè	kúníyé	kuny	‘to take place’
‘to cultivate’	gawn	gáwné	ǰálíyé	ǰaly	‘to consider’
‘to clear’	sàyd	sàydè	óríyé	ory	‘to cry out’

This suggests that Central Dangaleat has a constraint barring words of the type *\*bugme*, where the second of the two juxtaposed consonants is more sonorant than the first. This constraint may be formalized as in (18) and applies as in (19) and (20). Note that with the words *zèrlē* and *ǰtpé* in (19) the two juxtaposed consonants are equally sonorous.

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<sup>11</sup> I assume the following ascending sonority scale: obstruents, nasals, laterals and trills/flaps, and semivowels.

Therefore the Sonority Sequence Constraint is not violated and no epenthetic vowel is added.

(18) **Sonority Sequence Constraint**

\*C<sub>x</sub>C<sub>y</sub> where sonority of C<sub>x</sub> < sonority of C<sub>y</sub>

(19)	a. Underlying Form /verb stem-INF/	/sàyd-e/ 'to clear'	/arm-e/ 'to lack'	/zèrl-e/ 'to be mature'	/atp-e/ 'to watch'
	b. Epenthesis	—	—	—	—
	c. Other rules	sàydè	ármé	zèrlē	átpé
(20)	a. Underlying Form /verb stem-INF /	/jaly-e/ 'to consider'	/àm1-e/ 'to leave'	/àpl-e/ 'to reimburse'	/bugm-e/ 'to be silent'
	b. Epenthesis	jaliye	àmile	àpile	bugume
	c. Other rules	jálíyé	àmìlē	àpìlē	búgúmé

It should be pointed out that the sonority sequencing constraint as stated in (18) stands in opposition to Itô's (1989:221) claim that sonority theory is limited to syllable-internal wellformedness. In Central Dangaleat, the Sonority Sequencing constraint clearly has transsyllabic consequences.

Although the Sonority Sequence Constraint in Central Dangaleat is highly productive, it must be acknowledged that there is some variation with certain verbs, as in (21). In some cases, as with the verb *tótiré*, three alternate pronunciations are possible for at least some speakers. The majority of verbs pattern with *dúkúmé*, however, in that only one pronunciation is possible.

(21)	Alternate forms			
tótiré	tótiré	tótré		'to separate'
àmìlē	àmèlē	àm1ē		'to depart'
jáp1lé	jápólé	*jáplé		'to flee'
dúkúmé	*dúkómé	*dúkmé		'to cut'
bíf1ré	*bífóré	*bíf1ré		'to stir up the fire'

A final phonological constraint in Central Dangaleat disallows a form in which two semivowels are juxtaposed. When two semivowels are juxtaposed in the underlying form, an epenthetic vowel is always inserted. The relevant constraint may be formalized as in (22) and applies as in (23).<sup>12</sup>

(22) **Juxtaposed Semivowel Constraint**

\*C<sub>x</sub>C<sub>y</sub> where C<sub>x</sub> and C<sub>y</sub> are semivowels

(23) a. Underlying Form	/dʌwɪ-e/	/da:wɪ-e/
/verb stem-infinitive marker/	'to carry'	'to heal'
b. Epenthesis	dʌwiye	da:wɪye
c. Other rules	dáwíyé	dá:wíyé

## 2. Word Level Rules in Central Dangaleat

### 2.1 Vowel Harmony

The marker of the Infinitive in Central Dangaleat has two allomorphs: *-e* and *-ɛ*.

When one compares the various forms of the Infinitive in (24), the conditioning for the two allomorphs can be clearly seen to be the underlying vowel of the root.

(24)a.	àsē	'to come'
	bō:bè	'to pour'
	gúné	'to aid'
	né:cé	'to measure'
	dólíyé	'to cut down a tree'
b.	bè:nē	'to shine'
	bð:rè	'to search as a group'
	gð:nē	'to be worn out'
	nēfè	'to suffocate'
	écímé	'to protect oneself'

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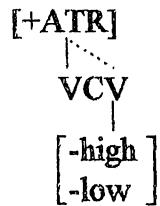
<sup>12</sup> There are three verbs in my data that illustrate this constraint: *dáwíyé*, *dá:wíyé* and *kádúyé* 'to stop'.



Although only a few forms are listed in (24), note that when the marker of the Infinitive is  $-e$ , the stem vowel is always either  $e$  or  $\text{ɔ}$ . When the marker of the Infinitive is  $-e$ , however, the stem vowel can be any other vowel. It is clear, therefore, that the more general marker of the Infinitive in Central Dangaleat is  $-e$ , with the  $-e$  allomorph occurring as the result of a rule which has the effect of spreading the feature  $[+ATR]$ , as represented in (25).

(25) **ATR Spread**

Spread the feature  $[+ATR]$  from left to right to any mid vowel.

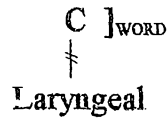


An example of the application of the rule in (25) apart from the infinitive can be seen when a first person plural inclusive direct object pronoun is added to a verb such as those listed in (24b). As can be seen in (26), the pronoun  $té$  is realized as  $té$  after a vowel with the feature  $[+ATR]$ .

(26)	dè:-tè kill-1Pex(PROG)	gòn-té wear.out-1Pex(PRF)
ATR spread	dè:tè 'killing us'	gònté 'wore us out'

## 2.2 Word Final Devoicing

A second word level rule in Central Dangaleat states that an underlying voiced stop becomes voiceless in word final position. The devoicing rule may be stated as in (27) and applies as in (28).

(27) **Loss of Laryngeal Features**

(28)		/alg-e/	/al-a-g/	/dalb-e/	/dal-a-b/
	a. Underlying form	/stem-INF/	/stem-HAB/	/stem-INF/	/stem-HAB/
	b. Devoicing	—	alak	—	dalap
	c. Other rules	ālgè 'to pass the year'	ālāk	dālbè 'to turn'	dālap

It is evident from words such as *dígtí* and *bōōbgā* (see (7) above) that the environment for the devoicing rule is the word boundary and not the coda position of the syllable.

3. **Underlying Tone Patterns**

One characteristic of tone in Central Dangaleat is that it has a high morphological load. In other words, tone is frequently used to distinguish between morphological categories such as singular and plural, perfective and imperfective, etc. The contrast between the three surface tones in the Central Dangaleat verbal system, therefore, can most clearly be seen by comparing different conjugations of the same verb stem. Three such forms are listed in (29) and repeated in (30) with the addition of a direct object.

(29)a. <b>Infinitive</b> ɲà yà wá:wé 'He will show.'	b. <b>Perfect</b> ɲà wā:wē 'He showed.'	c. <b>Plural Imperative</b> wā:wò 'Show!' (plural)
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(30)a. ɲà yà wá:wé āwgì 'He will show the goats.'	b. ɲà wā:w āwgì 'He showed the goats.'	c. wā:wò āwgì 'Show the goats!'
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Although there are three surface tones in Central Dangaleat, I propose that only high and low tones are underlyingly marked.<sup>13</sup> A given tone bearing unit in Central Dangaleat may be marked as high tone, as low tone, or, as a third possibility, it may be underlyingly unspecified for tone.<sup>14</sup> I propose furthermore that tonal features that are left unspecified underlyingly are filled in by one of three tone rules. The difference between the proposed underlying form and the surface form of four different forms in Central Dangaleat is illustrated in (31). It is crucial that the effect of the three proposed tone rules in Central Dangaleat is to fill in those features that are underlyingly unspecified, not to change underlyingly specified features. In other words the rules are feature-filling, as opposed to feature-changing.

(31)

Form	Underlying Form	Surface Form	
Infinitive	àse	àsē	‘come’
Past Perfective	àsíyo	àsíyó	‘was coming’
Infinitive	wa:we	wá:wé	‘show’
Plural Imperative	wa:wò	wā:wò	‘Show!’ (plural)

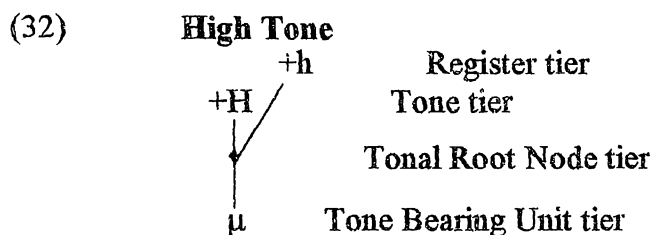
Before introducing the three proposed tone rules in Central Dangaleat, I will introduce the framework that I adopt for describing the tonal phenomena in Central Dangaleat. Register Tier Theory (as developed in Snider 1993) divides the form of tone into a tonal tier and a register tier. In this system, a high tone is generally represented as [+HIGH] tone, [+high] register, where by convention the use of all capital letters is

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<sup>13</sup> This proposal is specifically for the verbal system of Central Dangaleat. Whether the same rule applies for the language as a whole is unknown at this point.

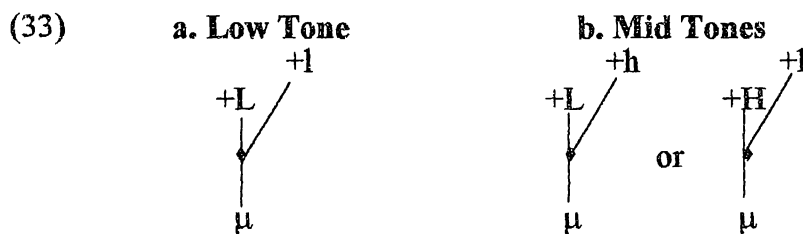
<sup>14</sup> In chapter 8 I argue that vowels are the tone bearing unit in Central Dangaleat, as opposed to syllables or moras.

reserved for the tonal feature. A high tone may be graphically represented as in (32).<sup>15</sup> The Tone tier and the Register tier are joined at the Tonal Root Node tier, which is in turn associated to the Tone Bearing Unit tier.



A low tone in Register Tier Theory is generally represented as [+LOW, +low], as in (33a).

A mid tone may either be represented as [+HIGH, +low] or [+LOW, +high], as in (34b).



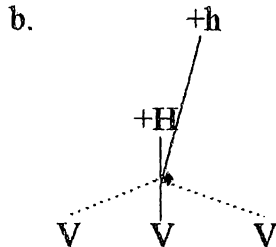
Given this brief introduction to Register Tier Theory, it is possible to introduce the three tone rules of Central Dangaleat and give some examples of their application. The rule of High Tone Spread may be graphically represented as in (34) and applies iteratively. Note that the association line is drawn from the Tonal Root Node directly to the Tone Bearing Unit of adjacent morphemes in either direction. This has the effect of spreading both the tonal and register features.

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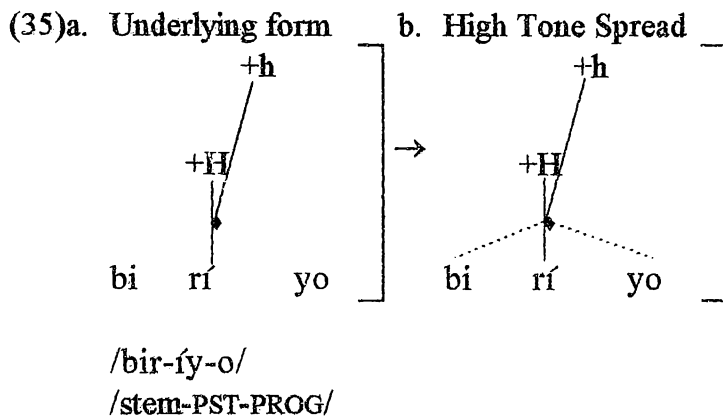
<sup>15</sup> A high tone could also be represented as [-LOW, -low], a low tone by [-High, -high], etc.

## (34) High Tone Spread

- a. When the Tonal Root Node is associated to the features [+High, +high], spread the Tonal Root Node to any adjacent Tone Bearing Unit that is unspecified for both tone and register.



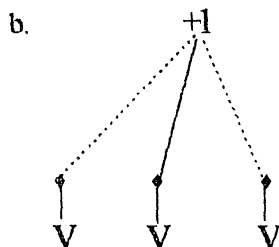
An example of the application of the rule of High Tone Spread is given in (35). In (35a), note that only the second morpheme (marking past tense) of the underlying form /bir-íy-o/ is underlyingly marked for high tone. In (35b), the high tone of the second morpheme spreads to the two adjacent tone bearing units, with the result that the word has the surface tone pattern high-high.



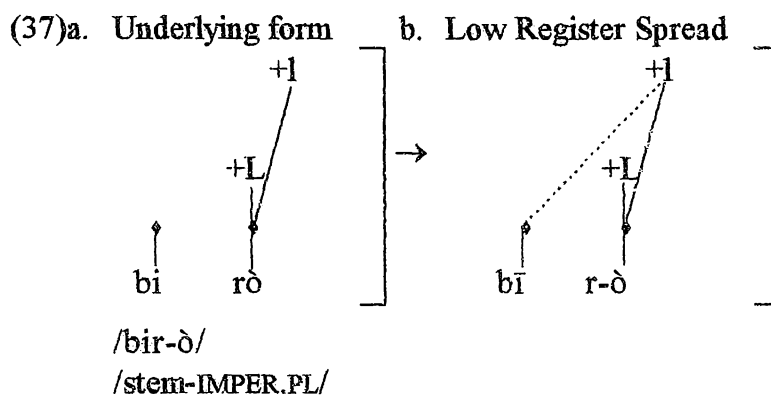
The rule of Low Register Spread resembles the rule of High Tone Spread, except that only the register feature [+low] is spread. This is indicated in (36) by the fact that the association line is drawn from the register feature to the Tonal Root Node.

(36) **Low Register Spread**

- a. Spread the register feature [+low] to any adjacent tone bearing unit that is unspecified for the register feature.



An example of the application of the rule of Low Register Spread is given in (37). In (37a), the second morpheme is underlyingly marked as low tone. In (37b), the low register feature spreads to the preceding Tonal Root Node.

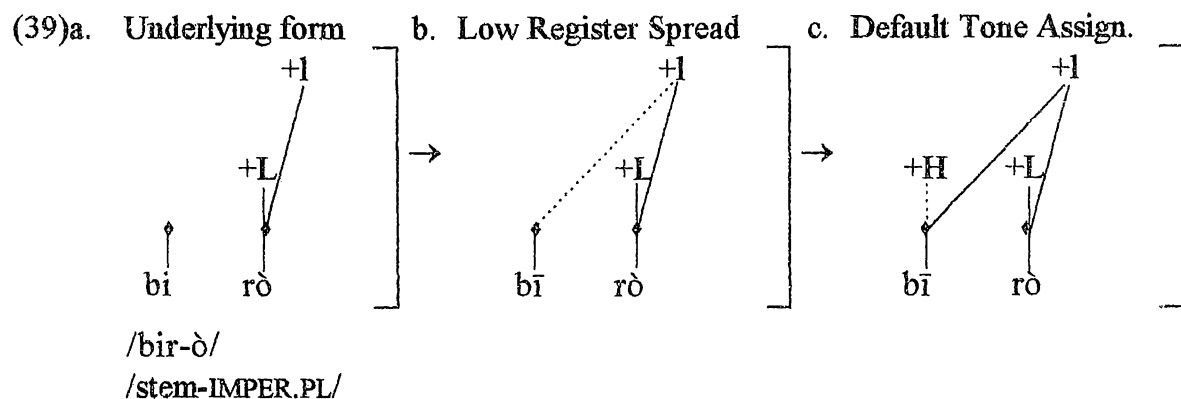


After the application of the rule of Low Register Spread in (37), note that the first tone bearing unit is specified only for the register feature (+low) and remains unspecified on the Tonal Tier. This leads to the final tone rule in Central Dangaleat, which fills in all tonal features that are still unspecified underlyingly. The default tone in Central Dangaleat is high, with the same features as the underlying high tone. The rule of Default Tone Assignment can be formalized as in (38).

(38) **Default Tone Assignment**

Fill in the feature [+HIGH] on the Tonal Tier and [+high] on the register tier wherever corresponding feature values are unspecified.

The application of the rule of Default Tone Assignment as applied to the example in (37), can be seen in (39c).



The way that the three tone rules apply to the four forms introduced in (31) can be seen in the (40). (The asterisk indicates that the tonal feature value for the mid tone has not yet been filled in.)<sup>16</sup>

(40)

	Infinitive	Durative Past	Infinitive	Plural Imperative
a. Underlying Form	/às-e/	/às-íy-o/	/wa:w-e/	/wa:w-ò/
b. High Tone Spread	—	àsíyó	—	—
c. Low Register Spread	àsē *	—	—	wā:wò *
d. Default Tone Assignment	àsē	àsíyó	wá:wé	wā:wò

#### 4. Consonant-Tone Interference

In this section I provide a brief introduction to consonant-tone interference in general and to the effect of consonant-tone interference in the Central Dangaleat verbal

<sup>16</sup> For further discussion regarding the ordering of the various tone rules see chapter 8.

system in particular. Consonant-tone interference is not a phenomenon limited to Central Daugaleat. It has been well documented throughout the world in languages as different as Chinese and the Central Bantu family of languages in Africa (Hombert 1975; Hyman 1973). Even in non-tonal languages, it is possible to demonstrate instrumentally the effect of certain consonants on the relative pitch of a following segment (Hombert 1975). In many languages, consonant-tone interference remains a very low-level phonetic feature; however, in some instances the effect of consonant-tone interference is gradually incorporated into the phonological system of the language. When this happens, a non-tonal language can develop into a tonal language. According to Hombert (1975), this is one of the most documented ways in which non-tonal languages develop tonal systems.

Although the way in which consonant-tone interference works differs somewhat from language to language, an example of the way in which consonant-tone interference typically works may be found in the Eastern Chadic language Kera.<sup>17</sup> In this language the tone on the first syllable of a word is generally predictable based upon the word initial consonant. If the first consonant is a voiced obstruent (a 'depressor consonant'), the following tone will be low, as in (41a). If the first consonant is a voiceless obstruent ('non-depressor consonant'), the following tone will be high, as in (41b).<sup>18</sup> If the first consonant is an *h*, the following tone may be either high or low, as in (41c).

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<sup>17</sup> The Kera data is from Ebert (1976) as cited in Wolff (1984a:206).

<sup>18</sup> Nasais in Kera also function as non-depressor consonants; however, this is the exception rather than the rule. I follow Wolff (1984a) in using the terms "depressor consonant", "non-depressor consonant", etc. The term "non-depressor consonant" is



(41) **Consonant-Tone Interference in Kera**

a. depressor consonant	gùsí	'buy'
b. non-depressor consonant	pété	'pluck'
c. neutral	hédé	'cut'
	háté	'learn'

Whereas Kera generally follows the pattern of what one would expect in regard to consonant-tone interference, this phenomenon in Central Dangaleat has several unusual characteristics. First, it is the final consonant of the verbal stem in Central Dangaleat that is relevant in terms of consonant-tone interference, not the first as in the case of Kera (and all the other Chadic languages referenced by Wolff 1984a). Second, Central Dangaleat does not have a three way division of depressor consonants, non-depressor consonants and neutral consonants. Rather, there is only a two-way distinction of depressor versus neutral. Finally, normally the class of depressor consonants is limited to non-implosives. In Central Dangaleat, however, implosives pattern with voiced obstruents in respect to consonant-tone interference.

