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Contents

Abbreviations

ACC	object (accusative)	LP	locative phrase
ACM	accompaniment	MID	middle verb form
ADJ	adjective	N	noun
ADJV	adjectival verb	NA	not attested
ADV	adverb	NP	noun phrase
ANTIP	antipassive	PAS	(agentless) passive
Ar	Arabic loan word	PAS.A	agented passive
CAUS	causative	PF	perfective
COMP	completive	PL	plural
COP	copula	PP	prepositional prefix
CONT.N	non-past continuous	POS	possessive
CONT.P	past continuous	PREP	preposition
D	deictic	PRON	pronoun
DAT	dative	QM	question marker
DEF	definite	RC	relative clause
DEM	demonstrative	RDM	relative (clause) definite marker
EV	evidential		
GEN	genitive	RDTM	relative (clause) dative marker
GP	general preposition		
INF	infinitive	REL	relativizer
INST	instrumental	REFL	reflexive
IMP	imperative	RLCM	relative (clause) locative copular marker
IPF	imperfect		
INCP	incompletive	SG	singular
LCM	locative copular marker	SBO	subordinate clause-final marker
LOC	locative		

SBO1	subordinate 'when, because, questions'	VN	verbal noun
SBO2	subordinate 'if'	[ ]	phonetic (surface) form
SBO3	subordinate 'but'	/ /	phonemic (underlying) form
SBJV	subjunctive	( )	example number
UNC	uncertainty	{ }	rule number
UR	underlying representation	-	bound suffix
V	verb	=	bound clitic
VP	verb phrase		

Pronouns are glossed as follows:			
1	first person	A	object (accusative)
2	second person	AM	marked object
3	third person	D	dative
s	singular	P	possessive
p	plural	R	reflexive
N	subject (nominative)	O	object of preposition
		b	bound

Suffix symbols are as follows:

-C	copied consonant taking all the features of the stem final consonant
-O	back rounded vowel unspecified for [ATR]
-E	front unrounded vowel unspecified for [ATR]
-A	back vowel unspecified for [round] and [ATR]
-$\underline{A}$	back unrounded vowel unspecified for [ATR]
-V	copied vowel taking all the features of the stem final vowel
-$^{+}$g	[+ATR] suffix spreading [+ATR] quality to the root
-$^{+}$V	[+ATR] person marker vowel

Morpheme list

Title	Morpheme	Section
Copular clitics (COP)	$=\bar{A}n_{\text{appox-final}}$, $=\bar{V}n_{\text{mon.vow-final}}$, $=\bar{n}_{\text{poly.vow-final}}$, $=\bar{A}_{\text{SG,cons-final}}$, $=\grave{A}_{\text{PL,cons-final}}$	4.1.1, 7.2, 8.3.1
Definite clitics (DEF)	$=An_{\text{appox-final}}$, $=Vn_{\text{mon.vow-final}}$, $=n_{\text{poly.vow-final}}$, $=\acute{A}_{\text{cons-final}}$	4.1.2, 7.3, 8.3.2
Relative clause definite clitics (RDM)	$=\acute{E}_{SG}$, $=\grave{E}_{PL}$	4.1.3, 7.4, 8.3.3, 10.9

Title	Morpheme	Section
Locative copular (LCM) /Dative clitics (DAT)	=Án appox-final, =V́n mon.vow-final, =n̄ poly.vow-final, =Án cons-final	4.1.4, 4.1.6, 7.5, 8.3.4
Accompaniment clitics (ACM)	=nĒ vow-final, =É cons-final	4.1.8, 7.6, 8.3.6
Clause-final subordinate clitics (SBO)	=nÉ vow-final, =É cons-final	4.1.10, 7.7, 8.3.8
Plural agreement (PL)	-gg-	5.1
First person (1)	-a-, -ə-	5.1
Second person (2)	-ɔ-, -u-	5.1
Third person (3)	-ɛ-, -i-	5.1
Object pronoun clitics (A)	a 1sA, =O 2sA, =E 3sA, =ì 3sAM, aaggá 1pA, =OOggÓ 2pA, =EEggÈ 3pA, =iiggə̀ 3pAM,	5.4, 10.4
Dative pronoun clitics (D)	=ɔ̃n 1sD, =ûn 2sD, =ĩn 3sD, =ɔ̃ggɔ́n 1pD, =ûggún 2pD, =îggə̀n 3pD	5.5, 10.5
Prepositional prefix (PP)	ḍ-	5.7, 11.4
Noun singular suffixes (SG)	-ḍ son,vow-final, -gg son-final, -Aḍ son-final, -AAḍ son-final, -Eḍ son-final	6.2.1
Noun plural suffixes (PL)	-gg son,vow-final, -Agg obs-final, -EEgg son-final, -AAgg son-final, -OOgg son-final, -AAḍ kin-terms, -ḍ kin terms, -əgg body parts, -+gg body parts, -V+gg body parts,	6.2.2, 6.2.3
Adjective plural suffixes (PL)	-gg son,vow-final	8.2.1
Infinitive suffix (INF)	-C_{INF}	9.2
Subjunctive suffixes (SBJV)	-(A) default, -C(A) obs-final , -(n)(A) approx-final, -ḍ(A) vow-final, -ḍA PL	9.3
Imperative suffixes (IMP)	-Ø default, -n approx-final , -ḍ+A PL	9.4
Completive suffix (COMP)	-sA	9.5
Incompletive (INCP)	-Ø	9.6
Continuous suffixes (CONT)	-Án CONT.N, -Ǎn CONT.P	9.7
Deictic suffixes (D)	-CÁggĀ COMP.D , -(CAAg)gAn CONT.P.D , -(CAg)gAn CONT.N.D , -(CÁg)gĀ IMP.D, -ḍúū IMP.PL.D	9.9

Antipassive suffix (ANTIP)	-An $_{\text{ANTIP}}$	9.10
Causative suffixes (CAUS)	-s^{+}A $_{\text{COMP}}$ -d̲$^{+}$A	9.11
Agented passive clitics (PAS.A)	=Ê$_{\text{SG}}$, =ÉĒ$_{\text{PL}}$	10.2
(Agentless) passive clitics (PAS)	=Ā<u>n</u>Á$_{\text{stem.vow-final}}$, =<u>Á</u>$_{\text{stem.cons-final}}$	10.3
Imperfect clitics (IPF)	(various) =Ē$_{\text{COMP.IPF.1sN}}$, =É$_{\text{COMP.IPF.3sN}}$, =ÁĀ$_{\text{COMP.IPF.1pN}}$, =ÉÈ(ggÀ)$_{\text{COMP.IPF.3pN}}$	10.6
Subordinate verb-final clitics (SBO1,2,3)	(various) =Ē$_{\text{COMP.SBO1.1sN}}$, =ĭ$_{\text{COMP.SBO1.3sN}}$, =Ā$_{\text{COMP.SBO1.1pN}}$, =îggĭ$_{\text{COMP.SBO1.3pN}}$	10.7
Perfect bound morphemes (PF)	-C<u>A</u>r$_{\text{PF.INCP, PF.IMP}}$, =<u>A</u>r$_{\text{PF.CONT.N}}$, =r$_{\text{PF}}$	10.8
Verbal Noun clitics (VN)	=gg $_{\text{son,vow-final}}$, =Agg $_{\text{obs-final}}$, =EEgg $_{\text{son-final}}$, =AAgg $_{\text{son-final}}$	10.10

1 Introduction

Gaahmg (Gaam, enthologue code [tbi]) is a Nilo-Saharan, Eastern Sudanic language spoken in the Ingessana Hills of the Blue Nile Province of North Sudan, near the Ethiopian border. For centuries, the Gaahmg people have fought off invaders entering their hills. Even today, their culture and language have been less influenced by outsiders than those of other ethnic groups in the Blue Nile Province. Although Gaahmg speakers outnumber speakers of other languages in the area, little documentation has been done of their language. This work presents a description of Gaahmg grammar, including its phonology, morphology, and syntax.

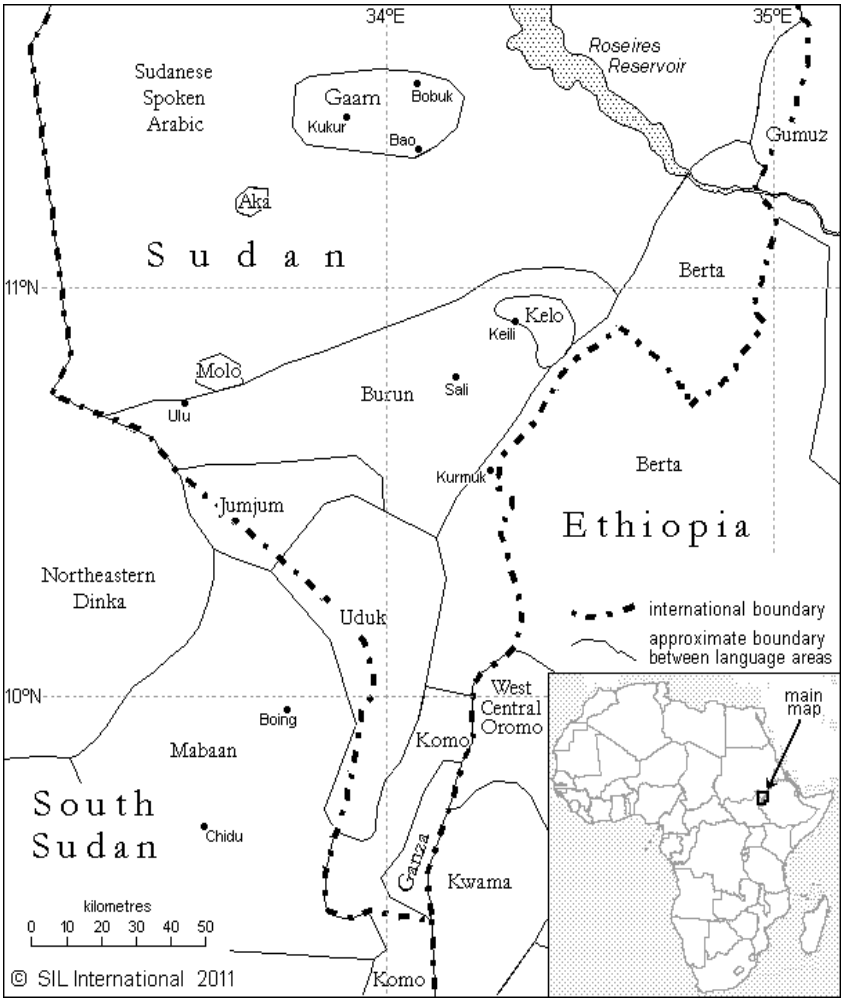
1.1 Gaahmg language

At the request of speakers, the name of the language is written orthographically with the grapheme /aah/ for the long vowel [ɘɘ]. The language name is pronounced [gɘ̀ɘ̀mg], meaning 'people of the Gaam or Ingessana Hills'. Other names for the language include Ingessana, Gaam, and Tabi. Ingessana is a name given by Arabs. Gaam is the word for hill, and Tabi is a hill name in the home area (Bender 1980:4).

Gaahmg is classified as a Nilo-Saharan, Eastern Sudanic language. Greenberg was the first to list Tabi (Gaahmg) as a separate branch of the Eastern Sudanic sub-family (1955:62). Bender proposed that Gaam belongs to an Eastern Jebel Family including the languages Aka, Molo, Kelo, and Ben Sheko which all have a first singular pronoun with the segment *n* and other similarities. He added that the total number of speakers of Eastern Jebel languages other than Gaam speakers probably does not exceed 2,000 (Bender 1998:39).

The Ethnologue states there are 67,200 Gaahmg speakers, who mainly live in the Ingessana Hills of the Blue Nile Province (Gordon 2005), bordering Ethiopia to the east. There are four dialects: Jog Tao (Soda area), Buwag (southeast area), Kulag (Bao area), and Jog Goor (northwest area). The first two are more closely related to each other, and the last two to each other. Although the dialects are distinct enough phonetically and lexically to identify a person as from the dialect area, they are easily understood from one to another (Jedrej 1995: 32). The teachers, politicians and other educated people mostly come from the Jog Tao dialect, which is analyzed in this thesis.

There are three published linguistic works on the language that predate the research of this author: *Ethnographical Observations in Dar Fung* by E. E. Evans-Pritchard (1932), *The Phonological Features of the Ingessana Language* by W. J. Crewe (1975), and *Preliminary Gaam-English-Gaam Dictionary* by M. L. Bender & Malik Agaar Ayre (1980).



1.2 Gaahmg land, history, and people

The Ingessana Hills are southwest of Damazine and northwest of Kurmuk in the Blue Nile Province. The capital of the Ingessena area is Bao (11.350797, 34.083710) and the government offices are in Soda. There are reported to be 78 hills in the area, some rising 300 meters above the surrounding flat plains. While the plains are grassland with occasional acacia trees, the vegetation in the hills has a much greater variety of plants and trees, with water sources even in the dry season.

Gaahmg speakers live in the hills and in the plains, interacting with other ethnic groups in the surrounding geo-political area known as the Funj. In addition to the related languages of the Aka, Molo, Kelo, and Ben Sheko, there are the Berta, Gumuz, Oromo to the east, the Burun, Jumjum, Uduk, Mabaan to the south, Dinka and Nuer to the west, and Sudanese Arabs to the north.

As Jedrej (1995) explains, the Gaahmg have historically protected themselves and their hills from many invasions of outsiders. As a result, their culture is much more resistant to change than that of other ethnic groups of the Funj. Mainly self-sustaining in what they cultivate in the hill area, the Gaahmg are slow to grow cash crops or to migrate for wages. As a result of past conflict with Arabs and other invaders, they have a reputation of being hostile towards strangers and even refugees.

Although the origins of the Gaahmg are unclear, the Ingessena hills were alternately raided for several hundred years by the Funj sultans of Sennar to the northwest or by the Abyssinian kings of Gondar to the northeast, the Ingessena hills being a borderland between these kingdoms that plundered for slaves and gold. The Dinka and Nuer to the southwest raided the Gaahmg for cattle during times of drought or flooding in their own areas (Jedrej 1995).

From 1820-1855, the ruling Turk-Egyptian Empire demanded heavy tribute of slaves and gold. When they did not receive their demands, they attacked and imprisoned the Gaahmg, taking several hundred prisoners at a time. The Gaahmg fought back with speed and surprise attacks, causing many attacks of the Empire to be unsuccessful (Jedrej 1995).

In 1888-1889, the Mahdi government raided the Funj area and the Ingessena hills in particular, to provide for Khartoum during a severe and widespread famine, taking 1000 head of cattle from the Gaahmg on one occasion. The Gaahmg made counter attacks and held Arabs captive for ransom at ten head of cattle per person (Jedrej 1995).

From 1903-1934, the Anglo-Egyptian Government was less brutal but continued the same pattern of collecting tribute and squelching resistance. When the Gaahmg attacked tax patrols in protest to tribute collections, the Anglo-Egyptian government conducted ‘military operations’ which, although they did not involve taking slaves, seized livestock and killed those deemed responsible (Jedrej 1995).

The main occupations of the Gaahmg relate to livestock, cultivation, or craft making. In particular, the Gaahmg grow sorghum, sesame, maize, peppers, gourds, and tobacco. They keep cattle, goats, pigs, sheep, hens, donkeys, mules, and camels. During the dry season, young men and boys take herds of up to 50 head of cattle a hundred miles south to the Yabus River for water and pasture. Some weavers,

potters, and blacksmiths peddle their products in neighboring towns. However, livestock is generally not taken outside the area for sale, but herders wait for merchants travelling into the hills for trade (Jedrej 1995).

Traditional religion and government of the Gaahmg are tied to localities. There are houses of god, or shrines, around which communities are centred. A group of elders in each community rules over and cares for the people they represent, deciding legal matters and organizing activities. An appointed elder is the custodian of the community shrine where ceremonies and celebrations take place. Each of the smaller or less important shrines is grouped under four great or important shrines, in each of the four dialect territories, which decide the annual festivals (Jedrej 1995).

1.3 The current research

The current research was conducted beginning in 2003 with speakers living in Khartoum. From April 2004-April 2008 the author continued field work in Khartoum as a language research associate of the University of Khartoum, Institute of African and Asian studies. The primary language resource persons for this period were Hashim Orta Adaw Madal, Safadin Hamid Ateeb, and Annaim Karaka Farajalla Yasin. All three are from the town of Soda, have spoken the Jog Tao dialect from childhood, and continue to speak it whenever they are with other speakers of the language. After April 2008, access to speakers was limited to two three-week trips to Kurmuk in southern Blue Nile Province, near the home area. The primary language resource person for this trip was Annaim Karaka Farajalla Yasin.

The original data set of nouns and verbs were taken from word lists entered into dictionary software by speakers of the language, which became the Gaahmg-English Dictionary (Madal 2004). The singular and plural forms of nouns and subjunctive and completive forms of verbs were written on cards and glossed in English and Arabic. The cards were sorted numerous times to isolate segments and tone in the same environments, and each time speakers read the words on the cards.

Texts were recorded on cassette, transcribed, and glossed by speakers of the language, the recordings made from a variety of individuals in the home area. Natural clauses were taken from the texts as frames for eliciting nouns and verbs with various morphemes. The cards were again used to elicit multiple nouns, verbs, and adjectives in the frames.

The data set on which the thesis is based contains 700 nouns, 150 verbs, 40 adjectives, and a handful of other parts of speech. There are 16 texts of about 30 interlinearized pages that have been collected. These consist of folk narratives, historical narratives, personal narratives, persuasive texts, and poetic genres. Ten of these texts are presented in chapter 17.

1.4 Overview and notations

Gaahmg is rich in morphology, particularly in nouns, adjectives, and verbs. To correctly analyze the morphemes and their alternations, we also discuss their phonological foundation and describe their syntactic environments.

The phonological description of chapter 2 includes distribution and contrasts of phonemes, phonological rules, syllable structure, and a tonal description of roots. Consonant weakening is common word-finally and intervocalically in roots and across morpheme boundaries. A significant number of lexical distinctions as well as distinctions in grammatical function are made exclusively by [ATR] harmony and tone. Thus, the phonological analysis of these aspects is indispensable for the morphological analysis.

Segmental and tonal morphophonological rules are presented in chapter 3. The vast majority of the alternations when morphemes combine can be attributed to processes described by these eleven rules. Clitics, having different alternations and functions than suffixes, are shown in chapter 4 to attach to more than one word category. In 4.2, there are four other criteria discussed which can be used to distinguish suffixes from clitics such as that suffixes attach to underlying forms of roots, whereas clitics attach to surface forms of stems. In 4.3, we establish adjectives as a distinct lexical category from nouns and verbs since they are not used in some of the syntactic constructions of either nouns or verbs, and there are some differences in the morphology when used as either category.

In chapters 5-13, word categories are presented. The morphology of nouns (chap. 6-7), adjectives (chap. 8), and verbs (chap. 9-10) are the heart of this thesis. Pronouns (chap. 5), prepositions (chap. 11), body part locatives (chap. 12), and adverbs (chap 13) are the minor word categories described, which have little or no morphology.

In chapter 6, we see that nouns have singular and plural suffixes. Although the vast majority of singular nouns do not have suffixes, plural marking is obligatory with plural referents. There are several plural suffixes, each with different tonal allomorphs, although most includes the segment *gg*. Most plural suffixes have no semantic correlation with the nouns to which they attach, but the suffix attached sometimes depends on the root-final segment.

As shown in chapter 7, noun stems may attach one or more of seven clitics: copular, definite, locative copular, dative, accompaniment, subordinate, or relative clause definite clitics. The clitics have different segmental or tonal allomorphs which attach depending on the stem-final segment. In chapter 8, we show that adjectives are similar to nouns in stem and word morphology. Most adjectives attach the plural suffix -*gg* which is required on plural referents. The same seven clitics attaching to nouns may also attach to adjectives.

In chapter 9, the verb stem is discussed which is composed of the root and optional slots for antipassive, causative, and modal or aspect morphemes. Aspect is marked segmentally in the verb word—by completive and continuous suffixes. Past tense is marked by tone on the verb stem—High tone on the non-past continuous suffix and MH tone on the past continuous suffix. Infinitive, subjunctive and imperative forms also add suffixes to the root. Deictic suffixes for each verb aspect and mode are also attached to the root. Finite verb forms are inflected for subject person by tone added to the stem-final syllable: High tone in third singular verbs, Low tone in third plural verbs, and Mid tone in first and second person verbs. Chapter 10 discusses the clitics of the verb word, including agented passive, passive, object and dative bound pronouns, imperfect, perfect, subordinate, and relative clause definite marker clitics.

Clause-level syntax is presented in chapter 14 to show the functions of morphemes. Agented passive, passive, antipassive, and causative morphemes are syntactically distinguished in a section on verbal valency. Non-verbal clauses with two sets of copulas are compared. Relative clauses, noun phrase agreement, and possession are also discussed, among other grammatical aspects. Chapter 15 presents sentence-level syntax, including coordinate and subordinate conjunctions, question clauses, and subject and object focus. After some concluding remarks in chapter 16, ten texts of various genres are presented in chapter 17 to verify the morphology and syntax in the context of natural language.

All data represent both underlying and surface (phonetic) forms unless otherwise marked. Where they differ, surface forms are written between brackets [ ], whereas underlying forms are written between forward slashes / /. Many of the clause examples are taken from the ten texts of chapter 17, which have reference codes. Throughout the thesis, examples from these texts list the reference code and line number in the free gloss from which the examples are taken. Pronouns, as in *ūgg ŋəlg* 'your (2pPp) necks,' have a different set of gloss abbreviations than other word categories (see the list of abbreviations and the discussion on possessive pronoun abbreviations in 5.1).

Example numbers are indicated with parentheses such as (3), whereas rules are indicated with braces such as {M3}. In 3.3, rule {M4} states that [+round] quality spreads rightward from the root to all suffix vowels not underlying specified for the feature [round]. However, roundness does not spread as specified in every word with every speaker, but tends to vary from word to word and from speaker to speaker. In this thesis, morphemes are transcribed as having the most possible rounding.

2 Phonology

2.1 Consonants

Gaahmg has 21 consonant phonemes as shown in table 1. There is contrastive length for fricatives, nasals, lateral, and rotic phonemes, but not for other consonant phonemes.

Table 1: Consonant Phonemes

	Labial	Dental	Alveolar	Palatal	Velar
Vl. Plosives	p	t̪	t	c	k
Vd. Plosives	b	d̪	d	ɟ	g
Fricatives	f, f:		s, s:		
Nasals	m, m:		n, n:	ɲ, ɲ:	ŋ, ŋ:
Laterals			l, l:		
Rotics			r, r:		
Approximants	w	ð[1]		y[2]	

2.1.1 Consonant articulation

Gaahmg dental and alveolar plosives are contrastive. Dental plosives are made with the tongue tip touching the back of the upper teeth. The articulation of the alveolar plosive tends to vary from person to person between alveolar and retroflex. The plosive is produced with the tongue tip or the underside of the tongue tip touching the alveolar ridge or slightly behind the alveolar ridge. The phoneme [r] is a flap, but when lengthened [r:] is realized as a trill.

The phoneme /ð/ deserves special attention. It is best described as a dental approximant since the tongue does not necessarily touch the teeth, although it can protrude out of the open mouth between the teeth. The articulation is most similar to that of the IPA [ð] but has less friction.

2.1.2 Consonant contrasts

2.1.2.1 Phonetically similar contrasts

The consonants are considered to be phonemic based on the minimal and near minimal pairs of (1) in which phonetically similar consonants are contrasted. Root-final velar consonants are written in parentheses to indicate that they do not surface.

---

[1] The interdental fricative symbol {ð} is used to represent the dental approximant phoneme.
[2] The symbol *{y}* is used instead of the IPA symbol *{j}*.

(1) **Consonant contrasts**

p - b	pāḏá(g)	‘rope material’	báḏà	‘gourd bowl’
p - f	páré(g)	‘leather bag’	fárŋá(g)	‘bird type’
p - w	páásèè	‘basket type’	wáásāā	‘stone type’
b - m	bɔ̀ɔ̀l	‘ground crack’	mɔ̀ɔ̀l	*village name*
b - w	bāár	‘tribe member’	wáár	‘insect type’
m -w	mīīḏ	‘stone’	wīī-ḏ	‘breast’
m - n	māāng	‘disagreement’	nāānḏ	‘day’
f - w	fīīḏ	‘feather’	wīī-ḏ	‘breast’
ṭ - ḏ	ṭɔ̄ɔ̄r	‘larynx’	ḏɔ̀ɔ́r	‘animal fence’
ṭ - t	ṭɛ́ɛ̀r	‘carving tool’	tɛ́ɛ̀l	‘anchor’
ṭ - s	ṭálɔ̀(g)	‘tax’	sálɔ̄(g)	‘army ant’
ḏ - d	ḏɔ̀ɔ́r	‘animal fence’	dɔ̄ɔ̄r	‘hammer’
ḏ - n	ḏórsó	‘tumor’	nɔ̀rnɔ́ó	‘saliva’
ḏ - l	ḏɛ̄ɛ̀l	‘lake’	lɛ́ɛ́l	‘grass (GEN.)’
ḏ - r	ḏùù-ḏ	‘year’	rùù-ḏ	‘perennial stream’
ḏ - ð	ɛ̄ɛ̄ḏ	‘eye’	mɛ̄ɛ̄ð	‘tree type’
	cɛ̄ḏáŋ	‘illness type’	mɛ̀ðān	‘youth leader’
t - d	téɛ̀l	‘anchor’	dɛ̀ɛ̀l	‘collar bone’
t - s	téɛ̀l	‘anchor’	séɛ̀n	‘ruler’
d - n	dɔ́ɔ́lɟ	‘tree type’	nɔ̀nḏ	‘demon’
d - l	dɛ̀ɛ̀l	‘collar bone’	lɛ́ɛ́l	‘grass (GEN.)’
d - r	dɔ̀wɔ̀	‘bean type’	rɔ̀ɔ̀wɔ̀	‘net’
d - ð	dɔ̄d	‘stork’	ɟááð	‘old clothing’
s - ð	āwɛ̄ɛ̄s	‘bird type’	lɛ̄ɛ̄ð	‘planting drill’
n - l	nɔ̄nḏ	‘demon’	lɔ̀ŋḏ	‘tree type’
n - r	nāān-ḏ	‘day’	rāāɛ̄	‘quarrel’
n - ɲ	nāān-ḏ	‘day’	ɲāàŋ	‘crocodile’
n - ŋ	nāms	‘food, eating’	ŋālg	‘neck’
l - r	ḏɛ̄ɛ̀l	‘lake’	ḏɛ̀ɛ̄r	‘leech’
c - ɟ	cāà	‘cooking stone’	ɟāā	‘boy, son, person’
c - y	cāā	‘bath’	yààð	‘sister’
ɟ - ɲ	ɟāā	‘boy, son, person’	ɲāā	‘girl, daughter’
ɟ - y	ɟááð	‘ragged clothes’	yààð	‘sister’
ɲ - y	ɲāàŋ	‘crocodile’	yāàm	‘bride’
ɲ - ŋ	ɲááfàr	‘mustache’	ŋáásāā	‘tree type’
k - g	káál	‘house fence’	gāàl	‘falcon’
k - w	káár	‘stew’	wáár	‘insect type’
g - ŋ	gàrŋè	‘dung’	ŋārná(g)	‘leach’
g - w	gàà	‘pumpkin type’	wāā	‘water’

2.1.2.2 Consonant length contrasts

There is little, if any, phonetically contrastive length of plosives in any environment. The same is true for the approximants /w/, /ð/ and /y/. Although plosives and approximants have little if any contrastive length, fricatives and other sonorants are contrastive for length in intervocalic position of a few nouns, such as those in (2).

(2) **Intervocalic consonant length contrasts**

f - ff	áfáḍ	'blood'	cáffá(g)	'side (of body)'
s - ss	básár	'dried food'	bāssà-ḍ	'large intestine'
m - mm	sāmáŋ	'sorghum storehouse'	ṭámmál	'chair'
ɲ - ɲɲ	dəɲər-g	'unable to speak (ADJ.PL)'	ɲēɲɲērās	'full (ADJ.PL)'
ŋ - ŋŋ	ɟíŋ-íḍ	'louse'	ɟìŋŋər	'lyre'
r - rr	kāráábbá [kāráábá]	'troublesome (ADJ)'	pārrās	'full (ADJ)'
l - ll	wílì(g)	'stone name'	ṭīllī(g)	'tree, flower'

2.1.3 Consonant rules

Final consonants pose a challenge in Gaahmg. In (3), root-final consonants in three different verb forms sometimes surface in three different ways. Root-final consonants are word-final in the incompletive (INCP), intervocalic in the past continuous (CONT.P), and in a third environment in the deictic completive (COMP.D).

(3) **Final consonants in various environments (Presented in surface form)**

	3sN INCP	3sN CONT.P	3sN COMP.D	
(a)	àɔ̄	àw-án	àb-āgā	'sit'
(b)	káɛ́	káy-án	káɟ-ágā	'bring'
(c)	cīī	cī-ə́n	cīg-ə́gə̄	'wear'
(d)	cūḍ	cūḍ-ə́n	cūḍ-úgū	'climb'
(e)	lɔ̀f	lɔ̀f-án	lɔ̀f-ɔ̄gɔ̄	'do magic'
(f)	lās	lās-án	lās-ágā	'roll-up'
(g)	ɲām	ɲām-án	ɲām-ágā	'break'
(h)	gɔ̀n	gɔ̀n-án	gɔ̀n-ɔ̄gɔ̄	'grab'
(i)	gùŋ	gùŋ-ə́n	gùŋ-ūgū	'agree'
(j)	māl	māl-án	māl-ágā	'gather'
(k)	wēr	wēr-án	wēr-ágā	'watch'
(l)	ɲáɔ́	ɲáw-án	ɲáw-ágā	'request'
(m)	kɔ́ɛ́	kɔ́y-án	kɔ́y-ɔ́gɔ̄	'cook'
(n)	fɛ́ð	fɛ́ð-án	fɛ́ð-ágā	'release'
(o)	pāā	pā-án	pā-ḍágā	'guard'

The root-final consonants of (3a-b) surface in three different ways, and the final consonants of (c, l, m) surface in two different ways. A root with final vowel is given for comparison in (o).

In (3a-c), the root-final consonants surface differently in the two environments of the past continuous and deictic completive. To account for these differences, we propose that the root-final consonant in the deictic completive becomes underlying geminate through suffixation. The deictic completive suffix is analyzed as *-CAggA*, where *C* is a consonant with the same features as the root-final consonant[3] and *A* is a back vowel taking the [ATR] and [round] features of the root. The suffix causes the root-final consonant to be underlying doubled, but a degemination process causes the geminates to surface with little, if any, phonetically contrastive length. The past continuous form has the suffix *-An*, where *A* is an unrounded back vowel and takes the [ATR] value of the root. Thus, the root-final consonant weakens in the past continuous form with intervocalic environment, but not in the deictic completive form where it is underlying geminate through suffixation.

In (3a-c, l-m), the root-final consonants also surface differently in the word-final environment of the incompletive compared with the environment of the deictic completive. We analyze the root-final consonants in these verbs to weaken to vowels word-finally.

The verb forms of (3) are re-presented in (4) with the proposed underlying form on the left and underlying geminates represented in the deictic completives. The surface form is given in brackets to show where it differs from the underlying form.

(4) **Final consonants in various environments re-presented**

	UR	3sN INCP	3sN CONT.P	3sN COMP.D		
(a)	/ab/ L	àɔ̄	àw-án	àb-bāggā	[àbāgā]	‘sit’
(b)	/kaɟ/ H	káé	káy-án	káɟ-ɟággā	[káɟágā]	‘bring’
(c)	/cig/ M	cīī	cī-ə́n	cīg-gə́ggə̄	[cīgə́gə̄]	‘wear’
(d)	/cuḍ/ M	cūḍ	cūḍ-ə́n	cūḍ-ḍúggū	[cūḍúgū]	‘climb’
(e)	/lɔf/ L	lɔ̄f	lɔ̀f-án	lɔ̀f-fɔ̄ggɔ̄	[lɔ̀fɔ̄gɔ̄]	‘do magic’
(f)	/las/ M	lās	lās-án	lās-sággā	[lāságā]	‘roll-up’
(g)	/ɲam/ M	ɲām	ɲām-án	ɲām-mággā	[ɲāmágā]	‘break’
(h)	/gɔn/ L	gɔ̄n	gɔ̀n-án	gɔ̀n-nɔ̄ggɔ̄	[gɔ̀nɔ̄gɔ̄]	‘grab’
(i)	/guŋ/ L	gūŋ	gùŋ-ə́n	gùŋ-ŋūggū	[gùŋūgū]	‘agree’
(j)	/mal/ M	māl	māl-án	māl-lággā	[mālágā]	‘gather’
(k)	/wɛr/ M	wɛ̄r	wɛ̄r-án	wɛ̄r-rággā	[wɛ̄rágā]	‘watch’
(l)	/ɲaw/ H	ɲáɔ́	ɲáw-án	ɲáw-wággā	[ɲáwágā]	‘request’
(m)	/kɔy/ H	kɔ́é	kɔ́y-án	kɔ́y-yɔ́ggɔ̄	[kɔ́yɔ́gɔ̄]	‘cook’

[3] However, *C* becomes *ḍ* when attached to a root-final vowel as in *pā-ḍággā* ‘guard’.

	UR	3sN INCP	3sN CONT.P	3sN COMP.D		
(n)	/fɛð/ H	fɛ́ð	fɛ́ð-án	fɛ́ð-ðággā	[fɛ́ðágā]	'release'
(o)	/pa/ M	pāā	pā-án	pāḍ-ḍággā	[pāḍágā]	'guard'

The root-final plosives /b/, /ɟ/ and /g/ of (4a-c) surface in the deictic completive, but are weakened word-finally in the incompletive form, and intervocalically in the past continuous form. Similarly, the approximants /w/ and /y/ of (l-m) are weakened word-finally in the incompletive form. The bilabial and palatal plosives of (a-b) weaken to corresponding approximants intervocalically (/b/ becomes [w] in *àw-án*, /ɟ/ becomes [y] in *káy-án*). Thus we have the rule of {P1a}, where P represents a phonological rule. The plosives /b/, /ɟ/ of (a-b) and approximants /w/ and /y/ of (l-m) weaken to corresponding vowels word-finally (/b/, /w/ become [ɔ] or [u], and /ɟ/, /y/ become [ɛ] or [i], depending on the [ATR] quality of the preceding vowel). Thus we have the rule of {P1b}. The dental plosive /ḍ/ of (d) does not weaken intervocalically or word-finally, and the alveolar plosive /d/ is not attested root-finally in verbs.

{P1} Bilabial and palatal weakening
- (a) /b/, /ɟ/ are weakened intervocalically to approximants.
- (b) /b/, /ɟ/, /w/, /y/ are weakened word-finally to vowels with the same [ATR] quality as the preceding vowel.
- (c) /w/, /y/ before word-final sonorants are weakened to vowels with the same [ATR] quality as the preceding vowel.

As will be evident from the distribution of word-final consonant clusters in 2.1.4.2, all word-final consonant sequences are sonorant-obstruent in surface form. Therefore, as stated in {P1c}, /w/, /y/ are weakened before word-final sonorants. In this way, word-final sonorant-sonorant consonant sequences are avoided. For example, the *ɔ* of *càɔ̀r* 'rabbit' and the *ɛ* of *gɔ̀ɛ̄n* 'metal worker' could underlying be *w* and *y* respectively, but are weakened to vowels in the surface form.

The velar plosive /g/ of (4c) is weakened to elision as stated in {P2}.

{P2} Velar plosive elision
/g/ is elided both inter-vocalically and word-finally when following a vowel.

Since all word-final consonant sequences are sonorant-obstruent in surface form as will be discussed in 2.1.4.2, the contrast between plosives and approximants is neutralized in the first of the two consonant positions. Therefore, there is also the rule of {P3}.

{P3} Plosive weakening
Plosives are weakened to approximants when they immediately precede word-final obstruents and follow vowels.

For example, the *w* in *d̤ā̃wd̤* 'fertile soil' and *y* in *kā̃yd̤* 'cup, spoon' could underlyingly be *b* and *ɟ* respectively, but weaken to sonorants in the surface form. Rules {P1-P3} apply throughout the language in roots and when abound morphemes are attached.

2.1.3.1 Underlying and surface representations of plosives

In this section, we discuss the neutralization of plosives in various environments. The chart of (5) summarizes the plosive changes mentioned in this section, which are illustrated with examples in the following sections. The environments are as follows: word-initial B, intervocalic V, either consonant in a consonant sequence -C_1C_2-, word-final before an obstruent $\underline{C}C_{[-son]}$#, word-final E. A dash indicates the underlying phoneme has not been attested to surface in the environment. An empty slot indicates the phoneme cannot be confirmed to surface in the environment.

(5) **Plosive realizations in various environments**

UR		B	V	-C_1C_2-	$\underline{C}C_{[-son]}$#	E
p	→	p				
t̤	→	t̤				
t	→	t				
c	→	c				
k	→	k				
b	→	b	w	-	w	ɔ, u
d̤	→	d̤	d̤	d̤	ð	d̤
d	→	d	d	d	-	d
ɟ	→	ɟ	y	ɟ	y	ɛ, i
g	→	g	Ø	g	-	Ø
b:	→		b			b̥˺
d̤:	→		d̤			d̤˚˺
d:	→		d			-
ɟ:	→		ɟ			ɟ˚˺
g:	→		g			g˚˺

Voiced and voiceless plosives

Voiced and voiceless plosives surface word-initially. Voiceless plosives do not surface in any other environment. There is neutralization between voiced and voiceless plosives in consonant sequences, as plosives are always voiced in this environment—either in word-medial or word-final consonant sequences.

Voiced plosives and approximants

As the bilabial and palatal weakening rule of {P1} indicates, there is neutralization between the plosives /b/, /ɟ/ and approximants /w/, /y/ intervocalically {P1a}. There is neutralization between the plosives /b/, /ɟ/ and vowels /ɔ, u/, /ɛ, i/ word-finally {P1b}. The velar plosive /g/ is elided intervocalically and word-finally {P2}, but otherwise surfaces. As the plosive weakening rule of {P3} indicates, there is neutralization between plosives and corresponding approximants for the first consonant of a word-final consonant sequence. The dental and alveolar plosives /d̪/, /d/ surface the same as their underlying forms in all other environments.