The examples in (42) illustrate the way that consonant-tone interference generally works in Central Dangaleat (the depressor consonant is underlined).

(42) **Consonant-tone Interference in Central Dangaleat**

Underlying Form	Infinitive	Durative	Habitual	Basic Gloss
gā <u>d</u> -	gā <u>d</u> è	gā <u>d</u> àw	gā <u>d</u> à	'to flee'
bo: <u>b</u> -	bō: <u>b</u> è	bō: <u>b</u> àw	bō: <u>b</u> à	'to pour out'
alg-	ālgè	ālgàw	ālàk	'to spend the year'
ko <u>k</u> ī <u>d</u> -	kōkī <u>d</u> è	kōkī <u>d</u> àw	kōkàt	'to hammer'

rather misleading, however, in that it implies that this class of consonants are neutral in respect to consonant-tone interference.

Note that the general effect of the depressor consonant is to introduce a low tone on the following vowel. With certain verbs in the Central Dangaleat Habitual form, however, there is no vowel following the depressor consonant. With verbs of this type (*ālāk* and *kōkāt* above), the low tone introduced by the depressor consonant is associated with the preceding vowel.

The rule of consonant-tone interference in Central Dangaleat may be stated as in (43a) and the rule of association for the low tone introduced as a result of consonant-tone interference is stated in (43b).

**(43) Consonant-Tone Interference**

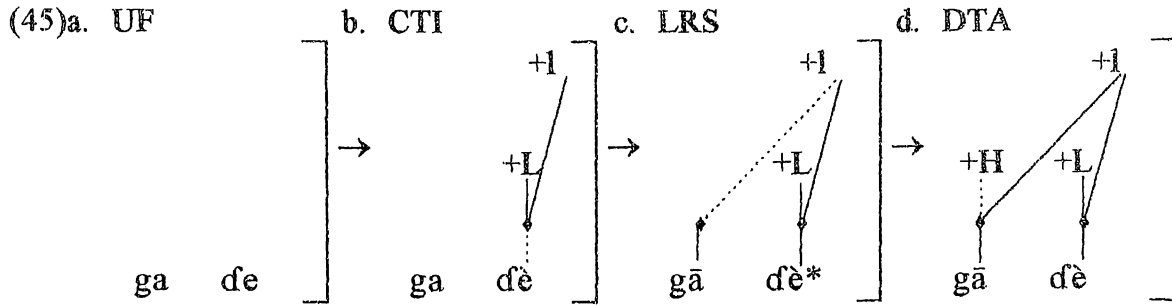
- a. If the final consonant of the Underlying Form of a verb base is a depressor consonant, insert a low tone [+LOW, +low].
- b. Associate the low tone introduced as a result of consonant-tone interference from right to left to the first available tone bearing unit (vowel).

The effect of consonant-tone interference in words ending in a vowel is demonstrated in (44) and graphically represented in (45). Note that the low tone introduced as a result of consonant-tone interference is associated with the vowel following the depressor consonant.<sup>19</sup>

(44)	a. Underlying Form	/gad-e/	/alg-e/
	/verb stem-infinitive marker/		
	b. Consonant-tone interference	gadè	algè
	c. Low Register Spread	gādè *	ālgè *
	d. Default Tone Assignment	gādè	ālgè

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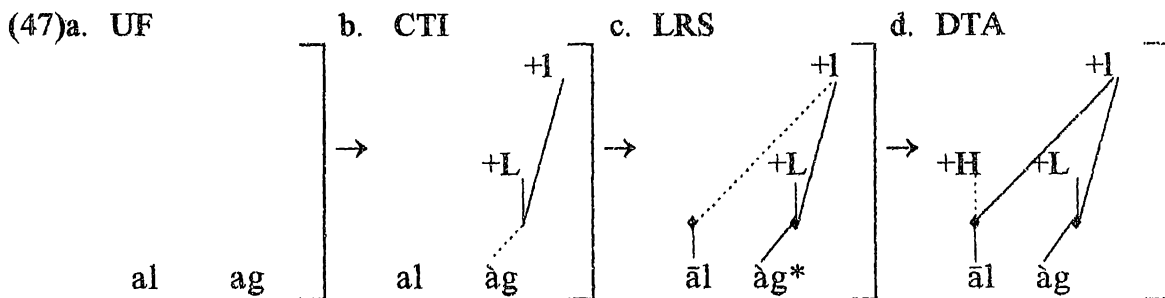
<sup>19</sup> See chapter 8 for further discussion on rule ordering.



The effect of consonant-tone interference with a word ending in a consonant is demonstrated in (46) and graphically represented in (47). In this instance the effect of the association rule is to associate the low tone introduced as a result of consonant-tone interference with the vowel preceding the depressor consonant.

(46)

a. Underlying Form	/gad-a/	/al-a-g/
b. Consonant-tone interference	gadà	alàg
c. Low Register Spread	gādà *	ālàg *
d. Default Tone Assignment	gādà	ālàg
e. Other rules	gādà	ālàk



### CHAPTER 3

#### OVERVIEW OF THE CENTRAL DANGALEAT VERBAL SYSTEM

The purpose of this chapter is to introduce briefly the different verb forms in Central Dangaleat, focusing on the way the various forms are marked, as well as the way they are used. The general organization of the Central Dangaleat tense, aspect and mood system is the subject of chapter 7. The goal here is simply to provide a general overview as a basis for further discussion.

An example of the use of each of the eleven different verbal formations in Central Dangaleat is listed in (1). The third person masculine singular subject pronoun (*ɲà*) and the future tense marker (*ɣà*) are not part of the verb formation itself.

(1)	Infinitive	<i>ɲà yà ráwté</i>	'He will forget.'
	Perfective	<i>ɲà ráwtē</i>	'He forgot.'
	Perfective Past	<i>ɲà ráwtíí</i>	'He forgot.'
	Progressive	<i>ɲà ráwtáw</i>	'He is forgetting.'
	Progressive Past	<i>ɲà ráwtíyó</i>	'He was forgetting.'
	Progressive Repetitive Past	<i>ɲà ráwtígíyó</i>	'He forgot (rep.).'
	Progressive Repetitive Infinitive	<i>ɲà yà ráwtígúwé</i>	'He will forget (rep.).'
	Habitual	<i>ɲà ráwát</i>	'He forgets (often).'
	Singular Imperative	<i>ráwát</i>	'Forget!' (sg.)
	Plural Imperative	<i>ráwtò</i>	'Forget!' (pl.)
	Hortative	<i>ráwtìntē</i>	'Let's forget!'

Before discussing the individual conjugational forms in Central Dangaleat, two general observations concerning the Central Dangaleat verbal system should be made. First, although verbs with the underlying form (C)V:CC- and (C)VCCC- are not

uncommon in Central Dangaleat (see chapter 2 above), they pattern consistently with verbs of the type (C)VCC- in regard both to tone and aspectual marking. For this reason, they will not be treated separately in this thesis. The second observation is that the way that a given verbal conjugation is marked in Central Dangaleat often varies depending on whether the form is in isolation, followed by a pronoun or followed by another word.<sup>1</sup> For this reason it is necessary to list not only each conjugational type in isolation, but also the object inflected forms and the forms when followed by another word.

### 1. The Infinitive Form

There are two allomorphs for the Infinitive marker in Central Dangaleat: *-in* before a pronoun and *-e* elsewhere. The various forms of the Infinitive in isolation, grouped according to syllable structure and tone patterns, are as in (2).

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<sup>1</sup> Not just any word will trigger this change in verb marking. Objects, adjectives and adverbs, for example, do trigger the change. Prepositions, on the other hand, do not. Further research is needed to further define the context in which the change occurs.



using the auxiliary verbs *bàl* and *àk* respectively followed by the Infinitive form of the verb, as illustrated in (5) and (6).<sup>2</sup>

(5)    *tà*    *bàl-ít*        *wá:w-é*  
          she   NEG-PAST    to choose-INF  
          ‘She did not choose.’

(6)    *àk*     *bà:w-ē*    *dò*  
          NEG   go-INF    NEG  
          ‘Don’t go!’

In a parallel type of construction, the Infinitive is used in conjunction with the auxiliary verb *yà* to form a periphrastic future tense construction, as in (7) and (8).<sup>3</sup>

(7)    *mē*    *yà*    *às-ē*  
          chief   AUX   come-INF  
          ‘The chief will come.’

(8)    *ṅù*    *yà*    *íy-é*        *àtày*  
          they   AUX   bring-INF    wood  
          ‘They will gather wood.’

As a variation of the sentence in (8), when the subject of the sentence is a pronoun, the auxiliary verb may be dropped. When the subject of the sentence is a full noun, however, the auxiliary verb is always employed. In (9), the parentheses indicate that the use of the

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<sup>2</sup> For further discussion of the negative forms of the Perfective and Imperative formations see Chapter Seven, Section 2 and Chapter Seven, Section 5 respectively.

<sup>3</sup> The auxiliary *yà* used in conjunction with the Infinitive to form the future tense in Central Dangaleat is not related to the regular verb ‘to go’ in Central Dangaleat (*bààwē*), nor is the auxiliary ever used apart from the Infinitive (it is not a full verb form). Wolff (1982a:206) is apparently mistaken when he states that the future marker in Eastern Dangaleat (*āā*) is related to the verb ‘to go’, which he identifies as *daa*. According to Ebobissé (1985) the verb for ‘to go’ in Eastern Dangaleat is *kàtè*, not *daa*. Montgolfier (19:60) calls *daa* an auxiliary verb and Ebobissé (1979:60) calls it a ‘verboid’.

auxiliary verb is optional when the subject is a pronoun. (For further discussion concerning this use of the Infinitive, see chapter 5.)

- (9)     $\eta\grave{u}$     (yà)     $\acute{f}y\text{-}\acute{e}$     àtày  
           they    AUX    bring-INF    wood  
           ‘They will gather wood.’

An important difference between the periphrastic future tense construction in Central Dangaleat and in Western Dangaleat and Eastern Dangaleat, is that both Western and Eastern Dangaleat have separate sets of subject pronouns used exclusively in the periphrastic future tense construction.<sup>4</sup> When the subject of the future tense construction is a pronoun, the alternate form of the subject pronoun is employed and the auxiliary verb that otherwise marks the future tense form is systematically omitted. In Central Dangaleat, however, there is only one difference between the pronouns used with the future tense construction as opposed to elsewhere: the first person singular pronoun is *ná* as opposed to *nú*, as demonstrated in (10).

(10)	1st singular	3rd singular
Perfective	$nú \bar{e}:m\bar{e}$ ‘I ate.’	$\eta\grave{a} \bar{e}:m\bar{e}$ ‘He ate.’
Progressive	$nú \acute{e}:máw$ ‘I am eating.’	$\eta\grave{a} \acute{e}:máw$ ‘He is eating.’
Future	$\underline{ná} yà \acute{e}:mé$ ‘I will eat.’	$\eta\grave{a} yà \acute{e}:mé$ ‘He will come.’

<sup>4</sup> Whereas normally the subject pronouns in Western and Eastern Dangaleat have only a short vowel ( $\eta\grave{a} \bar{t}\bar{a}\bar{l}\bar{e}$  (East) and  $\eta\grave{a} \bar{t}\bar{a}\bar{l}\acute{e}$  (West)), with the future tense form, the vowel of the pronoun is long ( $\eta\bar{a}\bar{a} \bar{t}\bar{a}\bar{l}\acute{e}$  (East) or  $\eta\grave{a}\bar{a} \bar{t}\bar{a}\bar{l}\grave{e}$  (West)). This is clearly the result of the contraction of the normal subject pronoun with the auxiliary verb marking the future tense, which is  $y\grave{a}\grave{a}$  in the West (Fédry 1971c:65) and  $\bar{a}\bar{a}$  in the East (Ebobissé 1978:60). The first person singular form is still unique, however, in that the quality of the vowel itself changes ( $nó \bar{t}\bar{a}\bar{l}\grave{e}$  versus  $n\grave{a}\bar{a} \bar{t}\bar{a}\bar{l}\grave{e}$ ) (data from Fédry 1974:21).



Although Central Dangaleat does not have two complete sets of subject pronouns, there are at least three different, though clearly related, sets of object pronouns used with different formations. One such set is used exclusively with Infinitives. Several examples of object-inflected forms of the Infinitive are listed in (11). (For a complete list of the various object pronouns, see Appendix B.) Note that the form of the Infinitive marker changes from *-e* to *-in* before a pronoun.

(11) Infinitive	with pronouns
bír-é	bír-ín-tè 'pass us' (in.) bír-ín-tí 'pass her'
gūɗ-è	gūɗ-ìn-tè 'hide us' gūɗ-ín-tí 'hide her'
gà:r-ē	gà:r-ìn-tè 'show us' gà:r-ín-tí 'show her'
à:d-è	à:d-ìn-tè 'follow us' à:d-ín-tí 'follow her'

The Infinitive is somewhat unique among the verbal formations in Central Dangaleat in that it does not change form when followed by another word, as can be seen by comparing (12) with (8) above.

(12)	ɲù	(yà)	íy-é
	they	AUX	bring-INF
	'They will gather.'		

## 2. The Perfective Form

When used in isolation, the Perfective formation in Central Dangaleat closely resembles the Infinitive, as can be seen by comparing the various forms in (13). With the verbs in the high-high and mid-low classes, the Perfective differs from the Infinitive only

by tone. The three tone patterns of the Infinitive are reduced to two with the Perfective.<sup>5</sup>

With the verbs in the low-mid and low-low classes, the Perfective and Infinitive forms are identical.

(13)	Tone Pattern	Infinitive	Perfective	Tone Pattern	
	High-High	bírè á:pé ármé búgúmé	bírè ā:pē ārmē būgūmē	Mid-Mid	'to pass' 'to mock' 'to reconcile' 'to be silent'
	Mid-Low	gādè bō:bè ālgè kōkīdè	gādē bō:bē ālgē kōkīdē	Low-Mid Mid-Mid Low-Mid Mid-Mid	'to flee' 'to pour' 'to pass the year' 'to hammer'
	Low-Mid	bòrè gà:rè àmsè kàbilè	bòrè gà:rè àmsè kàbilè	Low-Mid	'to dry' 'to show' 'to confuse' 'to murmur'
	Low-Low	sìdè à:dè sàydè jèkìdè	sìdè à:dè sàydè jèkìdè	Low-Low	'to swallow' 'to follow' 'to clear' 'to raise'

The Perfective formation in Central Dangaleat is used to designate completed or bounded action. Whether the action is situated in the past, present or future is not in focus. Two examples of the Perfective formation are as in (14). The low tone on the verb stem (*d'èètē*) signals the Perfective formation in both sentences. Note that in (14b), when the Perfective form is followed by another word, the suffix *e* (*ε*) is no longer present. This is an important characteristic of the Perfective in contrast with the Infinitive, where the final *e* is invariably present.

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<sup>5</sup> For further discussion regarding the tone perturbations affecting these forms, see chapter 5, section 2 and chapter 8, section 2.2.

- (14)a. kɪ́    dʒɛ̀ɛ̀tɛ̃  
       you    go.out/PRF  
       ‘You left.’
- b. ɲà    dʒɛ̀ɛ̀t    mà:mò  
       he    go.out/PRF    where  
       ‘Where did he go?’

In chapter 8, section 2.1, I argue that the final *e* does not ‘mark’ the Perfective form *per se*; but rather that it is an epenthetic vowel

That the Perfective form is not used simply when the action is situated in the past, is evidenced by its use in procedural texts. In a procedural text, such as (15), the use of the Perfective signals the completion of one step in the procedure, in anticipation of moving on to the next step.

- (15)a. ɲà    bā:g-è    tū:f-è    dɔ̀mbìlòŋ  
       I    begin-INF    assemble-INF    large ring
- b. yá    ɲù    tū:fɛ̃  
       once    it    assemble/PRF
- c. ná    báɾíy-é    gà:ʒà  
       I    search-INF    straw

‘I begin to assemble the large ring (used for the roof). Once it is assembled, I look for a special type of straw (for thatch).’

The Central Dangaleat Perfective and Perfective Past formations share a common set of pronouns (for a complete list see Appendix B). Examples of Perfective formation with pronouns are as in (16). Note that with forms such as *bīrgā* and *gàtgā*, the *-e* suffix that marks the Perfective form in isolation is clearly not present.

(16)	Perfective	with pronouns	
High-High	bīrē	bírínté	'pass us'
		bīrgā	'pass him'
Mid-Low	gùdē	gùdínté	'hide us'
		gùtgā	'hide him'
	lā:dē	lā:dínté	'surround us'
		lā:tgā	'surround him'
Low-Mid	gà:rē	gà:rínté	'show us'
		gà:rgā	'show him'
Low-Low	à:dè	à:dínté	'follow us'
		à:tgā	'follow him'

### 3. The Perfective Past Form

There are three allomorphs for the Perfective Past form in Central Dangaleat: *-íí* before a pronoun, *-ít* before another word and *-tí* in the phrase final position. As with the Perfective formation, the basic tone patterns with the Perfective Past formation are also altered, with the result that verbs in the mid-low class pattern either with the high-high verbs or the low-mid verbs. The surface form of the Perfective Past conjugation can be seen in (17), in contrast to the Infinitive and Perfective.

(17)	Infinitive	Perfective	Perfective Past	
High-High	bíré	bīrē	bírítí	'to pass'
	á:né	ā:nē	á:ntí	'to mock'
	ármé	ārmē	á:rmítí	'to reconcile'
	búgúmé	būgūmē	búgúmtí	'to be silent'
Mid-Low	gādè	gādē	gàttí	'to flee'
	bō:bè	bō:bē	bó:btí	'to pour'
	ālgè	ālgē	ālgítí	'to pass the year'
	kōkīdè	kōkīdē	kókíttí	'to hammer'
Low-Mid	bòrē	bòrē	bòrtí	'to dry'
	gà:rē	gà:rē	gà:rtí	'to show'
	àmsē	àmsē	àmsítí	'to confuse'
	kàbìlē	kàbìlē	kàbìltí	'to murmur'
Low-Low	sìdè	sìdè	sìttí	'to swallow'
	à:dè	à:dè	à:ttí	'to follow'
	sàydè	sàydè	sàydíttí	'to clear'
	jèkìdè	jèkìdè	jèkìttí	'to raise'

The Perfective Past formation contrasts with the Perfective, in that the Perfective Past formation is always used to designate action situated in the past, as in (18) and (19).

- (18)     $\eta\grave{a}$      $\grave{a}s\text{-}\acute{it}$              $g\bar{e}r$   
           he    came-PST    home  
           ‘He came home.’
- (19)     $\eta\grave{a}$      $k\acute{o}l\text{-}\acute{it}$              $g\bar{e}m$      $r\acute{a}k\acute{i}$   
           he    called-PST    person    one  
           ‘He called to someone.’

In the sentences above, note that the form of the Perfective Past marker is *-it* ( $\acute{a}s\acute{it}$  and not  $\acute{a}st\acute{i}$ ) when a verb marked for Perfective Past is followed by another word. When a pronoun is added to the Perfective Past form, the result is as in (20). Note that the marker of Perfective Past is realized as *-ii* and not *-ti* or *-it* when a pronoun is added.

(20)

	Perfective Past	with pronouns	
High-High	$b\acute{ir}\acute{t}\acute{i}$	$b\acute{ir}\acute{i}:nt\acute{e}$	‘pass us’
		$b\acute{ir}\acute{i}:g\acute{a}$	‘pass him’
Mid-Low	$g\grave{u}t\acute{t}\acute{i}$	$g\grave{u}d\acute{f}\acute{i}:nt\acute{e}$	‘hide us’
		$g\grave{u}d\acute{f}\acute{i}:g\acute{a}$	‘hide him’
	$l\acute{a}:t\acute{t}\acute{i}$	$l\acute{a}:d\acute{f}\acute{i}:nt\acute{e}$	‘surround us’
		$l\acute{a}:d\acute{f}\acute{i}:g\acute{a}$	‘surround him’
Low-Mid	$g\grave{a}:r\acute{t}\acute{i}$	$g\grave{a}:r\acute{i}:nt\acute{e}$	‘show us’
		$g\grave{a}:r\acute{i}:g\acute{a}$	‘show him’
Low-Low	$\grave{a}:t\acute{t}\acute{i}$	$\grave{a}:d\acute{f}\acute{i}:nt\acute{e}$	‘follow us’
		$\grave{a}:d\acute{f}\acute{i}:g\acute{a}$	‘follow him’

#### 4. The Progressive Form

The three allomorphs for the Central Dangaleat Progressive form are: *-i:* before a pronoun, *-a* before another word and *-aw* in phrase final position. Unlike the Perfective and Perfective Past forms, the tone in the Progressive matches that of the Infinitive, as demonstrated in (21).

(21)	Infinitive	Progressive	
High-High	bíré	bíráw	'to pass'
	á:né	á:náw	'to mock'
	ármé	ármáw	'to reconcile'
	búgúmé	búgúmáw	'to be silent'
Mid-Low	gāḍè	gāḍàw	'to flee'
	bō:bè	bō:bàw	'to pour'
	ālgè	ālgàw	'to pass the year'
	kōkīḍè	kōkīḍàw	'to hit with hammer'
Low-Mid	bòrē	bòrāw	'to dry'
	gà:rē	gà:rāw	'to show'
	àmsē	àmsāw	'to confuse'
	kàbìlē	kàbìlāw	'to murmur'
Low-Low	sìḍè	sìḍàw	'to shallow'
	à:ḍè	à:ḍàw	'to follow'
	sàyḍè	sàyḍàw	'to clear'
	jèkìḍè	jèkìḍàw	'to raise'

The Progressive form indicates unbounded action or action in progress. Whether the action is situated in the past, present or future is not in focus. The use of the Progressive in (22) indicates that the subject is in the process of preparing *boule*.<sup>6</sup>

(22)   tà       gán-áw  
          she   prepare-PROG  
          'She is preparing (boule).'

In the text portion in (23), the Progressive form is used in a context that is clearly situated in the past.

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<sup>6</sup> *Boule* is the name in French for the main staple of the Dangaleat region, a paste made from millet or sorghum. The Dangaleat name for *boule* is *āndè*. Although the word *āndè* does not appear in the example above, the verb *gānē* is only used for the preparation of this staple.

- (23)a. iyá      ñà      úc-ít      mīn      dō      wèr-īkā  
 finally    he      get.up-PST    from                    place-there
- b. ñà      d̥ɛ:t-āw      dō      gér      kā      tàcò  
 he      leave-PROG    to      home    of      father-'his
- c. ñà      d̥á:w-íy-ó              ñà      d̥á:w-íy-ó  
 he      walk-PST-PROG      he      walk-PST-PROG

'Finally, he got up from the place where he was and leaving for the home of his father, he was walking and walking.'

When the Progressive formation in Central Dangaleat is followed by another word, the final *-w* marking the Progressive is dropped, as can be seen by comparing the sentences in (24).

- (24)a. ñà      g̥à:r-áw  
 he      show-PROG  
 'He shows.'
- b. ñà      g̥à:r-á              āwgì  
 he      show-PROG      goats  
 'He shows the goats.'

The pronouns used with the Progressive are distinct from those used with the Infinitive and Perfective formations. The Progressive marker itself with before a pronoun is *-i:*.

Examples of the object-inflected forms of the Progressive are given in (25).

(25)	Progressive	with pronouns
High-High	bíráw	bírí:té 'pass us' bírī:gà 'pass him'
Mid-Low	gūd̥àw	gūd̥í:té 'hide us' gūd̥ī:gà 'hide him'
Low-Mid	g̥à:rāw	g̥à:rí:té 'show us' g̥à:rī:gà 'show him'
Low-Low	à:d̥àw	à:d̥í:té 'follow us' à:d̥ī:gà 'follow him'

## 5. The Habitual Form

In isolation, the Habitual form in Central Dangaleat is marked by *-a*, as demonstrated in (26) below. In verbs with only one non-initial consonant, the *-a* marking Habitual form is a suffix. In verbs with two or more non-initial consonants, however, the marker of the Habitual form is an infix. The tone with this form corresponds to the basic tone patterns of the Infinitive and Progressive.

(26)	Infinitive	Progressive	Habitual	
High-High	bíré	bíráw	bírá	'to pass'
	á:né	á:náw	á:ná	'to mock'
	ármé	ármáw	áram	'to reconcile'
	búgúmé	búgú máw	búgám	'to be silent'
Mid-Low	gāďè	gāďáw	gāďà	'to flee'
	bō:bè	bō:bàw	bō:bà	'to pour'
	ālgè	ālgàw	ālāk	'to pass the year'
	kōkīďè	kōkīďáw	kōkàt	'to hammer'
Low-Mid	bòrē	bòráw	bòrā	'to dry'
	gà:rē	gà:rāw	gà:rā	'to show'
	àmsē	àmsāw	àmās	'to confuse'
	kàbilē	kàbilāw	kàbāl	'to murmur'
Low-Low	sìďè	sìďáw	sìďà	'to shallow'
	à:ďè	à:ďáw	à:ďà	'to follow'
	sàyďè	sàyďáw	sàyàt	'to clear'
	ǰèkìďè	ǰèkìďáw	ǰèkàt	'to raise'

With verbs of the CV:C- class, the Habitual formation is not always marked in the same way. Although in most cases verbs of this type are simply marked with the suffix *a*, other possibilities exist, as in (27). In some cases there are two or more alternatives for the way that the Habitual is formed (as with *sí:ré*, *cá:lé* and *dū:fè* ).



(27)	Infinitive	Habitual	
	sá:le	sá:lá	'to immerse'
	lá:lé	láyál	'to throw'
	sí:ré	sí:rá /sírár	'to put in a row'
	cá:lé	cá:lá /cálál/cáyál	'to suspend'
	bā:gè	bā:gà	'to begin'
	dū:fè	dū:fà /dūyàc	'to get worse'
	à:dè	à:dà	'to follow'
	bò:dè	bòyàt	'to demand payment'

The Habitual form is used to designate a habit or commonly performed task.

Hence the phrase in (28) indicates that the subject is in the habit of preparing *boule*. She is not necessarily preparing it at the moment of the speech act. As pointed out by Fédry (1971b:XII), that the subject is in the habit of preparing *boule* implies that the subject is capable of preparing it.

- (28)    tà     gán-á  
           she   prepare-HAB  
           'She prepares (boule).'

One interesting feature about the Habitual form in Central Dangaleat is the way in which the Habitual marker changes either when an object pronoun is added or when the marker is followed by another word in a sentence. In each case the normal marker of the Habitual form is replaced by the suffix *-gi* (or *-ig*), as can be seen in (29) and (30).

- (29)    tà     gān-gī-tè  
           she   prepare-HAB-us  
           'She prepares (boule) for us.'

- (30)    kí     ràs-īk         āwgì   ūjǐ     dō dō   mōrgò-r  
           you   leave-HAB   goats   enter.in   into   field-my  
           'You keep letting the goats enter into my field.'

In general, the pronouns used with the Habitual are the same as for the Progressive. Examples of other object inflected forms are represented in (31).

(31)

	Habitual	with pronouns
High-High	bírá	bírgíté 'pass us'
		bīrgīgà 'pass him'
Mid-Low	gúdá	gútgíté 'hide us'
		gútgìgà 'hide him'
Low-Mid	gà:rā	gà:rgíté 'show us'
		gà:rgìgà 'show him'
Low-Low	à:dà	à:tgíté 'follow us'
		à:tgìgà 'follow him'

### 6. Three Polymorphemic Progressive Forms

Three extensions of the Progressive formation in Central Dangaleat are listed in (32) in contrast to the simple Progressive formation. Note that all of the forms are marked by either *-w* or *-o*. In addition, the two past tense forms are marked by *-iy*, the Repetitive forms by *-g* and the Infinitive form by the final *-e*.

(32)

	Progressive	Progressive Past	Progressive Repetitive Past	Progressive Repetitive Infinitive	
H-H	bíráw	bíríyó	bírgíyó	bírgúwé	'to pass'
	á:náw	á:níyó	á:ngíyó	á:ngúwé	'to mock'
	ármáw	ármíyó	ármígíyó	ármígúwé	'to reconcile'
	búgúmáw	búgúmíyó	búgúmgíyó	búgúmgúwé	'to be silent'
M-L	gāďàw	gādíyó	gátgíyó	gátgúwé	'to flee'
	bō:bàw	bó:bíyó	bó:bgíyó	bó:bgúwé	'to pour'
	ālgàw	ālgíyó	ālgígíyó	ālgígúwé	'to pass the year'
	kōkīďàw	kókíďíyó	kókítgíyó	kókítgúwé	'to hammer'
L-M	bòrāw	bòríyó	bòrgíyó	bòrgúwé	'to dry'
	gà:rāw	gà:ríyó	gà:rgíyó	gà:rgúwé	'to show'
	àmsāw	àmsíyó	àmsígíyó	àmsígúwé	'to confuse'
	kàbīlāw	kàbílíyó	kàbìlgíyó	kàbìlgúwé	'to murmur'
L-M	sīďàw	sīďíyó	sītígíyó	sītígúwé	'to dry'
	à:ďàw	à:ďíyó	à:tgíyó	à:tgúwé	'to show'
	sàyďàw	sàyďíyó	sàyďígíyó	sàyďígúwé	'to confuse'
	jèkīďàw	jèkīďíyó	jèkītígíyó	jèkītígúwé	'to murmur'



(37)

Progressive	Progressive Past	
bíríté	bírí:té	'pass us'
bīrīgà	bírí:gà	'pass him'
gúdíté	gúdí:té	'flee from us'
gūdìgà	gúdí:gà	'flee from him'
gà:ríté	gà:rí:té	'show us'
gà:rīgà	gà:rí:gà	'show him'
à:díté	à:dí:té	'follow us'
à:dìgà	à:dí:gà	'follow him'

(38)

Habitual	Progressive Repetitive Past	
bírgíté	bírgí:té	'pass us'
bīrgīgà	bírgí:gà	'pass him'
gútgíté	gútgí:té	'flee from us'
gūtgìgà	gútgí:gà	'flee from him'
gà:rgíté	gà:rgí:té	'show us'
gà:rgìgà	gà:rgí:gà	'show him'
à:tgíté	à:tgí:té	'follow us'
à:tgìgà	à:tgí:gà	'follow him'

The Progressive Repetitive Infinitive formation takes the same pronouns as the Infinitive, as can be seen in (39).

(39)

Infinitive	Progressive Repetitive Infinitive	
bīrìntè	bīrgūwìntè	'pass us'
bíríntí	bírgúwíntí	'pass him'
gūdìntè	gūtgùwìntè	'flee from us'
gúdíntí	gútgúwíntí	'flee from him'
gà:rìntè	gà:rgùwìntè	'show us'
gà:ríntí	gà:rgùwíntí	'show him'
à:dìntè	à:tgùwìntè	'follow us'
à:díntí	à:tgùwíntí	'follow him'

## 7. Singular Imperative

There are two ways of marking the Singular Imperative formation in Central Dangaleat, as can be seen in (40) below. Verbs whose stems end in a single consonant are marked with the suffix *-u*. Verbs whose stems end in a consonant cluster, on the other hand, are marked with an internal *-a*.

(40)

	Infinitive	Imperative Singular	
High-High	bíré	bírú	'Pass!'
	já:wé	já:wú	'Walk!'
	ármé	árám	'Reconcile!'
	búgúmé	búgám	'Be quiet!'
Mid-Low	gāďè	gāďù	'Flee!'
	bō:bè	bō:bù	'Pour!'
	sīŋjè	sīŋàc	'Move forward!'
	kōkīďè	kōkàt	'Hammer!'
Low-Mid	ďècē	ďècū	'Write!'
	gà:rē	gà:rū	'Show!'
	ďimsē	ďimās	'Mix!'
	àmìlē	àmāl	'Leave!'
Low-Low	sìďè	sìďù	'Shallow!'
	à:ďè	à:ďù	'Follow!'
	sàyďè	sàyàt	'Clear!'
	jèkīďè	jèkàt	'Raise up!'

The second person singular form of the imperative in Central Dangaleat is identical to the forms listed in (40) above, with no overt subject. The third person singular imperative, on the other hand, is formed by adding a third singular subject pronoun, as in (41).

- (41)a.   nà   bà:w-ū  
           he   go-IMPER  
           'He should go!'
- b.   tà   bà:w-ū  
               she   go-IMPER  
               'She should go!'

When another word follows the Singular Imperative, the marker of the Imperative is dropped, as shown in (42).<sup>7</sup>

- (42)a. gà:r-ú  
show-IMPER  
'Show!'
- b. gà:r gērò  
show house  
'Show the house!'

The pronouns used with the Singular Imperative in Central Dangaleat differ from those used with the formations previously described, as can be seen in (43). Note that here also the Singular Imperative marker is dropped in the object-inflected forms.

(43)

	Singular Imperative	with pronouns	
High-High	bírú	bīrtà bīrgù	'Pass her!' 'Pass them!'
Mid-Low	gūdù	gūttà gūtgù	'Hide her!' 'Hide them!'
Low-Mid	gà:rū	gà:rtà gà:rgù	'Show her!' 'Show them!'
Low-Low	à:dù	à:ttà à:tgù	'Follow her!' 'Follow them!'

### 8. Plural Imperative

The Plural Imperative form in Central Dangaleat is marked by a final -ò, as can be seen in (44).

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<sup>7</sup> With verbs in the low-mid class, there is no difference between the Perfective and Imperative forms when followed by another word. With the Perfective formation, however, there is always an overt subject; whereas with the Imperative there is not.

(44)	Infinitive	Imperative Plural	
High-High	bíré já:wé ármé búgúmé	bīrò já:wò ārmò būgūmò	‘Pass!’ (plural) ‘Walk!’ ‘Reconcile!’ ‘Be quiet!’
Mid-Low	gādè bō:bè sīnjè kōkīdè	gādò bō:bò sīnjò kōkīdò	‘Flee!’ ‘Pour!’ ‘Move forward!’ ‘Hammer!’
Low-Mid	d’ècē gà:rē dīmsē àmīlē	d’ècò gà:rò dīmsò àmīlò	‘Write!’ ‘Show!’ ‘Mix!’ ‘Leave!’
Low-Low	sìdè à:dè sàydè jèkìdè	sìdò à:dò sàydò jèkìdò	‘Shallow!’ ‘Follow!’ ‘Clear!’ ‘Raise up!’

The second person plural form of the imperative in Central Dangaleat is identical to the forms in (44), with no overt subject. The third person plural imperative, however, is formed by adding a third person plural subject pronoun, such as in (45).

- (45)    nù     bà:w-ò  
          they   go-IMPER.PL  
          ‘They should go!’

Before a following word the marker of the Central Dangaleat Plural Imperative formation remains unchanged, as can be seen in (46).

- (46)a.   wā:wò  
          ‘Show!’ (pl.)
- b.   wā:wò   āwgì  
              ‘Show the goats!’ (pl.)

Even when a pronoun is added, the Plural Imperative marker is still present, as shown in (47). The pronouns used with the Plural Imperative resemble the set used with the

Singular Imperative, except that they are preceded by a nasal consonant (see chapter 5, section 4)

(47)	Plural Imperative	with pronouns	
High-High	bīrò	bīrònní	'Pass us!'
		bīròngà	'Pass him!'
Mid-Low	gūďò	gūďònní	'Hide us!'
		gūďòngà	'Hide him!'
Low-Mid	gà:rò	gà:rònní	'Show us!'
		gà:ròngà	'Show him!'
Low-Low	à:dò	à:dònní	'Follow us!'
		à:dòngà	'Follow him!'

### 9. Hortative

The final Central Dangaleat conjugation is the Hortative (first person plural imperative). The Hortative is marked by the suffix *-intē*, as demonstrated in (48).

(48)	Infinitive	Hortative	
High-High	bíré	bīrinté	'Let's pass!'
	já:wé	jā:winté	'Let's walk!'
	ármé	ārminté	'Let's reconcile!'
	búgúmé	būgūminté	'Let's be quiet!'
Mid-Low	gāďè	gāďinté	'Let's flee!'
	bō:bè	bō:binté	'Let's pour!'
	sīnjè	sīnjinté	'Let's move forward!'
	kōkīďè	kōkīďinté	'Let's hammer!'
Low-Mid	ďècē	ďècinté	'Let's write!'
	gà:rē	gà:rinté	'Let's show!'
	àmsē	àmsinté	'Let's mix!'
	kābīlē	kābīlinté	'Let's leave!'
Low-Low	sīďè	sīďinté	'Shallow!'
	à:dè	à:dinté	'Follow!'
	sàyďè	sàyďinté	'Clear!'
	jèkīďè	jèkīďinté	'Raise up!'



There is no change in the form of the Hortative when another word follows it, as can be seen by comparing the two sentences in (49).<sup>8</sup>

- (49)a. wā:wìntē  
‘Let’s show!’
- b. wā:wìntē āwgì  
‘Let’s show the goats!’

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<sup>8</sup> I do not have any examples of object inflected forms of the Hortative.

## CHAPTER 4

### TENSE, ASPECT AND MOOD IN PROTO-CHADIC

Considerable effort in Chadic studies over the past thirty years has gone toward reconstructing the verbal system of Proto-Chadic. Although in certain areas there has been a significant degree of controversy, significant progress has been made. The main area of controversy relates to whether or not an imperfective stem can or should be reconstructed for Proto-Chadic. In this chapter, I will begin by introducing those forms that may be reconstructed for Proto-Chadic with relative confidence. Second, I will discuss the controversy regarding the origin of imperfective within the Chadic language family.