Geminate plosives /b:/, /ɟ:/, and /g:/

There is no phonetic contrast of length for any plosive in any environment. As will be discussed in section 2.1.3.2, the underlying geminate plosives /b:/, /ɟ:/, and /g:/ are realized as single, devoiced unreleased plosives word-finally, and are realized with little or no lengthening intervocalically. Since the non-geminate plosives /b/, /ɟ/, and /g/ surface as weakened in the same environments that their geminate equivalents surface as single plosives, they are never in contrast.

Geminate plosives /d̪:/ and /d:/

The plosives /d̪/ and /d/ are not weakened intervocalically or word-finally, but also never surface with contrastive length. Intervocalically, the underlying geminate equivalents /d̪:/ and /d:/ surface with little or no length. Word finally, the dental geminate /d̪:/ surfaces the same as for the other geminate plosives—as a single devoiced unreleased plosive, but is released elsewhere. The alveolar geminate plosive /d:/ is not attested word-finally.

Voiceless plosives and voiced geminate plosives

Voiceless plosives are not attested anywhere except word-initially and are in complementary distribution with voiced geminate plosives which cannot be confirmed word-initially. Thus, voiceless plosives could possibly be analyzed as underlying geminate plosives in word-initial position. In this analysis, there would be no underlying voicing contrast in plosives, but only a length contrast[4].

In this thesis, word-initial plosives are written as voiceless plosives since they surface as such. Underlying geminate plosives in word-final and intervocalic

[4] Or, since consonant clusters are not attested word-initially, an alternative analysis would be that geminate plosives are fortis ('strong') consonants and non-geminate plosives are lenis ('weak') consonants.

position are written as voiced geminate plosives, and the reader should assume that all such voiced geminate plosives surface with little or no contrastive length.

2.1.3.2 Plosive distribution

Voiceless plosives surface at the beginnings of words, but not in other environments.

(6) **Voiceless plosive distribution**

	Beginning	
p	púr	'flower'
ṭ	ṭɛ̄ɛ̄-ḍ	'road, path'
t	tɛ̄ɛ̄nḍ	'riddle'
c	céɛ́ɔ̄	'lame person'
k	kābbàr [kābàr]	'wing, armpit'

Voiced plosives surface at the beginnings of words and in consonant sequences. The phonemes /ɟ/ and /g/ occur as the first or second segment of consonant sequences, /ḍ/ and /d/ only occur as the second segment of sequences, and /b/ is not attested in any consonant sequence.

(7) **Voiced plosive distribution**

	Beginning		Consonant sequence	
b	bààɔ	'father'	----	
ḍ	ḍìì	'rat'	mɔ́fḍɛ̄ɛ̄	'snake type'
d	dɔ̄ɔ́làfàà	'wolf'	kágdàr	'food type'
ɟ	ɟìḍ	'husband'	bàɟwáár	'bird type'
			ḍɔ́ggɔ̀lɟā [ḍɔ́gɔ̀lɟā]	'ankle'
g	gəmūūr	'dove'	bāgḍàrs	'lizard type'
			ɟɔ́rgāāl	'bird type'

When the plosives [b], [ɟ] and [g] surface in intervocalic and word-final position, they are underlyingly geminate even though they surface with little or no contrastive length. If they were not geminate, they would be weakened to approximants and vowels in these environments. They are realized as single, devoiced unreleased plosives word-finally, and are realized with little or no length intervocalically.

(8) **Geminate voiced plosive distribution**

	Intervocalic		Final	
bb	lɔbbù(g) [lɔbù]	'navel'	ɟílɔbb [ɟílɔb̚]	'water spring'
ɟɟ	cīɟɟí [cīɟí]	'diarrhea'	bìmìríɟɟ [bìmìriɟ̚]	'bird type'
gg	dāggár [dāgár]	'tortoise'	gàágg [gàág̚]	'bird type'
ḍ	fááḍàr	'nostril'	ḍɔ̀ìḍ [ḍɔ̀ìḍ̚]	'scorpion'

	Intervocalic		Final	
d	cɛ̄dáŋ[5]	'illness type'	dɔ̄d [dɔ̄d̰ˀ]	'bird type'

The voiced plosives /d̰/ and /d/ never surface with contrastive length and are not weakened intervocalically or word-finally. Therefore there is no evidence for the voiced plosives /d̰/ and /d/ to be geminate underlyingly, except for the dental plosive in root-final position of certain verb forms through morphology. As seen in the verb *cūd̰-d̰úggū [cūd̰úgū]* 'climb-COMP.D' of (4), the geminate plosive *d̰:* surfaces in verb forms with little or no contrastive length.

For the remaining data of this thesis, underlying geminate plosives are written without a phonetic realization, but can be assumed to surface with little or no contrastive length.

2.1.3.3 Underlying and surface representations of other consonants

Fricatives and sonorants surface word-initially, intervocalically, word-finally, and in consonant sequences, with the exception of the dental approximant /ð/, which does not surface word-initially, and the approximants /w/ and /y/ which do not surface word-finally. As the rule of {P1c} indicates, the contrast between the approximants /w/, /y/ and vowels /ɔ, u/, /ɛ, i/ is neutralized before a word-final sonorant. This is because only sonorant-obstruent consonant sequences are allowed to surface word-finally, as will be discussed in section 2.1.4.2. As was shown in section 2.1.2.2, length is contrastive for fricatives, nasals, lateral, and rotic phonemes intervocalically in a handful of nouns. These surface forms are summarized in the chart of (9) and examples are given in the following section.

(9) **Fricative and sonorant realizations in various environments**

UR		B	V	$-C_1C_2-$	$\underline{C}C_{[-son]\#}$	$\underline{C}C_{[+son]\#}$	E
f	→	f	f	f	-		f
s	→	s	s	s	-		s
m	→	m	m	m	m		m
n	→	n	n	n	n		n
ɲ	→	ɲ	ɲ	ɲ	ɲ		ɲ
ŋ	→	ŋ	ŋ	ŋ	ŋ		ŋ
l	→	l	l	l	l		l
r	→	r	r	r	r		r
w	→	w	w	w	w	ɔ, u	ɔ, u
ð	→	-	ð	ð	ð		ð
y	→	y	y	y	y	ɛ, i	ɛ, i

[5] Or *cɛ̄d̰áŋ*

UR		B	V	-C_1C_2-	$\underline{C}C_{[-son]}\#$	$\underline{C}C_{[+son]}\#$	E
f:	→		f:				
s:	→		s:				
m:	→		m:				
n:	→		n:				
ɲ:	→		ɲ:				
ŋ:	→		ŋ:				
l:	→		l:				
r:	→		r:				

2.1.3.4 Fricative and sonorant distribution

Fricatives and sonorants are attested in five word positions with few exceptions: /y/ and /ð/ are not attested as the second of a consonant sequence, /ð/ is not attested at the beginnings of words, and /y/ and /w/ do not surface word-finally. The sonorants *w* and *y* in *lēwḍá* 'animal (gen.)' and *kàymà* 'lucky stone' can also be interpreted as the vowels *ɔ* and *ɛ*. In section 2.3.5, it is discussed how there is no strong evidence for these phonemes being analyzed as vowels or glides in this environment.

(10) **Fricative and sonorant distribution**

f	B	fɛ̄gg	'water'	s	B	sîìnḍ	'guest'
	C_1	mófḍɛ̄ɛ̄	'snake type'		C_1	rəslūúmàà	'praying mantis'
	C_2	sáárfāā	'rat'		C_2	dɛ́rsá	'sweat'
	V	áfáḍ	'blood'		V	kāsá	'boy'
	E	gàf	'give INCP'		E	kəs	'chair'
m	B	málɔ	'beeswax'	n	B	nərnɔ́ɔ́	'saliva'
	C_1	sīmḍàgg	'salve (N.PL)'		C_1	ɔnsɔ	'plate'
	C_2	gərmù-ḍ	'insect type'		C_2	nərnɔ́ɔ́	'saliva'
	V	lāmāɲ	'knot'		V	gəbbənīḍ	'tribal name'
	E	áám	'bone'		E	sɛ́ɛ̀n	'ruler'
ɲ	B	ɲāàŋ	'crocodile'	ŋ	B	ŋárèmàà	'spirit type'
	C_1	ṭùggùùɲfàà	'tree type'		C_1	bɔ̀ɔ̀ŋmà	'insect type'
	C_2	bɛ̀rɲáɔ	'tomato'		C_2	ṭílŋɔ́(g)	'seed, chain'
	V	kāɲāàḍ	'bowl'		V	áŋɛ́(g)	'elephant'
	E	lúɲ	'boomerang'		E	ḍàŋ	'courtyard'
r	B	rəəwə	'net'	l	B	lōfɔ	'magic'
	C_1	ərŋə-ḍ	'insect type'		C_1	wîilmāā	'ant type'
	C_2	ṭɛ̄grɛ̄lfàà	'bird type'		C_2	kúūrlúúgg	'rodent'
	V	kūūrī	'circle		V	búlíɟɟ	'worm'
	E	ḍáár	'throne'		E	bāàl	'instrument'

Fricative and sonorant distribution (continued)

w	B	wɛ́ɛ́(s)	'house'	y	B	yāàm	'bride'
	C_1	lɛ̄wn̰á	'animal'		C_1	kàymà	'lucky stone'
	C_2	bàɟwáár	'bird type'		C_2	-----	
	V	rəəwə	'net'		V	íyɔ́ɔ́	'oil, fat'
	E	-----			E	-----	
ð	B	-----					
	C_1	gə̄əðg[6]	'thief'				
	C_2	-----					
	V	áðá	'dog'				
	E	t̪ààð	'door'				

2.1.4 Consonant distribution in consonant sequences

2.1.4.1 Consonant sequences across syllable boundaries

There are few restrictions on non-geminate consonant sequences across syllable boundaries (-C_1.C_2-). The coda of a previous syllable (C_1) may be an obstruent or sonorant, nasal or oral, voiced or voiceless. The same is true of the onset of the following syllable (C_2). Additionally, consonants may be both obstruent or both sonorant, both nasal or both oral, and both may be voiced. Further, the consonants may have opposite corresponding values (C_1 = obstruent, C_2 = sonorant; C_1 = nasal, C_2 = oral; C_1 = voiceless, C_2 = voiced; opposite orders of each values as well). However, only fricatives can be voiceless in consonant sequences, and there are no attested voiceless-voiceless sequences except in compound words such as *fɛ́ɛ̄t̪-fā* 'person name (person.name-place)'.

All attested consonant sequences across syllable boundaries are listed in (11), which is divided into sequences with and without nasal consonants. The sonorants *w* and *y* in *kāwn̰á* 'ear wax' and *kàymà* 'lucky stone' can also be interpreted as the vowels *ɔ* and *ɛ*.

(11) **Sequences with nasal consonants**

nn̰	tɛ̄nn̰ás	'bird type'	ɲn̰	sárà̰ɲn̰ā	'tree type'
nd	kándāl	'tree type'	ɲɟ	ɟīɲɟíl	'bird name'
ns	t̪īns-ə̄gg	'asking'	ɲf	tùggùùɲfàà	'tree type'
nf	ráánfàà	'covering (n)'	ŋm	bɔ̀ɔ̀ŋmà	'insect type'
ms	ámsá-n̰	'dryness'	lm	kɔ́ɔ̀lmàà	'tree type'
rn	ŋārná(g)	'leach'	lŋ	bɔ̀lŋè(g)	'medical tool'
rm	gərmūù-n̰	'tree type'	rŋ	kārŋə̄l	'grass type'
rɲ	gàrɲè	'dung'	ym	kàymà	'lucky stone'

[6] With some speakers, the underlying approximant */ð/* of *gə̄əðg* 'thief' only surfaces in the plural form *gəəðə̄ə̄gg*; with other speakers, it also surfaces in the singular form.

Other sequences

sl	rəslūúmàà	'preying mantis'	lḏ	cɛ̄lḏá	'charcoal'
fḏ	mɔ́fḏɛ̄ɛ̄	'snake type'	lɟ	bámàlɟā	'morning star'
rḏ	órḏàà	'army'	lg	ḏə̀lgə̄	'drum'
rs	ḏórsɔ́	'tumor'	lf	kə̂lfə̄	'jaw'
rl	kúūrlúúgg	'rodent'	rɟ	kə́ùrɟə̄	'tree type'
ɟw	bàɟwáár	'bird type'	rg	ṭírgə̀(g)	'nature'
gḏ	bāgḏàrs	'lizard type'	rf	sáárfāā	'rat'
gd	kágdàr	'food type'	wḏ	kāwḏá	'ear wax'
gr	ṭɛ̄grɛ̆lfàà	'bird type'	yḏ	ṭāyḏá(g)	'strainer'

2.1.4.2 Consonant sequences word-finally

In word-final non-geminate consonant clusters (C_1C_2#), C_1 is always sonorant and C_2 is always obstruent. Only the obstruents *ḏ, ɟ, g,* and *s* are attested in the C_2 position. There is partial word-final nasal assimilation in that only homorganic nasals surface before the obstruents *ɟ* and *g*. However, heterorganic nasals surface before the obstruents *ḏ* and *s*.

(12)

Sequences with nasal consonants			**Other sequences**		
ms	nāms	'food, eating'	rḏ	bə̀rḏ	'lion'
nḏ	fānḏ	'cheek'	rs	ɟɛ̀ɛ̀rs	'hippopotamus'
ng	úng[7] [úŋg]	'tear'	lḏ	lɔ́lḏ	'facial blemish'
ns	wīlə̀ns	'hunting'	lɟ	fə̀lɟ	'tree type'
ɲḏ	rə̄ɲḏ	'mud'	ðg	gə̄ə̀ðg [gə̄ə̀g˳˺]	'thief'
ɲɟ	bɛ̀ɲɟ	'upper hip'	wḏ	ḏə̂wḏ	'fertile soil'
ŋḏ	lə̀ŋḏ	'tree type'	yḏ	kə̂́yḏ	'cup, spoon'

The sonorants *w* and *y* in *ḏə̂wḏ* 'fertile soil' and *kə̂́yḏ* 'cup, spoon' can also be interpreted as the vowels *ɔ* and *ɛ*. In section 2.3.5, it is discussed how there is no strong evidence for these phonemes being analyzed as vowels or glides in this environment.

Since no sonorant-sonorant consonant sequences are attested word-finally in (12), we assume that these sequences are not allowed. The bilabial and palatal weakening rule of {P1c} in 2.1.3 is based on this constraint. Since no word-final sonorant-sonorant consonant sequences are allowed, /w/ and /y/ before word-final sonorants must be weakened to vowels with the same [ATR] quality as the preceding vowel. The *ɔ* of *cə̀ə̀r* 'rabbit' and the *ɛ* of *gɔ̀ɛ̄n* 'metal worker' could underlying be *w* and *y* respectively, but weaken to vowels in the surface form.

[7]The underlying nasal *n* of *úng* 'tear' surfaces as *ŋ* in the singular form *úŋg* but surfaces as *n* in the plural form *únígg*.

The plosive weakening rule of {P3} in 2.1.3 is based on the same constraint. Since no word-final sonorant-sonorant consonant sequences are allowed, plosives must be weakened to approximants when they immediately precede root-final obstruents and follow vowels. The *w* in *ḍ̄āwḍ̄* 'fertile soil' and *y* in *kā̄yḍ̄* 'cup, spoon' could underlyingly be *b* and *ɟ* respectively, but weaken to sonorants in the surface form.

2.2 Vowels

Gaahmg has six vowel phonemes as shown in table 2. The vowel /ə/ [ɐ] is phonetically low, made in the same place in the mouth as [a], but with advanced tongue root. The phonemes /ɛ/ and /ɔ/ vary somewhat in phonetic value, becoming closer to the values [e] and [o] respectively in long vowels. To a lesser extent, the phonemes /i/ and /u/ also vary in phonetic value, realized closer to [ɪ] and [ʊ] respectively in short vowels. Vowel length is common and can be analyzed as a vowel sequence in the same syllable or as a lengthened version of a short vowel.

Table 2: Vowel Phonemes

	[-round]		[+round]
	[-back]	[+back]	
[+ATR]	i	ə	u
[-ATR]	ɛ	a	ɔ

The two [ATR] sets of phonemes determine the vowel harmony in the language. Only vowels with the same [ATR] value occur together in the same root. Across morpheme boundaries in the same word, [+ATR] quality spreads to all vowels unspecified for [ATR], either from root to bound morpheme or from bound morpheme to root, whereas [-ATR] quality never spreads. In 3.2, [ATR] quality across morpheme boundaries is further discussed.

2.2.1 Vowel contrasts

2.2.1.1 Phonetically similar contrasts

The six vowels are considered to be phonemic based on the minimal and near minimal pairs of (13). The following symbols refer to the specified positions taken by vowels: B is word-initial, M is word-medial, and E is word-final.

(13) **Vowel contrasts**

i - ɛ	B	īīgg	'milk'	ɛ̄ɛ̄ḍ̄	'eye'
	M	cíl	'spine'	cɛ́l	'dream'
	E	mīī	'goat'	ɲɛ̄ɛ̄	'drawing, colour'

Vowel contrasts (continued)

ɛ - a	B	ɛ̄ɛ̄ŋ	‘back’	áám	‘bone’
	M	ḍɛ̀ɛ̄r	‘leach’	ḍáár	‘throne’
	E	ŋɛ̄ɛ̄	‘drawing, colour’	ŋāā	‘girl, daughter’
a - ɔ	B	áál	‘calf fence/pen’	ɔ́ɔ́l	‘head’
	M	ḍáár	‘throne’	ḍɔ̀ɔ́r	‘animal fence’
	E	máà	‘house’	mɔ̄ɔ̄	‘gunfire’
ɔ - u	B	ɔ́ɔ́l	‘head’	úū-ḍ	‘wasp’
	M	kɔ́ɔ́l	‘snake type’	kùùl	‘*Kulag* clan member’
	E	mɔ̄ɔ̄	‘gunfire’	mūū	‘forehead, face’
ə - i	B	ə̄yúú	‘local tooth brush’	íyɔ́ɔ́	‘oil, fat’
	M	gə̀ə̀l	‘shield’	ɟííl	‘cricket’
	E	wə̄ə̄	‘shade, help’	mīī	‘goat’
ə - ɛ	B	ə̄ə̄ð	‘tree type’	ɛ̄ɛ̄ð	‘water-carrying net’
	M	ḍə̄ə̀r	‘snake type’	ḍɛ̀ɛ̄r	‘leach’
	E	wə̄ə̄	‘shade, help’	rɛ̄ɛ̄	‘cotton, thread’
ə - a	B	ə̀ə̀l	‘hyena’	áál	‘calf fence/pen’
	M	ḍə̄ə̀r	‘snake type’	ḍàà̀r	‘eagle’
	E	wə̄ə̄	‘shade, help’	wāā	‘pond’
ə - ɔ	B	ə̀ə̀l	‘hyena’	ɔ́ɔ́l	‘head’
	M	ḍə̄ə̀r	‘snake type’	ḍɔ̀ɔ́r	‘animal fence’
	E	wə̄ə̄	‘shade, help’	mɔ̄ɔ̄	‘gunfire’
ə - u	B	ə̄ə̄ð	‘tree type’	úū-ḍ	‘wasp’
	M	ŋə̄ə̄m	‘chin’	múùm	*village name*
	E	wə̄ə̄	‘shade, help’	mūū	‘forehead, face’

2.2.1.2 Vowel length contrasts

Short and long vowels occur contrastively in word-initial, word-medial, and word-final positions. However, the short vowel *ɛ* is only attested in word-initial position in pronouns such as *ɛ̄ggà* ‘they (3pN)’ and *ɛ̄gg* ‘their (3pPs, 3pPp)’.

(14) **Vowel length contrasts**

i - ii	B	îlɟ	‘beeswax’	īīgg	‘milk’
	M	cîl	‘instrument’	ṭīīl	‘tree type’
	E	kūūrī	‘circle’	cùùrìì	‘sheave’
ɛ - ɛɛ	M	sɛ̀n	‘skin illness’	sɛ́ɛ̀n	‘ruler’
	E	mɔ́ɔ́sɛ̄	*village name*	māāsɛ̄ɛ̄	‘root type’
ə - əə	B	ə́mīī	‘ant type’	ə̀ə̀mə̄ə̄	‘liver’
	M	səm	‘medicine’	sə́ə́m	‘hunter’
	E	kúsə́	‘grass type’	būūsə̀ə̀	‘stone name’

Vowel length contrasts (continued)

a - aa	B	ārāà-ḍ̈	'lake'	áàrɛ̄ɛ̄	'grass type'
	M	sāɔ̄	'shoe'	sáàɔ̀	'grass-cutter'
	E	cɛ̄lḍ́á	'charcoal'	ālḍ́áá	'earth, dust'
u - uu	B	úlḍ̈	'grinding stone'	úū-ḍ̈	'wasp'
	M	lúŋ	'boomerang'	lúúŋ	'water pot'
	E	gəyù	'grass type'	əyúú	'local tooth brush'
ɔ - ɔɔ	B	ɔ̄ŋ	'meat'	ɔ́ɔ́l	'head'
	M	kɔ̄r	'word, speech'	kɔ́ɔ́l	'snake name'
	E	málɔ̀	'beeswax'	mɛ́lɔ̄ɔ̄	'sugar cane'

2.2.2 Vowel distribution

2.2.2.1 Distribution in word positions

As shown by the contrasts in (14), six short and six long vowels are attested in word-initial, word-medial, and word-final position. In monosyllabic nouns, phonetically short vowels are not common word-medially; only four are attested word-initially—*îl* 'horn', *úlḍ̈* 'grinding stone', *ɔ̄ŋ* 'meat', *ālḍ̈* 'fox', and *ɔ̄ḍ̈* 'wife'; and do not surface word-finally. However, phonetically long vowels are common in monosyllabic nouns: they are most frequent word-medially, then word-finally, and a few occur word-initially. Although vowel length is phonemic, there is neutralization of vowel length word-finally in monosyllabic nouns and verbs. As will be discussed in 2.3.3, vowels are only realized as long in that position. In polysyllabic nouns, short vowels are common in all three word positions, and long vowels are rare word-initially and word-finally.

2.2.2.2 Distribution in noun roots

The distribution of vowels in disyllabic noun roots is given in (15). The [-ATR] vowels (*ɛ, ɔ*, and *a*) and the [+ATR] vowels (*i, u*, and *ə*) function as distinct sets in roots; the vowels of the [-ATR] set never occur with vowels of the [+ATR] set in the same root.[8] Within each set, all possible vowel combinations are attested in roots except *i-u*. The word *ɟììgg-úúl* 'afternoon' is a compound and literally means 'evening-up'.

[8] The following nouns are believed to be compounds because of mixed sets of [ATR] vowels: *fùùlmāā* 'insect type always in houses (*máà* 'house') ', *gāālmɔ́sí* 'tree type (lit. eagle's claws)', *wíîlmàà* 'ant type (*màà* 'mother')', *tùggùùŋfâà* 'tree type (*fâà* 'release'), *rɔ̄slūúmàà* 'bird type (lit. apostle of house)', *tīrímāā* 'bird type (*tírí(g)* 'tree type')', *ʈúúlîîfâà* 'grass type (*fâà* 'release')', *tààsàmīī* 'sorhgum type (*tààsà* 'ducked', *mīí* 'chicken')', *nààḍ̀ì* 'those (*ḍ́í* 'also').'

(15) **Vowel distribution in disyllabic nouns roots**

[-ATR]			[+ATR]		
ɛ - ɛ	wèlɛ̀ŋ	'sour taste'	i - i	fíḍ̪ìn	'perfume'
ɛ - a	cēdán	'illness type'	i - ə	ɟíləbb	'water spring'
ɛ - ɔ	mélɔ̄ɔ̄	'sugar cane'	i - u	ɟìigg-úúl	'afternoon'
a - ɛ	kàà̤ḍ̪ɛ̄l	'bull'	ə - i	màŋìl	'rainbow, spirit'
a - a	ṭ̪álàm	'malnutrition'	ə - ə	gàməl	'forest'
a - ɔ	páɟɟɔ̄ɔ̄	'star'	ə - u	gəmūùr	'dove'
ɔ - ɛ	bórɛ̄-ḍ̪	'eye matter'	u - i	búlíɟɟ	'worm'
ɔ - a	mɔ̀rāā	'governor'	u - ə	būūsə̀ə̀	'stone type'
ɔ - ɔ	fɔ̀ḍ̪ɔ̀r	'nose'	u - u	būŋúr	'youth'

2.2.2.3 Distribution in vowel sequences

Vowel sequences may occur in the same syllable (CV_1V_2, CV_1V_2C, or CV_1V_2CC). Only vowels of the same [ATR] set are paired in sequences, as shown in the list of (16). All possible vowel sequences are attesting in roots except *ɛa*.

(16) **Vowel sequences**

	[-ATR]			[+ATR]	
ɛa	--		iə	ḍ̪íə́rmə̀	'centipede'
ɛɔ	ḍ̪éɔ́l[9]	'jackal'	iu	díū-sū[10]	'planted (V)'
aɛ	bàɛ̀l	'perfume'	əi	ṭ̪ə̀il	'tree type'
aɔ	càɔ̀r	'rabbit'	əu	gəūlḍ̪ə̀ə̀	'fish'
ɔɛ	gɔ̀ɛ̄n	'metal worker'	ui	bùīl	'moisture'
ɔa	gɔ̀à-ḍ̪	'excrement'	uə	būə̀	'tree type'

Vowel sequences may not exceed two vowels, and long vowels do not occur in underlying vowel sequences. However, long vowels do occur in surface form vowel sequences such as in *ɲūūì* 'leopard', where the underlying final-approximant *y* surfaces as a vowel, in accordance with {P1b} in 2.1.3.

2.3 Syllable structure

2.3.1 Syllable types

The syllable structure may be represented as (C)N(C)(C), where the vowel nucleus

[9] In *ḍ̪éɔ́l, bàɛ̀l* and other examples of (16), the vowels *ɔ, ɛ*, and *i* in V_2 position could be analyzed as the glides *w* or *y* if it were not for the fact that sonorant-sonorant sequences are not allowed in word-final consonant clusters.

[10] The root verb is */díw/* 'plant', but in the completive *díū-sū*, *w* becomes *u,* evidenced by the fact that the [+round] quality of *u* is spread to the suffix vowel, which would otherwise be *ə*.

N is the only obligatory constituent of the syllable. The CC codas are only found word-finally and onset-less syllables only word-initially. The nucleus N may be short, long, or a vowel sequence, where long vowels can be analysed as vowel sequences of two short vowels or as lengthened versions of short vowels. The most common syllable types are CN and CNC. The syllable type CNCC commonly occurs in monosyllabic words and word-finally in disyllabic words. Less common syllable types, which only occur word-initially, are N and NC. The syllable type NCC only occurs in monosyllabic words.

In the list of syllable types in table 3, all words are monomorphemic except those with hyphens. The syllable type NCC is not attested with a long vowel except across morpheme boundaries as in *éél-g* 'stomach', and the syllable type CNCC is not attested with a vowel sequence except across morpheme boundaries as in *gəūr-ḍ* 'stomach'.

Table 3: Syllable types (N = syllable nucleus)

	Short		Long		Vowel Sequence	
N	ú	'you 2sN'	ùù	'air'	āɔ̄[11]	'tree type'
NC	îl	'horn'	áám	'bone'	àɔl[12]	'brother'
NCC	ālḍ	'fox'	éél-g	'stomach'	ɔ́ílḍ	'cold'
CN	wā	'no'	wāā	'pond'	būə	'tree type'
CNC	fɔ́l	'hole'	ḍèēr	'leach'	bàèl	'perfume'
CNCC	cúlḍ	'birth sack'	ɟèèrs	'hippo'	gəūr-ḍ	'stomach'

As will be seen in 2.4.3, tone assignment in some disyllabic nouns depends on syllable weight. For this reason, each syllable type is classified according to one of three different weights: light, mid or heavy.

Table 4: Syllable weight of syllable types

Light	Mid	Heavy
V	VC	VVC
CV	VCC	VVCC
	CVC	CVVC
	CVCC	CVVCC
	VV	
	CVV	

[11] As discussed in 2.3.6, the word-final vowel *ɔ* in *āɔ̄* 'tree type' *ɔ* could be interpreted as the glide *w* if it were not for the fact that the definite clitic *=n* for stem-final vowels attaches to this noun (*āɔ̄=n*) instead of the definite clitic for stem-final consonants *=Á*.

[12] In *àɔ̀l, bàèl*, the vowels *ɔ, ɛ* could be analyzed as the glides *w* or *y* if it were not for the fact that sonorant-sonorant sequences are not allowed in word-final consonant clusters.

Open syllables with short vowels (V and CV) have light weight, closed syllables with short vowels (VC, VCC, CVC, CVCC) and open syllables with long vowels or vowel sequences (VV and CVV) have mid weight, and closed syllables with long vowels or vowel sequences (VVC, VVCC, CVVC, CVVCC) have heavy weight. Although tone assignment in some nouns depends on syllable weight, there are no meaningful restrictions on distribution of syllables in words based on syllable weight.

2.3.2 Syllable structure of polysyllabic words

There are 12 disyllabic syllable structures as shown in (17), including light-light, light-mid, light-heavy, mid-light, mid-mid, and mid-heavy syllable structures. There are no heavy syllables in word-initial position. Consonant clusters do not exceed 2 consonants—either word finally (*-CCC#) or across syllable boundaries (*-CC.C-).

(17) **Disyllabic short vowel syllable structures**

light-light	V.CV	ūfú	‘tree type’
light-mid	V.CVC	ɔ́sə̀r	‘army’
light-heavy	V.CVCC	ɔ́rɔ́nn̰	‘fermented milk’
mid-light	VC.CV	ə̀nsɔ̀	‘cooking plate’
mid-mid	VC.CVC	ámsáɖ̰	‘dryness’
mid-heavy	VC.CVCC	àɳɖ̰àrs	‘insect type’
light-light	CV.CV	kúsɔ́	‘grass type’
light-mid	CV.CVC	ṯ́álàm	‘malnutrition’
light-heavy	CV.CVCC	ɖ̰ùfūrɖ̰	‘dust’
mid-light	CVC.CV	cēlɖ́á	‘charcoal’
mid-mid	CVC.CVC	kágdàr	‘food type’
mid-heavy	CVC.CVCC	bāgɖ̰àrs	‘lizard’

Long vowels are common in both first and second syllables of disyllabic words as seen from (18).

(18) **Disyllabic long vowel syllable structures**

VV.CV	ààsà	‘basket type’
V.CVV	íyɔ́ɔ́	‘oil, fat’
VV.CVV	áàrēē	‘grass type’
VV.CVC	ɔ̄ɔ̄mɔ̄ŋ	‘yawning’
V.CVVC	āwɛ̄ɛ̄s	‘bird type’
VVC.CV	āāmsá	‘dry, tired (ADJ)’
VC.CVV	àlɖ́áá	‘earth, dust’
VC.CVVC	ənɖ́ɔ́ɔ́r	‘tree type’
CVV.CV	ṯ́ɛ́ɛ́fá	‘leaf, liver sickness’

Disyllabic long vowel syllable structures

CV.CVV	gəmɔ̀ɔ̀	'ant type'
CVV.CVV	mɑ̄ɑ̄sɛ̄ɛ̄	'root type'
CVV.CVC	pɛ́ɛ́ràm	'flag'
CV.CVVC	márɔ̄ɔ̄s	'spider'
CVV.CVVC	ṭīīfɔ́ɔ́ŋ	'bird type'
CVV.CVCC	bɑ̄ɑ̄làn̪d̪	'stripe'
CV.CVVCC	búlūūrs	'bird type'
CVVC.CV	bɔ̀ɔ̀ŋmà	'insect type'
CVC.CVV	mɔ́fd̪ɛ̄ɛ̄	'snake type'
CVVC.CVV	ɟííld̪ɔ̀ɔ̀	'tree type'
CVC.CVVC	ɟɔ́rgɑ̄ɑ̄l	'bird type'

Vowel sequences may not exceed two vowels, and long vowels do not occur in underlying vowel sequences. Vowel sequences are rare in polysyllabic lexemes. The only three attested are listed in (19). In all of these, they occur in an initial CVVC syllable type.

(19) **Polysyllabic vowel sequence structures**

CVVC.CVV	gɔ̄ūld̪ɔ̀ɔ̀	'fish'
CVVC.CV	d̪īɔ́rmɔ̀	'centipede'
	kɔ́ùrɟɔ̄	'tree type'

Three-syllable words are not common—about 5% of monomorphemic nouns. Only the syllable types CN, CNC, and occasionally N occur in three-syllable words. The syllable types CN and CNC may occur in any position of the word.

(20) **Three-syllable short vowel syllable structures**

CV.CV.CV	ṭāsāmé(g)	'grass'
CV.CV.CVC	kàŋàrâɲ	'jackal'
CV.CVC.CV	sáràŋd̪ā	'tree type'
CVC.CV.CV	ṭúnd̪úlì(g)	'elbow'
CVC.CV.CVC	sànd̪àlàɲ	'tree type'

Long vowels may occur in any syllable of three-syllable words. No more than three syllables in a root have been attested.

(21) **Three-syllable long vowel syllable structures**

V.CV.CVV	ūŋúrɔ̀ɔ̀	'pumpkin'
CVV.CV.CV	mɑ́ɔ́nìmɔ̄	'vegetable type'
CV.CV.CVV	kūsūmíí	'knee'
CV.CVV.CVV	kūd̪úúd̪īī	'bird type'

The verb root also has the syllable structure (C)N(C)(C), where the vowel nucleus is

the only obligatory constituent of the syllable and can be short, long, or a vowel sequence. However, at least 90% of verb roots consist of the syllable CVC with short vowel. The other syllable types are rare.

(22) **Root verb syllable types**

VC	/ab/ L	'sit'
CV	/ba/ M	'throw'
CVC	/bɛl/ L	'beat'
CVVC	/maar/ M	'buy'
	/kɔɛɟ/ L	'welcome'
CVCC	/gams/ MH	'find'
CVCVC	/kɔŋɔr/ L	'snore'

2.3.3 Monosyllabic vowel lengthening

The surface syllable structure of Gaahmg requires that all monosyllabic, open-syllable nouns and verbs have long vowels as stated in the rule of {P4}.

{P4} Monosyllabic vowel lengthening
Vowels are realized as long in monosyllabic, opened-syllable nouns and verbs.

Normally, the underlying root vowel of monosyllabic, open-syllable nouns is long. But in nouns such as *ṭɔ́ɔ́ / ṭɔ́-gg* 'cow' which have a short root vowel, the vowel is realized as long in the singular form. In the plural form with final consonant, the vowel remains short.

In verbs such as *nág-gā / nág-ḍā* 'sleep.SBJV1sN/.1pN' with root-final velar plosive, the velar plosive is elided in word-final position of incompletive forms {P2}, as will be discussed in 9.6. The resulting monosyllabic open-syllable verb with underlying short vowel surfaces with a long vowel *nāā* 'sleep.INCP'.

The lengthening rule of {P4} requires that the minimal surface word for nouns and verbs have at least mid syllable weight. The process does not apply to other parts of speech such as the negative *wá* 'no, not' or the adverb *ṭu* 'towards, upward'. These adverbs, which are separate words, are discussed in chapter 13.

2.3.4 Nasal clusters and prenasalization

Nasal-obstruent sequences such as in *ànḍàrs* 'insect type' and *ṭīns-ōgg* 'asking' are common in the language. They are interpreted as consonant sequences instead of prenasalized obstruents for the following reasons: several unambiguous consonant sequences are attested in 2.1.4.1 including nasal-obstruent sequences, there are no

words beginning with a nasal-obstruent sequence that must count as one unit, there are no three-consonant sequences across syllable boundaries in which a nasal-obstruent sequence must count as one unit, and all word-final nasal-obstruent sequences fit into the proposed syllable type CVCC.

2.3.5 Ambiguous vowel sequences

Vowel sequences before word-medial or word-final consonant sequences such as in the words of (23) are interpreted as vowel sequences in the surface form. The vowels in V_2 position of the sequences cannot be analyzed as glides, since three consonants in a sequence are not allowed.

(23) **$V_1V_2C.C-$ or $V_1V_2CC\#$**

ḍīə́rmə̀	'centipede'
kə́ùrɟə̄	'tree type'
àə̀r-g	'priest, chief'
ə́ílḍ	'cold (n)'
gə̀ūr-ḍ	'stomach'

Vowel sequences before root-final sonorants such as in the words of (24) are interpreted as vowel sequences in the surface form. As shown in the distribution of word-final consonant sequences of (12), only sonorant-obstruent sequences are allowed, as in *bə̀rḍ* 'lion'; word-final sonorant-sonorant consonant sequences (**càwr* 'rabbit', **gə̀yn* 'metal worker') are not allowed. However, unambiguous vowel sequences such as in *ḍīə́rmə̀* 'centipede' and *būə̀* 'tree type' of (16) are attested. Thus, the vowels in V_2 position of the sequences in (24) are analyzed as vowels.

(24) **$V_1V_2C_{[+son]}\#$**

càə̀r	'rabbit'
gə̀ɛ̄n	'metal worker'
ṭə̀ìl	'tree type'

Vowel sequences before root-final obstruents such as in the words of (25) are ambiguous. The vowels in V_2 position of the sequences can be analyzed as glides in the surface form since all other sonorants (*m, n, ɲ, ŋ, l, r, ð*) are unambiguously attested in word-final sonorant-obstruent constructions as shown in (12). They can also be analyzed as vowels in the surface form since all relevant vowel sequences (*aɔ, ɛɔ, aɛ, ɔɛ, əu, iu, əi, ui*) are unambiguously attested in (16). Although there is no strong evidence for one interpretation over the other, such words are listed with vowel sequences in this thesis[13].

[13] In (12), the glides are written instead of vowels in order to show the full range of sonorant possibilities in word-final sonorant-obstruent position. Otherwise, vowels are written for this

(25) **$V_1V_2C_{[-son]}$#**
ḍ̈āɔ̀ḍ̈ ‘fertile soil’
káɛ̄ḍ̈ ‘serving spoon’
ḍ̈ɔ̀ìḍ̈ ‘scorpion’

Vowel sequences before root-medial consonants such as in the words of (26) are also ambiguous. The vowels in V_2 position of the sequences can be analyzed as glides in the surface form since all other sonorants are unambiguously attested in word-medial, syllable-final position as shown in (11). They can also be analyzed as vowels in the surface form since all relevant vowel sequences are unambiguously attested in (16). Although there is no strong evidence for one interpretation over the other, such words are listed with vowel sequences in this thesis.

(26) **V_1V_2C-**
kàèmà ‘lucky stone’
kāɔ̄ḍ́á ‘ear wax’
fɔ̄ɛ̄ḍ́á ‘planting seed’

2.3.6 Ambiguous final vowels

Word-final vowel sequences such as in *māāɔ̀* ‘gazelle’ are underlying vowel-plosive or vowel-approximant constructions which surface as vowel-vowel sequences. The bilabial and palatal weakening rule of {P1b} states that the underlying plosives /b/, /ɟ/ and approximants /w/, /y/ are weakened word-finally to vowels with the same [ATR] quality as the preceding vowel. Unambiguous word-final vowel sequences such as in *būɔ̀* ‘tree type’ support this analysis, as does the fact that different allomorphs of the accompaniment and definite clitics attach to stem-final vowels rather than to stem-final consonants.

In (27), singular nouns and their accompaniment and definite forms are given. Accompaniment singular nouns take the clitic $=\tilde{E}$ for surface-final consonant stems as in (a) and the clitic $=n\bar{E}$ for surface-final vowel stems as in (b-d). The language treats (b-p) as having vowel-final stems and attaches the clitic $=n\bar{E}$. Similarly, the definite clitic $=A$ for surface-final consonant stems attaches in (a), but definite clitics having final *n* for surface-final vowel stems attach in (b-p).

There are no noun suffixes with initial consonant which attach to both underlying-final consonants and underlying-final vowels. Therefore, the root-final plosives /b/, /ɟ/, and /g/ never surface as plosives as they do in verbs (/*cág*/, *cáá* ‘bathe.INCP.3sN’, *cág-gággā* ‘bathe-COMP.D’). In nouns, there is no way to verify whether the root-final segments are underlyingly /w/ or /b/, /ɟ/ or /y/. However, although the definite

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position.

(27) **V_1V_2# in noun forms**

	UR	N SG	ACM	DEF	
(a)	/kaam/ L	kààm	kààm = ɛ̄	kààm = ā	‘nyala’
(b)	/waayaa/ H	wááyáá	wááyáá = nɛ̄	wááyáá = n	‘bird type’
(c)	/aŋɛ(g)/ H	áŋé	áŋé = nɛ̄	áŋé = n	‘elephant’
(d)	/buə/ ML	būə̀	būə̀ = nī	būə̀ = n	‘tree type’
(e)	/kaw/ HL	káɔ̀	káɔ̀ = nɛ̄	káw = àn	‘hyena, root’
(f)	/maaw/ ML	māāɔ̀	māāɔ̀ = nɛ̄	māāw = àn	‘gazelle’
(g)	/bɛw/ ML	bɛ̄ɔ̀	bɛ̄ɔ̀ = nɛ̄	bɛ̄w = àn	‘tree type’
(h)	/cɛɛw/ HM	cɛ́ɛ́ɔ̄	cɛ́ɛ́ɔ̄ = nɛ̄	cɛ́ɛ́w = ān	‘lame person’
(i)	/t̪ay/ ML	t̪āè	t̪āè = nɛ̄	t̪āy = àn	‘giraffe’
(j)	/kaay/ M	kāāɛ̄	kāāɛ̄ = nɛ̄	kāāy = ān	‘witch doctor’
(k)	/muy/ M	mūī	mūī = nī	mūy = ɔ̄n	‘wildebeest’
(l)	/ɲuuy/ ML	ɲūūì	ɲūūì = nī	ɲūūy = ɔ̀n	‘leopard’
(m)	/buu/ L	bùù	bùù = nī	bùù. = ùn	‘chicken coop roof’
(n)	/rɛɛ/ M	rɛ̄ɛ̄	rɛ̄ɛ̄ = nɛ̄	rɛ̄ɛ̄. = ɛ̄n	‘cotton’
(o)	/t̪ɔɔ/ H	t̪ɔ́ɔ́	t̪ɔ́ɔ́ = nɛ̄	t̪ɔ́ɔ́. = ɔ́n	‘cow’
(p)	/ɟīì/ ML	ɟīì	ɟīì = nī	ɟīī. = ìn	‘turkey’

clitic distinguishes surface-final vowel stems from surface-final consonant stems, it also distinguishes underlying-final approximant (or plosive) stems from underlying-final vowel stems. The definite clitic *=An* attaches to stems with underlying-final approximants in (e-l), and the definite clitic *= Vn* with copied vowel from the stem attaches to stems with underlying-final vowels in (m-p). Thus, the singular nouns of (e-l) have underlying-final approximants or plosives, but surface-final vowels.

2.4 Tone

There are three underlying level tones in Gaahmg illustrated by the words of table 5.

Table 5: Contrastive H, M, and L tones

H	ɔ́ɔ́r	‘tree bark’
M	əər	‘anger’
L	ə̀ə̀r	‘sheep’

Rising and falling tone is analyzed as a sequence of two level tones. The level tones combine and result in nine tone melodies which are all contrastive in the same monosyllabic syllable type—three level, three falling, and three rising. The same, as well as additional tone melodies, are contrastive in disyllabic syllable patterns.

Unlike some African tone languages, tone is not affected by consonants, tone is stable—it does not shift from one syllable to another, and tone does not down-step or down-drift. The functional load of tone is very high, both in the distinction of words and in the expression of grammatical functions.

The tone bearing unit is the syllable. In roots with fewer tones than the number of syllables, such as in three-syllable nouns with two tones, tone is assigned right-to-left, regardless of syllable weight. However, when there are more tones than syllables, such as in disyllabic roots with three-tone melodies, two tones are assigned to the heaviest syllable, and the remaining tone is assigned to the other syllable.

In roots, no more than one tone may be assigned on light syllables and generally no more than two tones may be assigned on mid or heavy syllables. However, as will be seen in 7.6.2, two tones (HM) are assigned to the accompaniment clitic *=É* which is a light syllable. And as will be seen in 9.8.6, three tones (MHM) are assigned to the continuous past suffix *–Á̰n* which is a mid syllable. Nevertheless, no more than three tones are ever allowed on any one syllable.

2.4.1 Tonal contrasts in the same syllable structure

The words in (28) have contrastive tone melodies for the specified syllable structures. Three level, three falling, and three rising tone melodies are attested in the CVVC syllable type. There is also one attested monosyllabic root with three tones (*ḍùûl* 'instrument'). The same tone melodies and additional tone melodies are attested in disyllabic syllable patterns, although not all in the same syllable pattern. The singular suffix *-ḍ* of *ɲíī-ḍ* 'tooth' and of several other nouns in (28) does not add tone, as will be discussed in section 6.3.1. The contrasts support the claim of there being minimally three underlying tones in the language.

(28) **Tonal contrasts in the same syllable structures**

	CVVC		CVCVVC		CVCVC	
H	póór	'boat'	wéráá-ḍ	'clan member'	básár	'dried food'
M	bāāl	'cave'	kālāā-ḍ	'tongue'	ṭ̄ḗḍ̄ēl	'bird type'
L	dèèl	'collar bone'	sèŋàà-ḍ	'instrument'	ḍ̄ìrìm	'tree type'
HL	séèn	'ruler'	---		fíḍ̄ìn	'perfume'
HM	ɲíī-ḍ	'tooth'	---		bórē-ḍ	'eye matter'
ML	bēèl	'metal'	gəmūùr	'dove'	məsòr	'horse'
LH	ḍ̄òór	'fence'	mòḍ̄áál	'hatred'	---	
LM	ḍ̄èēr	'leach'	bàrəəl	'cistern'	gə̀məl	'forest'
MH	būúl	'bread'	sēwéél	'tree type'	cēyám	'tobacco'
HLH	---		rúŋùú-ḍ	'bird type'	---	
HLM	---		móðùūl	*village name*	---	
HMH	---		lúlīíḍ	'snake type'	---	
LHL	ḍ̄ùûl	'instrument'	bàsáàr	'lie'	bə̀ðə̂l	'job-less person'

Although there are at least nine contrastive tone melodies in noun roots, verb roots may only have the seven underlying tone melodies of (29). The only verb roots

attested to have HM melody are *bɛ́l-l* 'name, call' and *lɛ́ɛ̄* 'come, arrive', and the only verbs attested to have ML melody are *dɔ̄ɔ̀s-s* 'stand', *bṵ̄n-d̰* 'make big'. The infinitive verb form is analyzed to reveal the underlying root tone.

(29) **Tonal contrasts in infinitive verb forms**

	Root tone	INF	
(a)	H	fír-r	'smell, pray'
(b)	M	cɔ̄r-r	'help'
(c)	L	d̰ùr-r	'bury'
(d)	HL	pə̂r-r	'attach'
(e)	HM (rare)	bɛ́l-l	'name, call'
(f)	ML (rare)	dɔ̄ɔ̀s-s	'stand'
(g)	MH	kə́ð-ð	'strike, ram'

2.4.2 Tone distribution

Level tone

Level tone appears in syllable types regardless of syllable weight. In (30), syllable types are grouped together according to light, mid, or heavy syllable weight. High, Mid, and Low tone occur on each of the six syllable types with both long and short vowels, with the exception of High on the syllable type VV. The singular suffixes

(30) **Level tone distribution in six syllable types with both short and long vowels**

	V- (light)		VC- (mid)		VCC (mid)	
H	íyə́ə́	'oil, fat'	ɔ́rd̰àà	'army'	úld̰	'grinding stone'
M	ūrīī	'ostrich'	ālḍ̰áá	'earth'	ālḍ̰	'fox'
L	ɔsáà	'pillow'	ɔ̀rŋ̀ə-d̰	'insect'	àrs	'tree type'
	CV- (light)		CVC (mid)		CVCC (mid)	
H	d̰ínì	'world'	cíl	'spine'	cɛ́ld̰	'local broom'
M	kāsá	'boy'	mɛ̄l	'tree type'	kɔ̄rd̰	'bird type'
L	fə̀rì	*hill name*	d̰àl	'pot'	fàlƒ	'tree type'
	VV- (mid)		VVC (heavy)		VVCC (heavy)	
H	---		áám	'bone'	ɛ́ɛ́l-g	'stomach'
M	əərī	'angry person'	ɛ̄ɛ̄ð	'net type'	īīgg	'milk'
L	ààsà	'basket'	ə̀ə̀l	'hyena'	àɔr-g[14]	'priest, chief'
	CVV- (mid)		CVVC (heavy)		CVVCC (heavy)	
H	wááyáá	'bird type'	póór	'boat'	də́ə́lƒ	'tree type'
M	lɛ̄ɛ̄rɔ̄ɔ̄	'reed'	bāāl	'cave'	bāār-d̰	'abdomen'
L	fààŋɔ̀ɔ̀	'sorghum type'	dɛ̀ɛ̀l	'collar bone'	ƒɛ̀ɛ̀rs	'hippopotamus'

[14] There are two singular forms *àɔ̀r, àɔ̀rg* and the plural form is *àɔ̀rɛ̄ɛ̄g.*

-ḍ, -g of *ərŋə-ḍ* ‘insect’, *éél-g* ‘stomach’ and of other roots of (30) do not add tone, as will be discussed in section 6.3.1.

Falling and rising tone

Falling and rising tone only appear in roots on syllable types with mid and heavy weight. As shown in (31), falling and rising tone does not occur on the open syllable types V and CV with light weight. It has not been attested on VVCC syllables. Falling and rising tone is common on CVVC, CVVCC, CVC and CVV syllables, and rare in VC, VCC, VV, VVC and CVCC syllables. Other than in the word *ḍ̈ùûl* ‘instrument’, three tones on the same syllable in monomorphemic roots is not attested.

(31) **Falling/rising tone distribution in various syllable types**

	V- (light)	VC (mid)	VCC (mid)
HL	---	îl ‘horn’	îlɟ ‘beeswax’
	CV- (light)	CVC- (mid)	CVCC (mid)
HL	---	kə̂lfə ‘jaw’	---
ML	---	ɟə̌r ‘sorghum type’	rɔ̌ŋḍ̈ ‘mud’
LH	---	ḍ̈ə̌lgə ‘drum’	---
LM	---	gɔ̃n ‘responsibility’	---
MH	---	dɔ̃d ‘stork’	---
	VV- (mid)	VVC (heavy)	VVCC (heavy)
HL	áàrɛ̄ɛ̄ ‘grass type’	áɔ̀s[15] ‘dried food’	---
HM	---	úū-ḍ̈ ‘wasp’	---
	CVV- (mid)	CVVC (heavy)	CVVCC (heavy)
HL	máà ‘house’	séɛ̀n ‘ruler’	gúùrḍ̈ ‘energy’
HM	múū ‘mosquito’	ɲíī-ḍ̈ ‘tooth’	káān-ḍ̈ ‘fly’
ML	ṭ̈ī ‘cassava’	bɛ̄ɛ̀l ‘metal’	kāànḍ̈ ‘carrying stick’
LH	---	ḍ̈ɔ̀ór ‘fence’	gàágg ‘bird’
LM	---	ḍ̈ɛ̀ɛ̄r ‘leach’	gəūr-ḍ̈ ‘stomach’
MH	mīí ‘chicken’	būúl ‘bread’	---
LHL	---	ḍ̈ùûl ‘instrument’	---

2.4.3 Tone assignment

In three-syllable words

Tone is stable in that it does not shift or spread from one syllable to another. Thus, it is not possible to determine the tone bearing unit (TBU) by observing shifting or spreading. Rather, tone assignment is used as support of the syllable being the TBU.

[15] Can also be interpreted as having a glide *âws*

All attested three-syllable monomorphemic words are presented in (32). Tone assignment is as expected for one and three-tone melodies for the syllable being the TBU. These have one tone per syllable, with the exception of *kàŋàrâɲ* 'jackal'. Two-tone melodies are assigned right-to-left in that the final tone of the melody surfaces on the final syllable, and the first tone of the melody surfaces on the first two syllables.

(32) **Tone assignment in three-syllable monomorphemic words**

	Melodies with one or two tones			Melodies with three tones	
M	ɲɛ̄ŋŋɛ̄rās	'fully (ADJ.PL)'	HLM	mɔ́ɔ́nìmɔ̄	'vegetable type'
L	kàmàlɔ̀gg	'woman'		bámàlɟā	'morning star'
	sànḓàlàɲ	'living alone'		ḓɔ́ggɔ̀lɟā	'ankle'
HL	mɔ́ggɔ́lɛ̀ɛ̀	'maize'	MHM	kūḓúúrīī	'bird type'
	ṭúnḓúlì(g)	'elbow'		cɛ̄ggɛ́llūū	'root name'
ML	būḓīrìɲ	'sunset'	MHL	ūŋúrɔ̀ɔ̀	'pumpkin type'
LH	bìmìríɟɟ	'bird type'		kɔ̄ggɔ́lìgg	'cock'
LM	càŋàlḓā	'upper arm'	LHL	kàŋàrâɲ	'jackal'
	gɔ̀bbɔ̀nīḓ	*area name*			
	mùggùrīī	'hatred'			
	kūsūmíí	'knee'			
	ṭāsāmé(g)	'grass type'			
	fɔ̄ŋɔ̄lḓé	'leave for child rearing'			

In disyllabic words

Nearly all disyllabic roots with one or two-tone melodies are assigned tone as expected with one tone per syllable. However, there are five attested exceptions, all of which involve the ML tone melody. The word *ārāàḓ* 'lake' of (33) and four words listed below it are exceptions.

All attested disyllabic monomorphemic words with three-tone melodies are also shown in (33). In these words, the syllable with the heaviest syllable weight is assigned two tones and the other syllable is assigned one. If there is the same weight in both syllables, two tones are usually assigned to the first syllable, but in two out of six of such words, tone is assigned to the second syllable (*kɔ̀ɔ̀fɔ̃̄r* 'weakness' and *bɛ̀ɪŋáɔ̀* 'tomato'). In (33), syllable weight is listed before each word with three tones, where l = light, m = mid, and h = heavy, and the letters for the first and second syllables are divided by a period. It is the underlying syllable structure that determines the syllable weight rather than the surface form. For example, since *mūggúùì* 'burning wood' has an underlying final /y/ or /ɟ/, the second syllable is underlying CVVC instead of CVVV.

(33) **Tone assignment in two-syllable monomorphemic words**

	Melodies with one or two tones			Weight	Melodies with three tones	
H	fádɔ́ɔ́l	‘farmland’	HLH	l.h	rúŋùú-d̰	‘bird type’
M	bārɔ̄ɔ̄l	‘cistern’	HLM	m.m	áàrɛ̄ɛ̄	‘grass type’
L	sɛ̀ŋàà-d̰	‘instrument’		m.l	kə̂lfə̄	‘jaw’
HL	fíd̰ìn	‘perfume’		m.l	kúùrī	‘sheave’
ML	mɔ̄sɔ̀r	‘horse’		l.h	mə́ðùūl	*village name*
	ārāà-d̰	‘lake’	HMH	h.h	kúūrlúúgg	‘rat type’
	gəmūùr	‘dove’		l.h	lúlīíd̰	‘snake type’
	gərmūù-d̰	‘tree type’		l.m	málɔ̌ɟɟ	‘nose mucus’
	kāŋāàd̰	‘bowel type’	MHM	m.m	bằllɛ̄ɛ̄	‘tree type’
	kāmɛ̄ɛ̀r	‘village’	MHL	m.h	mūggúùì	‘burning wood’
LH	mɔ̀d̰áál	‘hatred’	LHM	m.l	d̰ə̀lgə̄	‘drum’
LM	gə̀mīīl	‘tree type’	LHL	l.m	bə̀ðồl	‘business’
MH	sɛ̄wɛ́ɛ́l	‘tree type’		m.m	kɔ̀ɔ̀fɔ̀r	‘weakness (N.SG)’
				l.h	ɟɔ̀fɔ́ɔ̀r	‘desire’
				m.m	bɛ̀rŋáɔ̀	‘tomato’
				l.m	ɔ̀sáà	‘wooden pillow’
				l.h	gàd̰áàè	‘basket’
				l.h	kàðáàm	‘work’
				l.h	kùsúùr	‘authority’
				m.m	cĭrsə̀(g)	‘tool cleaner’

2.4.4 Lexical tone

Lexical tone described in this section has to do with roots (single non-bound morphemes) which are distinguished only be tone. Grammatical tone described in 2.4.5 has to do with bound morphemes distinguished only by tone that make a grammatical distinction, or morphemes that consist only of tones.

Gaahmg frequently uses tone for distinguishing lexical meanings, as shown in the lists of minimal pairs in (34-36).

(34) **Noun minimal pairs**

H - M	sɔ́ɔ́m	‘hunter’	sə̄ə̄m	‘medicine’
	ɔ́ɔ́r	‘tree bark’	ə̄ə̄r	‘anger’
	cáá	‘wild cat’	cāā	‘bath’
	kááɛ́	‘night’	kāāɛ̄	‘witch doctor’
H - L	d̰áár	‘throne’	d̰ààr	‘eagle’
	ɔ́ɔ́r	‘tree bark’	ə̀ə̀r	‘sheep’
H - HL	káár	‘stew’	káàr	‘male goat’
	cíl	‘spine’	cîl	‘instrument’

Noun minimal pairs (continued)

H - ML	kɔ́ðél	'natural painting'	kɔ̄ðɛ̀l	'baboon'
	ʈírí(g)	'tree type'	ʈīrì(g)	'death, dying'
M - L	ɔ̄ɔ̄r	'anger'	ɔ̀ɔ̀r	'sheep'
M - HM	mūū	'forehead, face'	múū	'mosquito'
M - ML	bāāl	'cave'	bāàl	'instrument'
	cāā	'bath'	cāà	'cooking stone'
	kāɲāā-ɖ	'back of head'	kāɲāàɖ	'bowel for hot food'
M - MH	mīī	'goat'	mīí	'chicken'
L - ML	ɖɛ̀ɛ̀l	'storage shelf'	ɖɛ̄ɛ̀l	'lake'
	ɟìì	'tree type'	ɟīì	'turkey'
L - MH	ɟɛ̀ɛ̀m	'thing, something'	ɟɛ̄ɛ́m	'sorghum sieve'
L - LM	bɔ̀ggɔ̀	'tree type'	bɔ̀ggɔ̄	'cream'
	bàrɔ̀ɔ̀l	'snake type'	bàrɔ̄ɔ̄l	'cistern'
HM - ML	káān-ɖ	'fly'	kāànɖ	'water-carrying stick'

(35) **Verb minimal pairs in infinitive form**

H-L	cág-g	'bathe, wash'	càg-g	'finish'
	pál-l	'cut'	pàl-l	'fall'
M-L	bɛ̄l-l	'possess'	bɛ̀l-l	'hit, beat'
M-HM	bɛ̄l-l	'possess'	bɛ̋l-l	'name, call'
L-HM	bɛ̀l-l	'hit, beat'	bɛ̋l-l	'name, call'

(36) **Differing word category minimal pairs**

H - M	káén	'finished (ADJ)'	kāēn	'yesterday (ADV)'
H - HL	káén	'finished (ADJ)'	káèn	'thin (V)'
H - ML	fúúí	'tree type'	fūūì	'male (ADJ)'
H - LHL	kɔ́ɔ́fɔ̀r	'thin, weak (ADJ)'	kɔ̀ɔ̀fɔ̀r	'weakness'
M - HL	kāēn	'yesterday (ADV)'	káèn	'thin (V)'
M - ML	cīīnɖ-ə̄gg	'finishing (N.SG)'	cīīnɖ-ə̀gg	'playing (N.PL)'
H - MH	báár	'weak (ADJ)'	bāár	'tribe member'
M - MHM	bāāl	'cave'	bā́āl	'striped (ADJ)'
L - LHL	ɖùùl	'difficult (ADJ)'	ɖùûl	'instrument'
HL - ML	ɲílì	'knowledgeable (ADJ)'	ɲīlì	'ignorance'
ML - LH	gāàl	'falcon'	gàál	'far (ADJ)'
ML - HMH	būùr	'pot for wine'	bū́úr	'remained (ADJ)'

As seen from (37), tone distinguishes subject and infinitive pronouns, as well as possessive pronouns of kinship terms and body parts. Tone also distinguishes the conjunction *ɔ́* 'and' with Low tone from the second singular pronouns *ɔ́* 'you' and *ɔ̄* 'your'. Pronouns are discussed in the sections indicated in (37) and the conjunction

ɔ́ 'and' is discussed in 15.2.

(37) **Pronoun minimal pairs**

5.3 Subject	9.2 Infinitive	5.2.3 Possessive kinship	5.2.2 Possessive body parts	
á	ā	á	ā	1s
ɔ́	ɔ̄	ɔ́	ɔ̄	2s
ɛ̄	ɛ̄	ɛ́	ɛ̄	3s

Tone also distinguishes singular and plural demonstrative adjectives as shown in (38) where singular demonstratives have initial High tone and plural demonstratives have initial Low tone.

(38) **Demonstratives (see 8.1.3)**

DEM ADJ SG		DEM ADJ PL		
nɛ́ɛ́	'this'	nɛ̀ɛ̀	'these'	near speaker
náá(n)	'that'	nàà(n)	'those'	near addressee
náa̰dī	'that'	nàà̰dì	'those'	away from both

Tone also distinguishes the animate accompaniment preposition *ɛ̀* 'with' from the inanimate accompaniment prepositions *ɛ̄* 'with' and the general preposition *ɛ́* (GP).

(39) **Preposition minimal pairs**

è	'with'	Animate accompaniment preposition	11.1
ē	'with'	Inanimate accompaniment preposition	11.2
é	GP	General preposition	11.3

In (40), examples of nouns with three tonal allomorphs of a plural suffix are given. The suffix of (a) has no underlying tone, allowing the plural form to surface with Low tone, the same as in the root. Whereas, the suffix of (b) has underlying Mid tone and the suffix of (c) has underlying High tone. As will be shown in section 6.3.1, there are seven other noun plural suffixes with two or three tonal allomorphs, most of which are not semantically or phonologically predictable with the root.

(40) **Tonal allomorphs of noun plural suffixes (see 6.3.1)**

	Suffix Tone	Noun SG	Noun PL	
(a)	-Agg	lə̀ŋd̰	lə̀ŋd̰-ə̀gg	'tree type'
(b)	-Āgg	bə̀ɲɟ	bə̀ɲɟ-ə̄gg	'pulp'
(c)	-Ágg	mīīd̰	mīīd̰-ɔ́gg	'stone'

2.4.5 Grammatical tone

Gaahmg also frequently uses tone to distinguish grammatical function; there are grammatical distinctions made only by tone in nouns and verbs. Grammatical tone distinguishes bound morphemes with different grammar, or is a morpheme in itself, either added to or replacing underlying stem tone.

Tone distinguishes bound morphemes, such as the copular and definite clitics of (41). The copular singular clitic *=Ā* which takes the [ATR] value of the root has underlying Mid tone, the copular plural clitic *=À* has underlying Low tone, and the definite clitic *=Á* has underlying High tone.

(41) **Copular *=Ā*, *=À* and definite *=Á* suffixes**

		7.2	7.3	
	Noun	Noun COP	Noun DEF	
SG	ḍəm	ḍəm=ə	ḍəm=ɔ́	'Arab'
PL	ḍəm-g	ḍəm-g=ə	ḍəm-g=ɔ́	'Arabs'

Similarly, the past and non-past continuous forms differ only by tone as shown by the verbs of (42). The past continuous suffix *-Á̲n* has underlying MH tone, whereas the non-past continuous suffix *-Á̲n* has underlying High tone.

(42) **Past *-Á̲n* and non-past *-Á̲n* continuous verb forms**

	9.8.6	9.8.7	
Root tone	CONT.P.3sN	CONT.N.3sN	
H	kɔ́m-ằn	kɔ́m-án	'cut, chop'
L	gàf-án	gàf-ằn	'give'
MH	kə̌ð-ə̄n	kə̌ð-ɔ́n	'strike'

Several verb clitics listed in (43-44) are also distinguished only by tone. The third singular object pronoun allomorph *=E* with no underlying tone attaches to first singular verbs as in (a) and a different allomorph *=Ē* with HM tone attaches to third singular verbs as in (b). The relative clause definite clitic *=É* with High tone attaches to singular person verb forms as in (c), and the clitic *=È* with Low tone attaches to plural person verb forms as in (d). The subordinate (SBO1) clitic *=Ē* with Mid tone attaches to first singular verbs as in (e).

(43) **Verb clitics distinguished by tone**

(a)	10.4.2	1sN/3sA	=E	pál=ɛ̄	'cut.INCP.1sN=3sA'
(b)	10.4.2	3sN/3sA	=Ē	pál=ɛ̄	'cut.INCP.3sN=3sA'
(c)	10.9	RDM.SG	=É	pâl=ɛ́	'cut.INCP.3sN=RDM'
(d)	10.9	RDM.PL	=È	pál=ɛ̀	'cut.INCP.3pN=RDM'
(e)	10.7	SBO1.1sN	=Ē	pál=ɛ̄	'cut.INCP.1sN=SBO1'

The third singular marked object pronoun allomorph *=i* with no underlying tone attaches to first singular verbs as in (a) and a different allomorph *=ì* with Low tone attaches to third singular verbs as in (b). The imperfect third singular clitic *=í* with High tone attaches to incompletive verbs as in (c), and the subordinate 'when' (SBO1) clitic *=ǐ* with LM tone attaches to third singular verbs as in (d).

(44) **Verb clitics distinguished by tone**

(a)	10.4.2	1SN/3SN	=i	pə́l=ī	'cut.INCP.1SN=3SAM'
(b)	10.4.2	3SN/3SN	=ì	pə́l=ì	'cut.INCP.3SN=3SAM'
(c)	10.6	IPF.3SN	=í	pə́l=í	'cut.INCP=IPF.3SN'
(d)	10.7	SBO1.3SN	=ǐ	pə́l=ǐ	'cut.INCP.3SN=SBO1'

Where tone is a morpheme in itself, it can be added to segmental forms or can replace the underlying tone of segmental forms. Tone is added to distinguish subject persons of verb forms and to distinguish future and non-future subject pronouns. Tone replacement is used for genitive case, plural person possession of body part nouns, antipassives, causatives, and verbal nouns.

In verbs, tone marks subject person agreement by being added to the stem-final syllable. As shown in (45), tone distinguishes third singular and third plural subject verb forms from other person forms. The verb root of (45) has underlying High tone and the completive suffix *-sA* has no underlying tone. In such verbs, high tone is assigned to the stem-final syllable of third singular forms, Low tone is assigned to the stem-final syllable of third plural forms, and Mid tone is assigned to the stem-final syllable of first and second person forms.

(45) **Paradigm of completive verb *kɔ́m-sA* 'chop-COMP' with subject pronouns (see 9.5)**

á	kɔ́m-sɔ̄	1s	āgg	kɔ́m-sɔ̄	1p
ú=kúm-sū[16]		2s	ūg=kúm-sū		2p
ɛ̄	kɔ́m-sɔ́	3s	ɛ̄, ɛ̄gg	kɔ́m-sɔ̀	3p

Tone is also added to subject pronouns to indicate future tense of the following verb form. In first and second person subject pronouns, Mid tone is assigned along with High tone on the final syllable, resulting in falling tone.

[16] As discussed in 5.3, the second person morpheme specifies [+ATR] quality on verbs forms. The [+ATR] quality spreads leftward to the second person pronoun clitics *ɔ=, ɔgg=*.

(46) **Future and non-future pronouns (see 9.8.4)**

Subject non-future	Subject future	
á	ā	1s
ɔ́	ɔ̄	2s
āggá	āggā	1p
ɔ̄ggɔ́	ɔ̄ggɔ̄	2p

Genitive case is marked by tone replacement. Nouns with Mid and MH root tone melody have HL melody in genitive forms. Nouns with all other root tone melody have ML tone melody in genitive forms.

(47) **Genitive singular and plural nouns with various root tone melodies (see 6.5)**

Root tone	GEN tone	Noun SG DEF	Noun SG DEF GEN	Noun PL	Noun PL GEN	
H	ML	ṭɔ́ɔ́=n	ṭɔ̄ɔ̀=n	ṭɔ́-gg	tɔ̄-gg	'cow'
M	HL	mīī=n	mîì=n	mīī-gg	mîì-gg	'goat'
L	ML	ḍ̈ìì=n	ḍ̈îì=n	ḍ̈ìì-gg	ḍ̈îì-gg	'rat'

A Low-Mid tone pattern is required by the plural person possessive morpheme of all body part nouns. Although the underlying tone melody of *bɔ̄ɔ̄rà / bɔ̄ɔ̄rà-gg* 'shoulder' in the paradigm of (48) is Mid-Low, the plural forms possessed by plural persons surface as Low-Mid.

(48) **Possessive paradigm for inalienable body part *bɔ̄ɔ̄rà / bɔ̄ɔ̄rà-gg* 'shoulder' (see 6.4)**

	Singular person pronouns			Plural person pronouns		
Noun SG	ā	bɔ̄ɔ̄rà	1sP	---		1pP
	ɔ̄	bɔ̄ɔ̄rà	2sP	---		2pP
	ɛ̄	bɔ̄ɔ̄rà	3sP	---		3pP
Noun PL	ā	bɔ̄ɔ̄rà-gg	1sP	āgg	bɔ̀ɔ̀rā-gg	1pP
	ɔ̄	bɔ̄ɔ̄rà-gg	2sP	ūgg	bɔ̀ɔ̀rā-gg	2pP
	ɛ̄	bɔ̄ɔ̄rà-gg	3sP	ēgg	bɔ̀ɔ̀rā-gg	3pP

In antipassive forms, root tone melodies are replaced by other tone melodies: High changes to HM, Mid changes to MH, and Low changes to LH.

(49) **Antipassive suffix *-An* on third singular completive verbs (see 9.10.2)**

Root tone	3sN COMP	ANTIP tone	3sN ANTIP-COMP	
H	fír-sɔ́	HM	fír-ɔ̄n-sɔ́	'smell'
M	cɔ̄r-sɔ́	MH	cɔ̄r-ɔ́n-sɔ́	'help'
L	ḍ̈ùr-sū	LH	ḍ̈ùr-ūn-sú	'bury'

In causative forms, root tone melodies are also replaced by other tone melodies, as shown in (50).

(50) **Third singular causative completive verbs (see 9.11.2)**

Root tone	COMP 3SN	CAUS tone	COMP CAUS 3SN	
H	fír-sə́	HM	f ˆır-sə́	‘smell’
M	cə̄r-sə́	HM	cűr-sú	‘help’
L	d̰ùr-sū	ML	d̰ûr-sū	‘bury’
MH	kə̌s-sə́	HM	kə̃s-sə́	‘strike’

Finally, in verbal nouns, root tone melodies are replaced by other tone melodies, as shown in (51).

(51) **Verbal noun plural suffixes *=Agg, =gg* (see 10.10)**

Root tone	INF	VN tone	VN SG	VN PL	
H	pál-l	M	pāl	pāl = āgg, pāl = g	‘cut’
L	f ɛ̀l-l	ML	f ɛ̂l	fɛ̄l = āgg, f ɛ̂l = g	‘tell’
HL	pîr-r	ML	p̄ır	pīr = ə̀gg, p̄ır = g	‘deceive’
HM	bɛ́l-l	M	bɛ̄l	bɛ̄l = āgg	‘name’
MH	kə̌ð-ð	M	kə̄n	kə̄ð-ə̄gg	‘strike’

3 Morphophonology

Several morphophonological alternations applying throughout the language are presented in this chapter and labelled with an M. Alternations which apply only to certain morphemes are presented in the relevant sections, and not here. Phonological consonant rules, which were presented in 2.1.3 and the monosyllabic vowel lengthening which was presented in 2.3.3, are relisted here for ease of reference.

{P1} Bilabial and palatal weakening (from 2.1.3)
- (a) /b/, /ɟ/ are weakened intervocalically to approximants.
- (b) /b/, /ɟ/, /w/, /y/ are weakened word-finally to vowels with the same [ATR] quality as the preceding vowel.
- (c) /w/, /y/ before word-final sonorants are weakened to vowels with the same [ATR] quality as the preceding vowel.

{P2} Velar plosive elision (from 2.1.3)
/g/ is elided both inter-vocalically and word-finally when following a vowel.

{P3} Plosive weakening (from 2.1.3)
Plosives are weakened to approximants when they immediately precede word-final obstruents and follow vowels.

{P4} Monosyllabic vowel lengthening (from 2.3.3)
Vowels are realized as long in monosyllabic, opened-syllable nouns and verbs.

Whereas the phonological rules apply to all relevant environments in a word, the morphophonological rules only apply to relevant environments that exist because of morphemes combining. All rules in this section apply in several bound morphemes, often including both suffixes and clitics in both nouns and verbs. However, morphophonological rules are not applied to two noun clitics (COP, ACM), and are not applied to several verb clitics. Nevertheless, all the rules apply to all stem suffixes. In 4.2, morphophonological rules not applied to certain clitics are further discussed.

In the relevant sections throughout this thesis, when the rules of this section are referred to, they are indicated by number between braces such as {M3}. Thus, the common morphophonological rules of this section are easily distinguished from less common processes applied to one or two morphemes. The latter are more like exceptions in the language than rules. Each of the following rules is explained afterwards with examples.

3.1 Morphological consonant and vowel elision

{M1} Verb stem suffix vowel elision
When vowels are joined through morphology to verb stems with a vowel-final suffix, the final vowel of the stem is elided.

When the agented passive clitic *=É* is attached to the stem *ɟɛ̀r-sā* 'forget-COMP', the completive suffix vowel is elided (*ɟɛ̀r-s=ɛ̃*). In the past continuous relative clause verbs of 10.9, the definite clitic *=É* does not elide the continuous suffix vowel *-a* of *ŋ̄āŋ-ā́.=ɛ́* 'file-CONT.P.RC=RDM' and is one exception to the rule.

{M2} Suffixes becoming juxtaposed syllables
When vowels are joined through morphology to roots with final vowels, no vowels are elided and the bound morpheme appears as a syllable on its own, juxtaposed to the root.

When the vowel-initial past continuous suffix *-Á̱n* is attached to the vowel-final verb root /pa/ 'guard', the suffix becomes a second syllable, juxtaposed to the root (*pā.-án*). When the copular clitic *=V̄n* is attached to the root *ʈɔ́ɔ́* 'cow', the clitic vowel *V* takes on all the features of the final vowel and begins a second syllable (*ʈɔ́ɔ́.-ɔ̄n*). When the agented passive clitic *=É* is attached to the root *bāā* 'throw.INCP', the suffix vowel becomes a new syllable (*bā.=ɛ̃*).

3.2 Morphological [ATR] harmony

In 2.2.2.2, it was observed that the [-ATR] vowels (*ɛ, ɔ, a*) and the [+ATR] vowels (*i, u, ə*) function as distinct sets in roots, the vowels of one set never occurring in the same root with vowels of the other set. The [ATR] harmony also functions across morpheme boundaries, spreading either to the right or to the left without limit in words to all vowels unspecified for [ATR]. [+ATR] quality is dominant. In all morphemes, only [+ATR] quality is specified underlying, and spreads from root to bound morpheme or from bound morpheme to root. Vowels that are not specified for [ATR], or do not have an [ATR] association through spreading, are realized as [-ATR] by default. Examples follow in the next two sections.

{M3} [+ATR] spreading
[+ATR] quality spreads to the left or to the right across morpheme boundaries, only limited by word boundaries, to vowels unspecified for [ATR].