#### 1. Reconstructing the Proto-Chadic Verbal System

It is my understanding that at least six different forms may be reconstructed for the Proto-Chadic verbal system with relative confidence (cf. Wolff 1979:40). Of the six, three of the forms are full, finite verbs. These forms are commonly referred to as aorist, perfect and subjunctive. The other three forms that may be reconstructed for Proto-Chadic are quasi-verbal forms. In other words, although they are part of the Proto-Chadic verbal system, they do not function as full verbs. These forms are commonly referred to as verbal noun, pluractional (highlighting the effect of the verb on numerous arguments in a sentence) and iterative.

Among the three full verb forms that have been reconstructed for Proto-Chadic, the first form is normally labeled either aorist or *Grundaspekt* (Jungraithmayr 1966; Wolff 1979). This form is argued to have been an unmarked or basic form of the verb in the broadest sense, in that it was both morphologically unmarked (i.e. identical to the lexical stem) and semantically unmarked or neutral. The second full verb form reconstructed for Proto-Chadic, is commonly referred to either as perfect or perfective (Wolff 1979; Newman and Schuh 1974:7). The formative for this form, used to indicate completed action, has been reconstructed as a preverbal *\*kà*. The final full verb form that scholars agree can be reconstructed for Proto-Chadic is the singular imperative or subjunctive form (Wolff 1979; Newman and Schuh 1974:8). As stated by Newman, “singular commands in [Proto-]Chadic would appear to have been expressed by a distinct imperative form marked by a suffix *\*-i* (or *\*-u*) on the verb stem and a pre-verbal proclitic *\*a*” (1990:130).

As previously mentioned, in addition to the three full verb forms that have been reconstructed for Proto-Chadic, there are three quasi-verbal forms. These forms will be described here in some detail because of their importance in arguments concerning the development of a characteristically marked imperfective aspect stem in many present-day Chadic languages. As its name suggests, the Proto-Chadic verbal noun functioned neither as a ‘true’ verb nor as a ‘true’ noun. Rather, it had a function that fit somewhere between the two categories. According to Wolff (1979:39), verbal nouns in present-day Chadic languages are normally used in conjunction with either auxiliary verbs (‘be’, ‘go’, etc.) or locative particles (‘in’, ‘at’, ‘on top of’, etc.). In this way they are used to indicate “actions in progress, actions

about to happen, duration of state, and possibly similar semantic notions” (1979:39). The formative for the Proto-Chadic verbal noun is the suffix *\*-wa* (Wolff 1979:17).

Although Proto-Chadic has long been held to have had a pluractional form, distinguishing separate pluractional and iterative forms is a relatively recent innovation. The innovation is due to Newman, who in his own words proposed that,

Pluractionals in present-day Chadic languages derive from two distinct derivational categories in the proto-language: (i) iteratives, and (ii) pluractionals. . . . Although these have fallen together in most Chadic languages . . . , they can nevertheless be reconstructed as separate formations at the level of Proto-Chadic (and possibly Proto-Afroasiatic as well). Iterative derivational stems would have been used to indicate repetition of an action, whereas pluractional stems would have high-lighted the plurality of an action and its effect on multiple subjects, direct objects, or other arguments in a sentence. (1990:84).

The degree to which Newman’s proposal has been accepted by other Chadic scholars is difficult to measure. Wolff, however, in a generally very positive review of Newman’s book states that Newman’s proposal “makes a lot of sense and helps clarify the issue” (1992:238).

It is important to reemphasize that while Newman proposes that pluractional and iterative can be reconstructed as separate formations at the level of Proto-Chadic, he acknowledges that in most modern Chadic languages the two formations have fallen together. Indeed, Newman states that from a semantic point of view, Chadic pluractionals are remarkably similar; similar enough that “on the whole the characterization of pluractionals in

any one language could serve for any other” (1990:58). The “essence” of pluractionals in modern Chadic languages is “always plurality of process or action” (1990:54).<sup>1</sup>

Whereas pluractionals from one language to another are argued to be remarkably similar from a semantic point of view, Newman (1990:58) indicates that with regard to their form there is greater variation. Nevertheless, he argues that at least two pluractional formatives can be reconstructed for Proto-Chadic. He states,

The pluractional formative that can be reconstructed for Proto-Chadic with the greatest confidence is prefixal CV- reduplication (as seen, for example, in Bole *ràràamu* ‘repair many/often’ < *ràamu* ‘repair’). . . . The other pluractional formative that would seem to be reconstructible for Proto-Chadic is the ubiquitous Afroasiatic internal *-a* (as in Angas *pwas* ‘shoot many/often’ < *pus* ‘shoot’) (1990:58).

Finally, as to the newly proposed Proto-Chadic iterative form, Newman states that it “can be reconstructed with confidence as a suffix *\*-tV* (where the specific quality of the final vowel is uncertain)” (1990:84).

In summary, most Chadic scholars would probably agree that at least six distinct forms may be reconstructed for Proto-Chadic, as in (1).

(1)	Form	Formative
Full verb forms	<i>Grundaspekt</i> /aorist	Ø
	perfect singular imperative	*kà- *a plus *-i or *-u
Quasi-verbal forms	verbal noun	*-wa
	pluractional	*CV- redup. or *-a-
	iterative	*-tV

<sup>1</sup> Although both Frajzyngier (1977:37) and Wolff (1977) have emphasized the similarity in Chadic between nominal and verbal plurality, Newman (1990:86) states in regard to this subject that “although some similarities exist, the differences are even more impressive, especially concerning the formations about which we have the greatest confidence.”

## 2. Proposals concerning the Development of Imperfective in Chadic

Although Chadic scholars agree in many respects in regard to what the verbal system of Proto-Chadic may have looked like, there has been considerable debate concerning the status of the characteristically marked imperfective aspect stem found in many present-day Chadic languages. In these languages, the imperfective aspect stem is marked by what is often called ‘apophony’, involving the replacement of a stem-internal vowel by the vowel *a*. In an even greater number of languages, the imperfective stem is marked either by internal *-a-* or *-a* suffix. The focus of the debate has been on the origin of this characteristically marked imperfective stem. The purpose of this section is to provide a brief overview of the debate concerning the origin of the modern Chadic imperfective form, especially as it relates to the analysis of the Central Dangaleat verbal system.

Given the wide-spread distribution of the imperfective stem in Chadic, one obvious conclusion might be that the situation is inherited from Proto-Chadic. In this case, an imperfective stem would be added to the list of proto-forms listed in Section 1 above. This indeed is the position that was originally developed by Jungraithmayr (1966). Although Jungraithmayr's proposal was at first widely accepted, it was later challenged on at least two grounds. First, Newman (1977) challenged whether apophony played a role in the formation of the imperfective stem in Chadic at all. Second, Wolff (1979) proposed that the imperfective stem in modern Chadic is not a carry-over from Proto-Chadic, but rather that it developed from one of two independent sources, namely, either from the Proto-Chadic verbal noun or Proto-Chadic pluractional forms.

In regard to Newman's challenge, the additional linguistic data that has become available since 1977 has proved Jungraithmayr to be at least partially correct. In 1977, Newman argued that the vowel alterations that Jungraithmayr characterized as apophony, did not involve apophony at all; but rather, that they could better be explained simply on phonological grounds. However, in a recently published book, Newman states that,

Although internal vowel mutation [apophony] in some languages would seem to be phonologically conditioned, it appears as an independent morphological mechanism in such a large number of languages throughout the family that one has to reconstruct it as an integral feature of the proto-language (1990:83f).

Hence, to my knowledge it is now generally accepted that apophony was an integral feature of the Proto-Chadic. The question remains, however, whether apophony originally marked imperfective in the proto-language or some other form.

As previously mentioned, Jungraithmayr originally proposed an imperfective aspect stem for Proto-Chadic marked either by internal *-a-* or *-a* suffix. Wolff, on the other hand, proposed that the imperfective stem in an individual Chadic language may have developed from one of two independent proto-forms, namely, either from the Proto-Chadic verbal noun or Proto-Chadic pluractional forms. In retrospect, it is not difficult to determine how Wolff came to this dual hypothesis. Notice, first of all, the similarity between the proposed formatives for verbal nouns (*\*-wa*) and pluractionals (*\*-a-*, among others), on the one hand, and the proposed imperfective stem (*\*-a* or *\*-a-*), on the other. Second, notice that the semantics of the constructions in which the verbal noun form is used (actions in progress, duration of state, etc.) and the pluractional form is used (plurality of process or action) are generally 'imperfective' in nature. Assuming therefore that the verbal nouns and pluractionals

are the more primitive forms, or that they have ‘historical priority’, as Wolff (1979:8) puts it, it is not difficult to see how an imperfective stem might have developed in modern Chadic languages through the redesignation of verb stems with imperfective connotations (cf. Wolff 1984b:228).

As previously mentioned, Wolff’s dual hypothesis is based upon the assumption that the Chadic verbal noun and pluractional forms have historical priority. In regard to this subject, Wolff states that “hardly anyone familiar with Chadic languages (and Afroasiatic languages in general) will seriously question the existence and age of a morphological category of verbal plurality” (1985:10). The historical priority of the verbal noun form also appears to be well founded (cf. Newman and Schuh 1974; Schuh 1976).

At this point, more than 15 years after Wolff’s initial proposals concerning the development of an imperfective stem in modern Chadic languages, at least some of Wolff’s proposals seem to have gained wide acceptance. Newman, for example, has characterized Wolff’s arguments for the development of the imperfective stem in the Ron languages from the Proto-Chadic pluractional form as “convincing” (1990:59).<sup>2</sup> Little has been written, however, in regard to Wolff’s ‘dual hypothesis’ or his proposal that imperfective forms in modern Chadic languages may have developed from *two* independent sources, either the verbal noun or pluractional forms.

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<sup>2</sup>The “habitative” or imperfective construction in Ron (Western branch of Chadic) was used by Jungraithmayr to argue in favor of his early proposals (1968, 1970). Although Newman sharply criticized Jungraithmayr’s methodology earlier (see Newman 1977, 1980, 1984b), there now seems to be general agreement that Jungraithmayr’s proposal relating the Ron “habitative” construction to the Afroasiatic pluractional construction was correct.



Interestingly, as evidence for his dual hypothesis for the development of imperfective in present-day Chadic, Wolff (1984b:231) makes reference to the two types of imperfective in the Western dialect of Dangaleat.<sup>3</sup> Wolff (1984b:231) suggests that the two types of imperfective in Western Dangaleat may have developed independently, one from the Proto-Chadic verbal noun form and the other from the Proto-Chadic pluractional form. By means of illustration, he gives the examples in (2):

(2)

Lexical base	Imperfective stems developed from:		Gloss
	Pluractional	Verbal noun	
pil-	pílá	píláw	'to open'

It should be emphasized that although Wolff suggests the two types of imperfective in Western Dangaleat might provide further evidence for his dual hypothesis, he does not develop this argument in any detail; neither does he give any other examples of present-day Chadic languages that are comparable to Western Dangaleat in this respect. It is clear, however, that if the relationship between the two types of imperfective in Western Dangaleat with the Proto-Chadic verbal noun and pluractional forms could be established, this would go a long way toward strengthening Wolff's dual hypothesis for the development of imperfective in present-day Chadic languages.

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<sup>3</sup> Although Wolff does not specify which dialect of Dangaleat he is talking about, only the Western and Central dialects have the "*píláw* type" construction. His reference to the Western dialect of Dangaleat is somewhat surprising in that so little has been published on the verbal system of this dialect. Wolff does not cite his source, but his data evidently comes from two brief examples of the two imperfectives which occur in the introduction to Fédry's *Dictionnaire Dangaléat* (1971c:xi).

## CHAPTER 5

### THE RELATIONSHIP BETWEEN PROTO-CHADIC AND CENTRAL DANGALEAT

The proposals concerning the verbal system of Proto-Chadic outlined in chapter 4 provide significant insight into the verbal system of present-day Central Dangaleat. In fact, with the exception of the Central Dangaleat Past Tense formation, some relation can be drawn between each of the different Central Dangaleat verbal formations and one of the proposed proto-forms. The purpose of this chapter is to examine the relationship between the various forms in the proto-language and the corresponding forms in present-day Central Dangaleat. In the case of the Central Dangaleat Infinitive form, despite some overlap in function with the Proto-Chadic Verbal Noun, I maintain that no direct relationship can be established between the two forms. With the Central Dangaleat Perfective and Singular Imperative forms, however, I propose that it is possible to argue for direct relationship between these forms and the corresponding forms in the proto-language. The various formations in Central Dangaleat that fall under the general heading of imperfective will not be considered until the next chapter. The proposed relationship between the various forms in Proto-Chadic and the forms in present-day Central Dangaleat is illustrated in (1).

(1) **Proto-Chadic versus Central Dangaleat**

Verbal Noun	-wa	≠	-e	Infinitive
Perfect	kà -	=	` -	Perfective
Subjunctive	-i or -u	=	-u	Imperative
none			-àŋ	Plural Imperative
none			-tí or -fí	Past Tense

**1. The Central Dangaleat Infinitive**

The use of the Infinitive in Central Dangaleat in the formation of the periphrastic future tense construction, such as in (2), suggests that this form could be related to the Proto-Chadic Verbal Noun form, since the use of the Verbal Noun in this type of construction is well established throughout the Chadic language family. This indeed was Wolff's (1982a:205) conclusion in consideration of the parallel form in Eastern Dangaleat.

- (2) mē yà às-ē  
 chief AUX come-INF  
 'The chief will come.'

Despite the use of the Infinitive in the future tense formation, however, there are at least two reasons for keeping the forms separate.

The first reason for keeping the forms separate is that there is no obvious correspondence between the proposed formative for the Proto-Chadic Verbal Noun (-wa) and the marker of the Central Dangaleat Infinitive (-e). The only thing that the two morphemes have in common is that they are both suffixes.<sup>1</sup>

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<sup>1</sup> In his review of Ebobissé, Wolff states that the Chadic verbal-noun "tends to be marked by a nominalizing morpheme, usually a suffix" (1982a:203). He does not mention that the formative for the suffix is -wa (Wolff 1979:17). Merely stating that the Verbal-Noun is marked by a suffix hardly seems significant since that is common enough, if not the norm in Chadic languages (Newman 1977:182).

The second reason for not associating the two forms relates to the way the Central Dangaleat Infinitive is used versus the Proto-Chadic Verbal Noun. As previously mentioned, Wolff gives three ways that the Verbal Noun is commonly used in Chadic languages. In addition to the periphrastic future tense construction, Wolff (1982a:212) states that the Verbal Noun is often used in Chadic in conjunction with an auxiliary verb to express progressive, continuous or durative action. The sentence in (3) is an example of this use of the Verbal Noun in Hausa.

- (3) yá nàa dɔ́:  
 he be (at) return  
 'He is returning.'

The third way that Wolff indicates that the Verbal Noun is generally used is in conjunction with 'locative particles', such as 'in', 'at', 'on top of', etc. The Infinitive in Central Dangaleat, however, is not used in either of these two latter ways (compare chapter 3, section 1).<sup>2</sup> The overlap in function between the Proto-Chadic Verbal Noun and Central Dangaleat Infinitive formations, therefore, is minimal.

In summary, although the Proto-Chadic Verbal Noun and Central Dangaleat Infinitive formations partially overlap in function, they differ in form. It is not possible, therefore, to establish a relationship between the two forms. I propose, therefore that the

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<sup>2</sup> Wolff does not list the equi-subject construction as one of the general ways in which the Verbal-Noun is used. It is possible that this is just an oversight. According to Alio (1986), however, the Bidiyo language (in the same sub-group as Central Dangaleat) has separate Infinitive and Verbal-Noun forms. Further, Jungraithmayr (1987) lists Infinitive as one of the conjugational forms in Mubi (another closely related language to Central Dangaleat).

Infinitive is most probably an innovation in Central Dangaleat. As for the Verbal Noun form, in chapter 6, I propose that the original Proto-Chadic Verbal Noun has been grammaticalized in Central Dangaleat to mark Progressive aspect. (The marker of Progressive aspect in Central Dangaleat is *-aw* which closely resembles the formative for the Proto-Chadic Verbal Noun, which is *-wa*.)

## 2. The Central Dangaleat Perfective Formation

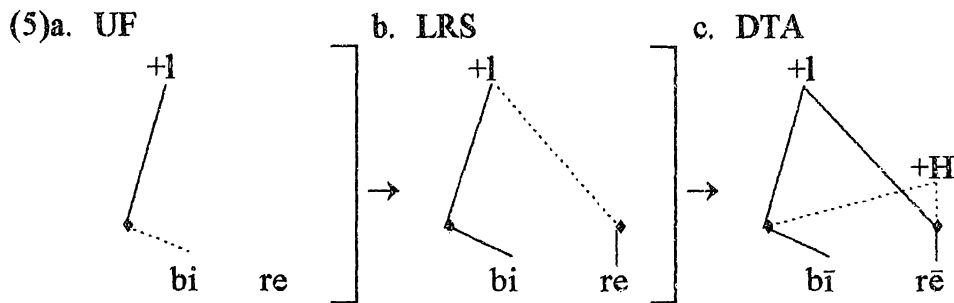
Although Chadic scholars have succeeded in reconstructing numerous forms for Proto-Chadic, it has generally not been possible to determine what tones, if any, are to be associated with the proposed forms. The Proto-Chadic Perfect form, however, is the exception to the rule. The formative for the Proto-Chadic Perfect form is marked by a low tone (*\*kà*). In comparison, verbs in Central Dangaleat that have the tone pattern high-high have the tone pattern mid-mid in the Perfective. The question arises, therefore, whether there is any correspondence between the low tone marking the Perfect in Proto-Chadic and the general lowering of tone which marks the Perfective with the high-high class of verbs in Central Dangaleat?

Given the similarity between the formative for Perfect in Proto-Chadic and the Perfective in Central Dangaleat, one possibility that must be considered is that the tone associated with the original Perfect marker in Proto-Chadic has been retained in Central Dangaleat, but that the segments have been lost. In this case, the marker of Perfective in Central Dangaleat would be a preverbal floating low tone. The underlying form of a verb in the high-high class marked with the floating low tone would be as in (4a) or (5a). The

previously established rule of Low Register Spread would then apply (see chapter 2, section 3), giving the desired surface form of the Perfective with this class of verbs. (The asterisk indicates that the tonal feature value for the mid tone has not yet been filled in.)

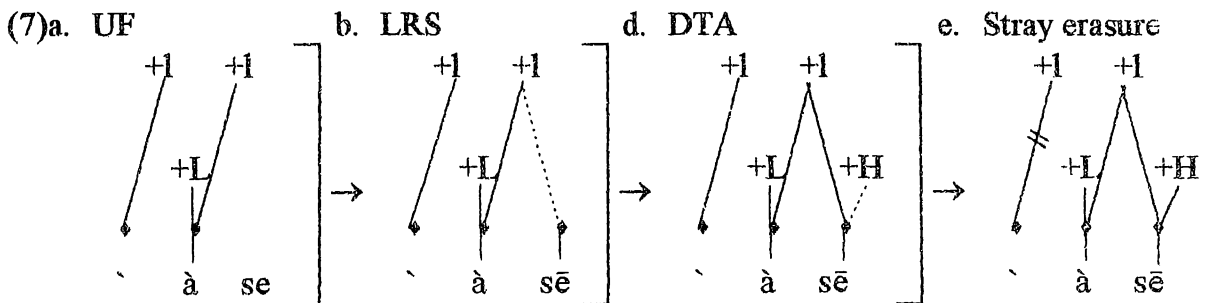
The status of the *e* suffix is discussed further in chapter 8.)