3.2.1 Rightward [ATR] spreading

The [+ATR] quality spreads rightward from noun roots onto plural suffixes. In (1), nouns representing each of the six vowels attach the plural suffix *-EEgg*, where E is a vowel specified as [-back]. In (d-f), the [+ATR] quality assigned to the noun root spreads rightward onto the suffix unspecified for [ATR]. In (a-c), no such spreading occurs since roots and suffixes are unspecified for [ATR] and take [-ATR] quality by default.

(1) **Rightward [ATR] spreading to plural suffix *-EEgg***

	Vowel	Noun SG	Noun PL	
(a)	ɛ	cɛ̀ɛ̀r	cɛ̀ɛ̀r-ɛ̄ɛ̄gg	'singer'
(b)	a	ɖààr	ɖààr-ɛ̀ɛ̀gg	'eagle'
(c)	ɔ	cɔ̄ɔ̄l	cɔ̄ɔ̄l-ɛ̄ɛ̄gg	'donkey'
(d)	i	ɟííl	ɟííl-īīgg	'cricket'
(e)	ə	gùùr	gùùr-īīgg	'grinding stone'
(f)	u	ə̀ə̀r	ə̀ə̀r-ììgg	'sheep'

3.2.2 Leftward [ATR] spreading

The [+ATR] quality spreads leftward from the imperative plural suffix onto verb roots. A list of singular imperative and imperative plural forms representing each of the six vowels is given in (2). The singular imperative generally has no suffix and is often the same form as the root. The imperative plural has the suffix *-ɖA⁺*, where *A⁺* is a back vowel specified as [+ATR] and takes the [round] feature of the root. In (a-c), verb roots unspecified for [ATR] become [+ATR] in the plural imperative form. In (d-f), [+ATR] verb roots remain [+ATR].

(2) **Leftward [ATR] spreading from imperative plural suffix *-ɖA⁺***

	Vowel	IMP	IMP PL	
(a)	ɛ	fɛ́ɛ́	fɪ́ɪ́-ɖə̄	'clean'
(b)	a	ṭál	ṭə́l-ɖə̄	'put, make'
(c)	ɔ	kɔ́m	kúm-ɖū	'cut, chop'
(d)	i	díú	díú-ɖū	'plant'
(e)	ə	pə̂r	pə̂r-ɖə̀	'attach'
(f)	u	ṭúr	ṭúr-rū	'see'

3.2.3 [+ATR] bound morphemes

Several [+ATR] bound morphemes which spread their quality to the root or stem are represented in (3). For each morpheme, the underlying root and surface form are given along with the section where the morpheme is discussed. [+ATR] quality distinguished the morphemes *-əgg, -⁺g, -ɖ⁺A, =ì, =ɪ* from other bound morphemes unspecified for [ATR] which are otherwise segmentally equivalent. In

addition, [+ATR] quality is a morpheme in itself added to second person subject verb forms to distinguish them from other person forms. As will be shown in 5.3, the second person singular verb for 'chopping' *ɔ́ kúmə̄n* is [+ATR], whereas the first singular *á kɔ́m-ā̄n* and third singular *ɛ̄ kɔ́m-án* are [-ATR].

(3) **[+ATR] bound morphemes and spreading**

Morpheme	Morpheme	UR	SR		Section
N.PL body part	-əgg	/bɛ̄rḍ̈/	bìrḍ̈-ə̄gg anus-PL	'anuses'	6.2.3
	-$^{+}$g	/kālāā/	kəlɔ̄ɔ̄-gg tongue-PL	'tongues'	6.2.3
	-V^{+}gg	/āā-ḍ̈/	ɔ̀ḍ̈-ə̄gg eye.1pPp-PL	'our eyes'	6.2.3
IMP.PL	-ḍ̈$^{+}$A	/nām/	ɲə́m-ḍ̈ə̄ break-IMP.PL	'Break!'	9.4
CAUS	-ḍ̈$^{+}$A	/kór/	kū̀r-ḍ̈ú 'read-CAUS'	'he writes'	9.11
Marked ACC	=ì	/wár/	wə́r=ì 'take=3sAM'	'he takes him'	5.4, 10.4
DAT	=ɪ̂n	/gàf/	gə̀ù-s=ɪ̂n 'give-COMP=3SD'	'he gave him'	5.5, 10.5
SBO1	=ɪ̌	/ŋā̀n/	ŋə̄ɲ-s=ɪ̌ 'file-COMP=SBO1.3SN'	'(when) he filed'	10.7
Second person subjects		/kɔ́m/	ɔ́ kúm-ə̄n, ú=kúm-ə̄n '2sN=chop-CONT.N'	'you are chopping'	5.3, 9.1

3.3 Morphological [round] harmony

{M4} Rightward [+round] spreading
[+round] quality spreads rightward from the root to all suffix vowels not underlyingly specified for the feature [round].

Several bound morphemes in noun and verb morphology are underlying specified for [round], but several bound morphemes in noun and verb morphology are not. The roundness only spreads rightward from roots to suffixes or clitics, and never the opposite direction. Roundness does not spread as specified in every word with every speaker, but tends to vary from word to word and from speaker to speaker.

3.3.1 Rightward [round] spreading in nouns

Nouns with root-final consonant sequences commonly take the plural suffix *-Agg*, where *A* is a back vowel unspecified for [round] and takes the [round] and [ATR] features of the root. In (4), the plural forms are shown for nouns with each of the six vowels. In (c,f), the [+round] feature of the root spreads to the vowel of the plural suffix, causing *A* to become *ɔ* or *u*. In other examples of (4), the suffix vowel is realized as unrounded. In (d-f), the [+ATR] quality of the verb root spreads rightward onto the suffix, whereas in (a-c), the noun root unspecified for [ATR] does not affect the suffix.

(4) **Rightward [+round] spreading to noun plural suffix *-Agg***

	Root vowel	Noun SG	Noun PL	
(a)	ɛ	cɛ́lḍ̈	cɛ́lḍ̈-āgg	‘local broom’
(b)	a	mānḍ̈	mānḍ̈-āgg	‘tree type’
(c)	ɔ	kɔ̄rḍ̈	kɔ̄rḍ̈-ɔ̄gg	‘bird type’
(d)	i	ṭ̈īrḍ̈	ṭ̈īrḍ̈-ə̄gg	‘farm’
(e)	ə	lə̀ŋḍ̈	lə̀ŋḍ̈-ə̀gg	‘tree type’
(f)	u	cúlḍ̈	cúlḍ̈-ūgg	‘birth sack’

3.3.2 Rightward [round] spreading in verbs

The completive verb has the suffix *-sA*, where *A* is a back vowel unspecified for [round] and takes the [round] and [ATR] features of the root. Similarly, plural subjunctive forms have the suffix *-ḍ̈A* with the same vowel unspecified for [round]. In (5), the completive and plural subjunctive forms are shown for verbs with each of the six vowels. In (c,f), the [+round] feature of the root is spread to the vowel of the completive and plural subjunctive suffixes. In other examples of (5), the suffix vowel is realized as unrounded. In (d-f), the [+ATR] quality of the verb root spreads rightward onto the suffix, whereas in (a-c), the verb root unspecified for [ATR] does not affect the suffix.

(5) **Rightward [+round] spreading to completive *-sA* and plural subjunctive *-ḍ̈A***

	Root vowel	COMP	SBJV PL	
(a)	ɛ	bɛ̀ɛ̀-sà	bɛ̀ɛ̀-ḍ̈à	‘tell, say’
(b)	a	cág-sā	cág-ḍ̈ā	‘bathe, wash’
(c)	ɔ	kɔ́m-sɔ̄	kɔ́m-ḍ̈ɔ̄	‘cut, chop’
(d)	i	cīg-sə̄	cíg-ḍ̈ə̄	‘wear’
(e)	ə	ɟə̀ə̀-sə̄	ɟə̀ə̀-ḍ̈ə̀	‘finish’
(f)	u	rùm-sū	rùm-ḍ̈ū	‘clear path’

3.4 Morphological tone rules

The following tone rules apply across morpheme boundaries in both noun and verb morphology. They are morphological in that they operate across morpheme boundaries rather than being linked to certain morphemes.

3.4.1 Morphological tone spreading

{M5} Rightward tone spreading to unassigned bound morpheme vowel
When a bound morpheme with vowel does not have underlying tone, tone spreads rightward from the root or stem to the bound morpheme.

The High tone of the noun root *kə́s* 'sorghum' spreads to the plural suffix *-Agg* without tone (*kə́s-ə́gg*). The Mid tone of the incompletive verb stem *cə̄r* 'help.1sN' spreads to the third singular object clitic *=E* without tone (*cə̄r=ɛ̄* 'help.1sN=3sA'). In a few nouns and verbs, tone spreads to bound morphemes with underlying tone.

{M6} Second of two root or stem-final tones reassigned to bound morpheme vowel
When a bound morpheme with vowel does not have underlying tone, and when there are two tones assigned to the root or stem-final syllable, the second tone is delinked and reassigned to the bound morpheme vowel.

The Low tone of the noun *ìlɟ* 'beeswax' with HL root tone melody delinks and is reassigned to the suffix *-Agg* without tone (*ílɟ-ə̀gg*). The Low tone of the verbal noun *pɪ̃̀r* 'lie' with ML tone melody is delinked and reassigned to the plural clitic *=Agg* without tone (*pɪ̀r=ə̀gg*).

In a few verbs, the second of two tones assigned to the root-final syllable is not delinked but only spreads. The Low tone of the subjunctive verb *pîr* 'lie' with HL tone melody is not delinked but only spreads to the subjunctive plural suffix *-d̰A* with no underlying tone (*pîr-rə̀* 'to.lie.1sN').

In a few nouns and verbs, the second tone reassigns to bound morphemes with underlying tone. In the third singular continuous past form, the Low tone of the HL tone melody delinks and reassigns to the continuous past suffix *–A̰n* with MH tone (*pír-ə̌n* 'lie.3sN'). The initial Mid tone of the continuous suffix assimilates to the preceding Low {M9}.

3.4.2 Mid tone lowering and Low tone raising

There are two significant processes in stems and words—a Mid tone lowering process and a Low tone raising process. In roots or stems with HM tone assigned to

the final syllable, the Mid tone assimilates to a Low tone of a bound morpheme. The rule is symbolized in {M7} where the dash mark represents a morpheme boundary of either an affix or clitic. The rule applies in both noun and verb stems.

{M7} Mid tone lowering
HM-L > HL-L

The plural noun *wáā̀r-g* 'insect' has HM stem tone. The Mid tone becomes Low when the plural copular clitic *=À* with Low tone is attached (*wáà̀r-g=à̀*).

The infinitive form of the verb *bɛ́l* 'call' has underlying HM tone. When the third plural morpheme assigns Low tone to the completive suffix attached to this verb, the root Mid tone becomes Low (*bɛ̀l-ḍà̀*).

In verbs with Low root tone melody, Low tone is raised to Mid when a suffix with Low tone is attached, as symbolized in M8. The process does not occur on verbs with other tone melodies ending in Low tone such as HL or ML tone melodies.

{M8} Verb root L raised to M preceding suffix L
[only in verbs with Low root tone melody]
L-L > M-L

The imperative form of the verb *ɟɛ̀r* 'forget' has underlying Low tone melody. When the third plural morpheme assigns Low tone to the completive suffix on the same verb, the Low root tone becomes Mid (*ɟɛ̄r-sà̀*).

3.4.3 Suffix High and Mid tone lowering

There is also a lowering process of both High and Mid tone of bound morphemes. A contrast between High and Mid tone is neutralized on bound morphemes following root- or stem-final Low tone. The morphological tone lowering process of {M9} symbolizes the fact that High tone on a bound morpheme becomes Mid when following a root or stem with final Low tone. Further, Mid tone on a bound morpheme assimilates to root or stem-final Low tone. The rule applies in all noun and verb stems. However, the rule does not apply to some clitics such as accompaniment, passives, imperfects, and dative pronouns attached to noun or verb stems.

{M9} Bound morpheme High and Mid tone lowering
L-H > L-M
L-M > L-L

When the copular clitic *=Ā* attaches to the noun stem *sɛ́ɛ̀n* 'ruler' with final Low

tone, the clitic Mid tone becomes Low (*séén=à*). When the definite clitic *=Á* attaches to the same noun, the clitic High tone is lowered to Mid (*séén=ā*). However, the Mid tone of the copular clitic *=Ān* does not lower when attached to *d̪ìì* 'rat' (*d̪ìì.=īn*). Similarly, the Mid tone of the accompaniment clitic *=nĒ* does not lower when attached to the vowel-final noun stem *ɔ̀nsɔ̀* 'cooking plate' (*ɔ̀nsɔ̀=nɛ̄*).

The infinitive verb *dɔ̄ɔ̀s* 'stand' has Mid-Low tone melody. In the first singular completive form, Mid tone assigned to the stem-final syllable assimilates to the root-final Low tone (*dɔ̄ɔ̀s-sɔ̀*). In the third singular form of the same verb, High tone assigned to the stem-final syllable lowers to Mid tone (*dɔ̄ɔ̀s-sɔ̄*). However, when the imperfect clitic *=É* with High is added to the third singular completive form, the High clitic tone does not become Mid (*dɔ̄ɔ̀s-s=ɛ́*).

3.4.4 Three tones assigned to a single stem syllable

There are various three-tone contours assigned through morphology to a single syllable, which result in surface tones that differ from the underlying tones. The combinations of underlying tones mostly do not surface in a single syllable in roots. Therefore, the changes resulting in the surface form are analyzed as morphophonological processes rather than processes that occur throughout the language.

As symbolized in {M10}, when the three tones High, Low, High are all assigned to a single stem syllable through morphology, the resultant tone for the syllable is High-Mid-High.

{M10} HLH > HMH

The first singular incompletive verb *pîr* 'lie' has a HL root tone melody. In the third singular incompletive form when High tone is added to the root tone to mark third person, the three tones High, Low, and High are all assigned to the same syllable and the Low tone surfaces as Mid (*pî ́r*).

As symbolized in {M11}, when the three tones Low, High, Low are all assigned to a single stem syllable, the resultant tone for the syllable is Low-Mid-Low. However, the underlying contour surfaces without change in the heavy syllable noun root *d̪ùûl* 'instrument', as shown in (31) of section 2.4.2.

{M11} LHL > LML

When the third plural past continuous suffix *-A̋̀n* with MHL tone is added to the verb *dɔ̄ɔ̀s* 'stand', and the initial Mid tone of the suffix assimilates to root-final Low tone, the suffix LHL tone then surfaces as LML (*dɔ̄ɔ̀s-ā̀n* 'starting.3pN').

4 Clitics and word structure

In this chapter, we show that various clitics attach to several word categories (4.1), discuss word structure (4.2), and differentiate between the word categories nouns, adjectives, and verbs (4.3).

4.1 Clitics

There are eight grammatically distinct clitics which attach to more than one word category. In addition, there are other clitics which are combinations of clitics, where the morphemes from which they are formed are given in parentheses in table 6 and are explained in the sections to follow. Copular, definite, and relative clause definite clitics can have number distinction, sometimes depending on the word category to which they attach. Dative, accompaniment, locative copular, subordinate, and perfect clitics never have number distinction. The clitics in table 6 are those which attach to consonant-final words. Clitic allomorphs sometimes attach to other word-final segments, as will be discussed in relevant morphology sections. The difference between relative clauses marked and unmarked for definiteness will be discussed in 14.6.

Table 6: Clitics on consonant-final words

	SG	PL
Copular (COP)	=Ā$_{N}$, =À$_{PRON}$, ---$_{ADJ}$	=À
Definite (DEF)	=Á	=Á$_{N}$, =À$_{ADJ}$
Relative clause definite (RDM)	=É	=È
Dative (DAT)	=Án	=Án
Relative clause dative (RDTM)	=ÉĒn (from =*É*=*Án*)	=ÈÈn (from =*È*=*Án*)
Locative copular (LCM)	=Án (from *íīn/éēn*)	=Án (from *ēggàn*)
Relative clause locative copular (RLCM)	=ÉĒn (from =*É íīn/éēn*)	=ÈÈn (from =*È ēggàn*)
Accompaniment (ACM)	=Ē	=Ē
Relative clause accompaniment (RDM=ACM)	=ÉÉ=nĒ (from =*É*=*nĒ*)	=ÈÈ=nĒ (from =*È*=*nĒ*)
Subordinate (SBO)	=É	=É
Relative clause subordinate 'when' (RDM=SBO)	=ÉÉ=nÉ (from =*É*=*nÉ*)	=ÈÈ=nĒ (from =*È*=*nÉ*)
Perfect clitic (PF)	=r	=r

Each clitic is presented below, first in an example clause, and then attached to various word categories. The meaning of each clitic, as well as the section where its

morphology is presented, is also mentioned.

4.1.1 Copular clitic

In answer to questions such as *ɲīn néé* 'What is this?' and various other non-verbal clauses described in 14.6, copular clitics (COP) are attached to nouns, adjectives, or pronouns. Singular and plural copular clauses are shown in (1). See 7.2 and 8.3.1 for a presentation of copular clitic morphology.

(1a)	fɛ́ɛ̄ṭfā=n	àggáár=**ā**	(b)	ṭɔ́-gg	sɛ̀ggār-g=**à**
	Feetfa =DEF	hunter =COP		cow-PL	strong-PL=COP
	'Feetfa is a hunter.'			'Cows are strong.'	

The singular copula clitic is *=Ā* with Mid tone on nouns, *=À* with Low tone on pronouns, and no marking on adjectives. The plural copula clitic is *=À* on all words.

(2) **Copular clitic**

	SG	PL	
Noun	àggáár=**ā**	àggáàr-g=**à**	'is a hunter'
ADJ	ɟāā bánḏָāl	ɟɔ̄gg bánḏָāl-g=**à**	'is a weak person'
1sP	ɔ́ɔ̀n=**ə̀**	ɔ́nə̀gg=**ə̀**	'is mine'

4.1.2 Definite clitic

The definite clitic (DEF) indicates the speaker believes a word is active or known information in the mind of the hearer. See also 7.3 and 8.3.2.

(3a)	á	ɲām	àggáár=**á**	(b)	ṭɔ́-gg	sɛ̀ggār-g=**à**	nāàm
	1sN	want	hunter=DEF		cow-PL	strong-PL=DEF	eating
	'I want the hunter.'				'The strong cows are eating.'		

The singular definite clitic is *=Á* with High tone. The plural definite clitic is *=Á* with High tone on nouns and *=À* with Low tone on adjectives. It is *=n* on vowel-final nouns and adjectives.

(4) **Definite clitic**

	SG	PL	
Noun	àggáár=**á**	àggáār-g=**á**	'the hunter'
ADJ	ɟāā-**n** bánḏָāl=(**á**)	ɟɔ̄gg-(**ɔ́**) bánḏָāl-g=**à**	'the weak person'
3sP	mɔ̄sɔ̀r ìnī=**n**	mɔ̀sɔ̀r-ɛ̀ɛ̀gg ínìgī=**n**	'the his horse'

In singular noun phrases with a head noun and adjective modifier, the definite clitic

attaches to the adjective unless it is consonant-final and the noun is vowel-final.

(5) **Definite clitic on singular nouns and adjectives**

Noun-final	ADJ-final	Noun SG	ADJ DEF	
V = DEF	C = (DEF)	wɛ́ɛ́ = **n**	bɛ́r = (**á**)	'the clean house'
C	V = DEF	kɔ̀lɛ̀ɛ̀ð	íī = **ín**	'the heavy sword'
C	C = DEF	ɟɛ̄n	bándn̪āl = **á**	'the weak person'
V	V = DEF	bààɔ̀	fāā = **n**	'the old father'

In plural noun phrases with a head noun and adjective modifier, the definite clitic attaches to the adjective and optionally to the head noun.

(6) **Definite clitic on plural nouns and adjectives**

Noun-final	ADJ-final	Noun SG	ADJ DEF		
C-PL = (DEF)	C-PL = DEF	wís-ɔ̄g = (**ɔ́**)	bɛ́r-g = **à**		'the clean houses'
C-PL = (DEF)	C-PL = DEF	kɔ̀lɛ̀ɛ̀ð-g = (**ɔ̄**)	íī-g = **ɔ̀**		'the heavy swords'
C-PL = (DEF)	C-PL = DEF	ɟɔ̄gg = (**ɔ́**)	bándn̪āl-g = **à**		'the weak persons'
C-PL = (DEF)	C-PL = DEF	bààw-āān̪ = (**á**)	fāng = **à**		'the old fathers'

4.1.3 Relative clause definite clitic

Relative clauses are marked or unmarked for definiteness just as noun phrases. When the head of the relative clause is known information, the relative clause definite clitic (RDM) is attached to the clause-final word. See also 7.4, 8.3.3, and 14.7.

(7) á ŋ̂am ɟāā ná sɛ̀ggār = **ɛ́**
1sN want person REL strong = RDM
'I want the person who is strong.'

The singular relative clause clitic is =*É* with High tone and the plural clitic is =*È* with Low tone.

(8) **Definite relative clause clitic**

	SG	PL	
Noun	ná àggáár = **ɛ́**	nà àggáàr-g = **ɛ̀**	'who is a hunter'
ADJ	ná bándn̪āl = **ɛ́**	nà bándn̪āl-g = **ɛ̀**	'who is weak'
Body part	ná ǎn wɛ́ɛ́	nà àn wísɔ̄-g	'who is
locative	ááŋ = **ɛ́**	ɔ́ɔ̀ŋg = **ì**	behind the house'
ADV	ná líɟ-ɟɔ́ ɔ̄nd̪ɔ́gg = **í**	nà líɟ-ɟɔ̄ ɔ̄nd̪ɔ́gg = **ì**	'who came with force'
Verb	ná ŋ̄āŋ = **ɛ́**	nà ŋ̄āŋ = **ɛ̀**	'who files'

4.1.4 Dative clitic

The dative (DAT) has the semantic roles of beneficiary and recipient. See also 7.5 and 8.3.4.

(9) á gàf ɟèèm càòr=**ān**
1sN give something rabbit=DAT
'I give something to a rabbit.'

Singular and plural dative clitics are *=Án*.

(10) **Dative clitic**

	SG	PL	
Noun	àggáár=**ān**	àggáār-g=**ān**	'to a hunter'
ADJ	ɟāā bánḍāl=**ān**	ɟɔ̄gg bánḍāl-g=**ān**	'to a weak person'

4.1.5 Relative clause dative clitic

When the head of the relative clause is an indirect object, the relative clause dative clitic (RDTM) is attached to the clause-final word. See also 8.3.5.

(11) á gàf ɟèèm ɟāā ná sèggār=**ɛ́ɛ̄n**
1sN give something person REL strong=RDTM
'I give something to the strong person
(lit. the person who is strong).'

The singular relative clause dative clitic is *=ÉĒn* (from the combination of the singular relative clause definite clitic and dative clitic *=É=Án* '=RDM.SG=DAT') with HM tone and the plural is *=ÈÈn* (from *=È=Án* '=RDM.PL=DAT') with Low tone.

(12) **Relative clause definite and dative clitic**

	SG	PL	
Noun	ná àggáár=**ɛ́ɛ̄n**	nà àggáār-g=**èèn**	'to the . . who is the hunter'
ADJ	ná bánḍāl=**ɛ́ɛ̄n**	nà bánḍāl-g=**èèn**	'to the . . who is the weak'
Body part locative	ná ăn wɛ́ɛ́ ááɲ=**ɛ́ɛ̄n**	nà àn wísə̄-g əəŋg=**ììn**	'to the . . who remains behind the house'
ADV	ná líɟ-ɟó ənḍógg=**íīn**	nà líɟ-ɟə̄ ənḍógg=**ììn**	'to the . . who came with force'

4.1.6 Locative copular clitic

In non-verbal locative clauses, the singular or plural locative copula *íīn/ēggàn* separates the subject from the predicate. However in fast speech, both singular and plural copulas attach to the subject noun phrase in the form of the clitic *=Á̄n* (LCM). The singular locative copula *íīn/éēn* of (13a) is replaced by the clitic *=Á̄n* attached to the subject noun in (b). The plural locative copula *ēggàn* of (c) is replaced by the same clitic in (d). See also 7.5, 8.3.4, and 14.6.4.

(13) **Locative copular clauses**

(a) ɟāā bánḍāl **íīn** wéé bɛ̀ɲɟ
person weak LCM house beside
'A weak person is beside a house.'

(b) ɟāā bánḍāl=**ā̄n** wéé bɛ̀ɲɟ
person weak=LCM house beside
'a weak person is beside a house.'

(c) ɟɔ̄gg bánḍāl-g **ēggàn** wéé bɛ̀ɲɟ
people weak-PL LCM house beside
'Weak people are beside a house.'

(d) ɟɔ̄gg bánḍāl-g=**ā̄n** wéé bɛ̀ɲɟ
people weak-PL=LCM house beside
'Weak people are beside a house.'

The locative copular clitic happens to have the same form as the dative clitic.

(14) **Locative copular clitic (rapid speech form of *íīn/éēn, ēggàn*)**

	SG	PL	
Noun	àggáár=**ā̄n**	àggáār-g=**ā̄n**	'a hunter is'
ADJ	ɟāā bánḍāl=**ā̄n**	ɟɔ̄gg bánḍāl-g=**ā̄n**	'a weak person is'

4.1.7 Relative clause locative copular clitics

As in (15a), when the head of a definite relative clause is the subject of a non-verbal locative clause, the relative clause definite clitic *=É* is attached to the final word of the relative clause before the locative copula *íīn/éēn*. However, in fast speech as in (b), the singular relative clause locative copular clitic *=ÉĒn* (RLCM) replaces the relative clause definite clitic *=É* and the locative copula *íīn/éēn*. Similarly, the plural relative clause locative copular clitic *=ÈÈn* of (d) replaces the relative clause definite clitic *=È* and the particle *ēggàn* in (c). See also 8.3.5 and 14.7.

(15) **Relative clause locative copular clauses**

(a) ɟāā ná bánḍāl = **ɛ́** **íīn** wɛ́ɛ́ bɛ̀ŋɟ
person REL weak=RDM.SG LCM house beside
'The weak person (lit. person who is weak) is beside a house.'

(b) ɟāā ná bánḍāl = **ɛ́ɛ̄n** wɛ́ɛ́ bɛ̀ŋɟ
person REL weak=RLCM house beside
'The weak person is beside a house.'

(c) ɟɔ̄gg nà bánḍāl-g = **ɛ̀** **ɛ̄ggàn** wɛ́ɛ́ bɛ̀ŋɟ
people REL weak-PL=RDM.PL LCM house beside
'The weak people are beside a house.'

(d) ɟɔ̄gg nà bánḍāl-g = **ɛ̀ɛ̀n** wɛ́ɛ́ bɛ̀ŋɟ
people REL weak-PL=RLCM house beside
'the weak people are beside a house.'

The singular relative clause locative copular clitic is *=ÉĒn* (from *=É íīn/ɛ́ɛ̄n*) with HM tone and the plural is *=ÈÈn* (from *=È ɛ̄ggàn*) with Low tone, which happen to be the same as the relative clause dative clitics.

(16) **Relative clause locative copular clitic**
(rapid speech form of *=É íīn/ɛ́ɛ̄n, =È ɛ̄ggàn*)

	SG	PL	
Noun	ná àggáár = **ɛ́ɛ̄n**	nà àggáār-g = **ɛ̀ɛ̀n**	'the . . who is the hunter is'
ADJ	ná bánḍāl = **ɛ́ɛ̄n**	nà bánḍāl-g = **ɛ̀ɛ̀n**	'the . . who is weak is'
Body part locative	ná ăn wɛ́ɛ́ ááŋ = **ɛ́ɛ̄n**	nà àn wísə̄-g əəŋg = **ììn**	'the . . who remains behind the house is'
ADV	ná líɟ-ɟə́ ənḍə́gg = **íīn**	nà líɟ-ɟə̄ ənḍə́gg = **ììn**	'the . . who came with force is'

4.1.8 Accompaniment clitic

The accompaniment clitic (ACM) is used on noun phrases in adjuncts introduced by the animate preposition *ɛ̀* 'with' if the noun has the semantic role of accompaniment. See also 7.6 and 8.3.6.

(17) bāárg-á áð-ằn ɛ̀ àggáár = **ɛ̄**
Baggara-DEF coming with hunter = ACM
'The Baggara tribe was coming with a hunter.'

Singular and plural accompaniment clitics are *=E*.

(18) **Accompaniment clitic**

	SG	PL	
Noun	è àggáár = **ɛ̄**	è àggáār-g = **ɛ̄**	'with a hunter'
ADJ	è ɟāā bánḍāl = **ɛ̄**	è ɟɔ̄gg bánḍāl-g = **ɛ̄**	'with a weak person'
Body part locative	è ɟāā ná nă wéɛ́ ááɲ = **ɛ̄**	è ɟɔ̄gg nà nà wísə-g ɔ́ə̀ŋg = **ī**	'with a person who remains behind a house'
ADV	è ɟāā ná líɟ-ɟə́ ənḍə́gg = **ī**	è ɟɔ̄gg nà líɟ-ɟə̄ ənḍə́gg = **ī**	'with a person who came with force'

4.1.9 Relative clause definite and accompaniment clitic

When the head of the relative clause has an accompaniment role and is introduced by the animate preposition *ɛ̀* 'with', the relative clause definite and accompaniment clitics (RDM=ACM) are attached to the clause-final word. See also 8.3.7.

(19) bāárg-á áð-á̰̀n è ɟāā ná sèggār = **ɛ́ɛ́ = nɛ̄**
Baggara-DEF coming with person REL strong = RDM = ACM
'The Baggara were coming with the strong person
(lit. the person who is strong).'

The singular relative clause definite and accompaniment clitic is *=ÉÉ́=nɛ̄* (from *=É=nɛ̄* '=RDM.SG=ACM') and the plural is *=ÈÈ=nɛ̄* (from *=È=nɛ̄* '=RDM.PL=ACM'), where the relative clause definite clitic vowel is lengthened.

(20) **Relative clause definite and accompaniment clitics**

	SG	PL	
Noun	ná àggáár = **ɛ́ɛ́ = nɛ̄**	nà àggáàr-g = **ɛ̀ɛ̀ = nɛ̄**	'with the . . who is the hunter'
ADJ	ná bánḍāl = **ɛ́ɛ́ = nɛ̄**	nà bánḍāl-g = **ɛ̀ɛ̀ = nɛ̄**	'with the . . who is weak'
Body part locative	ná ăn wéɛ́ ááɲ = **ɛ́ɛ́ = nɛ̄**	nà àn wísə-g ɔ́ə̀ŋg = **ìì = nī**	'with the . . who remains behind the house'
ADV	ná líɟ-ɟə́ ənḍə́gg = **íí = nī**	nà líɟ-ɟə̄ ənḍə́gg = **ìì = nī**	'with the . . who came with force'

4.1.10 Subordinate clause-final clitic

In subordinate clauses, such as those beginning with the subordinate conjunction *ɛ́ gārá* 'when', the clitic *=É* (SBO) attaches to the clause-final word. The subordinate

clause-final clitic *=É* (SBO) should not be confused with the subordinate verb-final clitics (SBO1, SBO2) of 10.7. In (21), the clitic *=ɪ̋* (SBO1) attaches to the verb *ṭúr-s=ɪ̋* 'struck=COMP =SBO1' in addition to the clause-final clitic *=É* (SBO) and is a different morpheme. See also 7.7 and 8.3.8.

(21) ɛ́ gārá bə̀rḍ̈=ə̄ ṭ̈úr-s=ɪ̈ ɟāā ná sɛ̀ggār=**ɛ́**
GP when lion=DEF see-COMP=SBO1 person REL strong=SBO
'When the lion saw a strong person, . . '

Singular and plural subordinate clauses have the clitic *=É* in clause-final position.

(22) **Subordinate clitic**

	SG	PL	
Noun	àggáár=**ɛ́**	àggáàr-g=**ɛ́**	'When . . . a hunter'
ADJ	ɟāā bánḍ̈āl=**ɛ́**	ɟɔ̄gg bánḍ̈āl-g=**ɛ́**	'When . . . a weak person'
Body part	ɟāā àn wɛ́ɛ́	ɟɔ̄gg àn wísə̄-g	'When . . . a person
locative	bɛ̀ŋɟ=**ɛ̄**	bɛ̀ŋāāg=**ɛ́**	remaining beside the house'
ADV	líɟ-ɟ=ɪ̈	líɟ-ɟ=**ɪ̂(ggɪ̈)**	'When . . . came
	ənḍ̈ə́gg=**ɪ́**	ənḍ̈ə́gg=**ɪ́**	with force'
Verb	ŋə̄ŋ=**ɪ̀**	ŋə̄ŋ=**ɪ̂(ggɪ̈)**	'When he files'

4.1.11 Relative clause definite and subordinate clitic

When a relative clause is at the end of a subordinate clause, the relative clause definite and subordinate clitics (RDM=SBO) are attached to the clause-final word. See also 8.3.9.

(23) ɛ́ gārá bə̀rḍ̈ə̄ ṭ̈úr-s=ɪ̈ ɟāā ná sɛ̀ggār=**ɛ́ɛ́=né**
(GP)when lion.DEF see-COMP=SBO1 boy REL strong=RDM=SBO
'When the lion saw the strong boy, . . '

The singular relative clause and subordinate clause clitic is *=ÉÉ=nÉ* (from *=É=nÉ* '=RDM.SG=SBO') and the plural is *=ÈÈ=nĒ* (from *=È=nÉ* '=RDM.PL=SBO'), where the relative clause definite clitic vowel is lengthened and the subordinate clitic High tone lowers to Mid following Low in the plural clitic {M9}.

(24) **Relative clause definite and subordinate clitics**

	SG	PL	
Noun	ná àggáár=**ɛ́ɛ́=né**	nà àggáàr-g=**ɛ̀ɛ̀=nɛ̄**	'When . . the . . who is the hunter'
ADJ	ná bánḍ̈āl=**ɛ́ɛ́=né**	nà bánḍ̈āl-g=**ɛ̀ɛ̀=nɛ̄**	'When . . the . . who is weak'

Body part	ná ằn wɛ́ɛ́	nà àn wísə̄-g	'When . . the . .
locative	ááɲ = **ɛ́ɛ́ = né**	əəŋg = **ìì = nī**	who remains behind the house'
ADV	ná líɟ-ɟə́	nà líɟ-ɟə̄	'When . . the . . who
	ə̄nḍə́gg = **íí = ní**	ə̄nḍə́gg = **ìì = nī**	came with force'

4.1.12 Perfect clitic

The perfect clitic (PF) indicates that a past or present action remains or results in the present or future. See also 10.8.

(25) ɛ̄ lā gə̆f-ì wá, ɛ̄ gə̀ù-s-îì = **r**.
3sN UNC /gàf/give.INCP-3sAM not 3sN /gàf/give-COMP-IPF = PF
'He would not give it (money), (since) he had already given.' (Fand3)

The perfect clitic *=r* optionally attaches to the verb object or verb of the clause.

(26) **Perfect clitics**
Noun á kɔ́m-ḍá ɟɔ̄g = ɔ́ = **r** 'in order to completely cut the people'
Verb á kɔ́m-ḍá = **r** ɟɔ̄g = ɔ́ 'in order to completely cut the people'

4.2 Word structure

Before beginning morphology discussion on various word categories, it is important to define how a word boundary is determined and how the terms 'root', 'stem' and 'word' are used in this thesis. The morphemes attached to roots and stems have different functions, different morphophonological alternations, or in other ways are treated as different kinds of morphemes in the language.

Word boundaries are determined by [+ATR] spreading. A word involves all bound morphemes to which [+ATR] quality spreads; with the exception of a few compounds (see footnote 8 in section 2.2.2.2), all vowels of a word have the same [ATR] quality, all being either [+ATR] or all being [-ATR].

A root is the smallest lexical morpheme of a word and can be the entire word. A stem is a root plus an optional suffix and can also be the entire word. A word includes the stem and any optional clitics.

(27) Stem = root + (suffix)
Word = stem + (clitic) + (clitic)

All suffixes of the language are a part of the stem and all clitics in the language are outside of the stem, but inside the word. More than one clitic in the same word is possible, but only one suffix is possible in a stem.

Nearly all stems are inflectional, having aspect (COMP, CONT, PF) or mood (IMP, SBJV). On the other hand, clitics are derivational (VN), indicate valency (PAS, PAS.A) or have clausal functions indicating how the word relates to another constituent of the clause (DAT, ACM) or indicates its place in the clause (COP, RDM, SBO).

There are five criteria which can be used to determine whether a bound morpheme is a clitic. The criteria are not all valid for any one clitic. However, none of these criteria are valid for any of the suffixes. Thus, they each individually support the claim that clitics can be grouped differently than suffixes, and how to distinguish the two.

(28) **Criteria for determining bound morphemes are clitics**
(a) Attaches to more than one word category
(b) Attaches to inflectional morphemes
(c) Attaches to surface-final segments
(d) Stem tone assignment is the point of departure
(e) One or more of the morphophonological rules {M1-11} is not applied.

In the previous section of this chapter, it is shown that many of the clitics are attested to attach to more than one word category. In the introduction to noun morphology in 6.1 and the introduction to verb morphology in 9.1, as well as in relevant sections for each morpheme, the other criteria are shown to be valid for at least some clitics. Although several inflectional suffixes cannot be combined with other inflectional suffixes, all clitics can attach to inflectional suffixes. Although suffixes always attach to underlying-final segments of roots, clitics attach to surface-final segments of stems. In noun morphology, it is shown that root tone assignment is the point of departure for stem tone assignment, whereas stem tone assignment is the point of departure for word tone assignment. In verb morphology, although the morphophonological rules {M1-11} always apply to suffixes, it is common for one or more of the rules to not be applied to clitics.

4.3 Comparison of adjectives with nouns and verbs

Nouns and verbs are the two largest word categories in Gaahmg, both of which have significant amounts of morphology. Adjectives (also called qualitative adjectives in this thesis), though less productive, also have a significant amount of morphology. Before discussing the morphology of each, it is important to verify that each is a lexical category in its own right.

Although adjectives commonly function as modifiers, they can also be used nominally or verbally. However, they are not used in some of the syntactic constructions of either nouns or verbs, and there are some differences in the morphology when used as either category. Thus, they can be analyzed as a distinct lexical category from either nouns or verbs.

Adjectives such as *kāyáár* 'beautiful' agree in number with the head noun of the noun phrase, often marking plural number with the same suffix *-gg* as in nouns.

(29a) á ɲā̀m ɔ̄ḍ kāyáár
1sN want wife beautiful
'I want a beautiful wife.'

(b) á ɲā̀m ɔ̄ɔ̄-**gg** kāyáār-**g**
1sN want wives-PL beautiful-PL
'I want beautiful wives.'

Adjectives are attested to fill the same slot in a clause as a noun when they are predicates of non-verbal clauses (with either a separate or bound copula) or follow a relativizer. However, they are generally not attested (NA) as subjects, objects, or objects of prepositions, although adjectives can modify the head noun of a noun phrase in each of these constructions.

(30) **Noun 'hunter' and adjective 'beautiful' syntactic comparison**

	N	ADJ	ADJ of noun phrase
Predicate separate copula	ɟɛ̄n ṭā **àggáár** 'The person is a hunter.'	ɟɛ̄n ṭā **kāyáár** ' . . is beautiful.'	ɟɛ̄n ṭā kàmàlɔ̀gg **kāyáár** ' . . is a beautiful girl.'
Predicate bound copula	ɟɛ̄n **àggáár=ā** 'The person is a hunter.'	ɟɛ̄n **kāyáár** ' . . is beautiful.'	ɟɛ̄n kàmàlɔ̀gg **kāyáár** ' . . is a beautiful girl.'
Following REL	á ɲā̀m ɟɛ̄n ná **àggáár=é** 'I want the person who is a hunter.'	á ɲā̀m ɟɛ̄n ná **kāyáár=é** ' . . is beautiful.'	á ɲā̀m ɟɛ̄n ná kàmàlɔ̀gg **kāyáár=é** ' . . is a beautiful girl.'
Subject	**àgáár** wɛ̄ḍán 'The hunter is good.'	(NA) 'The beauty is . . '	kàmàlɔ̀gg **kāyáár** wɛ̄ḍán 'beautiful girl is . . '
Object	á ɲā̀m **àggáárá** 'I want the hunter.'	(NA) ' . . the beauty.'	á ɲā̀m kàmàlɔ̀gg **kāyáár=á** ' . . beautiful girl.'
Object of PP	ɛ̄ léɛ̄n è **àggáár=ɛ̄** 'She comes with a hunter.'	(NA) ' . . with the beauty.'	ɛ̄ léɛ̄n è kàmàlɔ̀gg **kāyáár=ɛ̄** ' . . with a beautiful girl.'

A few adjectives such as *wɛ̄ḍán* 'good' have a different form (*wáɛ̄ḍá* 'goodness, joy') when used as a subject, object or object of a preposition. The word used in these constructions is analyzed categorically as a noun, having different syntactic functions than adjectives.

(31) **Noun *wáɛ̄ḛ́á* 'goodness, joy' and adjective *wɛ̂ḛ́án* 'good' syntactic comparison**

Predicate	ṭɔ́ɔ́ = n **wɛ̄ḛ́án** 'The cow is good.'	Object	á ɲām **wáɛ̄ḛ́á** 'I want joy.'
Subject	**wáɛ̄ḛ́á** wɛ̂ḛ́án 'Joy is good.'	Object of PP	ɛ̄ áḛ̈ ɛ̄ **wáɛ̄ḛ́á** 'He became with joy.' (is pleased)'

There are three differences in the stem morphology of nouns and adjectives with final consonants. As shown in (32), singular nouns attach the copular clitic *=Ā*, whereas singular adjectives do not attach any clitic. Plural nouns attach the definite clitic *=Á* with High tone, whereas plural adjectives attach the definite clitic *=À* with Low tone.

(32) **Noun 'hunter' and adjective 'beautiful' morphology comparison**

	N.SG	N.PL		ADJ.SG	ADJ.PL
	àggáár	àggáār-g		kāyáár	kāyáār-g
COP	**=Ā**/=À	àggáár=ā	àggáàr-g=à	**--**/=À	kāyáár	kāyáàr-g=à
DEF	=Á/=**Á**	àggáár=á	àggáār-g=á	=Á/=**À**	kāyáár=á	kāyáàr-g=à
LCM/	=Án/	àggáár	àggáār-g	=Án/	kāyáár	kāyáār-g
DAT	=Án	=ān	=ān	=Án	=ān	=ān
ACM	=É/=Ɛ́	àggáár=ɛ̄	àggáār-g=ɛ̄	=É/=Ɛ́	kāyáár=ɛ̄	kāyáār-g=ɛ̄
RDM	=É/=È	àggáár=ɛ́	àggáàr-g=ɛ̀	=É/=È	kāyáár=ɛ́	kāyáàr-g=ɛ̀
SBO	=É/=É	àggáár=ɛ́	àggáār-g=ɛ́	=É/=É	kāyáár=ɛ́	kāyáār-g=ɛ́

In addition, the definite clitic *=Vn* with no underlying tone attaches to monosyllabic vowel-final nouns (*máà, máá.=àn* 'house=DEF'), whereas the definite clitic *=Ví.n* with High tone attaches to monosyllabic vowel-final adjectives (*îì, íí.=ín* 'heavy=DEF'). The differences in syntactic function and the differences in morphology, support the claim of there being both categorical nouns and adjectives.

A few adjectives may be derived from nouns with the suffix *-i* as seen from the data of (33) taken from the *Gaahmg-English Dictionary* by Madal (2004). The derivation from one category to the other also supports the claim of both categories.

(33) **Adjectives derived from nouns (Madal, 2004)**

N		ADJ	
ɔ̄ɔ̄r [17]	'anger'	əər-i	'sorrowful, angry'
ḛ̈ùùḛ̈	'year'	ḛ̈uuḛ̈-i	'annual'
kùsúùr	'authority'	kusuur-i	'forceful'

Adjectives can also be used as verbs, often with the same syntax and morphology as

[17] No tone marking was included with the data from the mentioned source.

verbs. Adjectives are attested to fill the same slot in a clause as verbs in the constructions of (34). Many adjectives such as *kāyáár* 'beautiful' have the same morphology as verbs for completive and continuous suffixes.

(34) **Verb 'chop' and adjective 'beautiful' syntax comparison**

	V	ADJ
INF	ɟɛ̄n ɖɔ̈ɔ̀s-s ɛ̄ kɔ́m	ɟɛ̄n ɖɔ̈ɔ̀s-s ɛ̄ kāyáár
	'The person begins to chop.'	' . . to be beautiful.'
INCP	ɟɛ̄n kɔ́m	ɟɛ̄n kāyáár
	'The person chops.'	' . . is beautiful.'
COMP	ɟɛ̄n kɔ́m-**sɔ́**	ɟɛ̄n kāyáár-**sá**
	'The person chopped.'	' . . was beautiful.'
CONT.N	ɟɛ̄n kɔ́m-**án**	ɟɛ̄n kāyáár-**án**
	'The person was chopping.'	' . . was beautiful.'
Following	á ɲā̀m ɟɛ̄n ná kɔ́m = **ɛ́**	á ɲā̀m ɟɛ̄n ná kāyáár = **ɛ́**
REL	'I want the person who chops.'	' . . is beautiful.'

However, in verb paradigms such as the incompletive forms of (35), the long forms of subject pronouns precede the adjectival verb instead of short subject pronouns as in true verbs. The plural adjective suffix *-gg* and copular clitic *=A* attach to adjectival verbs of plural persons, whereas these bound morphemes are not attached to any true verb forms.

(35) **Incompletive paradigms of active verb and adjectival verb compared**

(a) '___ chop, cut'			(b) '___ am/are/is beautiful'		
á	kɔ̄m	1sN	āān	kāyáār	1sN
ɔ́, ú = kū̀m		2sN	ɔ̄ɔ̄n	kəyɔ́ə̄r	2sN
ɛ̄	kɔ́m	3sN	ɛ̄ɛ̄n	kāyáár	3sN
āgg	kɔ̄m	1pN	āggá	kāyáár-g = ā	1pN
ɔ̄gg, ūg = kū̀m		2pN	ɔ̄ggɔ́	kəyɔ́ə̄r-g = ə̄	2pN
ɛ̄ggà	kɔ̂m	3pN	ɛ̄ggà	kāyáár-g = à	3pN

The adjectival verb *kāyáār* of (35) has subject tone inflection (final Mid for second person, final High for third singular, and final Low for third plural) and [+ATR] second person forms, as do true verbs. However, in some adjectives used as verbs, person inflection is not as regular as the adjectival verb paradigm in (35). Second plural forms of some adjectival verbs have Low final tone instead of Mid (*kɔ́ɔ́fə̀r, kúúfə̀r-g = ə̀* 'thin.INCP-2pN=COP') and second person forms of some adjectival verbs have [-ATR] quality instead of [+ATR] (*bánɖāl, bánɖāl-g = ā* 'weak.INCP-2pN=COP'). These features mark adjectives as being different than true verbs.

Since adjectives have some differences in syntax and morphology compared to both nouns and verbs, they are analyzed as a separate category. Adjective clitic morphology similar to that of noun morphology is presented in 8.3, whereas

adjective morphology similar to verb morphology is presented in 10.11.

In the following chapters, word categories are discussed one-by-one. For each, we first discuss the function followed by the forms of morphemes attached to roots or stems. Because possessive pronouns are important for the discussion on nouns and verbs, pronouns in general are discussed first, followed by nouns, adjectives, verbs, prepositions, locatives, and adverbs. Each of these is a lexical category, as are conjunctions discussed in 15.2.

5 Pronouns

The pronoun system in Gaahmg distinguishes three persons, two numbers (singular and plural), and six cases (possessive, subject, object, dative, reflexive, prepositional). There is no dual, no gender distinction, no inclusive/exclusive distinction, and no logophoric distinction. As expected in an SVO language, subject pronouns are pre-verbal and object and dative pronouns are post-verbal. Possessive pronouns are pre-nominal for inalienable nouns and post-nominal for alienable nouns. Prepositional pronouns have the prepositional marker prefix *d̈-* and reflexive pronouns make use of the possessed noun 'body'.

There are two distinct ways that pronouns affect verbs through [ATR] quality: second person subject morphemes require verb forms to have [+ATR] vowel quality as discussed in 5.3, and dative suffixed pronouns spread [+ATR] vowel quality leftward onto the verb root {M3}, as discussed in 5.5.

The six types of pronouns are each discussed in their own section, but first, an explanation is needed for the vowel-person correspondence in all pronouns. Interrogative pronouns are not discussed in this chapter, but in 15.3 in the chapter on sentence level syntax.

5.1 Person and number markers

Pronouns in Gaahmg, regardless of case or number, use vowel features to represent the person referred to. Depending on the type of pronoun, the vowel may be either [+ATR] or unspecified for [ATR], and the three persons coincide with the language's three vowel harmony pairs as shown in (1): [+back, -round] vowels represent first person, [+round] vowels represent second person, and [-back] vowels represent third person. Pronouns are marked for plural number agreement with the velar geminate segment *-gg-*.

(1) **Person marker vowel pairs in pronouns**

Vowel features	Vowel pairs	Person indicated
[+back, -round]	**a, ə**	1st person
[+back, +round]	**ɔ, u**	2nd person
[-back, -round]	**ɛ, i**	3rd person

The abbreviations used for pronouns are as follows in order of appearance: 1, 2, or 3 refers to person; s or p refers to singular or plural person number; P, N, A, D, R, O refers to possessive, subject (or nominative), object (or accusative), dative, reflexive, or prepositional case (object of a preposition); and in possessive pronouns, final s or p refers to singular or plural noun agreement. For example, the pronoun *máà əəm(è)* 'my (1sPs) house' indicates the first person singular possessive pronoun agreeing

with a singular noun, and the pronoun *máàgg ɔ́nɔ̀gg(ə)* ‘my (1sPp) houses’ indicates the first person singular possessive pronoun agreeing with a plural noun. For reference, the list of table 7 presents the most basic pronoun forms of this chapter.

Table 7: Basic pronoun forms

Infinitive	Possessive (body parts) (P)	Long subject (N)	Short Subject (N)	Subject future (N)	Object (A)	Dative (D)	Reflexive (R)	Prepositional (O)	
ā	ā	āān	á	â	a	-ə̄n -ðn	ə̄ə̄ŋ	-ɑ́ɑ́n(á)	1s
ɔ̄	ɔ̄	ɔ̄ɔ̄n	ɔ́ ɔ́=	ɔ̄ ɔ̄=	-O	-ū̄n -ǔn	ūūŋ	-ɔ́ɔ́n(ɔ́)	2s
ɛ̄	ɛ̄	ɛ̄ɛ̄n	ɛ̄	ɛ́	-E -Ɛ	-ī̂n -ɪ̌n	īīŋ	-ɛ́ɛ̄n(á)	3s
à(gg)	āgg	āggá	āgg	āggá	aaggá áāggá	-ə̄ggɔ́n -ðggə̄n	ə̀ə̀ŋ-g	-ɑ̂ggá	1p
ɔ̀(gg)	ɔ̄gg ūgg	ɔ̄ggɔ́	ɔ̄gg ɔ̄gg=	ɔ̄ggɔ́ ɔ̄ggɔ́=	-OOggÓ -ÓŌggÓ	-ūggún -ǔggūn	ùùŋ-g	-ɔ̄ggɔ́	2p
è(gg)	ɛ̄gg	ɛ̄ggà	(ɛ̄gg)	ɛ̄ggà	-EEggÀ -ÉÈggÀ	-ɪ̂ggən -ɪ̌ggən	ììŋ-g	-ɛ̂ggè	3p

5.2 Possessive pronouns

There are two sets of possessive pronouns, one used with inalienable nouns—body parts and kinship terms—the other with alienable nouns. The two sets have different syntax. The inalienable set precedes the noun, the alienable set follows it. The examples of (2-4) demonstrate the order of possessors and possessed nouns.

(2) **Pre-nominal possessive pronouns: body parts**

(a) ɲâm **ūgg** **ŋə̀lg**
break 2pPp necks
‘They will break your necks.’ (Thng23)

(b) ānēnḍá Ṭél **ɛ̄** **kúnḍ=ú**[18] ɛ̄ áḍ ɛ̄ wáɛ̄ḍá
then God 3sPs heart=DEF 3sN becomes with joy
'Then, God will be pleased (lit. Then God's his heart, it becomes with joy).' (Womn17)

(3) **Pre-nominal possessive pronouns: kinship terms**
(a) ɔ **ɔ́** **yáā** ɲāā néé lèèn-án ḍūmùùn ḍ-ūūŋ ṭà
and 2sPs mother girl this was.coming towards PP-2sO there
'Your mother's sister (lit. your girl mother) was coming to you there.' (Assa3-4)

(b) ɔ̄ðɔ̄ɔ̄gg, ɔḍḍɔ́ é kɔ̄r **ḍ-ɔ̄ggɔ̀** **ɟīð-ɔ̀gg=ɔ̄**
women live GP word **PP-2pPp** **husband-PL=DEF**
'Women, if you live only by your husbands' orders.' (Womn21)

(4) **Post-nominal possessive pronouns**
(a) **mɔ̄sɔ̀r** **īnī** bɛ̄l ɔ̀súùr.
horse 3sPs named Asuur
'His horse was called Asuur.' (Minj10)

(b) bìì fīŋɔ́ḍɔ́ **kɔ̄r** **ɔ́ɔ̀n** níí mà mâŋ!
let hear word 1sPs this very carefully
'Listen to my words very carefully!' (Womn3)

5.2.1 Possession of alienable nouns

Possessive pronouns of alienable nouns are given in (5). Alienable possessive pronouns agree with the noun they follow in both singular and plural number. The singular marker *-n-* is only found in alienable possessive pronouns and in long subject pronouns (see 5.3), whereas the plural marker *-gg-* is used in all plural pronouns. The plural person pronouns are distinguished from the singular person

(5) **Possessive paradigm for alienable noun *máà / máàgg* 'house'**

	Singular person pronouns			Plural person pronouns		
Noun SG	máà	ɔ́ɔ̀n(=è)	1sPs	máà	ɔ̄yɔ̀n(=ɔ̀)	1pPs
	máà	úùn(=ù)	2sPs	máà	ūyùn(=ù)	2pPs
	máà	īnī(=n)	3sPs	máà	īyɔ̀nī(=n)	3pPs
Noun PL	máà-gg	ɔ́nɔ̀gg(=ɔ̀)[19]	1sPp	máà-gg	ɔ̄yɔ̀gg(=ɔ̀)	1pPp
	máà-gg	únùg(=ù)	2sPp	máà-gg	ūyùgg(=ù)	2pPp
	máà-gg	ínìgī(=n)	3sPp	máà-gg	īyɔ̀ggī(=n)	3pPp

[18] The construction of (2b) has both a noun (*Ṭél* 'God') and pronoun (*ɛ̄* 'his') possessor of the body part *kúnḍú* 'heart'. See 14.9.3 for nominal possession of body parts.
[19] Or *ɔ́ngɔ̀*

pronouns with the segment *y*, and initial tone of singular person possessives is High, whereas initial tone of plural person possessives is Mid. Third person possessives have a final vowel with Mid tone. Vowels and consonants in parentheses are copular clitics, attached when the possessive pronouns are comments of a stative clause ('The cow is mine'). They are discussed further in section 14.6.1.

5.2.2 Possession of inalienable nouns: body parts

Possessive pronouns for body parts are given in (6). In Gaahmg, body parts are inalienable nouns with possession formed by an independent possessor pronoun preceding the possessed noun. In (6), the body part 'cheek' is listed in singular and plural forms with all possible possessive pronouns. The dashed line represents constructions that do not exist. The [+ATR] value of the plural suffix *-ə́gg* spreads leftward onto the noun root in accordance with {M3} of 3.2, but not onto the independent possessive pronoun preceding the noun. The plural person pronouns are distinguished from the singular person pronouns by the plural marker *gg*. Second person possessives of plural body parts can be [+ or -ATR]. The tone of all possessive pronouns of body part nouns is Mid.

(6) **Possessive paradigm for inalienable body part *fə̃nn̤ / fənn̤ə́gg* 'cheek'**

	Singular person pronouns			Plural person pronouns		
Noun SG	ā	fə̃nn̤	1sPs	---		1pPs
	ɔ̄	fə̃nn̤	2sPs	---		2pPs
	ɛ̄	fə̃nn̤	3sPs	---		3pPs
Noun PL	ā	fənn̤-ə́gg	1sPp	āgg	fənn̤-ə̄gg	1pPp
	ɔ̄, ū	fənn̤-ə́gg	2sPp	ɔ̄gg, ūgg	fənn̤-ə̄gg	2pPp
	ɛ̄	fənn̤-ə́gg	3sPp	ɛ̄gg	fənn̤-ə̄gg	3pPp

In addition, the nouns possessed by plural persons take a different tone pattern than that of nouns possessed by singular persons. As is discussed further in 6.4, the plural person morpheme requires LM tone pattern to surface for possessed body part nouns.

5.2.3 Possession of inalienable nouns: kinship terms

The possessive pronouns of kinship terms are identical to those of body part nouns, except for tone. Whereas all possessive pronouns of body part nouns have Mid tone, first and second singular person pronouns of kinship terms have High tone. And in contrast to body parts, the tone of kinship terms possessed by plural persons is the same as those possessed by singular persons.

(7) **Possessive paradigm for inalienable kinship term *ṭ́ááðà / ṭ́ááðàḍ́* 'grandmother'**

	Singular person pronouns			Plural person pronouns		
Noun SG	á	ṭ́ááðà	1sPs	āgg	ṭ́ááðà	1pPs
	ɔ́	ṭ́ááðà	2sPs	ɔ̄gg	ṭ́ááðà	2pPs
	ɛ̄	ṭ́ááðà	3sPs	ɛ̄gg	ṭ́ááðà	3pPs
Noun PL	á	ṭ́ááðàḍ́	1sPp	āgg	ṭ́ááðàḍ́	1pPp
	ɔ́, ú	ṭ́ááðàḍ́	2sPp	ɔ̄gg, ūgg	ṭ́ááðàḍ́	2pPp
	ɛ̄	ṭ́ááðàḍ́	3sPp	ɛ̄gg	ṭ́ááðàḍ́	3pPp

5.2.4 Inherently possessed body part nouns

For most inalienable nouns, possessive pronouns are separate from the nouns they precede, evidenced by a lack of [+ATR] spreading from roots to the preceding pronoun {M3}. However, there is a special set of body parts in which the possessive pronoun is attached to the noun. These body part nouns do not occur without being possessed by someone, and can be referred to as 'inherently possessed' body parts (Payne 1997:105-106). Unlike other body part nouns, speakers cannot say 'eye', 'hand', 'head', etc. without also including the possessor along with the noun (i.e. 'his eye', 'my eye', 'your eye', etc.).

An exhaustive list of inherently possessed body parts is shown in (8). Those that are used as locatives, as described in chapter 11, have asterisks next to them. The root contains only a consonant, except for (g) which has no root segment. A possessive person marker long vowel *VV-* is prefixed to the root in all singular forms as well as in plural forms of all but the body part nouns of (a-b). In the plural forms of (a-b), a person marker short vowel *V-* is prefixed to the root. All vowels of each possessed body part noun refer to the person possessing it, corresponding with the three vowel pairs of the language: *a* or *ə* for first person, *ɔ* or *u* for second person, and *ɛ* or *i* for third person. The [+ATR] quality of the plural suffixes *-$^{+}$gg* or *–$\bar{V}^{+}$gg* spreads leftward onto the noun root {M3}. Further, the vowel of the suffix is underlying unspecified for any other feature, and takes the features of the person morpheme—*ə, u,* or *i,* depending on the person possessing the body part. The body parts of (f-g) have both a singular and plural suffix.

(8) **Possessive paradigms of 'inherently possessed' body part nouns**

	Root	N SG, SG person		N PL, SG person		N PL, PL person		
(a)	/ḍ́/	āā-ḍ́	1sPs	ə́-ḍ́-ə̄gg	1sPp	ə̀-ḍ́-ə̄gg	1pPp	'eye'
		ɔ̄ɔ̄-ḍ́	2sPs	ú-ḍ́-ūgg	2sPp	ù-ḍ́-ūgg	2pPp	
		ɛ̄ɛ̄-ḍ́	3sPs	í-ḍ́-īgg	3sPp	ì-ḍ́-īgg	3pPp	
(b)	/s/	áà-s	1sPs	ə́-s-ə̄gg	1sPp	ə̀-s-ə̄gg	1pPp	'hand'
		ɔ́ɔ̀-s	2sPs	ú-s-ūgg	2sPp	ù-s-ūgg	2pPp	
		ɛ́ɛ̀-s	3sPs	í-s-īgg	3sPp	ì-s-īgg	3pPp	

(c)	/l/	āā-l	1sPs	ə̀ə̀-l-g	1pPp	‘head’*
		ɔ̄ɔ̄-l	2sPs	ùù-l-g	2pPp	
		ɛ̄ɛ̄-l	3sPs	ìì-l-g	3pPp	
(d)	/ɲ/	āā-ɲ	1sPs	ə̀ə̀-ɲ-g	1pPp	‘back’*
		ɔ̄ɔ̄-ɲ	2sPs	ùù-ɲ-g	2pPp	
		ɛ̄ɛ̄-ɲ	3sPs	ìì-ɲ-g	3pPp	
(e)	/ŋ/	āā-ŋ	1sPs	ə̀ə̀-ŋ-g	1pPp	‘body’*
		ɔ̄ɔ̄-ŋ	2sPs	ùù-ŋ-g	2pPp	
		ɛ̄ɛ̄-ŋ	3sPs	ìì-ŋ-g	3pPp	
(f)	/l/	āā-l-g	1sPs	ə̀ə̀-l-g	1pPp	‘stomach’*
		ɔ̄ɔ̄-l-g	2sPs	ùù-l-g	2pPp	
		ɛ̄ɛ̄-l-g	3sPs	ìì-l-g	3pPp	
(g)	/ /	āā-gg	1sPs	ə̀ə̀-gg	1pPp	‘mouth’
		ɔ̄ɔ̄-gg	2sPs	ùù-gg	2pPp	
		ɛ̄ɛ̄-gg	3sPs	ìì-gg	3pPp	

Although all the body part nouns of (8) have an initial vowel, they are not considered a special set of nouns because of the initial vowel, but because of the possessive pronoun being a part of the noun and because of the vowel harmony changes for the entire possessive construction. There are two attested body part nouns which have a vowel-initial root but for which the possessive pronoun is not a part of the noun and for which there is no change in vowel harmony: *ā ə̀ə̀mɔ̄ɔ̄* ‘my liver’, *āgg ə̀ə̀mɔ̄ɔ̄-gg* ‘our livers’; *ā ìl* ‘my horn’, *ā íl-ə̀ə̀gg* ‘my horns’, *āgg ìl-ɔ̄ɔ̄gg* ‘our horns’.

The root tone of the nouns in (8) is Mid with the exception of (b) which has HL tone. The nouns possessed by plural persons all have L(M) tone. The plural nouns ‘eyes’ and ‘hands’ (a-b), possessed by singular persons, have HM tone melody.

5.3 Subject pronouns

Subject pronouns precede the verb and have the semantic roles of agent or experiencer, except in passive clauses when they have the roles of patient or theme. They are independent of the verb and are most often realized in short form. Long, short, future and infinitive subject pronouns for each of three persons, singular and plural, are listed in (9). Future tense is marked on the subject pronoun by tone difference from non-future subject pronouns. A separate set of pronouns with differing tone precedes non-clause-initial infinitive verbs. As will be discussed shortly, second person pronouns of finite verbs are optionally clitics which attach to verbs.

(9) **Subject pronouns**

Long	Short (non-future)	Future	Infinitive	
āān	á	ā̂	ā	1sN
ɔ̄ɔ̄n	ɔ́, ɔ́=	ɔ̂, ɔ̄=	ɔ̄	2sN
ɛ̄ɛ̄n	(ɛ̄)	ɛ́	ɛ̄	3sN
āggá	āgg	āggá	à(gg)	1pN
ɔ̄ggɔ́	ɔ̄gg, ɔ̄gg=	ɔ̄ggɔ́, ɔ̄ggɔ́=	ɔ̀(gg)	2pN
ɛ̄ggà	(ɛ̄gg)	ɛ̄ggà	è(gg)	3pN

Long subject pronouns are most common in nominal clauses such as in (10). They are rare otherwise.

(10) **Long subject pronouns**

(a) á bɛ̀ɛ̀ "wá, **āān** ūŋúūr=ú wá."
1sN said no 1sN Arab=DEF not
'I replied, "No, I am not an Arab." ' (Jooj6)

(b) mā̀n ná ɔ́n=í **ɛ̄ɛ̄n** ṭù wá
one which bad=REL it.is true not
'Nothing bad will happen
(lit. the one thing which is bad is not there).' (Fand23)

Sometimes, the short subject pronouns co-occur with a long subject pronoun as in (11) for added emphasis to the subject.

(11) **āān** **á** bìīn ḍí, "ɔ̀ **ɔ̄ɔ̄n** **ú**=ɟìs-sə ɲíí ḍí ṭɛ̀=ā?"
1sN 1sN said also and 2sN 2sN=did what also here=DEF
'I myself also asked him, "And you, what are you doing here?" ' (Jooj8)

Third person short subject pronouns occur along with noun subjects such as in (12) to indicate a switch in reference or to give emphasis to the subject.

(12) ɟɛ̄n **ɛ̄** bìl=ì ḍ-ɛ̄ kúnḍ
person 3sN shot=him PP-3sP chest
'A person shot him in his chest.' (Fand30)

In narratives, the short pronouns are commonly used alone to reference the same subject as in the previous clause. Sometimes third singular person subject pronouns are used to reference third plural person with the same subject as the previous clause. Although not that frequent, third person subject pronouns can be dropped. In such instances, the zero pronoun reference is normally recoverable from context. The tone of the verb form distinguishes third singular and plural persons, as described in section 9.8.

In (13), short subject pronouns precede a [-ATR] verb root, and in (14) precede a [+ATR] verb root. First and third subject pronouns are always [-ATR] regardless of the vowel quality of the verb root.

(13) **Paradigm of short subject pronouns on continuous non-past verb *kɔ́m-ān* 'cut, chop'**

á	kɔ́m-ân	1sN	āgg	kɔ́m-ân	1pN
ɔ́	kúm-ɔ̄n, ú = kúm-ɔ̄n	2sN	ɔ̄gg	kúm-ɔ̄n, ūg = kúm-ɔ̄n	2pN
ɛ̄	kɔ́m-án	3sN	ɛ̄gg	kɔ́m-ân[20]	3pN

In second person forms of finite verbs, the (root) vowel is always [+ATR] regardless of the vowel quality of the verb root. Verb roots as in (13) that are otherwise [-ATR] become [+ATR] in the second person verb forms. In the verb of (13), the vowel that surfaces as *ɔ* in other persons becomes *u* in the second person; the vowel that surfaces as *a* in other persons becomes *ə* in the second person.

Second person subject pronouns are optionally [+/- ATR] regardless of the [ATR] quality of the root vowel. Those which surface as [-ATR] are analyzed as separate from the verb. Those which surface as [+ATR] are analyzed as clitics attached to the verb, becoming [+ATR] through leftward spreading from the [+ATR] second person verb form {M3}.

(14) **Paradigm of short subject pronouns on completive verb *bìlḛ̱də̀* 'hit'**

á	bìlḛ̱də̀	1sN	āgg	bìlḛ̱də̀	1pN
ɔ́	bìlḛ̱də̀, ú = bìlḛ̱də̀	2sN	ɔ̄gg	bìlḛ̱də̀, ūg = bìlḛ̱də̀	2pN
ɛ̄	bìlḛ̱də̄	3sN	ɛ̄gg	bìlḛ̱də̀	3pN

First and third subject pronouns are independent, even though they are short, evidenced by the fact that [+ATR] quality does not spread leftward to the pronouns from the [+ATR] verb form in the paradigm of (14) as it does in second person forms {M3}. Example (6) demonstrated how [+ATR] quality does not spread onto independent possessive pronouns, either.

Other support for the short first and third subject pronouns not being prefixes or clitics is seen in (15), where leftward [+ATR] spreading from the suffixed dative pronoun in (b) does not spread onto the subject pronoun. Since [+ATR] quality spreads without limit within the word {M3}, the preceding pronoun is analyzed as being separate. This example of a dative clitic will be discussed further in section

[20] As discussed in 9.1, singular and plural third person subjects are distinguished by tone on the verb itself as seen in (13) of this section where first and second person verb forms have final Mid tone, the third singular form has final High tone, and the third plural form has final Low tone. In (14), the final Mid tone on first and second verb forms assimilates to the root Low tone {M9} and the final High tone on the third singular form is lowered to Mid following Low root tone {M9}.

5.5.

(15a) á gàɔsà **ūnū** mīí
1sN gave 2sD chicken
'I gave you a chicken.'

(b) á gəùs = **ū** mīí
1sN gave=2sD chicken
'I gave you a chicken.'

As will be shown in 9.2, infinitive verb forms do not inflect for person, neither in tone nor in [ATR] quality, and subject pronouns are never attached to such verbs. Third person agents (or experiencers) can also follow the verb in prepositional phrases and in genitive case, and are discussed in 10.2 and 14.5.1.

5.4 Object pronouns

Second and third person object pronouns are suffixed to verbs as shown by the examples of (16). They have the roles of patient, theme, or experiencer.

(16) **Object pronoun clitics**

(a) ɛ̄ lā gə̀f = **ì** wá
3sN UNC /gàf/give.INCP = 3sAM not
'He would not give it.' (Fand3)

(b) é dɔ̀ɟ-ɟ **āāggá** é mīīḍ-ə́g fɔ́rɔ́ɟɟ wá bə̀ = ī
3sN /ḍɔ̀ɟ/stone-INF 1pA by stone-PL few not oh = SBO
'When it pelted us with a lot of stones, . . ' (Thng20)

(c) ɛ̄ mə́r-ə̄n = **îggə̀** ḍ̣ūmùùn é gɔ̄ɔ̄r
3pN /mār/sold.CAUS-CONT = 3pAM towards to clan.name
' . . to sell to them far away past the Goor clan.' (Minj3)

Unlike dative pronouns, second and third object pronouns never occur independently, but only as bound morphemes to verb stems. Further, a noun object cannot occur along with an object pronoun. Examples (17b) and (d) are ungrammatical.

(17) **Object pronoun examples**

(a) ɟɛ̄n gàɔ̀-sā mīī = n
person give-COMP goat=DEF
'The person gave the goat.'

(b) *ɟɛ̄n gàɔ̀-sā ɛ̄(ɛ̄n)
person give-COMP 3sA
'The person gave it (goat).'

(c) ɟɛ̄n gəū-s = ì
person give-COMP= 3sAM
'The person gave it (goat).'

(d) *ɟɛ̄n gəū-s = ì mīī = n
person give-COMP= 3sAM goat=DEF
'The person gave it (goat).'

Second and third person unmarked object pronouns take the [ATR] quality of the stem. First person object pronouns are analyzed as separate morphemes since they remain [-ATR] regardless of the quality of the root to which they follow. Most objects have more than one tonal allomorph for different subject person verbs to which they attach. Tone of object pronouns is discussed further in 10.4.2.

(18) **Unmarked object pronouns**

Singular person pronouns		Plural person pronouns	
a	1sA	aaggá, áāggá	1pA
=O	2sA	=OOggÓ, =ÓŌggÓ	2pA
=E, =É	3sA	=EEggÀ, =ÉÈggÀ	3pA

There are two types of third person object pronouns, although the exact distinction in function is not clear. For lack of better terms, they are called 'marked (AM)' and 'unmarked (A)' object pronouns in this thesis in accordance with their distinction in vowel quality. The unmarked third person pronouns of (18) are unspecified for [ATR], the same as first and second person object pronouns, and the marked third person pronouns of (19) are [+ATR]. As with unmarked object pronouns, the marked pronouns have more than one tonal allomorph for different subject person verbs to which they attach. These are also further discussed in 10.4.2.

(19) **Marked third person object pronouns**

Singular person pronouns		Plural person pronouns	
=i, =ì, =îggì	3sAM	=iiggə, =ìiggə, =îiggə	3pAM

The marked and unmarked object pronouns are both used to indicate patients, as shown in (20).

(20) **Unmarked object**

(b) ɟɛ̄n bɛ̀l-d̰=ɛ̄
person beat-COMP=3SA
'The person beat it (goat).'

Marked object

(c) ɟɛ̄n bīl-d̰=ì
person beat-COMP=3SAM
'The person beat it (goat).'

However, the marked and unmarked third person object pronouns can be used to distinguish types of subordinate clauses introducing the referent to which the third object pronoun refers. In (20a), the unmarked [-ATR] object pronoun attached to *wár-s=**è*** 'take-COMP=3sA' refers to the noun *páré=n* 'bag=DEF' introduced in the subordinate 'if' clause, whereas in (b) the marked [+ATR] object pronoun refers to a noun introduced by the subordinate conjunction *é gārá* 'when'. In 10.7, the verbs of these subordinate clauses will be shown to take different subordinate clitics and are grammatically distinct.

(20) **Third singular marked and unmarked object pronouns**

(a)	ɟāā = n	ɛ̄	ŋǎŋ-s = ɛ̂	páré = n = é,	á	lɛ́ɛ̄	wár-s = **ɛ̀**
	person	3sN	file-COMP	bag = DEF	1sN	come.	take-COMP
	= DEF		= SBO2	= SBO		INCP	= 3sA

'If the person filed the leather bag, I will come take it.'

(b)	é gārá	ɟāā = n	ŋə̄ŋ-s = ǐ	páré = n = é,	á	lɛ́ɛ̄	wɔ́r = **ì**
	(GP)	person	/ŋān/file-COMP	bag = DEF	1sN	come.	take.INCP
	when	= DEF	= SBO1	= SBO		INCP	= 3sAM

'When the person has filed/sanded the bag, I will come take it.'

5.5 Dative pronouns

The dative pronouns have the semantic roles of beneficiary or recipient as seen in the examples of (21)

(21) **Dative pronoun clitics**

(a)	á	bì = **īggə̀n**	"wá!"
	1sN	/bɛ̀ɛ̀/tell.INF = 3pD	no

'I told them "No!" ' (Thng21-22)

(b)	īīgg = ɔ́	ɛ̄	mə̄l = **ínə̄**	fān	t̪áḍ
	milk = DEF	3sN	/māl/gather.INCP = 3sD	on	down

'Milk accumulated for him underneath.' (Fand24)

(c)	ɟɔ̄gg	gɔ̄ɔ̄r = ɔ́	bà	ə́s-s = **ə̀ggə̄n**	ɟɛ̀gg	ə́n-g = ì
	people	Goor = DEF	oh	/áð/become-COMP = 1pD	things	bad-PL = RDM

'The Goor tribe became our enemies (lit. to us bad things).' (Minj6)

Dative pronouns are normally suffixed to verbs, but in slow speech are separate and immediately follow the verb. As will be discussed in 10.5.2, there are tonal allomorphs for different subject person verbs to which the dative pronouns are attached.

(22) **Dative pronouns**

Singular person pronouns			Plural person pronouns		
Separate	Attached		Separate	Attached	
ə́nə̄	= ə̂n, = ə̀n	1sD	ə̄ggə́n	= ə̂ggə́n, = ə̀ggə̄n	1pD
únū	= ûn, = ùn	2sD	ūggún	= ûggún, = ùggūn	2pD
ínə̄	= ǐn, = ǐn	3sD	īggə̀n	= ǐggə̀n, = ǐggə̀n	3pD

As previously mentioned and as seen in (23b), the [+ATR] value assigned to the dative pronoun spreads leftward onto the root {M3}. There is no such harmony with independent dative pronouns as seen in (23a).

(23a)	ɛ̄	gàɔ-sā	**ûnū**	mīí		(b)	ɛ̄	gɔ̀ù-s = **û**	mīí
	3sN	gave-COMP	**2sD**	chicken			3sN	gave-COMP=**2sD**	chicken
	‘He gave you a chicken.’						‘He gave you a chicken.’		

Similar to object pronouns, dative pronouns do not occur along with a dative noun as in (24).