(4) a. Underlying form — L-M tone class /perfect marker-verb base-?/	/˘ -bir-e/	/˘ -arm-e/
b. Low Register Spread	bīrē*	ārmē*
c. Default Tone Specification	bīrē	ārmē



With verbs with a lexical low tone on the first syllable, the preverbal floating low tone would have no effect since the first syllable of the word is already marked with a low tone, as demonstrated in (6) and graphically illustrated in (7).

(6) a. Underlying form — L-M tone class /perfect marker-verb base-?/	/˘ -às-e/	/˘ -sìd-e/
b. Low Register Spread	˘àsē*	˘sìdē*
c. Consonant-tone interference	—	˘sìdè
d. Default Tone Assignment	˘àsē	—
e. Stray Erasure	àsē	sìdè



Thus, the proposal that the marker of Perfective in Central Dangaleat is a preverbal floating low tone, accounts for the general lowering of tone with verbs of the high-high class and is consistent with the fact that verbs that are marked with a lexical low tone remain unchanged in the Perfective.

As previously noted in chapter 4, section 2, verbs that have the tone pattern mid-low in the Infinitive either have the tone pattern mid-mid or low-mid in the Perfective depending on their underlying syllable structure. In chapter 8, I argue that the explanation for the tonal perturbations that occur with this class of verbs in the Perfective is related to the phenomenon of consonant-tone interference. Once again, however, there is nothing with these forms that contradicts the proposal that the general marker of the Perfective is a preverbal floating low tone.

### 3. The Singular Imperative

The *-u* suffix, which marks the Singular Imperative of verbs ending in a single consonant underlyingly in Central Dangaleat is identical to one of the formatives for the Proto-Chadic Subjunctive form. The curious thing about the singular imperative in Dangaleat, however, is its two allomorphs (as described in chapter 3, section 7). Although verbs that end in a single consonant underlyingly are marked by *-u*, verbs that end in a consonant cluster underlyingly are marked by the infix *-a-*. Since the Central Dangaleat Habitual formation is also marked by internal *-a-*, there is no difference between the Singular Imperative and Habitual forms of verbs of this type. The natural question is, why are the two forms marked in the same way?

In chapter 6, Section 2, I argue that the internal *-a-* which marks the Central Dangaleat Habitual formation is related to the Proto-Chadic Pluractional form. Although the connection between these two forms can be clearly established, this is not the case with the relationship between the Proto-Chadic Pluractional and the Central Dangaleat Imperative. One alternative explanation could be that the two forms are not related, but rather that internal *-a-* marking the Imperative form is a carryover from the other marker of the Subjunctive formation in Proto-Chadic, namely the proclitic *\*a*. If so, then in spite of the fact that the two morphemes are identical segmentally, they would have separate origins.

One argument in support of this hypothesis is that whereas there is some variation as to the way in which the Habitual form of verbs with an underlying long vowel is formed, this is not the case with the same verbs in the Singular Imperative formation, as demonstrated in (8). If the two forms originated from separate forms in the proto-language this would provide a possible explanation of this inconsistency, in that the surface similarity of the two forms would be only coincidental.

(8)

Infinitive	Habitual	Singular Imperative	
sá:le	sá:lá	sá:lú	'to immerse'
lá:lé	láyál	lá:lú	'to throw'
sí:ré	sí:rá /sírár	sí:rú	'to line up'
cá:lé	cá:lá /cálál/cáyál	cá:lú	'to suspend'
bā:gè	bā:gà	bā:gù	'to call'
dū:fè	dū:fà /dūyàc	dū:fù	'to be serious'
à:dē	à:dā	à:dù	'to follow'
bò:dē	bò:yāt	bò:dū	'to demand payment'



In summary, the *-u* allomorph for the Singular Imperative in Central Dangaleat is clearly related to the formative for the Proto-Chadic Subjunctive. The origin of the *-a* allomorph is uncertain. It could be a reinterpretation of the Proto-Chadic Pluractional form; or it could be related to the proclitic *a* which is the second of the two formatives for Subjunctive in Proto-Chadic.

#### 4. The Plural Imperative and the Hortative

Among the forms that have been reconstructed for Proto-Chadic there is no plural imperative or hortative form. Wolff (1982a:207), however, makes a proposal concerning the Plural Imperative in Eastern Dangaleat that potentially applies in the case of Central Dangaleat as well. Wolff claims that the marker of Plural Imperative in Eastern Dangaleat (*-òŋ*) is composed of two morphemes: the general marker of imperative, which he proposes is *-u* (the marker of the Singular Imperative form), and a separate plural marker, which he identifies as *-àŋ*. According to this analysis, the vowels of the two morphemes coalesce in the course of the derivation, which results in the desired surface form, as illustrated in (9).

(9)	a. Underlying Form	/rugum-u-àŋ/
	c. Vowel coalescence	rugumòŋ
	d. Other rules	rŭgŭmòŋ      ‘Cook!’ (plural)

Wolff argues further that the only difference between the Plural Imperative and the Hortative forms in Eastern Dangaleat is that a first person plural inclusive pronoun is added to the Plural Imperative stem, as illustrated in (10).

(10)	a. Underlying Form	/rúgúm-ú-àŋ-tè/	
	b. Vowel coalescence	rúgúmòŋtè	
	c. Other rules	rūgūmòntè	'Let's cook!'

The obvious advantage of Wolff's proposal is that it is possible in this way to posit a general marker for imperative (what Wolff calls 'subjunctive') for Eastern Dangaleat. According to the proposal, both the Singular Imperative and Plural Imperative forms are underlyingly marked by the morpheme *-u*.

The application of Wolff's proposal in Central Dangaleat is complicated by the fact that whereas Eastern Dangaleat has a single Plural Imperative marker, there are three equivalent forms in Central Dangaleat, as illustrated in (11).

(11)	<b>Eastern Dangaleat</b>	<b>Central Dangaleat</b>
		-ò Plural Imperative
	Plural Imperative -òŋ	-òŋ Plural Imperative with pronoun <sup>3</sup>
		-ìŋ Hortative (first person plural)

The difference between the Plural Imperative and Hortative forms in Central and Eastern Dangaleat is illustrated in (12).

(12)		<b>Eastern Dangaleat</b>	<b>Central Dangaleat</b>	
	Plural Imperative	àsòŋ būgūmòŋ	àsò būgūmò	'Come!' (plural) 'Be quiet!'
	Hortative	àsòntè būgūmòntè	àsìntè būgūmìntè	'Let's come!' 'Let's be quiet!'

---

<sup>3</sup> The nasal matches the point of articulation of the following consonant (i.e. -òŋgà or -òŋcò).

Examples of object inflected forms of the Plural Imperative are listed in (13). Note that the form of the pronoun is the same with the Singular Imperative and Plural Imperative forms, but that with the Plural Imperative the pronoun is always preceded by a nasal consonant.

(13)	Singular Imperative	Plural Imperative	
	wā:wtà	wā:wòntá	'Show her!'
	wā:wgà	wā:wòngà	'Show him!'
	wá:wní	wā:wònní	'Show us!' (exclusive)
	wā:wtè	wā:wòntè	'Show us!' (inclusive)
	wā:wgù	wā:wòngù	'Show him!'

The three forms of the Plural Imperative marker in Central Dangaleat are most probably an innovation from the single form in Eastern Dangaleat. Even if Wolff's proposal is adopted, the proposed plural marker must still be viewed as an innovation in Dangaleat. One factor in favor of Wolff's proposal is that there would appear to be independent evidence for the coalescence of the two vowels *u* and *a*, proposed by Wolff. This evidence comes from the two allomorphs for the Progressive marker in Central Dangaleat. The marker of Progressive in Central Dangaleat is *-o* following the past tense marker and *-aw* elsewhere, as demonstrated in (14). A possible explanation is that the two segments *a* and *w* coalesce in the environment following *-íy*, resulting in the surface form *-íyo*.

(14)	Progressive	Progressive Past	Progressive Iterative Past
a. Underlying Form	/rugm-aw/ /stem-PROG/	/rugm-íy-o/ /stem-PST-PROG/	/rugm-g-íy-o/ /stem-ITR-PST-PROG/
b. Surface form	rúgúmáw	rúgúmíyó	rúgúmgíyó

In summary, although Wolff's proposal that the Plural Imperative marker is composed of two morphemes in Eastern Dangaleat may provide an explanation of the diachronic development of the Plural Imperative marker in Central Dangaleat as well, there is little or no evidence synchronically for arguing that the Plural Imperative marker in present-day Central Dangaleat is morphologically complex. However, the comparative evidence with Eastern Dangaleat does provide convincing evidence that the two allomorphs for Plural Imperative, as well as the Hortative marker, are all derived from a common form in proto-Dangaleat.

## CHAPTER 6

### THE DEVELOPMENT OF IMPERFECTIVE IN CENTRAL DANGALEAT

One of the most interesting things about the tense, aspect and mood system of Central Dangaleat relates to the different types of imperfective (Progressive and Habitual) in the language. The interest lies not so much in the forms themselves, but in regard to the insight they provide into the development of imperfective in the Chadic language family as a whole. In particular, the two forms provide substantial evidence for Wolff's dual hypothesis for the development of imperfective in present-day Chadic languages (cf. chapter 4, section 3 above). Although Wolff suggests that what he calls the imperfective 'doublet' in Dangaleat may provide evidence for the proposals, he does not develop the argument in any detail. The purpose of this section, therefore, is to argue for the dual development of imperfective in Central Dangaleat. There are two steps to this argument. First, it must be established that the two major types of imperfective in Central Dangaleat are indeed separate forms. Second, the relationship between each of the forms and the corresponding forms in Proto-Chadic must be established.

#### 1. The Relationship Between the Two Central Dangaleat Imperfective Formations

Given the surface similarity between the way the two types of imperfective are marked in Central Dangaleat (*-aw* for the Progressive and *-a-* or *-a* for the Habitual), it is necessary first of all to examine the relationship between the two Central Dangaleat

imperfectives themselves. Is one form merely a subtype of the other or are they separate, unrelated forms? One obvious possibility that must be considered is that the more general marker of imperfective in Central Dangaleat is *-a*, with *-w* or *-o* marking a secondary aspectual distinction. If so, then the Progressive formation would be a subtype of the Habitual.<sup>1</sup> There are two reasons, however, for maintaining the distinction between the two forms.

The first reason relates to the way in which the two forms are used. The argument is as follows: if the Central Dangaleat Progressive formation is a subtype of the Habitual, one would generally expect that the meaning of the Progressive would build upon the meaning of the Habitual. For example, as a subtype of Progressive, the Central Dangaleat Progressive Past formation is both progressive aspect and past tense. With the two imperfective formations, however, there is no such relationship. The label Progressive Habitual is not appropriate for the Central Dangaleat Progressive formation.

The second reason for distinguishing between the two types of imperfective in Central Dangaleat relates to their form when used in conjunction with object pronouns or when followed by another word, as demonstrated in (1) (cf. chapter 3, sections 4 and 5).

- (1)a. Progressive
- |               |                            |
|---------------|----------------------------|
| ɲà wá:wáw     | ‘He is showing.’           |
| ɲà wā:wīgù    | ‘He is showing them’       |
| ɲà wá:wá āwgì | ‘He is showing the goats.’ |

---

<sup>1</sup> Indeed, Ebobissé (1979) in his analysis of the parallel forms in Eastern Dangaleat assigns the more general name ‘imperfective’ to the *-a* form and the title ‘durative’ to the *-a:we* form. However, he later uses the terms ‘aorist’ (Ebobissé 1985) and ‘inaccompli’ (Ebobissé 1987) to refer the same form.

## b. Habitual

ɲà wá:wá	‘He shows.’
ɲà wā:wgīgù	‘He shows them’
ɲà wá:w āwgi /	‘He shows the goats.’
ɲà wá:wgi āwgi	

As can be seen above, the similarity between the way in which the Habitual and Progressive are marked only applies for the isolated forms. The object inflected forms and the forms followed by another word are marked in different ways. In particular, with the Habitual formation, the morpheme *-gi* is inserted where one would expect the Habitual marker with the object inflected forms and optionally when the Habitual form is followed by another word.

In summary, both the way in which the Progressive and Habitual formations are used and the way they are marked in non-isolated forms provide evidence that Progressive is not a subtype of Habitual in Central Dangaleat.

## 2. Relating Central Dangaleat to Proto-Chadic

The purpose of this section is to examine the relationship between the two Central Dangaleat imperfective formations and the two forms in Proto-Chadic from which Wolff argues Chadic languages in general have developed the category of imperfective aspect.

In order to establish any such relationship, Wolff (1979) argues that two conditions must be met. Wolff's first condition is that there must be 'diagnostic formatives' that relate the form in the present-day Chadic language to the relevant form in Proto-Chadic. If the Central Dangaleat Progressive form, therefore, is related to the Proto-Chadic Verbal Noun form, the marker of the Progressive must be demonstrably

related to the formative for the Proto-Chadic Verbal Noun. In the same fashion, there must be a demonstrable relationship between the marker of the Central Dangaleat Habitual form and the formative for the Proto-Chadic Pluractional. As demonstrated in (2), this is clearly the case.<sup>2</sup>

(2)	Proto-Chadic	Central Dangaleat
Verbal Noun	*-wa	-aw or -o    Progressive
Pluractional	*-a- or *-a	-a- or -a    Habitual

Wolff's second condition dictates that if the Proto-Chadic Verbal Noun and/or pluractional form(s) have been reanalyzed or grammaticalized as imperfectives, the usage of true verbal nouns and pluractionals in the language will either be severely restricted or not allowed at all. With the Proto-Chadic Verbal Noun, for example, if the Verbal Noun has been reanalyzed as imperfective in a given language, one would not expect the formative for the original Verbal Noun to mark *both* the imperfective formation and the Verbal Noun form. Assuming therefore that the syntactic function of the original Verbal Noun is not completely replaced by the newly formed imperfective, another form would have to be substituted for the original Verbal Noun in these languages.<sup>3</sup>

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<sup>2</sup> It is possible that the two allomorphs for Progressive in Central Dangaleat can be explained based on the rule of Vowel Coalescence, proposed in Chapter Seven, Section 2. With the Plural Imperative, the *-u* marking the Imperative and the *-aŋ* plural marker are alleged to combine to form *-oŋ*. In the same way, the two segments which make up the Progressive marker could combine in the environment after *-iy*, resulting in the allomorph *-o* (*bíráw* versus *bíríyó* and *bírgíyó*).

<sup>3</sup> Wolff suggests that one possibility might be that in some cases "true nouns that are etymologically related to verbs . . . were allowed to be substituted for verbal nouns in periphrastic constructions" (1984b:229).



In Central Dangaleat, the substitute for the original Verbal Noun is clearly the so-called Infinitive. It is the Infinitive form that is used in conjunction with the periphrastic future tense construction in Central Dangaleat, where one would normally expect the original Verbal Noun to be used (cf. chapter 3, section 1).

If it is the Proto-Chadic Pluractional form that has been reanalyzed as imperfective in a given language, the situation is slightly different. In particular, Wolff argues that “under no circumstances would we . . . expect to find BOTH imperfectivity and plurality to be expressed in one and the same verb formation” (Wolff 1979:41, emphasis in the original). In Central Dangaleat, however, it is possible for a verb to be marked both as imperfective (progressive) and plural (repetitive). Such is the case with the two Progressive Repetitive formations, as in (3). Nonetheless, the condition against the double use of the Pluractional stated above is not violated because the imperfective with these forms is marked by the original formative for the Proto-Chadic Verbal Noun and not the original Pluractional form. The use of the reanalyzed formative for the original Pluractional therefore is used consistently to mark habitual or repeated action.

- |                                   |                                      |
|-----------------------------------|--------------------------------------|
| (3)a. Progressive Repetitive Past | b. Progressive Repetitive Infinitive |
| ɲà ráwtígíyó                      | ɲà yà ráwtígúwé                      |
| ‘He was forgetting.’              | ‘He will forget.’                    |
| (many times)                      | (many times)                         |

### 3. Summary

This study of the tense, aspect and mood system of Central Dangaleat supports Wolff’s “dual hypothesis” as outlined in chapter 4, section 2, in that Central Dangaleat (and most probably Western Dangaleat as well) has two types of imperfective

constructions related to the two ‘quasi verbal’ forms of the proto language. In particular, the Imperfective/ Progressive form (marked by *-aw*) in Central Dangaleat is most probably derived from the Proto-Chadic Verbal Noun form (the formative for which is *\*-wa*) and the Habitual/Repetitive form (marked by *-a /-g*) is clearly derived from the Proto-Chadic Pluractional form (one formative for which is *\*-a*).

One remaining question, however, relates to why there are two seemingly unrelated allomorphs for Habitual in Central Dangaleat. One possible explanation relates to Newman’s claim (see chapter 4, section 1) that “pluractionals in present-day Chadic languages derive from *two distinct derivational categories* in the proto-language (i) iteratives, and (ii) pluractionals” (1990:84, emphasis mine). There can be little doubt that the *-a* allomorph in Central Dangaleat is derived from the Proto-Chadic Pluractional form. Is it possible that the *-g* allomorph may be related to Proto-Chadic Iterative form? If so, then Newman’s claim that the two categories (pluractional and iterative) have “fallen together in most Chadic languages” (p. 84) would certainly be true in the case of Central Dangaleat. Given the difference between the formative that Newman proposes for the Proto-Chadic Iterative form (*-tV*) and the alternative form for the Repetitive in Central Dangaleat (*-g*), however, it is dubious whether any relationship exists between the two forms.

In summary, the relationship between each of the Proto-Chadic forms and the corresponding forms in Central Dangaleat is illustrated in (4).

(4)

## Proto-Chadic versus Central Dangaicat

Grundaspekt	Ø	→	-e	Infinitive
Perfect	kà-	=	` -	Perfect
Subjunctive	-i or -u	=	-u	Imperative
	a-	=?	-a-	
Verbal Noun	-wa	=	-aw / -o	Progressive
Pluractional	-a	=	-a	Habitual
Iterative	-tV	=?	-gi	Repetitive and Habitual
none			-àŋ	Plural Imperative
none			-tí or -fí	Past Tense

## CHAPTER 7

### THE ORGANIZATION OF THE CENTRAL DANGALEAT VERBAL SYSTEM

With an understanding of how the tense, aspect and mood system of present-day Central Dangaleat has developed from the corresponding system in Proto-Chadic, it is possible to move on to examine the way that the Central Dangaleat verbal system as a whole is organized. In this chapter, after defining some of the basic terminology involved, I will discuss in turn the relationship between the Central Dangaleat Perfective and Perfective Past forms, the various forms that fall under the general heading of imperfective, the relationship between the three Central Dangaleat Imperative forms, and finally, a proposal relating to the auxiliary verb that marks the periphrastic future tense construction in Central Dangaleat.