(24)	*ɟɛ̄n	gɔ̀ù-s = **ī̂n**	mīī-n	kàmàlɔ̀gg = **ān**
	person	give-COMP=3SD	goat-DEF	woman=DAT
	‘The person gave the goat to the woman.’			

Although the dative noun and object noun can have either order in a clause as in (25a), the independent dative pronoun must immediately follow the verb when occurring along with a noun object. For example, the independent pronoun following the noun object in (25c) is ungrammatical.

(25a)	ɟɛ̄n	gàɔ-sā	mīīn	kàmàlɔ̀gg = **ān**	/	kàmàlɔ̀gg = **ān**	mīīn	
	person	give-COMP	goat. DEF	woman=DAT		woman=DAT	goat. DEF	
	‘The person gave the woman the goat.’							

(b)	ɟɛ̄n	gàɔ-sā	**ínɔ̄**	mīīn	(c)	*ɟɛ̄n	gàɔ-sā	mīīn	**ínɔ̄**
	person	give-COMP	3SD	goat. DEF		person	give-COMP	goat. DEF	3SD
	‘The person gave her the goat.’					‘The person gave her the goat.’			

When an imperfect suffix such as $=\acute{E}$ in (26a) or an object pronoun such as $=\grave{\imath}$ in (b) are attached to the verb, the independent dative pronoun can follow the verb word.

(26a)	á	ɲā́m	háshīm = á
	1sN	/ɲám/want.INCP	Hashim = DEF
	‘I want Hashim		

ā	ɟɪ̀d̪-d̪ɔ̄	ɔ̀	ā	wár-d̪ = **ɛ́**	**ɔ̄nɔ̄**	ráḍ̪è.
SBJV	make	and	SBJV	bring	1sD	radio
	/ɟɪ̀s/-SBJV.3sN		/wár/-SBJV = IPF.3sN			

to get me a radio.’ (Assa11-12)

(b)	t̪ɛ́l	gɔ̄ū-s = **ì**	**ūggúūn**	gāfà	ɛ̄	ɟɔ̄	màrɛ̀ɛ̀
	God	gave-them	2pD	given	by	only	somehow
		/gàf/COMP = 3sAM		/gàf/NOM.SG			

‘God has given them to you for good reason.’ (Womn6)

When both the object and dative object are pronouns, the dative pronoun commonly follows the object pronoun and can be separate or attached. When attached, the dative pronoun can be attached directly as in (27b) or *n* can be inserted between then as in (c). In (d), the object pronoun follows an attached dative pronoun, but the third singular object pronoun has a different form [*=ÉÉn* (which becomes *=íín* through [+ATR] spreading) instead of *=E* (3sA) or *=EEggÀ* (3pA)]. An object can also follow a dative pronoun by having a prepositional prefix *ḍ-* as will be shown in (31e) of 5.7 and is then a prepositional pronoun instead of an object pronoun.

(27) **Object and dative pronouns in the same clause**

(a) ɟɛ̄n gəū-s=**ì** **ínə̄** (b) ɟɛ̄n gəū-s=**ì.=īn**
person give-COMP=3SAM 3SD person give-COMP=3SAM=3SD
'The person gave it to her.' 'The person gave it to her.'

(c) ɟɛ̄n gəù-s=**īn=ín**
person give-COMP=3SAM=3SD
'The person gave it to her.'

(d) bà ná fār-sā ṭámán=é bà ú kɔ́ɟ=**ə̄n=íín**
please REL /far/remain-COMP one=RDM please 2sN /kaɟ/bring=1sD=3sA
'Any (cows) which remain, please bring them to me.'

In (28), the full paradigm of suffixed dative pronouns is shown attached to a completive verb. The completive verb without the dative pronoun and object are shown in (a), and the paradigm with dative suffix, assuming the same noun object, is given in (b). In (a), the root vowel surfaces as *ɔ*, but in (b) becomes *u* with the attached [+ATR] dative suffixes {M3}. In such examples, the vowel of the completive suffix does not surface, as suffix vowels are elided by the initial vowel of following suffix, as stated by the verb elision rule of {M1} in 3.1. Other dative pronoun paradigms on verb forms are shown in 10.8.

(28) **Paradigm of attached dative pronouns on completive verb *kɔ́m-sɔ̄* 'cut, chop'**

(a) kɔ́m-sɔ̄ māgàlḍ 'He cut-COMP a stick.'

(b)

kúm-s=ɔ̄	-COMP=1sD	kúm-s=ɔ̄gán	-COMP=1pD
kúm-s=ū	-COMP=2sD	kúm-s=ūgún	-COMP=2pD
kúm-s=ī	-COMP=3sD	kúm-s=īgən	-COMP=3pD

5.6 Reflexive pronouns

In Gaahmg, the reflexive pronoun is used as an object that is referentially identical to the subject. In (29a, b), the reflexive indicates the object which is the same

referent as the subject. However in (c), the reflexive meaning is extended and the reflexive is used as a repeated object for emphasis. Instead of referring back to the subject, it refers back to the object. In (29c), the plural noun *ɟɔ̄gg* 'people/officials' and the third plural reflexive *ììŋg* are objects of the verb *máð* 'refuse'. The noun *ɟɔ̄gg* represents the government and is emphasized with the reflexive, possibly because of previous bad encounters with them. Reflexives are not found to be used as repeated subjects.

(29) **Reflexive pronoun examples**

(a) "sàlàḍ = ā", ɛ̄ bɛ̀ɛ̀, "ū = wər **ūūŋ** cābb ánɛ̄ɛ́n"
Hyena = DEF 3sN say 2sN = carry 2sR up like.this
' "Hyena", he said, "Make yourself upright." ' (Nyee32)

(b) ɛ̄ máà **īīŋ** ɛ̄ àn mɔ̄sɔ̀r ɔ̄ɔ̄l
3sN prides 3sR 3sN stay horse up
'He takes pride in himself as he sits up on the horse." (Minj14)

(c) ɛ̄ máð ɛ̄[21] ɟɔ̄gg **ììŋg** ɛ́ ḍāfà
3sN refuse 3sN people 3pR by fighting
'He refused (to give money to) the officials by fighting.' (Fand4)

Reflexive pronouns are based on the inherently possessed word for 'body', which is *VVŋ*, where V is the person marker vowel. As discussed in 5.2.4, the word for body and a few other nouns cannot occur without possession using one of the person marker vowels. With such words the norm is for [-ATR] vowels to indicate singular persons, and for [+ATR] vowels as well as the plural suffix *-gg* to indicate plural persons. However, all reflexive pronouns are [+ATR], and the suffix *-gg* as well as Low tone indicate plural agreement.

(30) **Reflexive pronouns**

Singular person pronouns		Plural person pronouns	
ɔ̄ɔ̄ŋ	1sR	ɔ̀ɔ̀ŋ-g	1pR
ūūŋ	2sR	ùùŋ-g	2pR
īīŋ	3sR	ììŋ-g	3pR

5.7 Prepositional pronouns

Prepositional pronouns are objects of prepositions, or for another reason are prefixed by the preposition marker *ḍ-*. The prepositional prefix takes the place of the general preposition *ɛ́, í* (GP) as in (31a-b) when introducing prepositional pronoun objects

[21] The second pronoun *ɛ̄* 'he' in (c) is the only occurrence found of a post-verbal subject pronoun. Perhaps it is repeated for emphasis or there is an implied unstated verb 'to give' of which *ɛ̄* 'he' is the subject pronoun.

(see 11.4). However, the prepositional prefix is used in addition to an adverb functioning as a directional preposition such as *ḍ̈ūmùùn* 'towards' in (c). It is also used in addition to the animate accompaniment preposition *ɛ* 'with' and accompaniment clitic *=E* on the pronoun as shown in (d). The marker is also used to introduce verb objects when separated from the verb by a bound dative pronoun as in (e) or by other verbal suffixes.

(31) **Prepositional pronoun examples**

(a) ɟāām kə́ə̀m-s-ī ḍ̈-**ɛ́ɛ̄n** wá
someone bother-COMP-PAS.A PP-3sO not
'No one was bothered by it.' (Thng25)

(b) ɟɔ̄gg ɛ̄gg ɔ́ðĭ bà, ɛ̄gg wár ɟɛ̀gg=ā ḍ̈-**ā̂ggá** kāɛ̄
people 3pN come oh 3pN take things=DEF PP-1pO all
'When these people come, they take all (our) things from us.' (Minj7)

(c) ɔ̀ ɔ́ yáā ɲāā néé̋ lɛ̀ɛ̀nán ḍ̈ūmùùn ḍ̈-**ūūŋ** ṭà
and 2sPs mother girl this was.coming towards PP-2sO there
' . . and your mother's sister was coming to you there.' (Assa3-4)

(d) ɔ̀ kár ṭāðán ɛ̀ ḍ̈-**ê̂gg**=ɛ̄
and wildcow was with PP-3pO=ACM
' . . and a wild buffalo was with them.' (Nyee4)

(e) ɛ̄ gə̀l-ḍ̈=ĭn ḍ̈-**ɛ́ɛ̄n** ná ṭáḍ̈ ḍ̈í
3sN /gàl/ram-SBJV.3sN=3sD[22] PP-3sO REL.SG down also
' . . in order to break it down for them.' (Nyee12)

Prepositional pronouns have the same segmental form as the long subject pronouns. However, in addition to taking the prefix *ḍ̈-*, prepositional pronouns are post-verbal and differ in tone from long subject pronouns.

(32) **Prepositional pronouns**

Singular person pronouns		Plural person pronouns	
-áán(á)	1sO	-ā̂ggá	1pO
-ɔ́ɔ́n(ɔ́)	2sO	-ɔ̄ggɔ́	2pO
-ɛ́ɛ̄n(á)	3sO	-ê̂ggɛ̀	3pO

Occasionally, the third singular prepositional pronoun is attached to a preposition or other word category without the prefix *ḍ̈-*. In (33), the pronoun *-ɛ́ɛ̄n* is shortened to *-ɛ̄* on the preposition *ṭáḍ̈-ɛ̄* 'down' and literally means 'down of it (egg's head)'.

[22] As with subject pronouns, third singular dative pronouns are sometimes used for third plural referents.

(33) ɔ̀ kólɔ́ḏ̈ = ɔ́ ḏ̈ùr-s = ə̄nɔ́ ɛ̄ɛ̄l ṭ̈áḏ̈-**ɛ̄** bà bèl-ḏ̈ā wá
and egg = DEF bury-COMP = PAS head. 3sPs down- 3sO oh burst not
'And the egg put in the ground with its top side down did not burst.' (Fand21)

In chapter 12, it is discussed how body part locatives can be used with nouns of reference as in (34a) or with pronouns of reference as in (b). The latter is a special kind of prepositional pronoun called a 'locative prepositional pronoun'.

(34a) **Body part locative *ɛ́ɛ́ŋ* 'behind' with noun reference *ūfú* 'tree'**
ālḏ̈ = á ɛ̄ pə̂rḏ̈ə **ūfú** ***ɛ́ɛ́ŋ***[23]
fox = DEF 3sN jump tree behind
'Fox jumped behind the tree.'

(b) **Body part locative *ḏ̈-ɛ́ɛ́ŋ* 'behind' with third singular pronoun reference; also called a locative prepositional pronoun**
ālḏ̈ = á ɛ̄ pə̂rḏ̈ = **ì** **ḏ̈-ɛ́ɛ́ŋ**
fox = DEF 3sN jump = 3sAM PP-behind.3sO
'Fox jumped behind him (lit. jumped him behind him).' (Goat12)

(c) **Third singular possessed singular body part noun *ɛ̄ɛ̄ŋ* 'back'**
ālḏ̈ = á ɛ̄ pə̂rḏ̈ə **ɛ̄ɛ̄ŋ** ɔ́ɔ́l
fox = DEF 3sN jump back.3sPs up
'Fox jumped on his back.'

Locative prepositional pronouns are often close in form to inherently possessed body part nouns which do not occur without being possessed by someone (Payne 1997:105-106). As discussed in 5.2.4, speakers cannot say 'back', 'hand', 'head', etc. without also including the possessor along with the noun (i.e. *āāŋ* 'my.back', *ɔ̄ɔ̄ŋ* 'your.back', *ɛ̄ɛ̄ŋ* 'his.back', etc.). Although their vowels distinguish person as in locative prepositional pronouns (*ḏ̈-ááŋ* 'behind-me', *ḏ̈-ɔ́ɔ́ŋ* 'behind-you', *ḏ̈-ɛ́ɛ́ŋ* 'behind-him'), inherently possessed body parts such as *ɛ̄ɛ̄ŋ* in (34c) have no prepositional prefix *ḏ̈-* and differ in tone than when used as locative prepositional pronouns as in (34b). In chapter 12, it will be shown that body part locatives with noun references such as (34a) of this section do not distinguish person and are thus a distinct lexical category from possessed body part nouns. Since locative prepositional pronouns have different tone than the respective body part nouns from which they are taken, they are analyzed categorically as locatives rather than as nouns with locative meaning through metaphorical extension. Further, since they

[23] The body part locative *ááŋ* 'behind' can also be used to reference the third singular noun *ūfú* 'tree', indicating that the vowel *aa*, which refers to first person in pronouns, no longer refers to person in this phrase.

attach the same prepositional prefix *ḍ-* as other prepositional pronouns, they are also analyzed as prepositional pronouns rather than as mere locatives.

In (35a), the locative prepositional pronoun *ḍ-ɛ́ɛ́l* 'on-it' is close in form to the inherently possessed body part noun *ɛ̄ɛ̄l* 'his.head'. If the meaning were 'on its head', the word *ɛ̄ɛ̄l*, followed by the locative *ɔ́ɔ́l* 'up', would be used. In (b), the locative prepositional pronoun *ḍ-**ɨ̂ɨ̂**-mùù-gg* 'in.front.of-them' is used. In both of these examples, as well as in (34b), the third singular marked object pronoun *=ì* is attached to the verb preceding the prepositional pronoun. In (35c), the third singular object pronoun represents a third plural referent.

(35) **Locative prepositional pronoun examples**

(a) bɛ̄l Mīŋɟìbb ṭāɛ́ɛ́n ɛ̄ dɔ̄ɔ̄s ɛ̄ ə̀bb=ì ḍ-**ɛ́ɛ́l**
named Minjib then 3sN starts 3sN rides=3sAM PP-on.3sO
' . . called Minyjib rode his horse proudly (lit. rides it on it).' (Minj13)

(b) ná ɔ́n=í ɛ̄ pə̀l=ì táḍ ḍ-**ɨ̂ɨ̂**-mùù-gg
REL.SG bad=RDM 3sN fall=3sAM down PP-3pO-front-PL
'(thing) which is bad fell down in front of them
(lit. falls to them down in front of them).' (Thng8)

Just as the inherently possessed body part noun *VVŋ* 'body' is used as a reflexive pronoun, other inherently possessed body part nouns of 5.2.4 are used as locative prepositional pronouns, including the word *VVŋ* 'body' (for the meaning 'under')

(36) **Body part nouns and locative prepositional pronouns**

	Body part nouns			Locative prepositional pronouns		
Person	N SG	N PL		PREP PRON SG	PREP PRON PL	
1	āāŋ	ə̀ə̀ŋg	'body'	-ɔ́ɔ̄ŋ	-ɔ́ə̀ŋg	'under'
2	ɔ̄ɔ̄ŋ	ùùŋg		-úūŋ	-úùŋg	
3	ɛ̄ɛ̄ŋ	ììŋg		-íīŋ	-îîŋg	
1	āālg	ə̀ə̀lg	'stomach'	-áálg	-ɔ́ə̀lg	'inside'
2	ɔ̄ɔ̄lg	ùùlg		-ɔ́ɔ́lg	-úùlg	
3	ɛ̄ɛ̄lg	ììlg		-ɛ́ɛ́lg	-îîlg	
1	āāl	ə̀ə̀lg	'head'	-áál	-ɔ́ə̀lg	'above'
2	ɔ̄ɔ̄l	ùùlg		-ɔ́ɔ́l	-úùlg	
3	ɛ̄ɛ̄l	ììlg		-ɛ́ɛ́l	-îîlg	
1	āāɲ	ə̀ə̀ŋg	'back'	-ááɲ	-ɔ́ə̀ɲ	'behind'
2	ɔ̄ɔ̄ɲ	ùùŋg		-ɔ́ɔ́ɲ	-úùɲ	
3	ɛ̄ɛ̄ɲ	ììŋg		-ɛ́ɛ́ɲ	-îîɲ	
1	mūū	mùùgg	'face'	-áāmū	-ɔ́ə̀mùùgg	'in front of'
2				-úūmū	-úùmùùgg	
3				-ɛ́ɛ̄mū	-îîmùùgg	

with different tone than for reflexive pronouns. In (36), *mūū* 'face' is the only body part used as a prepositional pronoun that is not an inherently possessed body part.

6 Noun stem

6.1 Introduction

The noun word structure can be ordered according to the schemes of (1). The noun stem consists of the root and optional singular or plural suffixes. The noun word consists of the stem, and optional slots for copula (COP), definite (DEF), locative (LCM), dative (DAT), accompaniment (ACM), subordinate (SBO), and relative definite clause marker (RDM) clitics.

(1) Noun stem = root + ({SG, PL})
Noun word = [Noun stem] + ({COP, DEF, LCM, DAT, ACM, SBO, RDM})

Noun stem morphology (suffixes) is discussed in this chapter and noun word morphology (clitics) is discussed in the next. All noun suffixes are inflectional number markers that have referential meaning, whereas the noun clitics indicate the role of the noun phrase within the syntactic context. Whereas inflectional suffixes cannot combine with each other (*SG-PL), all noun clitics can combine with the inflectional suffixes.

A primary distinction between suffixes and clitics is whether the element attaches to underlying-final segments or to surface-final segments. Stem suffixes attaching to noun roots attach to underlying-final segments, whereas word clitics attaching to noun stems attach to surface-final segments. Vowel length of root-final vowels is the primary indicator of whether the form is an underlying or surface representation. In (2), the plural suffix *-gg* attaches to the underlying short vowel in *ṭɔ́-gg* 'cow-PL', whereas the accompaniment clitic attaches to the surface long vowel of the singular form (*ṭɔ́ɔ́=nɛ̄*).

(2) **Roots and stems compared**

Underlying root	Surface root	Noun stem suffix	Noun word clitic	
UR	N.SG	N-PL	N.SG=ACC	
/ṭɔ/	ṭɔ́ɔ́	ṭɔ́-gg	ṭɔ́ɔ́=nɛ̄	'cow'

The same tone rules apply to most noun stem and noun word morphology. However, the starting point for noun stem tone assignment is the root tone, whereas the starting point of noun word tone assignment is the stem tone.

As discussed in 2.4.3, two-tone melodies on trisyllabic noun roots are assigned right-to-left. Thus, in the monomorphemic root *mɔ́ggɔ́lɛ̀ɛ̀* 'maize' of (3a), the Low tone of the HL melody surfaces on the final syllable, and the High tone of the melody surfaces on the first two syllables. Tone assignment for noun stems such as *ɟílə̀bb-ə̀gg* 'water.spring-PL' in (b) begins with the tone assigned to the root in the singular

form *ɟílə̀bb* and spreads to the plural suffix *-Agg* having no underlying tone. If the root tone were not the starting point, right-to-left tone assignment would render the surface tone as **ɟílə́bb-ə̀gg* instead of *ɟílə̀bb-ə̀gg*.

(3) **Roots, stem, and word tone assignment compared**

		N.SG	N-PL	N.PL=COP	
(a)	HL root tone	móggólɛ̀ɛ̀			'maize'
(b)	HL stem tone	ɟílə̀bb	ɟílə̀bb-ə̀gg		'water spring'
(c)	HL word tone	îl	íl-ə̀ə̀gg	íl-ə̀ə̀gg=ə̀	'horn'

Similarly, tone assignment for noun words such as *íl-ə̀ə̀gg=ə̀* 'horn-PL=COP' in (3c) begins with the tone assigned to the stem in the plural form *íl-ə̀ə̀gg* and continues by attaching the copular suffix *=À* with Low tone. The noun stem tone assignment *íl-ə̀ə̀gg* has the root tone *îl* as its point of departure where the second tone of the HL root melody is delinked and reassigned to the tone-less suffix *-AAgg* {M2}. If the stem tone were not the starting point, the word tone would be different. For instance, if the root tone *îl* were the starting point, right-to-left tone assignment would render the surface tone as **îl-ə̀ə̀gg=ə̀* instead of *íl-ə̀ə̀gg=ə̀*. Or, if the HL underlying tones of the copular word form were assigned right-to-left, the surface tone would be **íl-ə́ə́gg=ə̀* instead of *íl-ə̀ə̀gg=ə̀*.

In summary, we can say there are four criteria for determining which noun bound morphemes are suffixes and thus a part of the stem, and which noun bound morphemes are clitics and thus outside of the stem, but a part of the word. In chapter 4, each of the morphemes listed in (4) below is shown to attach to more than one word category. As will be shown in the respective sections of chapter 7, all noun clitics attach to the inflectional suffixes. Also shown in the respective sections, the clitics attach to the surface-final segments. Finally, the stem tone assignment is the point of departure in tone assignment for the clitics. These criteria are not valid for the inflectional number suffixes. Thus, the clitics are analyzed as being a different kind of morpheme than the suffixes.

(4) **Criteria for determining that COP, DEF, LCM, DAT, ACM, SBO, RDM bound morphemes are clitics (stem morphemes) and not suffixes (root morphemes)**

(a) Attaches to more than one word category
(b) Attaches to inflectional morphemes
(c) Attaches to surface-final segments
(d) Stem tone assignment is the point of departure

Inflectional number marking with the suffix *–gg* occurs on both nouns and adjectives and is one possible exception of a suffix attaching to more than one word category, as do clitics. However, there are many other plural suffixes attaching to

nouns which do not attach to adjectives. In contrast, all allophonic clitics (with different forms and the same function) attach to each word category.

First, the segmental suffixes in plural formation are discussed in 6.2. Then the tonal allomorphs of various suffixes and tone assignment are discussed in 6.3. Body parts, a class of nouns which take special plural formation, are discussed in 6.4. Finally, the genitive case, which only involves a tonal change, will be presented in 6.5.

6.2 Segmental noun plural formation

In Gaahmg, there are singular and plural suffixes on nouns. While the vast majority of singular nouns do not have suffixes, plural marking is obligatory with plural referents. There are also a significant number of nouns that only have singular forms or only have plural forms. In addition, there are some nouns with variance between one or more suffixes on the nouns. However, there are no singular nouns with suffixes where the corresponding plural nouns are without suffixes.

Table 8: Noun Plural Formation

	N SG	N PL		Percentage
SG suffix/PL suffix	mɔ̄réé-ḍ	mɔ̄réɛ̄-gg	'vegetable type'	5%
-/PL suffix	rīmɔ́ɔ́	rīmɔ́ɔ̄-gg	'star'	70%
Noun SG only	bùīl	---	'moisture'	15%
Noun PL only	---	īīgg	'milk'	10%

First we discuss singular suffixes in 6.2.1 and plural suffixes in 6.2.2-6.2.3. Irregular plural formation is shown in 6.2.4. Nouns with only singular forms and only plural forms are presented in 6.2.5. Finally, noun with varying suffixes are presented in 6.2.6.

6.2.1 Singular suffixes

Less than 5% of noun lexemes in the language[24] have singular suffixes. Although there are five attested singular suffixes, only *-ḍ* is not rare. All singular suffixes attach to root-final sonorants, and the suffix *-ḍ* also attaches to root-final vowels. The choice of the singular suffix has no semantic correlation with the noun to which it is attached. Virtually all nouns with singular suffixes also have plural suffixes. The plural suffixes attached to nouns presented in this section are the same as those presented in the following sections.

[24] Here and in following sections, percent of nouns means out all the noun lexemes in our data set.

Table 9: Singular Suffixes

Suffix	Final segment of root	N SG	N PL		# of nouns
-d̰	vowel	rúŋ̀ùú-d̰	rúŋ̀ùū-gg	'bird type'	36
	sonorant	bə̀r-d̰	bə̀r-ə̀ə̀gg	'lion'	6
-gg	sonorant	à̰ɔ̀r-g	à̰ɔ̀r-ɛ̄ɛ̄gg	'priest, chief'	7
-Ad̰	sonorant	ɲíl-ə̄d̰	ɲìl-g	'intestine'	3
-AAd̰	sonorant	cāl-āād̰	càl-g	'testicle'	1
-Ed̰	sonorant	ɟíŋ̀-íd̰	ɟíŋ̀-g	'louse'	1

The most common singular suffix is *-d̰*, which attaches to root-final vowels and sonorant consonants. There are 36 nouns attested with this suffix. In (5), the suffix is attached to root-final long and short vowels.

(5) **Singular suffix *-d̰* attached to root-final long and short vowels**

UR-final	suffixes	N SG	N PL	
/aa/	-d̰/-gg	wɛ́ráá-d̰	wɛ́ráā-gg	'tribe member'
/a/	-d̰/-gg	bāsà-d̰	bāsà-gg	'large intestine'
/ə/	-d̰/-gg	ə̀rŋ̀ə̀-d̰	ə̀rŋ̀ə̀-gg	'insect type'
/ɛɛ/	-d̰/-gg	mə̄rɛ́ɛ́-d̰	mə̄rɛ́ɛ̄-gg	'vegetable type'
/ɛ/	-d̰/-gg	bɔ́rɛ̄-d̰	bɔ́rɛ̄-gg	'eye matter'
/ii/	-d̰/-gg	mə̄míí-d̰	mə̄míī-gg	'root type'
/i/	-d̰/-AAd̰	mə̄ī-d̰	mə̄y-ɔ́ə̄d̰	'ancestor'
/ɔɔ/	-d̰/-$^{+}$gg	gɔ̀ɔ̀-d̰	gùù-gg	'excrement'
/uu/	-d̰/-gg	rúŋ̀ùú-d̰	rúŋ̀ùū-gg	'bird type'
/u/	-d̰/-gg	gə̀rmù-d̰	gə̀rmù-gg	'insect type'

It is less common for the singular suffix *-d̰* to attach to root-final sonorant consonants. Only the nouns of (6) have been attested.

(6) **Singular suffix *-d̰* attached to root-final sonorants**

UR-final	suffixes	N SG	N PL	
/n/	-d̰/-gg	nə̄n-d̰	nə̄n-g	'demon'
/r/	-d̰/-EEgg	mə̀ggə̀r-d̰	mə̀ggə̀r-ɛ̄ɛ̄gg	'cane'
/r/	-d̰/-EEgg	bāār-d̰	bāār-ɛ́ɛ̄gg	'abdomen, waist'
/r/	-d̰/-EEgg	gə̀ūr-d̰	gə̀ùr-īīgg	'stomach pouch'
/r/	-d̰/-AAgg	bə̀r-d̰	bə̀r-ə̀ə̀gg	'lion'
/r/	-d̰/-AAgg	kɔ̄r-d̰	kɔ̄r-ɔ̄ɔ̄gg	'bird type'

The singular noun suffix *-gg* is attached to the inherently possessed body part noun *āā-gg* 'my mouth', *ɔ̄ɔ̄-gg* 'your mouth', *ɛ̄ɛ̄-gg* 'his/her mouth' discussed in 5.2.4 where the suffix attaches to the person marker vowel. Otherwise, only the nouns of (7-8) are attested with the singular suffix *-gg*, and in all of these, the suffix is attached to root-final sonorants.

(7) **Singular suffix *-gg* attached to root-final sonorants**

UR-final	Suffixes	N SG	N PL	
/r/	-gg/-EEgg	àɔ̀r-g	àɔ̀r-ɛ̄ɛ̄gg	'priest, chief'
/n/	-gg/-EEgg	ún-g	ún-íígg	'tear'
/ð/	-gg/-AAgg	gə̀ə̀ð-g [gə̀ə̀g˳˺]	gə̀ə̀ð-ə̄ə̄gg	'thief'
/l/	-gg/-$^{+}$gg	ŋ̀āl-g	ŋ̀əl-g	'neck'
/l/	-gg/-$^{+}$gg	éɛ́l-g	ìil-g	'my stomach/ our stomachs'

In the nouns of (8), the singular suffix *-gg* becomes *-ɟ* when attached to root-final palatals through an assimilation process. However, the plural suffix *-gg* attached to the same root is not assimilated. Thus, the process only applies to this singular suffix -g*g*.

(8) **Singular suffix *-gg* attached to root-final palatals becomes *-ɟ***

UR-final	Suffixes	N SG	N PL	
/ɲ/	-gg/-AAgg	bɛ̀ɲ-ɟ	bɛ̀ɲ-āāgg	'side of something'
/y/	-gg/-Agg	máāy-ɟ	máāy-g	'cucumber'

A handful of nouns have the singular suffixes *-A̤d̤*, *-A̲A̤d̤* or *-E̤d̤*, where *A* is a back vowel taking the [round] feature of the root {M4}, *A̲* is a non-rounded back vowel, and *E* is a front vowel. All of these singular suffixes attach to root-final sonorants.

(9) **Singular suffixes *-A̤d̤*, *-A̲A̤d̤* and *-E̤d̤* attached to root-final sonorants**

UR-final	Suffixes	N SG	N PL	
/l/	-Ad̤/-gg	ɲíl-ə̄d̤	ɲìl-g	'intestine'
/l/	-Ad̤/-gg	kɔ́l-ɔ́d̤	kɔ́l-g	'egg'
/ŋ/	-Ad̤/-gg	túŋ-ɔ́d̤	túŋ-g	'tribe member'
/l/	-A̲Ad̤/-gg	cāl-āād̤	càl-g	'testicle'
/ŋ/	-Ed̤/-gg	ɟíŋ-íd̤	ɟíŋ-g	'louse'

6.2.2 Plural suffixes

Nearly all plural marking involves the segment *gg*. Plural suffixes may also have an initial short or long vowel, where a short vowel only occurs following root-final obstruents, and a long vowel only occurs following root-final sonorants or geminate velar plosive *gg*. Most plural suffixes have no semantic correlation with the nouns to which they attach. However, there are five suffixes which attach to a few nouns in the semantic sets of relational nouns or body parts. Most plural suffixes are unspecified for ATR, but there are two suffixes that are underlying specified as [+ATR] which spread their quality leftward to the root {M3}. Further, plural suffixes may have up to three tone patterns: no tone, M or H/HM. Plural suffixes with no semantic correlation to the root are presented in this section and plural suffixes correlated to semantic sets of nouns are presented in the following section.

Table 10: Plural suffixes with no semantic correlation

Suffix	Final segment	N SG	N PL		Percentage or number[25]
-gg	sonorant	ḍáár	ḍáār-g	'throne'	37%
	vowel	fɔ̄ɛ̄ḍá	fɔ̄ɛ̄ḍā-gg	'seed'	
-Agg	obstruent	céḷḍ	céḷḍ-āgg	'local broom'	17%
-EEgg	sonorant	póɔ́ŋ	póɔ́ŋ-ɛ̄ɛ̄gg	'knife sheath'	17%
-AAgg	sonorant	bɔ́n	bɔ́n-āāgg	'heart'	9
-AAgg	sonorant	kɔ̄r-ḍ	kɔ̄r-ɔ̄ɔ̄gg	'bird type'	1

Plural suffix *-gg*

The plural suffix *-gg* attaches to nouns with root-final sonorants or vowels. About 37% of nouns take this suffix. In (10), the suffix is attached to root-final sonorants. In section 6.2.6 it will be shown that several root-final sonorant nouns take both the plural suffix *-gg* and the plural suffix *-EEgg* (*ṭéèr/ṭéèr-g, ṭéér-èègg* 'carving tool'). Nouns with other root-final segments sometimes have variance between other suffixes.

(10) **Plural suffixes *-gg* (with Mid tone), *-gg* on root-final sonorants**

UR-final	N SG	N PL	
/m/	ɟɛ̄ɛ́m	ɟɛ̄ɛ̄m-g	'sorghum sieve'
/n/	gɔ̀ɛ̄n	gɔ̀ɛ̄n-g	'metal worker'
/ɲ/	wèlɛ̀ɲ	wèlɛ̀ɲ-g	'sour/bitter taste'
/ŋ/	sāmáŋ	sāmā̀ŋ-g	'sorghum storehouse'
/r/	ḍáár	ḍáār-g	'throne'
/l/	sɛ̄wéél	sɛ̄wéɛ̄l-g	'tree type'
/ð/	mɛ̄ɛ̄ð	mɛ̄ɛ̄ð-g [mɛ̄ɛ̄g̰]	'tree type'
/w/	káɔ̀	kâw-g	'hyena'
/y/	ááé	ááy-g	'honey'
/y/	ɲūùì	ɲūùy-g	'leopard'

Nouns with root-final approximants *w* or *y* surface with a root-final vowel in the singular form (*káɔ̀* 'hyena', *ɲūùì* 'leopard'), in accordance with {P1b} in 2.1.3. As discussed in 2.3.5, there is no strong evidence for the root-final segments in the plural forms of such nouns surfacing as approximants (*kâw-g* 'hyena-PL', *ɲūùy-g* 'leopard-PL') or vowels (*káɔ̀-g*, *ɲūūì-g*).

In (11), the suffix *-gg* attaches to nouns with root-final vowels, including short and long final vowels in monosyllabic and polysyllabic roots.

[25] The percentages of nouns in the first three rows are out of all noun lexemes in the language; the number of nouns in the last two rows is the exact number of nouns attested.

(11) **Plural suffixes *-g̱g, -gg* on root-final vowels**

UR-final	N SG	N PL	
/aa/	wāā	wāā-gg	‘water, lake’
/əə/	wə̄ə̄	wə̄ə̄-gg	‘shade, help’
/oo/	pɔ́ɔ́	pɔ́ɔ́-gg	‘tree type’
/uu/	bùù	bùù-gg	‘chicken coop roof’
/ɛɛ/	rɛ̄ɛ̄	rɛ̄ɛ̄-gg	‘cotton, thread’
/ii/	mīí	mīí-gg	‘chicken’
/uə/	būə̀	būə̀-gg	‘tree type’
/a/	fɔ̄yḍá	fɔ̄yḍā-gg	‘planting seed’
/ə/	cíífə́	cíífə̄-gg	‘Tabaldi leaf’
/ɔ/	mɔ̄ðɔ́	mɔ̄ðɔ́-gg	‘locust’
/u/	kúúfú	kúúfū-gg	‘ground sesame’
/aa/	wááyáá	wááyáā-gg	‘bird type’
/əə/	rīmə́ə́	rīmə́ə̄-gg	‘star’
/ɛɛ/	káálḍɛ́ɛ́	káálḍɛ́ɛ̄-gg	‘brother-in-law’
/ii/	kūsūmíí	kūsūmíī-gg	‘knee’
/oo/	páɟɟɔ̄ɔ̄	páɟɟɔ̄ɔ̄-gg	‘star’
/uu/	ə̄yúú	ə̄yúū-gg	‘local toothbrush’

In addition, there are four monosyllabic, open-syllable nouns with short vowels in the underlying representation. As discussed in 2.3.3, the vowels of all monosyllabic, open-syllable nouns are realized as long. The four nouns in (12) have short root vowels, which are realized as long in the singular form. However, when the plural suffix *-gg* with final consonant is attached to the underlying form, the vowel remains short. Since the final consonant *s* of (12d) does not surface in the singular form, the short vowel is realized as long.

(12) **Plural formation with monosyllabic, open-syllable nouns having underlying short vowels**

	Root	N SG	N PL	
(a)	/sá/	sáá	sá-gg	‘wine’
(b)	/t̪ɔ́/	t̪ɔ́ɔ́	t̪ɔ́-gg	‘cow’
(c)	/gɔ̄/	gɔ̄ɔ̀	gɔ̄-gg	‘clothing type’
(d)	/wɛ́s/	wɛ́ɛ́	wís-ə̄gg	‘house’

Plural suffix *-Agg*

The plural suffix *-Agg* attaches to underlying root-final obstruents, including various root-final consonant sequences and geminate plosives. About 17% of nouns take this suffix. The suffix vowel *A* is unspecified for roundness and takes the [round] quality of the root, in accordance with {M4} in 3.3. It is also unspecified for [ATR] and takes this feature from the root {M3}.

(13) **Plural suffixes *-Ágg, -Āgg, -Agg***

UR-final	N SG	N PL	
/bb/	ɟílə̀bb	ɟílə̀bb-ə̀gg	‘water spring’
/ḍ/	mīīḍ	mīīḍ-ə́gg	‘stone’
/d/	dɔ̃d	dɔ̃d-ɔ̄gg	‘bird type’
/ɟɟ/	síīɟɟ	síīɟɟ-ə̄gg	‘tree type’
/s/	tēnḍás	tēnḍás-āgg	‘bird type’
/nḍ/	ɔ́rɔ́nḍ	ɔ́rɔ́nḍ-ɔ̄gg	‘fermented milk’
/ŋḍ/	là̀ŋḍ	là̀ŋḍ-ə̀gg	‘tree type’
/lḍ/	cúlḍ	cúlḍ-ūgg	‘birth sack’
/rḍ/	ṭīrḍ	ṭīrḍ-ə̄gg	‘farm’
/ɲɟ/	bə̀ɲɟ	bə̀ɲɟ-ə̄gg	‘sorghum pulp’
/lɟ/	îlɟ	ílɟ-ə̀gg	‘beeswax’
/ms/	nāms	nāms-āgg	‘food’
/rs/	bāgḍàrs	bāgḍàrs-àgg	‘lizard’

The suffix also attaches to two words with root-final approximant *ð*: *kūūð/kūūð-ə́gg* ‘shadow’ and *ɛ̄ɛ̄ð/ɛ̄ɛ̄ð-āgg* ‘water-carrying net’. All other nouns with root-final approximant take the suffixes *-gg*, *-EEgg*, or *-AAgg* (see next two sections) which attach to sonorants.

Although *-ḍ* is a singular suffix, some roots have *ḍ* as the final root segment. As shown in the nouns of (14) with root-final *ḍ*, the dental surfaces in the plural form.

(14) **Root-final *ḍ* surfacing in plural nouns**

N SG	N PL	
ḍə̀ìḍ	ḍə̀ìḍ-ə̀gg	‘scorpion’
káɛ̄ḍ	káɛ̄ḍ-āgg	‘cup, spoon’
lāāḍ	lāāḍ-āgg	‘gum mastic’
lúlīíḍ	lúlīíḍ-ə̄gg	‘snake type’
māāḍ	māāḍ-āgg	‘snake type’
rúíḍ	rúíḍ-ə̄gg	‘dirt’
ɛ̄ɛ̄ḍ	īīḍ-ə́gg	‘his eye/his eyes’
yāāḍ	yāāḍ-āgg	‘broken plate’
mīīḍ	mīīḍ-ə́gg	‘stone’

However, in the eleven plural nouns of (15) with root-final *ḍ*, the segment *ḍ* is either weakened to the approximant *ð* or elided. Several of these nouns have more than one plural form. The noun of (a) has one plural form where *ḍ* surfaces and one where it is weaken to *ð*. The noun of (15d) has one plural form where *ḍ* surfaces and one where it is elided. The nouns of (15e-i) have one plural form where *ḍ* is weaken to *ð* and one where it is elided.

(15) **Root-final *ḏ* weakened to approximant *ð* or elided in plural nouns**

	N SG	N PL with *ḏ*	N PL with *ð*	N PL with elision	
(a)	ḍāɔ̀ḏ	ḍāɔ̀ḍ-àgg	ḍāɔ̀ð-àgg		‘fertile soil’
(b)	fīīḏ		fīīð-ɔ̄gg		‘feather’
(c)	lɔ̄ggɔ́ɔ́ḏ		lɔ̄ggɔ́ɔ́ð-ɛ̄gg		‘locust’
(d)	àbbāḏ	àbbāḍ-āgg		àbbā-āgg	‘tree type’
(e)	áfáḏ		áfáð-āgg	áfá-āgg	‘blood’
(f)	ɔ̄ḏ		ɔ̄ð-ɔ̄gg	ɔ̄-ɔ̄gg	‘wife’
(g)	ɟìḏ		ɟīð-ɔ̀gg	ɟī-ìgg	‘husband’
(h)	áfáḏ		áfáð-āgg	áfá-āgg	‘blood’
(i)	rɛ̄bbɛ́ḏ		rɛ̄bbɛ́ð-ɛ̄gg	rɛ̄bbɛ́-ɛ̄gg	‘reed type’
(j)	lúḏ			lú-ùgg	‘leg’
(k)	kɔ́líḏ			kɔ́lí-īgg	‘bird type’

Similarly, there are several nouns with root-final palatal geminate *ɟɟ* in which the geminate surfaces in the plural form.

(16) **Root-final *ɟɟ* surfacing in plural nouns**

N SG	N PL	
síīɟɟ	sííɟɟ-ɔ̄gg	‘tree type’
ṭálŋɛ̀ɟɟ	ṭálŋɛ̀ɟɟ-àgg	‘tree type’
sūrmùɟɟ	sūrmùɟɟ-ùgg	‘tree type’
pɛ̄bbɛ̄ɛ̄ɟɟ	pɛ̄bbɛ̄ɛ̄ɟɟ-āgg	‘tree type’

There are also nouns with root-final palatal geminate *ɟɟ* in which the geminate is elided in the plural form. The noun of (17a) has one plural form where *ɟɟ* surfaces and one where it is elided.

(17) **Root-final *ɟɟ* elided in plural nouns**

	N SG	N PL with *ɟɟ*	N PL with elision	
(a)	bìmìríɟɟ	bìmìríɟɟ-ɔ̄gg	bìmìrí-īgg	‘bird type’
(b)	búlíɟɟ		búlī-īgg	‘worm’
(c)	gàfāɟɟ		gàfɛ̄-ɛ̄gg[26]	‘lung’

The suffix vowel of *-Agg* is assimilated to the preceding vowel when it directly follows the last root vowel. In addition to roundness and [ATR] spreading, the suffix vowel also takes on the [-back] feature of the root. For example, in (15g) *ɟìḏ/ɟī-ìgg* ‘husband’, (15i) *rɛ̄bbɛ́ḏ/rɛ̄bbɛ́-ɛ̄gg* ‘reed type’, and (17a) *bìmìríɟɟ/bìmìrí-īgg* ‘bird type’, the vowel of the suffix *-Agg* becomes *i* or *ɛ* to match the last root vowel.

The nouns of (15) and (17) are analyzed as exceptions in that intervocalic *ḏ* and *ɟɟ*

[26] This noun is irregular in that it has the suffix *–Egg* and the root vowel assimilates to the suffix vowel rather than vice versa.

are not weakened in other morpheme boundaries of the language. In (4) of section 2.1.3, we saw that *ḍ* of the root verb */cūḍ/* 'climb' is not weakened in the intervocalic environment of the continuous form *cūḍ-ə́n.* Similarly, the *ɟ* of the root verb */káɟ/* 'bring' surfaces as a palatal plosive when the deictic completive suffix *-Cagga* is attached (*káɟ-ɟággā*).

Alternatively, one might analyze the nouns of (15) and (17) as having suffixes in the singular and plural forms and the roots ending in vowels, such as *ḍāə̀-ḍ/ ḍāə̀-ðàgg* 'fertile soil', *àbbā-ḍ/ àbbā-āgg* 'tree type', *bìmìrí-ɟɟ/ bìmìrí-īgg* 'bird type', etc. However, this analysis requires an additional singular suffix *-ɟɟ* and plural suffix *-ðAgg,* the latter being unusual in that there are no other -CVC suffixes on nouns. Further, when the vowel-initial past continuous suffix *-An* is attached to the vowel-final verb root /pa/ 'guard', the suffix becomes a second syllable, juxtaposed to the root (*pā.-án*), in accordance with {M2} of 3.1. However, the plural suffix on the nouns in (15) and (17) does not become an additional syllable (*bìmìrí-īgg*), and reflects a different underlying form. Thus, the alternative analysis is not taken and the nouns of (15) and (17) are analyzed as having only plural suffixes.

In (13), the suffix *-Agg* was shown to attach to the root-final plosives *-bb*, *-ḍ*, *-d*, and *-ɟɟ*. It is posited that the velar plosive is included in the list of root-final segments to which the suffix attaches. The velar plosive elision rule of {P2} in 2.1.3 predicts that word-final velar plosives are elided. It also predicts that when a vowel-initial suffix is attached to a root-final velar plosive *g*, the plosive will be elided in the resulting intervocalic environment. This is the case for the incompletive and past continuous forms of (18) with suffix *-An*. The deictic completive form is given to make clear the root-final segment.

(18) **Incompletive and continuous verb forms which elide *g***

Root	3sN INCP	3sN CONT.P	3sN D.COMP		
/bag/ L	bàā	bà-án	bàg-gāggā	[bàgāgā]	'take'
/cig/ M	cīī	cī-ə́n	cīg-gə́ggə	[cīgə́gə]	'wear'
/gug/ L	gùū	gù-ə́n	gùg-gə̄ggə̄	[gùgə̄gə̄]	'vomit'

It is posited that the same process occurs in nouns with the plural suffix *-Agg*. The nouns of (19) are believed to have root-final velar plosives which are elided word-finally in the singular form and intervocalically in the plural form. After the velar plosive is elided, the vowel of the suffix takes on the same features as that of the last root vowel, just as in the nouns of (15) and (17) when *ḍ* and *ɟɟ* are weakened to elision.

There are no noun suffixes with initial consonant which attach to both underlying-final consonants and underlying-final vowels. Therefore, the root-final velar

(19) **Plural suffixes *-Ágg, -Āgg, -Agg* with root-final *g***

UR-final	N SG	N PL	
/ɛg/	áŋɛ́	áŋɛ́-ɛ̄gg	‘elephant’
/ag/	cáffá	cáffá-āgg	‘side of body’
/ɔg/	ṭálɔ	ṭálɔ-ɔ̀gg	‘tax’
/ig/	būlḍí	būlḍí-īgg	‘finger’
/əg/	tílŋə́	tílŋə́-ə̄gg	‘sorghum type’
/ug/	kúlmú	kúlmú-úgg	‘buttock’

plosive *g* never surfaces in nouns as it does in verbs. Thus, there is no way to verify the root-final *g* in the nouns of (19).

Alternatively, the nouns of (19) could have root-final vowels. But as with the nouns of (15) and (17), the plural suffix on the nouns of (19) does not become an additional syllable, juxtaposed to the root (*áŋɛ́.-ɛ̄gg* ‘elephant’) as does the past continuous suffix on verbs with root-final vowels (*pā.-án* ‘guard-CONT.P’) {M2}. Thus, the alternative analysis is not taken.

Plural suffix *-EEgg*

The plural suffix *-EEgg* attaches to root-final sonorants. About 17% of nouns have this suffix. There is no difference in phonological distribution between nouns with *-EEgg*, *-gg*, or *-AAgg* (next section), which are all suffixed to final sonorants.

(20) **Plural suffixes *-ÉĒgg, -ĒĒgg, -EEgg***

UR-final	N SG	N PL	
/m/	bààm	bààm-èɛ̀gg	‘bird type’
/n/	kūn	kūn-īīgg	‘hunger’
/ɲ/	lúɲ	lúɲ-íīgg	‘boomerang’
/ŋ/	pɔ́ɔ́ŋ	pɔ́ɔ́ŋ-ɛ̄ɛ̄gg	‘knife sheath’
/r/	ṭɛ́ɛ̀r	ṭɛ́ɛ́r-ɛ̀ɛ̀gg	‘carving tool’
/l/	àɔ̀l	àɔ̀l-ɛ̄ɛ̄gg	‘brother’
/ð/	ɔ̄ɔ̄ð	ɔ̄ɔ̄ð-íīgg	‘tree type’
/w/	ḍāɔ̀	ḍàw-ɛ̀ɛ̀gg	‘monkey’
/y/	rāāɛ̄	rāāy-ɛ́ɛ̄gg	‘quarrel, war’

The suffix *-EEgg* also attaches to one noun with root-final velar geminate *gg*: *ɔ́gg/ɔ́gg-ɛ́ɛ̄gg* ‘place’. All other nouns with root-final velar geminate take the suffix *-AAḍ* (5.6.3) which attaches to obstruents and sonorants. The suffix *-EEgg* also attaches to three words with root-final dental plosive *ḍ* in which *ḍ* is weakened to the approximate *ð* or elided: *rɛ̄bbɛ́ḍ/ rɛ̄bbɛ́ð-ɛ̄ɛ̄gg* ‘reed type’, *ŋāāŋāāḍ/ŋāāŋāā.-ɛ́ɛ̄gg* ‘thigh’, *ɔbbùùḍ/ɔbbùù.-ììgg*. In *ŋāāŋāā.-ɛ́ɛ̄gg* and *ɔbbùù.-ììgg*, three syllables remain despite the deleted plosive. All other nouns with root-final dental plosives take the suffix *-Agg*.

In (1) of 3.2.1, the suffix *-EEgg* was attached to nouns with each of the six root vowels.

Plural suffix *-AAgg*

The plural suffix *-AAgg* attaches to root-final sonorants. Only the nine nouns of (21) have been attested with this suffix. Since the suffix vowel is underlying specified as [-round], it is not affected by the [round] quality of the root such as in *kùùl/ kùùl-ɔ̄ɔ̄gg* 'clan member' and *bɔ́n/bɔ́n-āāgg* 'heart'. Thus, the [round] rule {M4} does not apply to this suffix.

(21) **Plural suffixes *-ÁĀgg, -ĀĀgg, -AAgg***

UR-final	N SG	N PL	
/l/	îl	íl-ɔ̀ɔ̀gg	'horn'
	téɛ̀l	téɛ́l-ààgg	'anchor'
	kùùl	kùùl-ɔ̄ɔ̄gg	'clan member'
	láál	láál-áāgg	'pumpkin type'
/n/	kásán	kásán-áāgg	'friend'
	bɔ́n	bɔ́n-āāgg	'heart'
/m/	yāàm	yààm-ààgg	'bride'
/w/	céɛ́ɔ̄	céɛ́w-āāgg	'lame person'
/ð/	ɟááð	ɟááð-āāgg	'old clothes'

There is no difference in phonological distribution between nouns with suffixes *-gg*, *-EEgg*, or *-AAgg*, which are all suffixed to final sonorants; nor is there any way to predict which noun takes which of the three suffixes, as shown by the contrasts of (22).

(22) **Contrast of plural segmental suffixes *-gg, -EEgg, -AAgg***

UR-final	N SG	N PL	
/ɛɛl/	ḍɛ̀ɛ̀l	ḍɛ̀ɛ̀l-g	'storage shelf'
	ḍɛ̄ɛ̀l	dɛ̀ɛ̀l-ɛ̀ɛgg	'sea, town'
	téɛ̀l	téɛ́l-ààgg	'anchor'
/aam/	kààm	kààm-g	'nyala'
	fáàm	fáám-ɛ̀ɛgg	'opinion'
	yāàm	yààm-ààgg	'bride'

About 10% of nouns with root-final sonorants have more than one plural form, taking the suffixes *-EEg* and *-gg* (see examples in section 6.2.6).

6.2.3 Plural suffixes on semantically defined sets of nouns

The remaining segmental plural suffixes are listed in table 11 and are attached to

less than 5% of nouns, most of which belong to certain semantically defined sets of nouns. In these sets, the semantic correlation of the nouns with the suffix is clear, although there are many exceptions. The suffixes *-AA̰d* and *-d̰* are commonly attached to kinship terms, and the suffixes *-əgg*, *-V⁺g* and *-⁺g*, are commonly attached to body parts. The suffix *-AA̰d* is underlyingly specified as [-round], the suffixes *-V⁺g* and *-⁺g* are specified as [+ATR], and *V* is a person marker vowel.

Table 11: Plural Suffixes on semantic sets of nouns

Suffix	Semantic set	N SG	N PL		# of nouns
-AA̰d	kinship nouns	mɔ̄ɔ̄ð	mɔ̄ɔ̄ð-ɔ́ɔ̄d̰	'grandfather'	5
	root-final -gg	gàágg	gàágg-āād̰	'bird type'	5
-d̰	kinship nouns	ābɛ́ɛ́	ābɛ́ɛ̄-d̰	'maternal uncle'	5
-əgg	body part	fɜ̄nd̰	fɜ̄nd̰-ɔ́gg	'cheek'	5
-⁺g	body part	āāl	ɔ̀ɔ̀l-g	'my head/our heads'	8
-V⁺g	body part	ɔ̄ɔ̄d̰	ùd̰-ūgg	'your eye/our eyes'	2

The suffix *-AA̰d* is partly conditioned by phonology and partly correlated to semantics. As for phonological conditioning, *-AA̰d* attaches to nouns whose stem ends in *gg*. The plural suffix *-Agg* in (13) which attaches to root-final *bb, d̰, d, ɟɟ* and *g*, cannot be used with such nouns. In addition, there are five nouns not ending in *gg* which take *-AA̰d*, four of which are kinship terms. There are many other kinship terms which do not have the suffix *-AA̰d*. Only the ten nouns of (23) have been attested with this suffix. Since the suffix vowel is underlyingly specified as [-round], it is not affected by the [round] quality of the root.

(23) **Plural suffixes *-ÁĀ̰d, -ĀĀ̰d, -AA̰d***

UR-final	N SG	N PL	
/gg/	gàágg	gàágg-āād̰	'bird type'
	kàmàlɔ̀gg	kàmàlɔ̀gg-ààd̰	'mature woman'
	kɔ̄ggɔ́lìgg	kɔ̄ggɔ́lìgg-ɔ̀ɔ̀d̰	'cock'
	kúūrlúúgg	kúūrlúúgg-ɔ̄ɔ̄d̰	'rodent type'
	ɔ̄ðɔ̄gg	ɔ̄ðɔ̄gg-ɔ̄ɔ̄d̰	'greed'
/m/	máàm	máám-ààd̰	'paternal aunt'
/n/	bɛ̀ɛ̀n	bɛ̀ɛ̀n-āād̰	'gossip'
/ð/	mɔ̄ɔ̄ð	mɔ̄ɔ̄ð-ɔ́ɔ̄d̰	'grandfather'
	yààð	yààð-āād̰	'sister'
/w/	bààɔ̀	bààw-āād̰	'father'

The segmental suffix *-d̰* attaches to five nouns with root-final vowels, which are kinship terms or insects, two of which are compound nouns with the morpheme *maa* 'mother'[27].

[27] Because of limited data collection, it was not determined if the word for 'mother' attaches

(24) **Plural suffix -d̪, -̄d̪**

UR-final	N SG	N PL	
/a/	t̪ááðà	t̪ááðà-d̪	‘grandmother’
	bɔ̀ɔ̀ŋmà	bɔ̀ɔ̀ŋmà-d̪	‘insect type’
/aa/	fùùlmàà	fùùlmàà-d̪	‘insect type (compound noun)’
	wíìlmāā	wíìlmāā-d̪	‘ant name (compound noun)’
/ɛɛ/	ābéé	ābéɛ̄-d̪	‘maternal uncle’

Although most plural suffixes are underlyingly unspecified for [ATR], the suffix *-əgg* is underlyingly [+ATR] and spreads its [ATR] quality to the noun root {M3}. Similar to its unspecified equivalent *-Agg*, the suffix - *əgg* attaches to root-final obstruents. Only the five nouns of (25) have been attested with this suffix, three of which are body parts.

(25) **Plural suffixes *-əgg, -ə̄gg, -ə́gg***

Vowel of UR	N SG	N PL	
/ɛ/	tɛ̄ɛ̄nd̪	tīīnd̪-ə̄gg	‘riddle’
	wéé(s)	wís-ə̄gg	‘house’
	bɛ̄rd̪	bìrd̪-ə̄gg	‘anus’
/a/	fān̪d̪	fə̄n̪d̪-ə́gg	‘cheek’
	sārànd̪	sərənd̪-ə̄gg	‘crotch line’

The segmental plural suffix *-⁺gg* is underlying [+ATR] and spreads its [ATR] quality to the noun root {M3}. Similar to its unspecified equivalent *-gg*, the suffix *-⁺gg* attaches to final sonorants and to final vowels. Only the nine nouns of (26) have been attested with this suffix, four of which are inherently possessed body part nouns. Inherently possessed body part nouns are a subset of inalienable nouns and are discussed in section 5.2.4.

(26) **Plural suffixes -⁺gg, -⁺̄gg**

Vowel of UR	UR-final	N SG	N PL	
/ɔ/	/l/	fɔ́l	fū̀l-g	‘hole’
/ɔ/	/l/	d̪ɔ̀l	d̪ùl-g	‘penis’
/ɔ/	/ɔ/	gɔ̀à-d̪[28]	gùù-gg	‘excrement’
/a/	/a/	kālāā-d̪	kə̄lə̄ə̄-gg	‘tongue’
	/l/	āāl	ə̀ə̀l-g	‘my head/our heads’
	/n̪/	āān̪	ə̀ə̀n̪-g	‘my back/our backs’
	/ŋ/	āāŋ	ə̀ə̀ŋ-g	‘my body/our bodies’
	/l/	āāl-g	ə̀ə̀l-g	‘my stomach/our stomachs’

In nouns with [+ATR] root vowel quality and root-final sonorant, it cannot be

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the suffix *–d̪* other than in insect nouns.

[28] Irregular vowel change from *a* to *ɔ*.

determined whether the suffix is *-g* or -$^{+}$g. In nouns such as *ɟīɲɟíl / ɟīɲɟíl-g* 'bird type', *lə́ə́ð / lə́ə̄ð-g* 'male singing voice', and *lúɲ / lúɲ-g* 'boomerang', the [+ATR] quality could be underlying present in the suffix as well as in the root, or only present in the root. In the nouns of (26), [+ATR] quality spreads to the root of the plural noun {M3}, giving evidence of the underlying [+ATR] quality of the suffix.

There is also a suffix that is underlyingly specified as [+ATR], but unspecified for any other vowel features. There are seven inherently possessed body part nouns discussed in 5.2.4 for which the root is only a consonant. A possessive person marker long vowel *VV-* is prefixed to the root in singular forms. In the plural form, two of these nouns take the plural suffix *-V^{+}gg*, where *V* is the person marker vowel, along with a short person marker prefix vowel *V-*. In (27), the possessive paradigms of these two body parts are shown. There are many body part nouns which do not take the suffixes *-əgg*, *-$^{+}$g*, or *-V^{+}gg*.

(27) **Plural suffix -V^{+}̄gg**

	N SG, SG person		N PL, SG person		N PL, PL person		
(a)	āā-d̤	1sPs	ə́-d̤-ə̄gg	1sPp	ə̀-d̤-ə̄gg	1pPp	'eye'
	ōō-d̤	2sPs	ú-d̤-ūgg	2sPp	ù-d̤-ūgg	2pPp	
	ēē-d̤	3sPs	í-d̤-īgg	3sPp	ì-d̤-īgg	3pPp	
(b)	áà-s	1sPs	ə́-s-ə̄gg	1sPp	ə̀-s-ə̄gg	1pPp	'hand'
	ɔ́ɔ̀-s	2sPs	ú-s-ūgg	2sPp	ù-s-ūgg	2pPp	
	éè-s	3sPs	í-s-īgg	3sPp	ì-s-īgg	3pPp	

6.2.4 Irregular plural formation

There are also a handful of nouns with various other plural formations, as shown in the exhaustive list of (28). In (a-b), the root-final vowel is elided; in (c), the last root vowel is assimilated to the vowel of the suffix; in (d), the underlying final consonant is not realized in the singular form; in (e), the plural form has the

(28) **Irregular plural formation**

	N SG	N PL	
(a)	cīɟɟí	cīɟɟ-ə́ə̄gg	'diarrhea'
(b)	ə̄ŋə̀	ə̀ŋ-g	'young girl'
(c)	gàfə̄ɟɟ	gàfɛ̄-ɛ̄gg	'lung'
(d)	wéé́	wís-ə̄gg	'house'
(e)	kɔ̄r-d̤	kɔ̄r-ɔ̄ɔ̄gg	'bird type'
(f)	ɲāā	ɲālg	'girl'
(g)	ɟāā	ɟāālgé	'son, boy, person'
(h)	gɔ̀ɔ̀-d̤	gùù-gg	'excrement'
(i)	ɟīn	ɟɔ̄gg	'man, person'
(j)	ɟɛ̀ɛ̀m	ɟɛ̀gg	'thing, something'
(k)	cé́l	cáāl-g	'dancing group member'

suffix -*AAgg* where the vowel *AA* takes the round feature of the root; and in (f-k), various other things take place.

6.2.5 One-form lexemes

There are both singular nouns without plural forms and plural nouns without singular forms. These nouns are morphologically similar to other singular and plural nouns, and adjectives agree in number with them.

The singular nouns of (29) do not have corresponding plural forms and can be modified by singular adjectives. They are referents found as single items, things found in quantities, abstract ideas, or items difficult to count. The list is not exhaustive but representative of the approximately 15% of nouns without plural forms in the language.

(29) **Singular nouns**

N SG		N SG	
kɔ̄rɔ̀	*hill name*	rúùm	'fog'
məggər	*area name*	múū	'mosquito'
múùm	*village name*	kə̀ə̀ɲ	'a quantity of milk'
kàèmà	'good luck stone'	lúúsúḍ	'sweat'
púúfə̄	'leprosy'	málɔ̄ɟɟ	'nose mucus'
sèn	'skin disease'	ɟūùḍ	'yeasted sorghum'
cēdáŋ	'disease type'	bāālànḍ	'stripe'
ɲūḍī	'poverty'	ùù	'air'
rə̄ŋḍ	'mud'	íyɔ́ɔ́	'animal fat'
gàrɲè	'dung'	kāārɔ̄	'bacteria'
ḍùfūrḍ	'dust'	sɔ́ɔ́m	'hunting'
bùīl	'moisture'	fɔ́yə̀	'beneficiary'
gə̀məl	'forest, woods'	sɛ̀ɛ̀nɛ̄ɛ̄	'wealth, pride'
málə̀	'bee wax'	lɔ̄fɔ̀	'magic'
mɔ́ɔ́nìmə̄	'leafy vegetable'	lɔ́ɔ́ð	'singing voice'

The plural nouns of (30) do not have corresponding singular forms and can be modified by plural adjectives. They are representative of the approximately 10% of nouns without singular forms in the language. Since all plural nouns end in a velar plosive, these also can be analyzed as having the noun plural suffix -*gg* or the common verb nominalizer clitic =*gg*. Verbal nouns are discussed in 10.10.

(30) **Plural nouns**

N PL		N PL	
tɛ̄ɛ̄rg	'comb'	īīgg	'milk'
bə̀ŋə̀rg	'skin disease'	ḍùùgg	'ash'

Plural nouns (continued)

bìlḍ̈ɔ̄gg	‘worms (disease)’	fɛ̄gg	‘water’
íyə́ə́gg	‘oil’	márɔ̄sɛ̄ɛ̄gg	‘disease type’
ɟūūgg	‘urin’	ḍ̈ùrsììgg	‘bad smell’
cɔ̄ɔ̄gg	‘holy place’	kāŋɛ̄ɛ̄gg	‘group’

6.2.6 Multiple forms

About 5% of nouns have two plural forms or two singular forms. Whereas the segmental suffixes differ between the multiple forms, the tone pattern remains the same as far as allowed by the tone rules described in section 6.3.2. This section gives all attested nouns with multiple forms as spoken by the main language resource person. Other speakers sometimes list multiple forms for other nouns, although the multiple suffixes which attach to nouns do not change as much from speaker to speaker.

The most common noun type taking multiple forms has the plural suffix *-gg* or *-EEgg*.

(31) **Variation between plural suffixes *-gg* and *-EEgg***

	N SG	N PL 1	N PL 2	
(b)	bààm	bààm-g	bààm-èègg	‘bird type’
(d)	cɛ̄yám	cɛ̄yám-g	cɛ̄yám-ɛ̄ɛ̄gg	‘aged tobacco’
(h)	fɔ̄ḍ̈ɔ̀r	fɔ̄ḍ̈ɔ̀r-g	fɔ̄ḍ̈ɔ̀r-ɛ̄ɛ̄gg	‘nose’
(i)	ɟííl	ɟíīl-g	ɟííl-īīgg	‘cricket’
(j)	kāāɛ̄	kāāɛ̄-gg	kāāy-ɛ̄ɛ̄gg	‘witch doctor’
(k)	kābbàr	kābbàr-g	kàbbàr-ɛ̄ɛ̄gg[29]	‘wing, armpit’
(l)	kàḍ̈ḍ̈ɛ̄l	kàḍ̈ḍ̈ɛ̄l-g	kàḍ̈ḍ̈ɛ̄l-ɛ́ɛ́gg	‘leader’
(p)	lɛ̄ɛ̄ð	lɛ̄ɛ̄ð-g[30] [lɛ̄ɛ̄g̰]	lɛ̄ɛ̄ð-ɛ́ɛ̄gg	‘drill for planting’
(q)	lúŋ	lūŋ-g	lúŋ-íīgg	‘boomerang’
(r)	lúúŋ	lúūŋ-g	lúúŋ-íīgg	‘water pot’
(s)	ɲəə̄m	ɲəə̄m-g	ɲəə̄m-íīgg	‘chin’
(t)	ɲéèŋ	ɲéèŋ-g	ɲéɛ́ŋ-èègg	‘spear type’
(u)	rāāɛ̄	rāāɛ̄-gg	rāāy-ɛ́ɛ̄gg	‘quarrel, war’
(v)	ṭɛ́ɛ̀r	ṭɛ́ɛ̀r-g	ṭɛ́ɛ́r-èègg	‘carving tool’
(w)	màŋ̀ìl	màŋ̀ìl-g	màŋ̀ìl-īīgg	‘rainbow, spirit’
(x)	bəə̄ð	bəə̄ð-g [bəə̄g̰]	bəə̄ð-īīgg	‘salt’
(y)	lɔ̄ɔ̀r	lɔ̄ɔ̀r-g	lɔ̄ɔ̄r-èègg	‘cervix, womb’

[29] As discussed in 6.4, the tone pattern in plural body parts is prescribed by a plural possessive L(M) tone morpheme and therefore can differ from the underlying form.
[30] As discussed in 6.3.2, Mid tone on vowel-less suffixes is not assigned following root-final Low tone.

There are two nouns attested to take either the plural suffix *-gg* or *-AAgg*.

(32) **Variation between plural suffixes *-gg* and *-AAgg***

N SG	N PL	N PL	
láál	láāl-g	láál-áāgg	‘pumpkin type’
céɛ́ɔ	céɛ́ɔ-g	céɛ́w-āāgg	‘lame person’

There is one noun attested to take either the plural suffix *-gg* or *-Agg*.

(33) **Variation between plural suffixes *-gg* or *-Agg***

N SG	N PL	N PL	
ɛ̄ɛ̄ð	ɛ̄ɛ̄ð-g [ɛ̄ɛ̄g̚]	ɛ̄ɛ̄ð-āgg	‘net’

There are two nouns attested to take either the plural suffix *-gg* or *-ḍ*.

(34) **Variation between plural suffixes *-gg* and *-ḍ***

N SG	N PL	N PL	
fùùlmàà	fùùlmàà-gg	fùùlmàà-ḍ	‘insect type’
bɔ̀ɔ̀ŋmà	bɔ̀ɔ̀ŋmà-gg	bɔ̀ɔ̀ŋmà-ḍ	‘insect type’

There is one noun attested to take the singular suffix *-ḍ* with plural suffix *-gg* or *-EEgg*.

(35) **Singular suffix *-ḍ* with variation between plural suffixes *-gg* and *-EEgg***

N SG	N PL 1	N PL 2	
gəūr-ḍ	gəūr-g	gəùr-īīgg	‘stomach, pouch’

In some nouns, the status of the final *ḍ* is varying. Either it functions as part of the stem and is retained in the plural, or it functions as the singular marker and is not present in the plural. There are four nouns attested to take the plural suffix *-Agg* or have a singular and plural suffix. In (36), the *ḍ* of *nɔ̄nḍ* ‘demon’ can either be a root-final segment or a singular suffix; similarly for the other forms of (36).

(36) **Plural suffix *-Agg* or Singular suffixes *-ḍ* with Plural suffixes *-gg***

N SG	N PL 1	N SG	N PL 2	
nɔ̄nḍ	nɔ̄nḍ-ɔ̄gg	nɔ̄n-ḍ	nɔ̄n-g	‘demon’
kāŋāàḍ	kāŋāāḍ-àgg	kāŋāà-ḍ	kāŋāà-gg	‘bowl’
bɔ̀rḍ	bɔ̀rḍ-ɔ̀gg	bɔ̀r-ḍ	bɔ̀r-ɔ̄ɔ̄gg	‘lion’
kɔ̄rḍ	kɔ̄rḍ-ɔ̄gg	kɔ̄r-ḍ	kɔ̄r-ɔ̄ɔ̄gg	‘bird type’

There are two nouns attested to take the plural suffix *-EEgg* or have a singular and plural suffix.

(37) **Plural suffix *-EEgg* or Singular suffix *-ḍ* with Plural suffix *-gg***

N SG	N PL 1	N SG	N PL 2	
lɔ̄ggɔ́ɔ́ḍ̈	lɔ̄ggɔ́ɔ́ð-ɛ̄ɛ̄gg	lɔ̄ggɔ́ɔ́-ḍ̈	lɔ̄ggɔ́ɔ̄-gg	'locust'
àbbùùḍ̈	àbbùùð-ìigg	àbbùù-ḍ̈	àbbùù-gg	'butterfly'

Finally, there are four nouns attested to have two singular forms. The first three nouns of (38) take the same plural form for both singular forms. However, the fourth noun also has two plural forms corresponding to the two singular forms.

(38) **Two Singular forms**

N SG 1	N SG 2	N PL 1	N PL 2	
àɔ̀r	àɔ̀r-g	àɔ̀r-ɛ̄ɛ̄g		'priest, chief'
ɟíŋ-ḍ̈	ɟíŋ-íḍ̈	ɟíŋ-g		'louse'
gàfā-ɟɟ	gəfə	gàfɛ̄-ɛ̄gg		'lung'
búlí-ɟɟ	búlī-ḍ̈	búlī-īgg	búlī-gg	'worm'

6.3 Tone in noun plural formation

Thus far we have merely described the segments of noun plural formation. Now we turn to a description of tone in noun plural formation. In 6.3.1, we list the underlying tonal allomorphs of noun suffixes; in 6.3.2, we discuss tone assignment in plural formation; and in 6.3.3, a few plural nouns with irregular tone assignment are presented.

6.3.1 Tonal allomorphs of suffixes

Five out of six singular suffixes have no underlying tone and therefore have no effect on the singular noun tone. However, the suffix *-Aḍ* may have no underlying tone as in *kɔ́l-ɔ́ḍ̈/ kɔ́l-g* 'egg' or Mid tone as in *ɲíl-ə̄ḍ̈/ɲìl-g* 'intestine'. Singular suffixes with vowels having no underlying tone *(-Aḍ, -AAḍ, -Eḍ)* are assigned the root-final tone {M5}.

(39) **Singular suffixes *-Aḍ, -AAḍ* and *-Eḍ* attached to root-final sonorants**

Suffixes	N SG	N PL	
-ḍ̈	wɛ́ráá-ḍ̈	wɛ́ráā-gg	'tribe member'
-g	àɔ̀r-g	àɔ̀r-ɛ̄ɛ̄gg	'priest, chief'
-ɟɟ	pɛ̄bbɛ̄ɛ̄-ɟɟ	pɛ̄bbɛ̄ɛ̄-gg	'tree type'
-Ād̈	ɲíl-əḍ̈	ɲìl-g	'intestine'
-Aḍ̈	kɔ́l-ɔ́ḍ̈	kɔ́l-g	'egg'
-AAḍ̈	cāl-āāḍ̈	càl-g	'testicle'
-Eḍ̈	ɟíŋ-íḍ̈	ɟíŋ-g	'louse'

Segmental plural suffixes have up to three tonal allomorphs. Suffixes without

vowels have a form with no underlying tone as well as a form with underlying Mid tone. Suffixes with short vowels have a form with no underlying tone, a form with Mid tone, and a form with High tone. Suffixes with long vowels have a form with no underlying tone, a form with Mid tone, and a form with High-Mid tone. There is only one form of the suffix *-V^{+}̄g*, which has underlying Mid tone, and only one form of the suffix *-OOgg*, which has no underlying tone. The tonal allomorphs of plural suffixes are listed in table 12 and examples follow.

Table 12: Tonal allomorphs of noun plural suffixes

No underlying tone	Mid tone	High or High-Mid tone
-gg	-̄gg	
-Agg	-Āgg	-Ágg
-EEgg	-ĒĒgg	-ÉĒgg
-AAgg	-ĀĀgg	-ÁĀgg
-AA̤	-ĀĀ̤	-ÁĀ̤
-̤	-̤̄	
-əgg	-ə̄gg	-ə́gg
-$^{+}$g	-$^{+}$̄g	
	-V^{+}̄g	
-OOgg		

In (40), examples of nouns with each of the tonal allomorphs are given. The plural suffix *-gg* can have no underlying tone as in (a,c), where the plural form surfaces with final High tone, the same as in the singular form. Or the plural suffix *-gg* can have underlying Mid tone as in (b,d) which causes the plural form to have final High-Mid tone. Similarly, other nouns of (40) show contrastive underlying tone in the other segmental suffixes.

(40) **Tonal allomorphs of noun plural suffixes with examples**

	Suffix Tone	N SG	N PL	
(a)	-gg	lɛ́ɛ́l	lɛ́ɛ́l-g	‘grass’
(b)	-̄gg	káál	káāl-g	‘house fence’
(c)	-gg	mɔ̄ðɔ́	mɔ̄ðɔ́-gg	‘locust’
(d)	-̄gg	fɔ̄ɛ̄d̤á	fɔ̄ɛ̄d̤á-gg	‘seed’
(e)	-Agg	lə̀ŋd̤	lə̀ŋd̤-ə̀gg	‘tree type’
(f)	-Āgg	bànd̤	bànd̤-āgg	‘tree type’
(g)	-Ágg	mīīd̤	mīīd̤-ə́gg	‘stone’
(h)	-EEgg	d̤ààr	d̤ààr-ɛ̀ɛ̀gg	‘eagle’
(i)	-ĒĒgg	cɛ̀ɛ̀r	cɛ̀ɛ̀r-ɛ̄ɛ̄gg	‘singer’
(j)	-ÉĒgg	rāāɛ̄	rāāy-ɛ́ɛ̄gg	‘quarrel, war’
(k)	-AAgg	tɛ́ɛ̀l	tɛ́ɛ́l-ààgg	‘anchor’
(l)	-ĀĀgg	ɟááð	ɟááð-āāgg	‘old clothes’
(m)	-ÁĀgg	láál	láál-áāgg	‘pumpkin type’

	Suffix Tone	N SG	N PL	
(n)	-AA̤	máàm	máám-àà̤	‘paternal aunt’
(o)	-AA̤	yààð	yààð-āā̤	‘sister’
(p)	-ÁĀ̤	mə̄ə̄ð	mə̄ə̄ð-ə́ə̤̄	‘grandfather’
(q)	-̤	̤tááðà	̤tááðà-̤	‘grandmother’
(r)	-¯̤	ābéé	ābéē-̤	‘maternal uncle’
(s)	-əgg	tē̄ēnd̤	tīīnd̤-əgg	‘riddle’
(t)	-əgg	wéé(s)	wís-əgg	‘house’
(u)	-ə́gg	fānd̤	fənd̤-ə́gg	‘cheek’
(v)	-⁺g	āāl	ə̀ə̀l-g	‘my head/our heads’
(w)	-⁺¯g	fól	fūl-g	‘hole’
(x)	-V⁺¯g	ə̄ə̄d̤	ùd̤-ūgg	‘your eye/your eyes’
(y)	-OOgg	kɔ̄r-d̤	kɔ̄r-ə̄ə̄gg	‘bird type’

In (40k, n), the root underlying HL tone is spread across two syllables in the plural form as a result of the absence of underlying tone in the plural suffix {M6}. In (v), the change in tone from singular to plural form is a result of the inherently possessed body part morpheme rather than from underlying tone of the suffix, as discussed in 6.4.

6.3.2 Tone assignment in noun plural formation

In the tone assignment of noun plural formation, root tone is used as the starting point; the tone assignment of suffixes is in addition to or after tone assignment of the root. Nouns with vowel suffixes are first discussed, followed by nouns with vowel-less suffixes.