#### 1. Defining Terms

According to Wolff, in early Chadic studies the terms tense, aspect and mood were often “used interchangeably without any distinction of meaning connected to them” (1982b:183). More recently, various proposals have been made to standardize the use of these terms in the description of Chadic languages (cf. Jungraithmayr 1974 and Wolff 1979).<sup>1</sup> However, for the purposes of this paper, I will adopt the more universal

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<sup>1</sup> Wolff’s proposal is the most recent that I am aware of. Wolff (1979) proposed, following Jungraithmayr (1974), that the term ‘aspect’ be reserved only for the high-level aspectual distinction between imperfective and perfective, and in the case of Wolff,

definitions of these terms, as proposed by Comrie. 'Aspects', therefore, are understood as "different ways of viewing the internal temporal constituency of a situation" (Comrie

1976:3). Aspect differs from tense, in that

aspect is not concerned with relating the time of the situation to any other time-point, but rather with the internal temporal constituency of the one situation; one could state the difference as one between situation-internal time (aspect) and situation-external time (tense) (Comrie 1976:5).

Elsewhere, Comrie defines tense as "grammaticalised expression of location in time"

(1985:9). Modal distinctions, on the other hand, reflect differences in the speaker's

intention, such as the difference between indicative and subjunctive or realis and irrealis.

Finally, in defining the difference between perfective and imperfective, Comrie states that,

the perfective looks at the situation from outside, without necessarily distinguishing any of the internal structure of the situation, whereas the imperfective looks at the situation from inside, and as such is crucially concerned with the internal structure of the situation, since it can both look backwards towards the start of the situation, and look forwards to the end of the situation, and indeed is equally appropriate if the situation is one that lasts through all time, without any beginning and without any end (Comrie 1976:4).

## 2. The Central Dangaleat Perfective and Perfective Past Forms

One issue regarding the organization of the Central Dangaleat tense, aspect and mood system that must be clarified relates to the relationship between the Perfective and

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*Grundaspekt* as well. He proposed further that the term *aktionsart* be used for secondary aspectual distinctions (habitual, durative, etc.) and the term *tempora* for references to relative time. Wolff's use of the term *aktionsart* to refer to secondary aspectual distinctions, however, does not correspond to the way that this term is normally used (cf. Comrie 1976, footnote on page 6). Furthermore, to my knowledge, Wolff's proposals have not been adopted by other Chadacists.

Perfective Past forms. In this section I will provide three reasons for grouping the two forms under the general heading of Perfective.

The first reason relates to the way the Central Dangaleat Perfective and Perfective Past forms pattern together in terms of tone. There are two things that the two forms have in common as opposed to all other forms. First, verbs that have the tone pattern mid-low in the Infinitive pattern either with the high-high verbs or the low-mid verbs in both the Perfective and Perfective Past. Second, verbs with only one non-final vowel in the mid-low class have a low tone on the word initial syllable with both the Perfective and Perfective Past forms instead of on the final syllable. The way the Perfective and Perfective Past forms pattern together can be seen in (1).

(1)

	Infinitive	Perfective	Past Perfective	
H-H	bíré	bīrē	bírítí	'to pass'
	á:né	ā:nē	á:ntí	'to mock'
	ármé	ārmē	ármítí	'to reconcile'
	búgúmé	būgūmē	búgúmtí	'to be silent'
M-L	bō:bè	bō:bē	bó:btí	'to flee'
	kōkīd'è	kōkīd'ē	kókíttí	'to pour'
	gād'è	gād'ē	gàttí	'to pass the year'
	ālgè	ālgē	ālgítí	'to hammer'
L-M	bòrē	bòrē	bòrtí	'to dry'
	gà:rē	gà:rē	gà:rtí	'to show'
	àmsē	àmsē	àmsítí	'to confuse'
	kàbilē	kàbilē	kàbiltí	'to murmur'

The second reason for grouping the Perfective and Perfective Past forms together is that, as previously mentioned, the same set of pronouns is used with both forms. This set of pronouns differs from the pronouns used in all other forms.

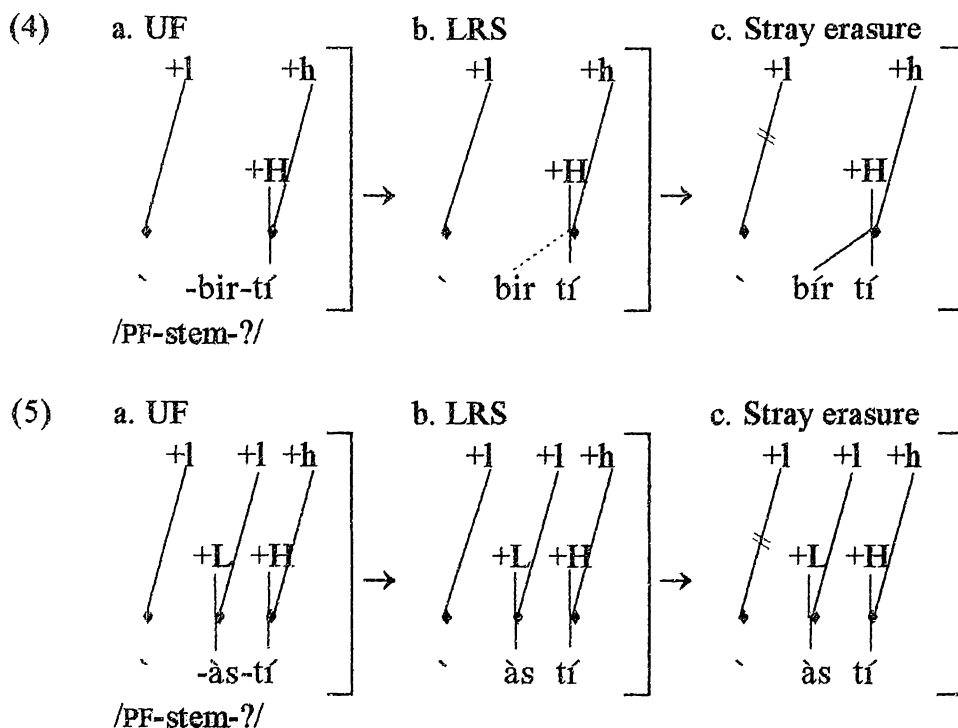
The final reason for grouping the Perfective and Perfective Past forms in Central Dangaleat relates to the way the negative is formed with both of the forms, as opposed to the way the negative is formed with the Imperfective. With the negative of the Perfective and Perfective Past forms, the auxiliary verb *bàl* is employed followed by the infinitive form, as in (2).<sup>2</sup> With the various imperfective forms, on the other hand, the negative is marked by a post-verbal *dò*, as in (3).

- |                                  |                                    |
|----------------------------------|------------------------------------|
| (2)a. <b>Negative Perfective</b> | b. <b>Negative Perfective Past</b> |
| kí    bàl    gàs-ē               | kí    bàl-ít    gàs-ē              |
| you   NEG   finish-INF           | you   NEG-PST   finish-INF         |
| ‘You have not finished.’         | ‘You did not finish.’              |
- 
- (3) **Negative Progressive**
- |                         |             |     |
|-------------------------|-------------|-----|
| kí                      | gàs-ā       | dò  |
| you                     | finish-PROG | NEG |
| ‘You’re not finishing.’ |             |     |

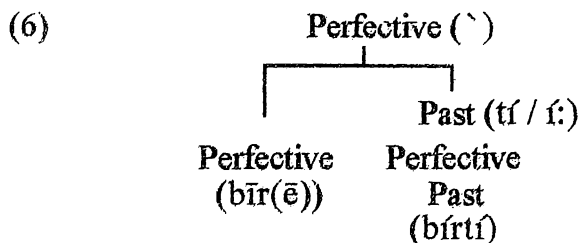
The three ways that the Perfective and Perfective Past forms pattern together provide evidence that the two forms are related. With no evidence to the contrary, I propose furthermore that the general marker of Perfective in Central Dangaleat is the preverbal floating tone, which is proposed to be a carry-over from Proto-Chadic. Unfortunately, there is no evidence either for or against the proposed Perfective marker with the Perfective Past forms, as can be seen by the derivations in (4) and (5). Since the rule of High Tone Spread applies first filling in all unspecified features, the low tone remains unassociated and is later deleted.

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<sup>2</sup> That the morpheme *bàl* is indeed an auxiliary verb and not a simple marker of past tense is evidenced by two facts. First, the verb that follows *bàl* is in the Infinitive. Second, the Past Tense marker affixes to *bàl* as opposed to the Infinitive.



In summary, I propose that the Perfective and Perfective Past forms may be grouped under the general heading of Perfective, as in (6). The marker of the Perfective is a preverbal floating low tone, carried over from the Proto-Chadic Perfective form. The marker for Perfective Past has two allomorphs: *tí* in word final position and *tí:* before a pronoun.



### 3. The Central Dangaleat Imperfective Forms

The relationship between the Central Dangaleat Habitual and Progressive forms has already been explored in some detail in chapter 6, section 2. Despite the surface



similarity between the two forms, there is reason to believe that the Habitual and Progressive developed from separate forms in the proto language. However, just as the two Perfective forms share a number of common characteristics, so do each of the forms that fall under the general heading of imperfective. The Habitual and Progressive forms, as well as the Progressive Past and Progressive Repetitive Past forms, all share a common set of pronouns (as previously stated in chapter 3, section 5). In addition, the negative of each type of imperfective form is formed in the same way, as demonstrated in (7).

(7)

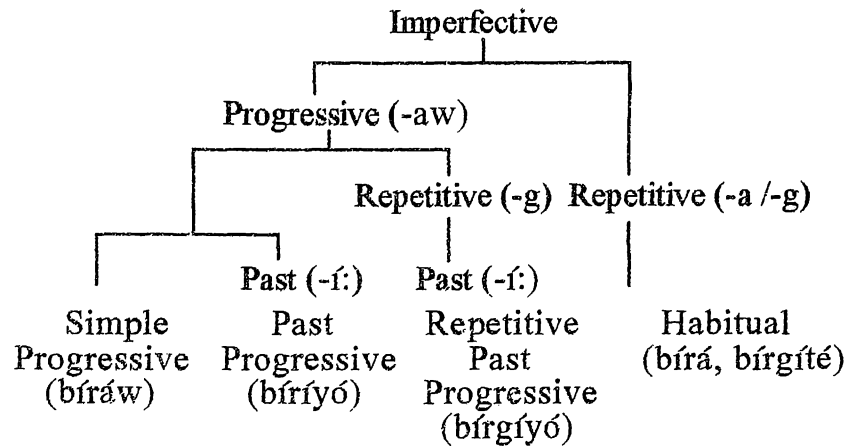
		Negative	
Habitual	̀̀̀̀̀ wá:wá	̀̀̀̀̀ wá:w ̀̀̀̀̀	'He doesn't show.'
Progressive	̀̀̀̀̀ wá:wáw	̀̀̀̀̀ wá:wá ̀̀̀̀̀	'He isn't showing.'
Progressive Past	̀̀̀̀̀ wá:wíyó	̀̀̀̀̀ wá:wí ̀̀̀̀̀	'He wasn't showing.'
Progressive Repetitive Past	̀̀̀̀̀ wá:wǵíyó	̀̀̀̀̀ wá:wǵí ̀̀̀̀̀	'He wasn't showing.' (rep.)

These facts taken together indicate that there is some motivation for grouping the Progressive and Habitual forms under the common title of Imperfective. In a tree type diagram the relationship between the various types of Imperfective could be represented as in (8).<sup>3</sup>

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<sup>3</sup> In his review of Ebobissé, Wolff (1982a) proposes that the equivalent form to the Habitual in Eastern Dangaleat is to be identified with the Proto-Chadic *Grundaspekt* or aorist form. However, the Habitual form in Central Dangaleat (and Eastern Dangaleat as well) is not an unmarked form of the verb, nor is it semantically unmarked or neutral.

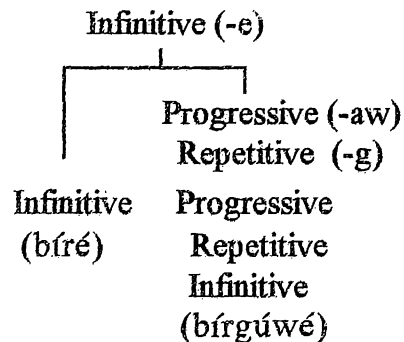
(8)



#### 4. The Central Dangaleat Infinitive Forms

The two Central Dangaleat Infinitive forms (Infinitive and Progressive Repetitive Infinitive) clearly pattern together. Both forms are marked by the Infinitive marker (-e). A common set of pronouns is also shared between the two forms. Both of the forms are never used in isolation, but always with an auxiliary verb. I propose, therefore, that the two forms be grouped under the general heading of Infinitive, as in (9).

(9)



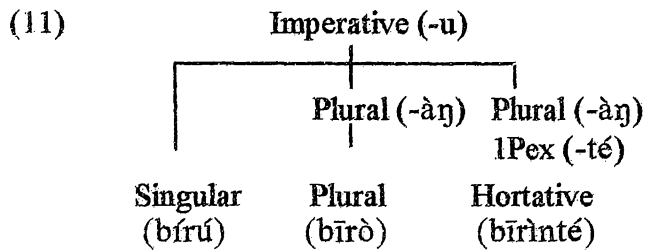
#### 5. The Central Dangaleat Imperative Forms

According to Wolff's proposal, outlined in chapter 5, section 4, all three of the Dangaleat Imperative forms are marked by -u, which is one of the Proto-Chadic

formatives for Imperative. As with the various Perfective and Imperfective forms, the same set of pronouns is also used with each of the three Imperative forms (as previously pointed out in chapter 3, section 8). There is also a unique way of marking the negative, as can be seen in (10).<sup>4</sup> With each type of Imperative, the negative is formed by the auxiliary verb *àk*, followed by the Infinitive form of the verb and the morpheme *d̀̀* (which also functions as the negative marker with the Imperfective constructions). The marker of the Plural Imperative and Hortative forms is affixed to the auxiliary verb (*àk*) and not to the Infinitive form of the verb that follows.

		Negative
(10)	Singular Imperative	wá:wá      àk wá:wé d̀̀
	Plural Imperative	wā:wò      àkò wá:wé d̀̀
	Hortative	wā:wìnté      àkìnté wá:wé d̀̀

Given the way the three forms pattern together, they may be grouped together under the common heading of Imperative, as in (11).



## 6. Irrealis mood

In a recently published paper, Shay (1994) proposes that what Ebobissé labels the future tense morpheme in Eastern Dangaleat (*aa*) does not mark 'future tense', *per se*,

<sup>4</sup> A variation of *àk wá:wé d̀̀* for some speakers is *d̀̀àk wá:wé d̀̀*.

but irrealis mood. As evidence, Shay points to Ebobissé's (1979) claim that the marker is used in Eastern Dangaleat to mark more than just future tense. Shay gives two examples of the non-future use of the so-called irrealis marker in Eastern Dangaleat, as in (12) and (13).

(12) ḡà àn -tì ḡās tyā -ā káté  
 he say to.her COMP she IRR go  
 'He told her to go' or 'he told her (that) she should go'

(13) ḡō ìndīd nōs wà:dá ḡà á -no ḡà:yē  
 I ask COMP who INTERR IRR me help  
 'He told her to help' or 'he told her (that) she should help'

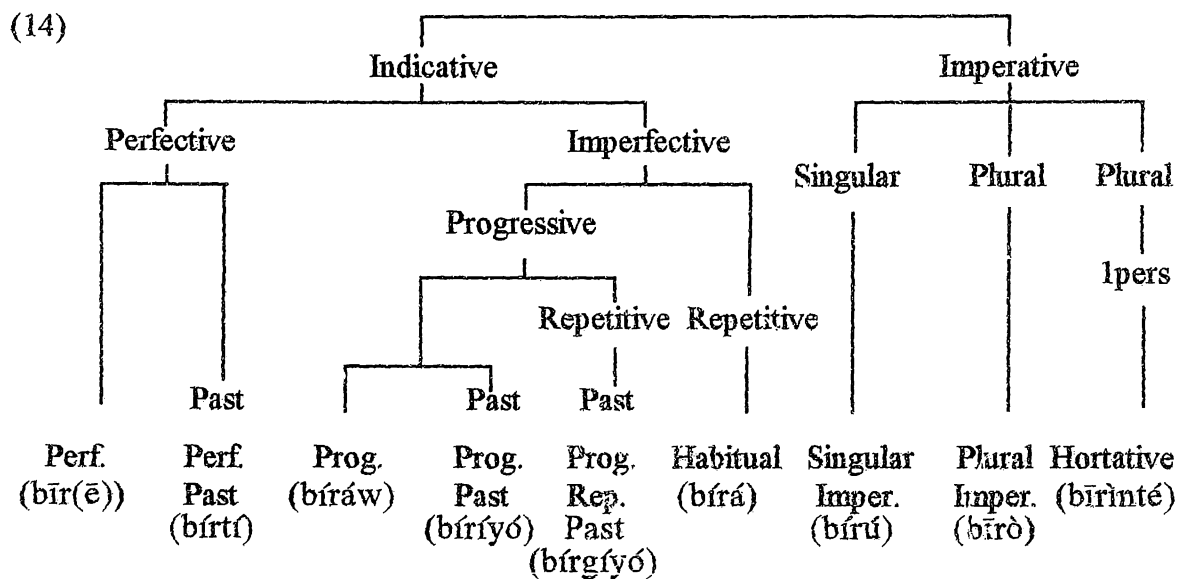
Shay's claim that the *a* morpheme in Eastern Dangaleat marks 'irrealis', seemingly stands in opposition to the claim of Ebobissé (1987:60), as adopted by Wolff (1982a:206), that the marker is related to the auxiliary verb *dā:* in Eastern Dangaleat. Ebobissé's claim is more consistent with the general pattern in Chadic languages, whereby the future periphrastic construction is formed by the motion verb 'to go', followed by the Verbal-Noun form.

More evidence is needed in order to evaluate the appropriateness of Shay's claim for Central Dangaleat. In particular, if it can be verified that the morpheme *ya* is used in sentences of the type in (12) and (13) in Central Dangaleat as well, the term 'irrealis' might more accurately label the morpheme.

## 7. Conclusion

The general organization of the Central Dangaleat tense, aspect and mood system can be graphically represented as in (14). If the two Infinitive forms were to be included in

the chart, a separate level would have to be added to the chart distinguishing between non-finite verbs (the infinitives), finite verbs (those that fall under the general heading of indicative) and semi-finite verbs (the imperatives).



The Organization of the Central Dangaleat Verbal System

## CHAPTER 8

### CONSONANT-TONE INTERFERENCE AND THE PERFECTIVE

The purpose of this chapter is to further describe the phenomenon of consonant-tone interference and in particular to propose an explanation of the effect of consonant-tone interference in relation to the Central Dangaleat Perfective.

#### 1. The General Pattern of Consonant-Tone Interference in Central Dangaleat

The two rules of consonant-tone interference initially proposed in chapter 2, section 4, are repeated in (1).

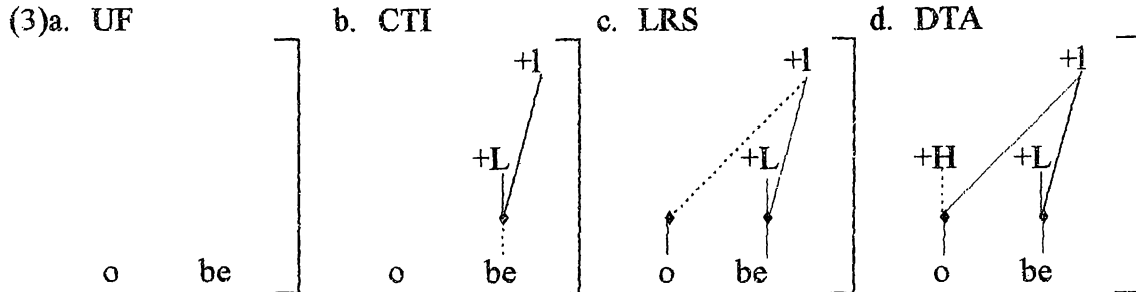
##### (1). Consonant-Tone Interference

- a. If the final consonant of the Underlying Form of a verb base is a depressor consonant, insert a low tone [+LOW, +low].
- b. Associate the two features [+LOW] and [+low] from right to left to the first available tone bearing unit (vowel).

The general application of the two rules of consonant-tone interference in Central Dangaleat is demonstrated in (2) and (3), with the verb *ōbè* ('to take'). Whenever a suffix that is underlyingly unspecified for tone is added to a verb stem that ends in a depressor consonant (voiced stop or implosive), the effect of consonant-tone interference is to insert a low tone on the vowel following the depressor consonant.<sup>1</sup>

(2)

	Infinitive	Progressive	Habitual
a. UF	/ob-e/ /stem-INF/	/ob-aw/ /stem-PROG/	/ob-a/ /stem-HAB/
b. CTI	obè	obàw	obà
c. LRS	ōbè *	ōbàw *	ōbà *
d. DTA	ōbè	ōbàw	ōbà

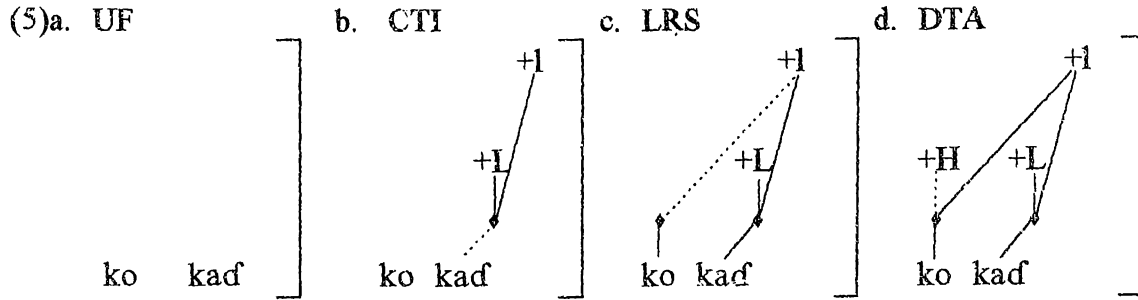


With the Habitual form of a verb such as *kōkīd'è* ('to hammer'), however, there is no vowel in the position following the depressor consonant. In accordance with the association rule in (1b), therefore, the low tone introduced as a result of consonant-tone interference is associated with the vowel that precedes the depressor consonant, as in the example in (4) and (5).

(4)

	Infinitive	Progressive	Habitual
a. UF	/kokd'-e/ /stem-INF/	/kokd'-aw/ /stem-PROG/	/kok-a-d'/ /stem-HAB/
b. CTI	kokd'è	kokd'àw	kokàd'
c. LRS	kōkd'è *	kōkd'àw *	kōkàd' *
d. DTA	kōkd'è	kōkd'àw	kōkàd'
e. Other rules	kōkīd'è	kōkīd'àw	kōkàt

<sup>1</sup> UF stands for Underlying Form, CTI for consonant-tone interference, HTS for High Tone Spread, LRS for Low Register Spread and DTS for Default Tone Specification. The asterisk indicates that the tonal feature value for the mid tone has not yet been filled in.



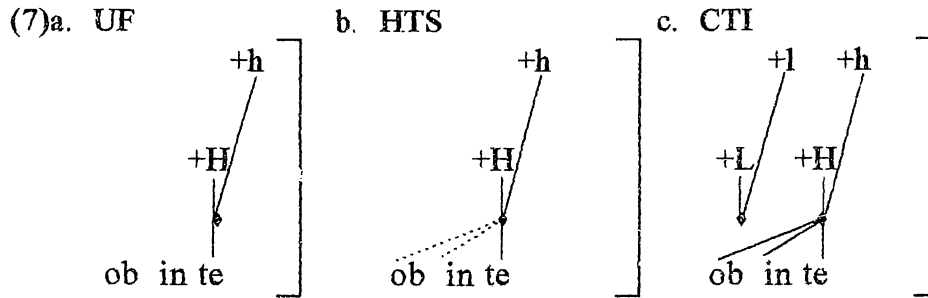
A further illustration of the way the effect of consonant-tone interference in Central Dangaleat may be seen when a pronoun with a underlying high tone is added to the forms in (2). Note that with the verb *òbè*, in (6) and (7), when an object pronoun is added with a lexical high tone, the result is *óbíntí*, with a high tone on each vowel. The effect of consonant-tone interference, therefore, has effectively been nullified. If the rule of High Tone Spread applies before the rule of Consonant-Tone Interference, however, this is the predicted result. Once the rule of High Tone Spread has applied, there are no feature values for tone that remain unspecified. Hence, the low tone introduced as a result of consonant-tone interference has nowhere to associate.<sup>2</sup>

(6)

	Infinitive	Progressive	Habitual
a. UF	/ob-in-tí/ /stem-INF-3FS/	/ob-i:-té/ /stem-PROG-1Pin/	/ob-gí-té/ /stem-HAB-1Pin/
b. HTS	óbíntí	óbí:té	óbgíté
c. CTI	óbíntí`	óbí:té`	óbgíté`
d. Stray Erasure	óbíntí	óbí:té	óbgíté
e. Other rules	óbíntí	óbí:té	óbgíté

<sup>2</sup> As proposed in chapter 2, section 3, the function of tone rules in Central Dangaleat is simply to fill in features that are underlyingly unspecified, not to change features that are specified prior to the application of the rule.





When an inflectional morpheme that is marked by a high tone is added to the verb stem, the low tone that is added as a result of consonant-tone interference again has nowhere to associate, as can be seen in (8).

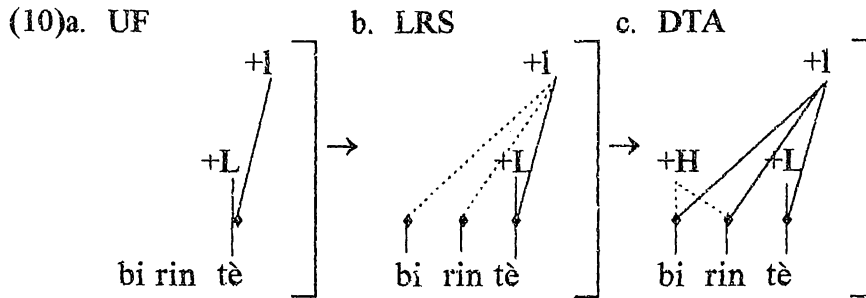
(8)

	Progressive Past	Progressive Iterative Past
a. UF	/ob-í:-o/ /stem-PST-PROG/	/ob-g-í:-o/ /stem-REP- PST-PROG/
b. HTS	óbí:ó	óbgí:ó
c. Other rules	óbíyó	óbgíyó

A final application of consonant-tone interference can be observed when a pronoun marked by a low tone is added. When an object pronoun marked by low tone is added to a verb in the high-high class, the result is as in (9) and (10). Note that the tone of the first and second vowels of each form are the same.

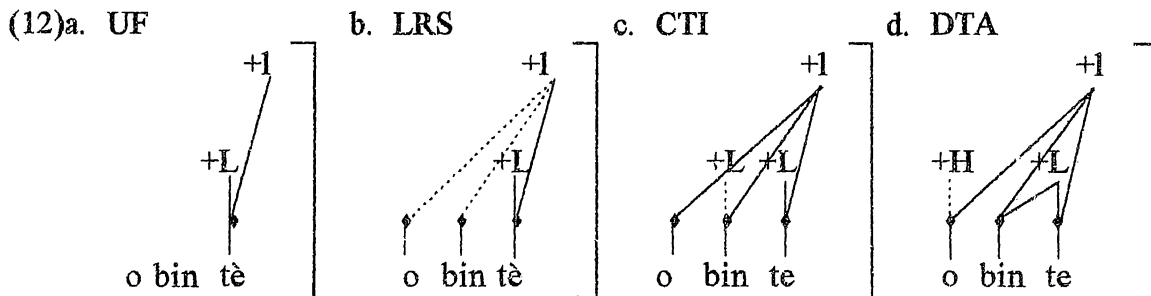
(9)

	Infinitive	Progressive	Habitual
a. UF	/bir-in-tè/ /stem-INF-1Pin/	/bir-i:-tà/ /stem-PROG-3FS/	/bir-gi-tà/ /stem-HAB-3FS/
b. LRS	bīrīntè *	bīrī:tà *	bīrgītà *
c. DTA	bīrīntè	bīrī:tà	bīrgītà



However, when a suffix marked by a low tone is added to a verb in the mid-low class, the effect of consonant-tone interference is seen in that the tone on the vowel following the depressor consonant is low, as in (11). In (11b), graphically represented in (12b), the rule of Low Register Spread spreads the register feature [+low] to the preceding consonants.<sup>3</sup> The tonal feature, however, is left unspecified and is then filled in by the rule of Consonant-Tone Interference, according to the rule in (1).

(11)	Infinitive	Progressive	Habitual
a. UF	/ob-in-tè/ /stem-INF-1Pin/	/ob-i:-tà/ /stem-PROG-3FS/	/ob-gi-tà/ /stem-HAB-3FS/
b. LRS	ōbīntè *	ōbī:tà *	ōbgītà *
c. CTI	ōbīntè *	ōbī:tà *	ōbgītà *
d. DTA	ōbīntè	ōbī:tà	ōbgītà



<sup>3</sup> The rules of Low Register Spread and High Tone Spread apply both before and after the rule of consonant-tone interference, wherever the environment for the rule is met.

One exception to the general way that consonant-tone interference works in Central Dangaleat is the Progressive Iterative Infinitive form. With this form there are no lexically marked high tones on any of the morphemes, as demonstrated in (13a). One would expect, therefore, that the effect of consonant-tone interference would be evident, introducing a low tone following the depressor consonant. However, this is not the case, as demonstrated in (13b). Why this form does not conform to the more general rule remains uncertain.

(13)		Progressive Iterative Infinitive
a. UF	/ob-g-aw-e/	/stem-HAB-PROG-INF/
b. CTI	*obgàwe	
	Surface form	óbǵúwé

## 2. Consonant-Tone Interference and the Central Dangaleat Perfective Form

In chapter 5, section 2, I proposed that the general marker of Perfective in Central Dangaleat is a preverbal floating low tone. Positing a preverbal floating low tone as the general marker of the Perfective provides an explanation for the general lowering of tone that occurs with verbs in the high-high class in the Perfective and is not contradicted by other forms. However, the tonal anomalies that occur with the verbs that have the tone pattern mid-low in the Infinitive, as described in chapter 3, section 2 and illustrated in (14), cannot be explained simply in terms of a preverbal floating low tone. (One would expect that the effect of consonant-tone interference would be the same with both the Infinitive and Perfective forms.)

(14)	Infinitive	Perfective	
	gādè	gàdē	‘to flee’
	ālgè	àlgē	‘to pass the year’
	bō:bè	bō:bē	‘to pour’
	kōkīdè	kōkīdē	‘to hammer’

In this section, I propose that an explanation is possible, however, based on the phenomenon of consonant-tone interference. Crucial to the explanation is the hypothesis that the final *e* that occurs with the Perfective in isolation is not a part of the underlying form, but rather an epenthetic vowel inserted in a specified environment.

This section is organized as follows: in Section 2.1, I provide two arguments for the epenthetic analysis of the final *e*, as used with the Perfective; in Section 2.2, I demonstrate the effect of consonant-tone interference with the Perfective forms; and finally, in Section 2.3, I define the way the proposed epenthetic final *e* is used in Central Dangaleat.

### 2.1 The Underlying Form of the Perfective

There are two initial reasons for arguing that the final *e*, as used with the Perfective, is not part of the underlying form. The first reason, is that the final *e* is not present when the Perfective form is followed by another word, as illustrated in (15).<sup>4</sup>

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<sup>4</sup> The mid tone on the verb in the two sentences in (15) marks the Perfective formation.

- (15)a. *ɲà wā:wē*  
 he show/PRF  
 ‘He showed.’
- b. *ɲà wā:w gērò*  
 he show/PRF house  
 ‘He showed the house.’

Although one might try to describe the loss of the final *e* in (15b) by a rule of deletion, the fact that the final *e* that marks the Infinitive is always retained, as in (16), forces one to look for an alternative explanation.

- (16)a. *ɲà yà wá:w-e*  
 he AUX show-INF  
 ‘He will show.’
- b. *ɲà yà wá:w-é gērò*  
 he AUX show-INF house  
 ‘He will show the house.’

The second reason for arguing that the final *e* is not a part of the underlying form of the Perfective in Central Dangaleat is that with some object inflected forms of the Perfective, the position that the *-e* suffix would normally occupy is empty, as demonstrated in (17c). (See also chapter 3, section 2.)

(17)a. Perfect	b. With marker <sup>5</sup>		c. Without marker	
<i>bīrē</i>	<i>bīr-í-nté</i>	‘pass us’	<i>bīr-gā</i>	‘pass him’
pass/PRF	stem-?-1Pin		stem-3MS	
	<i>bīr-í-ɲké</i>	‘pass you’	<i>bīr-gū</i>	‘pass them’
	stem-?-2MS		stem-3P	

With the Infinitive, however, all pronouns are preceded by *-in*, as demonstrated in (18).

(For further discussion see chapter 3, section 1.)

(18)a. Infinitive	b. With pronoun	
<i>bīr-é</i>	<i>bīr-īɲ-ɲì</i>	‘pass him’
pass-INF	stem-INF-3MS	
	<i>bīr-īɲ-cò</i>	‘pass them’
	stem-INF-3P	

<sup>5</sup> The status of the *-i* in these examples is unclear. It is possible that the *-i* is simply an epenthetic vowel. With the third person pronouns (*ta* (3FS), *ga* (3MS) and *gu* (3P)), however, it is clear that there is no marker present.

With the Infinitive all of the pronouns are preceded by a nasal consonant. With the Progressive form, however, the pronouns are not preceded by a nasal consonant and yet there is still a vowel slot between the verb stem and the pronoun, as demonstrated in (19).

(19)a. <u>Progressive</u>	b. <u>With pronoun</u>	
bír-áw	bír-ī:-gà	'pass him'
pass-PROG	stem-PROG-3MS	
	bír-ī:-gù	'pass them'
	stem-PROG-3P	

The fact that the final *e* is absent when a Perfective form is followed by another word, as well as in some pronominalized forms, suggests that the final *e* may not be underlyingly present with the Perfective. In the following section I will show that the behavior of the Perfective forms relative to consonant-tone interference also supports this claim.

## 2.2 Consonant-tone Interference and the Perfective

If the hypothesis that the underlying form of the Perfective does not include the final *e* is correct, then the underlying form of a verb such as *gūdè* would simply be *gud'*.<sup>6</sup> Starting with an underlying form such as *gud'*, one would expect the rules of consonant-tone interference to apply differently than with an underlying form such as *gud'e*. Recall that with the Central Dangaleat Habitual form, the low tone that is introduced as a result of consonant-tone interference associates in some cases with the vowel that *precedes* the

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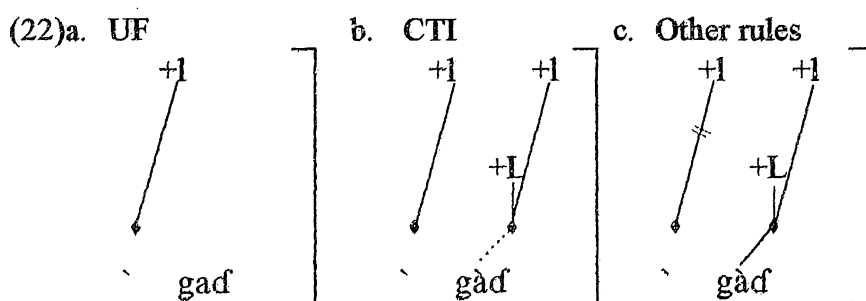
<sup>6</sup> The floating low tone which precedes *gud'* is the general marker of the Perfective, as proposed above.

depressor consonant. Such is the case with the three Habitual forms in (20) (compare with (4) above).<sup>7</sup>

(20) a. UF	/kok-a-d/ /stem-HAB/	/al-a-g/ /stem-HAB/	/uŋ-a-f/ /stem-HAB/
b. CTI	kokàd	alàg	uŋàf
c. LRS	kōkàd *	ālāg *	ūŋàf *
d. DTA	kōkàd	ālāg	ūŋàf
e. Other rules	kōkàt	ālāk	ūŋàc

If the underlying form of the Perfective in Central Dangaleat does not include the final *e*, one would expect the rule of Tone Association to apply in exactly the same way as with the Habitual forms in (20). The low tone introduced by consonant-tone interference would associate from right to left to the first available tone bearing unit. In the case of the two examples in (21), the first of which is graphically represented in (22), the first available tone bearing unit happens to be the word initial vowel.

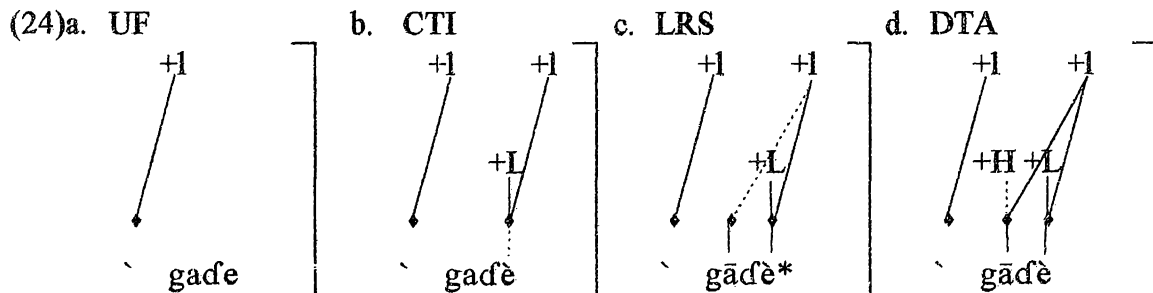
(21) a. Underlying Form	/perfective marker-verb base/	/`-gad/	/`-alg/
b. Consonant-tone interference		`gàd	`àlg
c. Other rules		gàd(ē)	àlg(ē)



<sup>7</sup> In accordance with the rule in (1b), the low tone that is introduced as a result of consonant-tone interference is associated from right to left to the first available tone bearing unit. With the three examples in (20), the first available tone bearing unit precedes the depressor consonant.

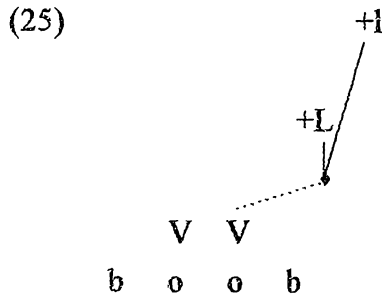
The hypothesis that the *e* is not part of the underlying form, therefore, provides a reasonable explanation for the low tone that marks the word initial syllable of the verbs that group with *gādè* and *ālgè*. If the *e* were a suffix, other things being equal, the rules would incorrectly generate the Perfective forms *\*gādè* and *\*ālgè*, as demonstrated in (23) and (24).

(23) a. Underlying Form	/^-gad-e/	/^-alg-e/
b. Consonant-tone interference	`gadè	`algè
c. Low Register Spread	`gādè	`ālgè
d. Other rules	*gādè	*ālgè

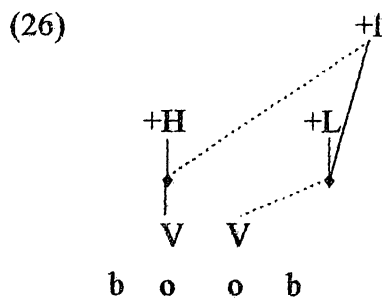


Not all of the verbs that have the tone pattern mid-low in the Infinitive have a low tone on the word initial syllable in the Perfective. For instance, verbs with a long vowel in the first syllable (such as *bō:bè*), have the tone pattern mid-mid in the Perfective (*bō:bē*). The crucial difference with the verbs with a long vowel in the first syllable is that the long vowel constitutes two moras or two tone bearing units. The tone that is introduced as a result of consonant-tone interference, therefore, is associated with the second mora of the long vowel, as illustrated in (25).



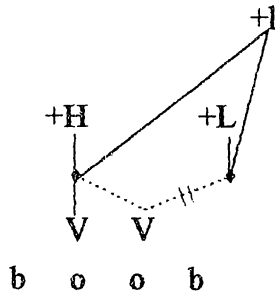


The rules of Low Register Spread and Default Tone Assignment would then apply, resulting in the form (26).



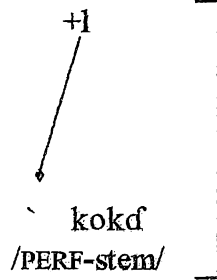
Note that in (26), the tone on the first mora of the long vowel is different from the tone on the second mora. However, there is evidently a general constraint in Central Dangaleat against this type of form. In Central Dangaleat the tone on the second mora of a long vowel never contrasts with the tone on the first vowel. The application of the rule of consonant-tone interference, therefore, produces a form that the phonology of the language does not allow. I propose that the problem of the complex tone melody on the long vowel is resolved by disassociating the low tone introduced by consonant-tone interference, as represented in (27). Note that when the low tone originally associated with the second mora of the long vowel is deleted, the result is that both moras of the long vowel share the same tonal features [+HIGH, +low].

(27)

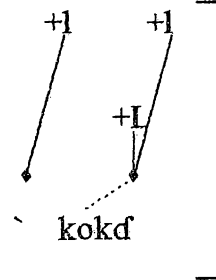


There is one additional verb class that has not yet been considered. Namely, those verbs that pattern with *kōkīdè*. With a verb in this class, one would normally expect the rule of consonant-tone interference to apply either as in (28) or as in (29) (depending on whether the rule of Vowel Insertion precedes the rule of Consonant-tone interference or vice-versa). Neither form is correct, however. The surface form of the Perfective has the tone pattern mid-mid (*kōkīd(ē)*).

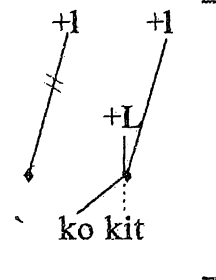
(28)a. UF



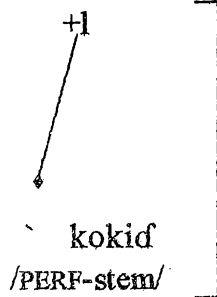
b. CTI



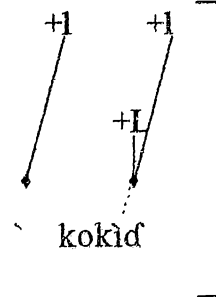
c. Other rules



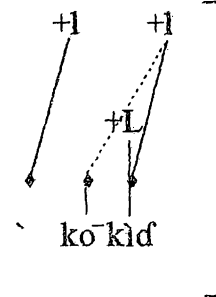
(29)a. UF



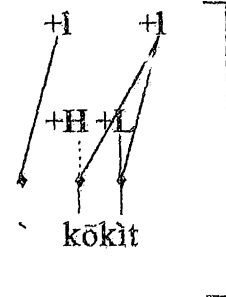
b. CTI



c. LRS



d. Other rules



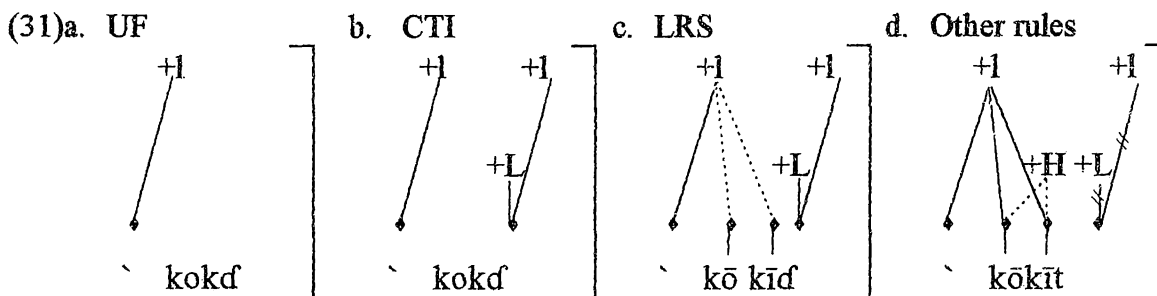
Assuming for the moment that the rule of Vowel Insertion applies after the rule of Consonant-tone interference, there is a systematic difference between the verbs that pattern with *kōkīdè*, as opposed to *ālgè*, that suggests a possible explanation. In particular, with the limited class of verbs that pattern with *kōkīdè*, the consonant that precedes the depressor consonant is always a voiceless obstruent. With the forms that pattern with *ālgè*, however, the consonant that precedes the depressor consonant is never a voiceless obstruent.<sup>8</sup>

It has been well documented that in some languages sensitive to consonant-tone interference, certain consonants may have the effect of blocking the spread of a given tone (Hombert 1975). Voiceless obstruents, in particular, have been argued to have the effect of blocking the spread of a low tone. Given the fact that a voiceless consonant precedes the depressor consonant with all the verbs that pattern with *kōkīdè*, it is possible that the voiceless obstruent has just this effect in Central Dangaleat. If so, then the derivation of the Perfective with verbs that pattern with *kōkīd* (*ē*) would be as in (30) and (31). Note that in (31b), the application of the rule of Tone Association is blocked by the voiceless obstruent.

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<sup>8</sup> This is the expected result of the Sonority Sequence Constraint described in chapter 2, section 2.2. In my data there are four verbs that pattern with *kōkīdè* and thirty that pattern with *ālgè*.

(30) a. Underlying form — M-L tone class /perfect marker-verb base/	/`-kokd/	/`-gompf/
b. Consonant-tone interference	`kokd`	`gompf`
c. Tone Association	(blocked)	(blocked)
d. Low Register Spread	`kōkd` *	`gōmpf` *
e. Default Tone Assignment	`kōkd`	`gōmpf`
f. Stray Deletion	kōkd	gōmpf
g. Other rules	kōkīd(ē)	gōmpīf(ē)



I propose, therefore, that the effect of the voiceless obstruent with the verbs that pattern with *kōkīdè* is to block the spread of the low tone introduced as a result of consonant-tone interference. As a result, the low tone introduced as a result of consonant-tone interference does not associate with any tone bearing unit and the effect of consonant-tone interference is nullified. Since the effect of consonant-tone interference is nullified, the verbs in this class pattern with the verbs in the high-high class in the Perfective, in that the Perfective form of both verb classes is marked by the tone pattern mid-mid.

### 2.3 The Final *e* as an Epenthetic Vowel

There are two reasons for arguing that the final *e* of the Perfective is an epenthetic vowel. The first reason is described in Section 2.1 above. Namely, that the final *e* is not present when a Perfective form is followed by another word or in the object inflected forms. The second reason is the behavior of the Perfective in relation to consonant-tone

interference. The surface tone patterns that occur in the Perfective with the verbs that have the tone pattern mid-low in the Perfective, are predictable if the final *e* is not a part of the underlying form. It is not clear how the tone on the Perfective form of these verbs could be explained if the final *e* is present underlyingly.

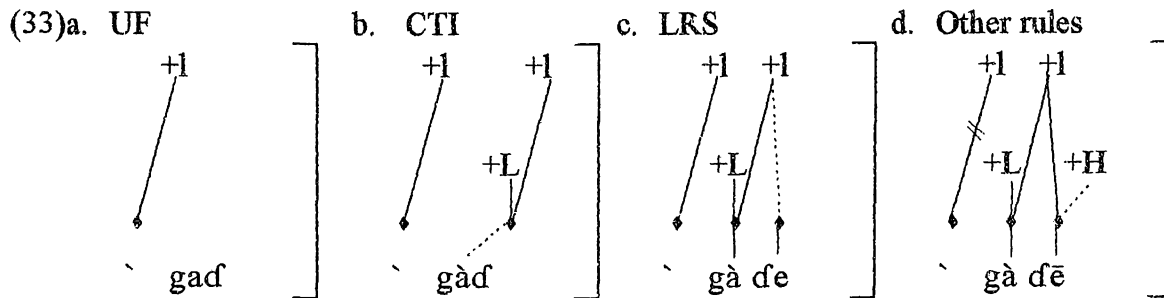
The environment for the insertion of the proposed epenthetic final *e* is easy enough to define. The vowel *e* would be inserted following a consonant at the end of a phonological phrase.<sup>9</sup> Within a phonological phrase, the Perfective form of a verb such as *òbè* would be *òp* (without the epenthetic vowel). At the end of a phonological phrase, however, the epenthetic final *e* would be inserted, resulting in the form *òbē*.

The tone on the epenthetic vowel would be fixed in based upon the general tone rules as describe in chapter 2, section 3. An example of the derivation of a Perfective at the end of a phonological phrase would be as in (32) and (33).<sup>10</sup>

(32) a. UF	/`-gad/	/`-alg/	/`-bo:b/	/`-kokd/
b. CTI	`gad`	`alg`	`boob`	`kokd`
c. Tone Association	`gàd`	`àlg`	`boòb	(blocked)
d. LRS	—	—	`bōòb *	`kōkd` *
e. DTA	—	—	`bōòb	`kōkd`
f. Tone Deletion	—	—	`bō:b	—
g. Stray Deletion	gàd`	àlg`	bō:b	kōkd`
h. e-Insertion	gàdē`	àlge`	bō:be`	kōkīdē`
i. LRS	gàdē*`	àlgē*`	bō:bē*`	kōkīdē*`
j. DTA	gàdē`	àlgē`	bō:bē`	kōkīdē`

<sup>9</sup> According to this analysis Central Dangaleat would have two epenthetic vowels: *i* word medially and *e* in the word final position. The vast majority of all words in Central Dangaleat (including nouns, adjectives, etc.) end in a vowel in word final position. Nonetheless, there are some exceptions to this rule (8 nouns out of a total of 366 end in a consonant).

<sup>10</sup> In (32), the long vowel in *boob* is represented as a sequence of vowels in order to facilitate the marking of tone.



There is one problem for the epenthesis analysis that must be pointed out. In the Habitual form, verbs with two non-initial consonants regularly end in a consonant regardless of their position in the phonological phrase, as in (34).

- (34)a.  $\eta\grave{a}$  kōkāt  
 'He hammers.'
- b.  $\eta\grave{a}$  sàyāt  
 'He clears (a field).'

If the environment for the insertion of the proposed epenthetic final *e* is simply after a consonant at the end of a phonological phrase, one would expect that the epenthetic vowel would be added to the forms in (34). This is not the case, however.

In conclusion, in spite of the apparent problems associated with the epenthesis analysis described above, the behavioral evidence (both in relation to consonant-tone interference and when not in the final position of the phonological phrase) clearly supports such an analysis.

### 3. Conclusion

The explanation of the tone perturbations that occur with the Perfective in Central Dangaleat, is based upon three unrelated hypotheses. The first hypothesis is that the

general marker of Perfective in Central Dangaleat is a preverbal floating low tone. The second hypothesis is that the final *e* of the Perfective form is an epenthetic vowel and therefore not a part of the underlying form of the Perfective. The final hypothesis is that a voiceless obstruent in Central Dangaleat can have the effect of blocking the association of the low tone introduced as a result of consonant-tone interference. Based upon these three hypotheses, the surface form of the Perfective of each class of verbs in Central Dangaleat can be explained in a principled fashion.

## APPENDICES



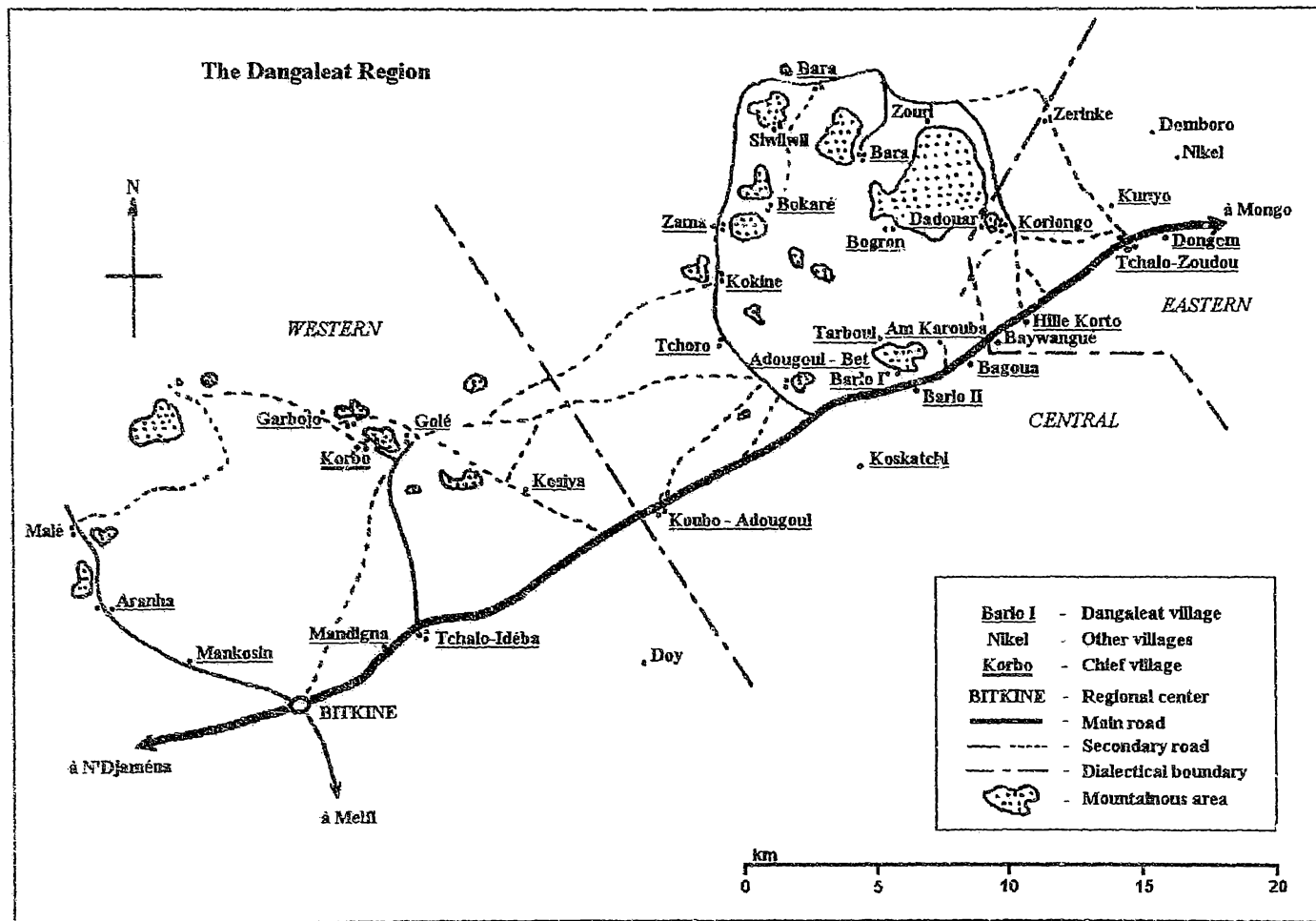


Illustration 1 – The Dangaleat Canton

## APPENDIX B

### CENTRAL DANGALEAT OBJECT PRONOUNS

<b>Direct Object Pronouns</b>				
	Infinitive	Perfective	Imperfective	Subjunctive
1S	-dù	-intú	-nú	-nú
2MS	Ø	-iɲcí	-cí	—
2FS	-kè	-iɲké	-ké	—
3MS	-jì	-ga	-gà	-gà
3FS	-tí	-ta	-tà	-tà
1Pex	Ø	-intiní	-ní	-ní
1Pin	-tè	-inté	-té	-té
2P	-kò	-iɲkó	-kó	—
3P	-tyò	-gu	-gù	-gù

<b>Indirect Object Pronouns</b>				
	Infinitive	Perfective	Imperfective	Subjunctive
1S	-t	-du	-dù	-òr / dù <sup>1</sup>
2MS	-ɲ	-jì	-jì	—
2FS	-kè	-ke	-kè	—
3MS	-c	-jì	-jì	-ì / -jì
3FS	-tí	-títi	-tí	-tí
1Pex	-ní	-intiní	-ní	-ní
1Pin	-tè	-te	-tè	-tè
2P	-kò	-ko	-kò	—
3P	-cò	-co	-cò	-cò

<sup>1</sup> The first singular and third masculine singular indirect objects differ for the singular and plural imperative forms. The first form listed above is for the singular imperative and the second for the plural imperative.

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