Noun suffixes having vowels with no underlying tone

When a suffix with a vowel does not have underlying tone, tone spreads rightward from the final tone of the root to the suffix, in accordance with {M5} in 3.4.1. The nouns of (41) can be analyzed as having no underlying tone in the suffixes. As discussed shortly, in nouns with L, HL and ML melodies such as *ɟɛ̀ɛ̀rs/ɟɛ̀ɛ̀rs-àgg* ‘hippopotamus’, *ɟílə̀bb/ɟílə̀bb-ə̀gg* ‘water spring’, and *bāgd̤àrs/bāgd̤àrs-àgg* ‘lizard’, the suffix could also have Mid tone which assimilates to the root-final Low tone {M9}.

If the root tone were not the starting point for tone assignment in noun plural formation, right-to-left tone assignment of the plural noun in (41m) would render the surface tone as **ɟílə̀bb-ə̀gg* instead of *ɟílə̀bb-ə̀gg*. The tone of the plural nouns of (n-q) would also be different.

(41) **Rightward tone spreading to unassigned suffix vowel**

	Root tone	Suffix	N SG	N PL	
(a)	H	-Agg	kə́s	kə́s-ə́gg	‘sorghum type’
(b)		-gg/-EEgg	ún-g	ún-íígg	‘tear’
(c)	M	-Agg	māāḍ	māāḍ-āgg	‘snake type’
(d)		-EEgg	kɔ̄r	kɔ̄r-ɛ̄ɛ̄gg	‘word, speech’
(e)		-ḍ/-EEgg	bāār-ḍ	bāār-ɛ̄ɛ̄gg	‘abdomen, waist’
(f)		-aaḍ/-gg	cāl-āāḍ	càl-g	‘testicle’
(g)		-əgg	tɛ̄ɛ̄nḍ	tīīnḍ-ə̄gg	‘riddle’
(h)		-ḍ/-OOgg	kɔ̄r-ḍ	kɔ̄r-ɔ̄ɔ̄gg	‘bird type’
(i)	L	-Agg	ɟɛ̀ɛ̀rs	ɟɛ̀ɛ̀rs-àgg	‘hippopotamus’
(j)		-EEgg	bààm	bààm-ɛ̀ɛ̀gg	‘bird type’
(k)		-ḍ/-AAgg	bə̀r-ḍ	bə̀r-ə̀ə̀gg	‘lion’
(l)		-AAḍ	kàmàlɔ̀gg	kàmàlɔ̀gg-ààḍ	‘mature woman’
(m)	HL	-Agg	ɟílə̀bb	ɟílə̀bb-ə̀gg	‘water spring’
(n)	HM	-Agg	búlūūrs	búlūūrs-ə̄gg	‘bird type’
(o)	ML	-Agg	bāgḍàrs	bāgḍàrs-àgg	‘lizard’
(p)	LM	-Agg	àbbāḍ	àbbāḍ-āgg	‘tree type’
(q)	MHL	-AAḍ	kə̄ggə́lìgg	kə̄ggə́lìgg-ə̀ə̀ḍ	‘cock’

However, there are a few nouns where the tone of the root is changed in the plural form. When a suffix with a vowel does not have underlying tone, and when there are two tones assigned to the root-final syllable, the second tone of the root-final syllable is delinked and reassigned to the suffix vowel, in accordance with {M6} in 3.4.1.

The nouns of (42) each have two tones assigned to the root-final syllable, and each

(42) **Second of two root-final tones reassigned to suffix vowel with no underlying tone**

Root tone	Suffix	N SG	N PL	
HL	-Agg	îlɟ	ílɟ-ə̀gg	‘beeswax’
	-EEgg	fáàm	fáám-ɛ̀ɛ̀gg	‘opinion’
	-AAgg	tɛ́ɛ̀l	tɛ́ɛ́l-ààgg	‘anchor’
	-AAḍ	máàm	máám-ààḍ	‘paternal aunt’
HM	-Agg	síīɟɟ	síīɟɟ-ə̄gg	‘tree type’
	-AAgg	cɛ́ɛ́ɔ̄	cɛ́ɛ́w-āāgg	‘lame person’
ML	-Agg	kāɲāàḍ	kāɲāāḍ-àgg	‘bowel for hot foot’
	-EEgg	gə̄mūùr	gə̄mūūr-ììgg	‘dove’
	-EEgg	lɔ̄ɔ̀r	lɔ̄ɔ̄r-ɛ̀ɛ̀g	‘cervix’
LM	-Agg	gɔ̀n	gɔ̀n-ɔ̄gg	‘responsibility’
	-ḍ/-EEgg	gəùr-ḍ	gəùr-īīgg	‘stomach pouch’
LHL	-EEgg	bàsáàr	bàsáár-ɛ̀ɛ̀gg	‘lie’
	-EEgg	ɟɔ̀fɔ́ɔ̀r	ɟɔ̀fɔ́ɔ́r-ɛ̀ɛ̀gg	‘desire’

can be analyzed as having no underlying tone in the suffix(es). The second tone of the root-final syllable is delinked and reassigned to the suffix vowel.

The nouns *ḍāɔ̈ḍ/ḍāɔ̈ḍ-àgg* 'fertile soil' and *ṭáɔr/ṭáɔr-èègg* 'lizard' contrast with the nouns of (42) in that the root-final tone is not delinked and thus {M6} does not apply. The nouns *káēɖ̈/káēɖ̈-āgg, káéɖ̈-āgg* 'cup, spoon' and *gəmūùr/gəmūùr-ììgg, gəmūūr-ììgg* 'dove' have two plural forms with differing tone. The plural form *káēɖ̈-āgg* is analyzed as having Mid tone in the suffix which makes it unnecessary for the root-final Mid tone to delink and reattach. Similarly, the plural forms *ḍāɔ̈ḍ̈-àgg, ṭáɔr-èègg*, and *gəmūùr-ììgg* are analyzed as having Mid tone in the suffix which makes it unnecessary for the root-final Low tone to delink and reattach. As discussed below, the suffix Mid tone is analyzed to assimilate to root-final Low tone, in accordance with the tone lowering rule {M9} of 3.4.3.

Noun suffixes having vowels with Mid tone

In (43), noun suffixes with vowels having Mid tone are attached to nouns with various root tone melodies. Mid tone surfacing on suffixes attached to nouns with root-final Mid tone as in *māāɖ̈/māāɖ̈-āgg* 'snake type' is ambiguous since the suffix could have underlying Mid tone or no underlying tone. In nouns with only Low tone assigned to the root-final syllable as in *ɟèèrs/ɟèèrs-àgg* 'hippopotamus', *ɟíləbb/ɟíləbb-əgg* 'water spring', and *bāgɖ̈àrs/bāgɖ̈àrs-àgg* 'lizard', the suffix could have no underlying tone or Mid tone which assimilates to the root-final Low tone, in accordance with the tone lowering rule {M9}.

(43) **Mid tone on suffix vowel of various suffixes**

Root tone	Suffix	N SG	N PL	
H	-Āgg	órónɖ̈	órónɖ̈-ōgg	'fermented milk'
	-ĒĒgg	póóŋ	póóŋ-ēēgg	'knife sheath'
	-ĀĀgg	ɟááð	ɟááð-āāgg	'old clothes'
	-ōgg	wɛ́é(s)	wís-ōgg	'house'
	-Āɖ̈/-gg	ɲíl-ōɖ̈	ɲìl-g	'intestine'
M	-Āgg	māāɖ̈	māāɖ̈-āgg	'snake type'
	-ĒĒgg	kūn	kūn-īīgg	'hunger'
	-ĀĀɖ̈	ððōgg	ððōgg-ōōɖ̈	'greed'
	-ōgg	tēēnɖ̈	tīīnɖ̈-ōgg	'riddle'
	-AAɖ̈/-gg	cāl-āāɖ̈	càl-g	'testicle'
L	-Agg	ɟèèrs	ɟèèrs-àgg	'hippopotamus'
	-EEgg	bààm	bààm-èègg	'bird type'
	-ɖ̈/-AAgg	bər-ɖ̈	bər-əəgg	'lion'
	-AAɖ̈	kàmàlɔgg	kàmàlɔgg-ààɖ̈	'mature woman'
HM	-Agg	káēɖ̈	káēɖ̈-āgg	'cup, spoon'
HL	-ĒĒgg	ṭáɔr	ṭáɔr-èègg	'lizard'
	-Agg	ɟíləbb	ɟíləbb-əgg	'water spring'

Root tone	Suffix	N SG	N PL	
MH	-Ā̱gg	dɔ̄d	dɔ̄d-ɔ̄gg	‘bird type’
ML	-Agg	ḍ̱āɔ̀ḍ̱	ḍ̱āɔ̀ḍ̱-àgg	‘fertile soil’
	-Agg	bāgḍ̱àrs	bāgḍ̱àrs-àgg	‘lizard’
	-EEgg	gəmūùr	gəmūùr-ìigg	‘dove’
LH	-Ā̱gg	bìmìríɟɟ	bìmìríɟɟ-ɔ̄gg	‘bird type’
	-A̲Ā̲ḍ̱	gàágg	gàágg-āāḍ̱	‘bird type’
HMH	-Ā̱gg	lúlīíḍ̱	lúlīíḍ̱-ɔ̄gg	‘snake type’
	-A̲Ā̲ḍ̱	kúūrlúúgg	kúūrlúúgg-ɔ̄ɔ̄ḍ̱	‘rodent type’
HLH	-ḍ̱/-gg	rúŋùú-ḍ̱	rúŋùū-gg	‘bird type’

However, in nouns with two tones on the root-final syllable such as *ḍ̱áɔ̀r/ḍ̱áɔ̀r-èègg* ‘lizard’, *káēḍ̱/káēḍ̱-āgg* ‘cup, spoon’, *ḍ̱āɔ̀ḍ̱/ḍ̱āɔ̀ḍ̱-àgg* ‘fertile soil’, the suffix must have underlying tone. If it had no underlying tone, the second of the two root-final tones would delink and reassign to the suffix {M6} as in the nouns *îlɟ/ílɟ-ɔ̀gg* ‘bees-wax’ *sííɟɟ/sííɟɟ-ɔ̄gg* ‘tree type’, and *kāɲāàḍ̱/ kāɲāāḍ̱-àgg* ‘bowel’ of (42). There are no plural nouns surfacing with Mid suffix tone following either ML or HL tone on the root-final syllable. Therefore, the nouns *ḍ̱áɔ̀r/ḍ̱áɔ̀r-èègg* ‘lizard’ and *ḍ̱āɔ̀ḍ̱/ḍ̱āɔ̀ḍ̱-àgg* ‘fertile soil’ are analyzed to have Mid tone in the suffix which assimilates to preceding Low tone {M9}.

Mid tone does surface when attached to nouns with Low root tone melodies such as *bə̀ŋɟ/bə̀ŋɟ-ɔ̄gg* ‘pulp’. However, as discussed below, this suffix tone is analyzed as underlying High tone which lowers to Mid following root-final Low tone, also in accordance with rule {M9}.

Noun suffixes having vowels with High or High-Mid tone

High tone in noun suffixes is less frequent than Mid tone and follows fewer root

(44) **High and High-Mid tone on suffix vowel of various suffixes**

Root tone	Suffix	N SG	N PL	
H	-Ágg	kɔ́s	kɔ́s-ɔ́gg	‘sorghum type’
	-ÉĒgg	lúŋ	lúŋ-íīgg	‘boomerang’
	-ÁĀgg	láál	láál-áāgg	‘pumpkin type’
M	-Ágg	fān̄ḍ̱	fɔ̄nḍ̱-ɔ́gg	‘cheek’
	-ÉĒgg	múfúr	múfúr-íīgg	‘gazelle type’
	-ÁĀḍ̱	məɔ̄ð	məɔ̄ð-ɔ́ɔ̄ḍ̱	‘grandfather’
L	-Ágg	bə̀ŋɟ	bə̀ŋɟ-ɔ̄gg	‘pulp’
	-ḍ̱/-ÉĒgg	mɔ̀ggɔ̀r-ḍ̱	mɔ̀ggɔ̀r-ɛ̄ɛ̄gg	‘stirring stick’
	-A̲Ā̲gg	kùùl	kùùl-ɔ̄ɔ̄gg	‘clan member’
	-A̲Ā̲ḍ̱	bɛ̀ɛ̀n	bɛ̀ɛ̀n-āāḍ̱	‘gossip’
LM	-Ágg	ḍ̱ìwīn̄ḍ̱	ḍ̱ìwīn̄ḍ̱-ɔ́gg	‘grass type (comp)’

tone melodies than Mid tone. In (44), noun suffixes with vowels having High or High-Mid tone are attached to nouns with four different root tone melodies.

In accordance with the suffix tone lowering rule {M9}, suffix-initial High tone becomes Mid when attached to a root such as *bə̀ɲɟ/bə̀ɲɟ-ā̰gg* 'pulp' with Low tone, or in the other nouns in (44) with Low tone melody.

The root tone melodies HL and ML are missing from the examples of (43-44). For unknown reasons, nouns with these root-tone melodies do not attach suffixes with initial High tone which would surface as Mid tone {M9}. The only noun with a High tone suffix which attaches to a noun with more than one tone in the root tone melody is *è̱wīṉ̀/è̱wīṉ̀-ə́gg* 'grass type (lit. rat's ear)' which is a compound noun.

Example (45) shows the resulting combinations of suffix tone and root-final tone for nouns attaching suffixes with vowels. The noun *kə́s/ kə́s-ə́gg* 'sorghum type' of (a) and (c) could have High tone or no underlying tone in the suffix; either analysis results in the same surface tone. The noun *mā̰ā̰ṉ̀/mā̰ā̰ṉ̀-ā̰gg* 'snake type' of (e) and (f) could have Mid tone or no underlying tone in the suffix. The noun *ɟɛ̀ɛ̀rs/ɟɛ̀ɛ̀rs-àgg* 'hippopotamus' of (h) and (i) could have Mid tone or no underlying tone in the suffix, as suffix Mid tone assimilates to preceding Low tone {M9}.

(45) **Resulting combinations of vowel suffix tone and root-final tone**

	Root tone	Suffix tone	N SG	N PL	
(a)	H	H	kə́s	kə́s-ə́gg	'sorghum type'
(b)		M	ɔ́rɔ́ṉ̀	ɔ́rɔ́ṉ̀-ɔ̄gg	'fermented milk'
(c)		none	kə́s	kə́s-ə́gg	'sorghum type'
(d)	M	H	mīī̱̀	mīī̱̀-ə́gg	'stone'
(e)		M	mā̰ā̰ṉ̀	mā̰ā̰ṉ̀-ā̰gg	'snake type'
(f)		none	mā̰ā̰ṉ̀	mā̰ā̰ṉ̀-ā̰gg	'snake type'
(g)	L	H	bə̀ɲɟ	bə̀ɲɟ-ə̄gg	'pulp'
(h)		M	ɟɛ̀ɛ̀rs	ɟɛ̀ɛ̀rs-àgg	'hippopotamus'
(i)		none	ɟɛ̀ɛ̀rs	ɟɛ̀ɛ̀rs-àgg	'hippopotamus'

Vowel-less noun suffixes having no underlying tone

The nouns of (46) can be analyzed as having no underlying tone in the suffixes, as the tone of the root is the same in singular and plural forms.

(46) **No underlying tone on suffixes without vowels**

Root tone	Suffix	N SG	N PL	
H	-gg	áám	áám-g	'bone'
	-gg	ṭɛ́ɛ́fá	ṭɛ́ɛ́fá-gg	'leaf, illness type'
	-gg	sáá	sáá-gg	'wine'

Root tone	Suffix	N SG	N PL	
M	-gg	bāāl	bāāl-g	‘cave’
	-gg	wəə̄	wəə̄-gg	‘shade, help’
	-ɟɟ/-gg	pɛ̄bbɛ̄ɛ̄-ɟɟ	pɛ̄bbɛ̄ɛ̄-gg	‘tree type’
L	-gg	wèlɛ̀ŋ	wèlɛ̀ŋ-g	‘sour/bitter taste’
	-gg	bùù	bùù-gg	‘chicken coop roof’
	-d̰	bɔ̀ɔ̀ŋmà	bɔ̀ɔ̀ŋmà-d̰	‘insect type’
HL	-gg	séɛ̀n	séɛ̀n-g	‘ruler’
	-gg	ɔ́rd̰àà	ɔ́rd̰àà-gg	‘army leader’
	-d̰	t̰ááðà	t̰ááðà-d̰	‘grandmother’
HM	-gg	ɟɔ́rgāāl	ɟɔ́rgāāl-g	‘bird type’
	-gg	páɟɟɔ̄ɔ̄	páɟɟɔ̄ɔ̄-gg	‘star’
	-d̰/-gg	bɔ́rɛ̄-d̰	bɔ́rɛ̄-gg	‘eye matter’
ML	-gg	bāàl	bāàl-g	‘instrument type’
	-gg	būà	būà-gg	‘tree type’
	-d̰/-gg	bāsà-d̰	bāsà-gg	‘large intestine’
LM	-gg	gɔ̀ɛ̄n	gɔ̀ɛ̄n-g	‘metal worker’
	-gg	gùld̰ū	gùld̰ū-gg	‘tree trunk, wood’
MH	-gg	bāár	bāár-g	‘tribe member’
	-gg	lɛ̄ɔ̄d̰á	lɛ̄ɔ̄d̰á-gg	‘animal’
	-ɟɟ/-gg	máāy-ɟ [máāɟ˳˥]	máāɛ̄-g	‘cucumber’
HLM	-gg	áàrɛ̄ɛ̄	áàrɛ̄ɛ̄-gg	‘grass type’
	-d̰	wíìlmāā	wíìlmāā-d̰	‘ant name (comp)’
MHM	-gg	cɛ̄ggélūū	cɛ̄ggélūū-gg	‘root type’
MHL	-gg	ūŋúrəə̀	ūŋúrəə̀-gg	‘pumpkin’
LHL	-gg	d̰ùûl	d̰ùûl-g	‘instrument type’
	-gg	gàd̰ááàè	gàd̰ááàè-gg	‘basket’

Vowel-less noun suffixes having Mid tone

In (47), noun suffixes having Mid tone are attached to nouns with four different root tone melodies, all of which end in High tone. Since the suffix has no vowel, the Mid tone of the suffix is assigned to the root-final syllable.

(47) **Mid tone on suffixes without vowels**

Root tone	Suffix	N SG	N PL	
H	-gg	d̰áár	d̰áār-g	‘throne’
	-gg	kúúfú	kúúfū-gg	‘ground sesame’
	-gg	wááyáá	wááyáā-gg	‘bird type’
	-$^{+}$gg	fɔ́l	fūl-g	‘hole’
	-d̰/-gg	wɛ́ráá-d̰	wɛ́ráā-gg	‘tribe member’

Root tone	Suffix	N SG	N PL	
MH	-gg	sāmáŋ	sāmâŋ-g	‘sorghum storehouse’
	-gg	fɔ̄yḍá	fɔ̄yḍâ-gg	‘planting seed’
	-ḍ	ābéɛ́	ābéɛ̄-ḍ	‘maternal uncle’
	-ḍ/-gg	mɔ̄rɛ́ɛ́-ḍ	mɔ̄rɛ́ɛ̄-gg	‘vegetable type’
LH	-gg	àggáár	àggáār-g	‘rider, hunter’
HLH	-ḍ/-gg	rúŋùú-ḍ	rúŋùū-gg	‘bird type’

Mid tone in vowel-less suffixes does not surface following root-final Low tone, and Mid tone is ambiguous with no underlying tone in suffixes when following root-final Mid tone. However, Mid tone in vowel-less suffixes does surface following root-final High tone.

High tone in vowel-less suffixes does not surface following root-final Mid or Low tone, and High tone is ambiguous with no underlying tone in suffixes when following root-final High tone. Based on these limitations, there is no reason to posit underlying High tone on vowel-less suffixes.

Example (48) shows the resulting combinations of suffix tone and root-final tone for nouns attaching vowel-less suffixes. The noun *bāāl/ bāāl-g* ‘cave’ of (c-d) could have Mid tone or no underlying tone in the suffix. The noun *wèlɛ̀ɲ/ wèlɛ̀ɲ-g* ‘sour taste’ of (e-f) could have Mid tone or no underlying tone in the suffix, as suffix Mid tone assimilates to preceding Low tone or is not assigned {M9}.

(48) **Resulting combinations of suffix tone and root-final tone for vowel-less suffixes**

	Root tone	Suffix tone	N SG	N PL	
(a)	H	M	ḍáár	ḍáār-g	‘throne’
(b)		none	áám	áám-g	‘bone’
(c)	M	M	bāāl	bāāl-g	‘cave’
(d)		none	bāāl	bāāl-g	‘cave’
(e)	L	M	wèlɛ̀ɲ	wèlɛ̀ɲ-g	‘sour/bitter taste’
(f)		none	wèlɛ̀ɲ	wèlɛ̀ɲ-g	‘sour/bitter taste’

6.3.3 Nouns with irregular tone assignment

Outside regular tone assignment which is about 95% of nouns, there is a set of nouns changing to Low tone in the plural form, as well as a scattering of other nouns with unpredictable tone.

The nouns of (49) have Mid-Low root tone and vowel suffixes. In the plural form these nouns surface with Low tone in both the root and suffix syllables.

(49) **Nouns with ML root tone becoming L**

Suffix	Noun SG	Noun PL	
-EEgg	ḍāɔ̀	ḍàw-èègg	‘monkey’
	ḍɛ̄ɛ̀l	ḍɛ̀ɛ̀l-èègg	‘lake’
	ḍɔ̄ɔ̀r	ḍɔ̀ɔ̀r-ìigg	‘snake type’
	gāàl	gààl-èègg	‘falcon’
	gāàr	gààr-èègg	‘hog’
	māàr	mààr-èègg	‘unmarried woman’
	māàw	mààw-èègg	‘gazelle’
	məl	məl-ìigg	‘bamboo drinking straw’
	ɲâŋ	ɲàŋ-èègg	‘crocodile’
	mɔ̄sɔ̀r	mɔ̀sɔ̀r-èègg	‘horse’
	āŋàr	àŋàr-èègg	‘rope bed’
-Agg	sīìnḍ	sììnd-ègg	‘guest’
	kāànḍ	kàànḍ-àgg	‘water-carrying stick’
-AAgg	yāàm	yààm-ààgg	‘bride’

In previous sections, we have seen several nouns with ML root tone melody that contrast with the nouns of (49). The noun *bāgḍàrs/bāgḍàrs-àgg* ‘lizard’ of (41) and the nouns *lɔ̄ɔ̀r/lɔ̄ɔ̄r-èèg* ‘cervix’ and *kāɲāàḍ/kāɲāāḍ-àgg* ‘bowel’ of (42) have no underlying tone in the suffix, so root-final Low tone is delinked from the root and/or is assigned to the suffix {M5-6}. The nouns *gəmūùr/gəmūùr-ìigg* ‘dove’ and *ḍāɔ̀ḍ/ḍāɔ̀ḍ-àgg* ‘fertile soil’ have Mid underlying tone in the suffix which assimilates to the preceding Low tone {M9}, so the root-final tone is not delinked from the root nor assigned to the suffix. The nouns of (49) are similar to the ML nouns of (42) in that they also have suffixes with Mid tone assimilating to preceding Low tone {M9}. However, it is not understood why the root-initial Mid tone of the nouns of (49) also assimilates to Low tone, and this alternation could be analyzed as tone replacement.

In 6.4 it will be shown that possessed body part nouns also have a tone change in the plural form. However, this is a different tone change—LM replacement—than with the nouns of (49)—Low replacement.

There are a handful of other nouns with unpredictable tone in the plural form. In (50a-d), the root-final High tone is not assigned in the plural form. In (e), the suffix tone is Low. In (f-h), other tone changes take place between singular and plural forms.

(50) **Nouns with irregular tone in the plural form**

	N SG	N PL	
(a)	ūfú	ūfū-gg	‘tree type’
(b)	cɛ̄lḍá	cɛ̄lḍā-gg	‘charcoal’
(c)	kāsá	kāsā-gg	‘boy’

	N SG	N PL	
(d)	ṯāɛ̄ḏá(g)	ṯāɛ̄ḏā-āgg	'wine strainer'
(e)	lúḏ	lú-ùgg	'leg'
(f)	búlí-ɟɟ	búlī-īgg	'worm'
(g)	ɟìḏ	ɟīð-əgg, ɟīìgg	'husband'
(h)	gə̄əðg [gə̄əg̊˺]	gə̀əð-ə̄əgg	'thief'

6.4 Body part nouns

Since all body part nouns possessed by plural persons take an alternate tone pattern, a separate section is included for their description. All body part nouns possessed by plural persons have L(M) tone. Although the common tone pattern of *bɔ̄ɔ̄rà/bɔ̄ɔ̄rà-gg* 'shoulder' in the paradigm of (51) is Mid, Low, the plural forms possessed by plural persons surface as Low, Mid.

(51) **Possessive paradigm for inalienable body part *bɔ̄ɔ̄rà / bɔ̄ɔ̄rà-gg* 'shoulder'**

	Singular person pronouns			Plural person pronouns		
Noun SG	ā	bɔ̄ɔ̄ràà	1sPs	---		1pPs
	ɔ̄	bɔ̄ɔ̄ràà	2sPs	---		2pPs
	ɛ̄	bɔ̄ɔ̄ràà	3sPs	---		3pPs
Noun PL	ā	bɔ̄ɔ̄ràà-gg	1sPp	āgg	bɔ̀ɔ̀rāā-gg	1pPp
	ɔ̄	bɔ̄ɔ̄ràà-gg	2sPp	ūgg	bɔ̀ɔ̀rāā-gg	2pPp
	ɛ̄	bɔ̄ɔ̄ràà-gg	3sPp	ɛ̄gg	bɔ̀ɔ̀rāā-gg	3pPp

The tone assignment of the plural person possessive morpheme is described in (52).

(52) Plural person possessive L(M) tone assignment
Plural possessed body part nouns have LM pattern in that Mid tone surfaces on the final syllable and Low tone surfaces on the others. However, monosyllabic body part nouns have Low tone.

This rule causes three-syllable body part nouns to be Low, Low, Mid; two-syllable body parts to be Low, Mid; and monosyllabic body parts to be Low. The nouns in (53) are exemplary of possession of body parts. Regardless of the root tone of nouns possessed by singular persons, the tone of plural body parts possessed by plural persons is governed by the possessive morpheme. Only the first person has been included since the other persons follow the pattern of (51) for their respective vowel pairs.

(53) **Low-Mid tone alternation in plural person possession of body part nouns**

Root tone	N SG, SG person		N PL, SG person		N PL, PL person		
H	ā	cíl			āgg	cìl-g	'spine'
	ā	sísíɲ	ā	sísíɲ-ɛ́ɛ̄gg	āgg	sìsìɲ-ɛ̄ɛ̄gg	'gum'
	ā	cáffá(g)	ā	cáffá-āgg	āgg	càffā-āgg	'side'

Root tone	N SG, SG person		N PL, SG person		N PL, PL person		
M	ā	fīī-d̪	ā	fīī-gg	āgg	fìì-gg	‘feather’
	ā	kālāā-d̪			āgg	kə̀lə̄ə̄-gg	‘tongue’
	ā	pɛ̄bbār	ā	pɛ̄bbār-g	āgg	pɛ̀bbàr-ɛ̄ɛ̄gg	‘rib’
L	ā	d̪ə̀l			āgg	d̪ùl-g	‘penis’
	ā	fɔ̄d̪ɔ̀r			āgg	fɔ̄d̪ɔ̀r-ɛ̄ɛ̄gg	‘nose’
	ā	bààlɛ̀ɛ̀màà	ā	bààlɛ̀ɛ̀màà-gg	āgg	bààlɛ̀ɛ̀māā-gg	‘knee cap’
HL	ā	îl	ā	íl-ə̀ə̀gg	āgg	ìl-ə̄ə̄gg	‘horn’
	ā	lááðà(g)			āgg	lààðā-gg	‘brain’
	ā	ʈúnd̪úlì(g)	ā	ʈúnd̪úlì-ìgg	āgg	ʈùnʈùlī-īgg	‘elbow’
HM	ā	ɲíī-d̪	ā	ɲíī-gg	āgg	ɲìì-gg	‘tooth’
ML	ā	sūù-d̪			āgg	sùù-gg	‘hair’
	ā	bāssà-d̪	ā	bāssà-gg	āgg	bàssā-gg	‘intestine’
MH	ā	būlḏ́í(g)	ā	būlḏ́í-īgg	āgg	bùlḏ́ī-īgg	‘finger’
	ā	kūsūmíí	ā	kūsūmíí-gg	āgg	kùsùmīī-gg	‘knee’
LM	ā	ə̀ə̀mə̄ə̄			āgg	ə̀ə̀mə̄ə̄-gg	‘liver’
	ā	càŋàld̪ā	ā	càŋàld̪ā-gg	āgg	càŋàld̪ā-gg	‘triceps’
HLM	ā	kə̂lfə̄			āgg	kə̀lfə̄-gg	‘jaw’
	ā	d̪ɔ́ggɔ̀lɟ̈ā	ā	d̪ɔ́ggɔ̀lɟ̈ā-gg	āgg	d̪ɔ̀ggɔ̀lɟ̈ā-gg	‘ankle’

6.5 Genitive

Genitive nouns are used as agents or experiencers following a verb or as the possessor in a phrase with the general preposition *é*. A tone change marks the genitive case. In (54), the noun *àggáár* ‘hunter’ with LH root tone melody has ML tone melody when used as an experiencer following the verb *ɲáɔ́-s=ɛ̃* ‘need-COMP=PAS.A’. In (55), the noun *ʈɔ́ɔ́=n* ‘cow=DEF’ with H root tone melody has ML tone melody when used as the possessor in the phrase with general preposition.

(54) nāms ɲáɔ́-s=ɛ̃ **āggāàr**
food /ɲaw/need-COMP=PAS.A /àggáár/hunter.GEN
‘Food is needed by the hunter.’

(55) ɔ̄ɲ é **ʈɔ̄ɔ̄=n** wɛ̂d̪án
meat of /ʈɔ́ɔ́/cow.GEN=DEF good
‘Meat of the cow is good.’

The genitive function is not marked with a suffix, but only by a tone change. Nouns with M or MH root tone melodies have HL tone melody in the genitive case. Nouns with all other root tone melodies have ML tone melody in the genitive case.

Table 13: Genitive noun tone changes

Root tone melody	Genitive tone melody
M, MH	HL
All other melodies	ML

In (56), singular nouns with various root tone melody are compared in genitive and non-genitive forms. Nouns with M and MH root tone melody have HL melody in genitive forms. Nouns with all other root tone melody have ML tone melody in genitive forms. The two tones of the genitive melodies both assign to the stem-final syllable and the first tone spreads leftward to all preceding syllables as in *kūḍ̈ūūrīì-gg* 'bird'. If there is a clitic following the stem such as the definite clitic *=Á* in *ténḍ̈ás=à* 'bird=DEF', the genitive stem-final tone is delinked and reassigned to the clitic.

(56) **Genitive singular and plural nouns with various root tone melodies**

Root tone	GEN tone	N SG	GEN N SG	GEN DEF N SG	
H	ML	ṭ̈ɔ́ɔ́	ṭ̈ɔ̄ɔ̀	ṭ̈ɔ̄ɔ̀=n	'cow'
M	**HL**	mīī	mîì	mîì=n	'goat'
L	ML	ḍ̈ìì	ḍ̈îì	ḍ̈îì=n	'rat'
HL	ML	wírì	wīrî	wīrî=n	'bird'
HM	ML	súlə	sūlə	sūlə=n	'clan member'
ML	ML	ɲūūì	ɲūūì	ɲūūì=n	'leopard'
LH	ML	àggáár	āggāàr	āggāār=à	'hunter'
LM	ML	mɔ̀rāā	mɔ̄rāà	mɔ̄rāà=n	'governor'
MH	**HL**	tēnḍ̈ás	ténḍ̈às	ténḍ̈ás=à	'bird type'
MHM	ML	kūḍ̈úúrīì	kūḍ̈ūūrìì	kūḍ̈ūūrìì=n	'bird type'

The same tone changes take place for plural genitive nouns.

(57) **Genitive singular and plural nouns with various root tone melodies**

Root tone	GEN tone	N PL	GEN N PL	GEN DEF N PL	
H	ML	ṭ̈ɔ́-gg	tɔ̄-gg	tɔ̄-gg=ɔ̀	'cow'
M	**HL**	mīī-gg	mîì-gg	míí-gg=ə̀	'goat'
L	ML	ḍ̈ìì-gg	ḍ̈îì-gg	ḍ̈īī-gg=ə̀	'rat'
HL	ML	wírì-ìgg	wīrī-ìgg	wīrī-īgg=ə̀	'bird'
HM	ML	súlə-ə̄gg	sūlə-ə̀gg	sūlə-ə̄gg=ə̀	'clan member'
ML	ML	ɲūùy-g	ɲūùy-g	ɲūūy-g=ə̀	'leopard'
LH	ML	àggáár-g	āggāàr-g	āggāār-g=à	'hunter'
LM	ML	mɔ̀rāā-gg	mɔ̄rāà-gg	mɔ̄rāā-gg=à	'governor'
MH	**HL**	tēnḍ̈ás-āgg	ténḍ̈ás-àgg	ténḍ̈ás-ágg=à	'bird type'
MHM	ML	kūḍ̈úúrīì-gg	kūḍ̈ūūrìì-gg	kūḍ̈ūūrìì-gg=ə̀	'bird type'

There is some variation in the tone of genitive forms. Sometimes with the same speaker with the same words, the genitive Low tone is not delinked even though it is reassigned to a plural clitic (*mîi-gg=ə̀* 'goat.GEN=DEF', *āggāàr-g=à* 'hunter.GEN=DEF'). Sometimes genitive nouns have Low tone melody instead of ML tone melody (*kùḍùùrìì* 'bird type'). There are other variations besides these, but with the exception of ML root tone melodies, genitive forms differ in tone from non-genitive forms.

7 Noun word

7.1 Introduction

In this chapter we present a morphological description of the noun word, including clitics for copular (COP), definite (DEF), locative copular (LCM), dative (DAT), accompaniment (ACM), relative clause definite (RDM), and clause-final subordinate (SBO) markers. In chapter 4, these clitics were shown to attach to two or more word categories.

Noun word morphology involves clitics attached to noun stems, rather than to noun roots. Whereas suffixes attached to noun roots attach to underlying segments, clitics attached to noun stems attach to surface segments. The accompaniment morpheme attaches a different clitic for vowel-final stems (= *nE*) as in (1a) than for consonant-final stems (= *E*) as in (d). Because the accompaniment clitic =*nE* attaches to a surface-final segment in (1a), it is also analyzed to attach to surface-final segments in (1b-c). Thus, the singular surface forms of (1b-c) are *káɔ̀=nɛ̄* 'hyena', *ɲūūì=nɛ̄* 'leopard' with stem-final surface vowels, whereas the root underlying forms are /*kaw*/ or /*kab*/, /*ɲuuy*/ or /*ɲuuɟ*/ [31].

(1) **Roots and stems compared**

	Underlying root	Surface root	Noun stem suffix	Noun word clitic	
	UR	N.SG	N-PL	N.SG=ACC	
(a)	/ʈɔ/	ʈɔ́ɔ́	ʈɔ́-gg	ʈɔ́ɔ́=nɛ̄	'cow'
(b)	/kaw/	káɔ̀	kâw-g	káɔ̀=nɛ̄	'hyena'
(c)	/ɲuuy/	ɲūūì	ɲūùy-g	ɲūūì=nɛ̄	'leopard'
(d)	/kaam/	kààm	kààm-g	kààm=ɛ̄	'cow type'

Suffixes are attached to the underlying-final segments of roots, whereas clitics are attached to the surface-final segments of stems. However, in the case of copular and definite clitics, the underlying-final stem segment can determine which clitic allomorph attaches.

Just as noun roots attach different suffixes depending on the root-final segment, noun stems attach different clitics depending on the stem-final segment. Each grammatical noun clitic has different segmental or tonal allomorphs, sometimes differing according to the following stem-final segments: underlying

[31] As discussed in 2.3.6, although there is no way to distinguish whether the underlying-final segments are plosives or approximants, the definite clitic =*An* attaches to stems with underlying-final approximants and the definite clitic =*Vn* attaches to stems with underlying-final vowels.

approximants *ð, y* or *w* in monosyllabic stems, long surface vowels in monosyllabic stems, surface vowels in polysyllabic stems, surface consonants, and surface consonants of plural stems. Table 14 lists the various clitics on stem-final segments and (2) gives example nouns with the same order. Those that have not been attested are left blank.

Table 14: Noun word clitics and their allomorphs

Stem-final segment	COP	DEF	LCM/DAT	ACM	RDM	SBO
(Monosyllabic) underlying approximant *ð, w, y*	=Ān	=An	=Án	=nĒ		=nÉ
(Monosyllabic) long vowel	=V̄n	=Vn	=V́n	=nĒ		=nÉ
(Polysyllabic) vowel	=n̄	=n	=n̄	=nĒ	=É	=nÉ
Consonant	=Ā	=Á	=Án	=É	=É	=É
Consonant N PL	=À	=Á	=Án	=Ē	=È	=É

(2a) **Noun word clitic allomorphs on various stem-final nouns**

N	COP	DEF	LCM/DAT	
mɛ̄ɛ̄ð	mɛ̄ɛ̄ð=ān	mɛ̄ɛ̄ð=ān	mɛ̄ɛ̄ð=a̋n	‘tree type’
sāɔ̄	sā.ɔ̄=n/sāw=ān	sā.ɔ̄=n/sāw=ān	sā.ɔ̄=n/sāw=a̋n	‘shoe’
rɛ̄ɛ̄	rɛ̄ɛ̄.=ɛ̄n	rɛ̄ɛ̄.=ɛ̄n	rɛ̄ɛ̄.=ɛ́n	‘cotton’
ābbéɛ́	ābbéɛ̄=n	ābbéɛ́=n	ābbéɛ̄=n	‘uncle’
ḍ̈ɔ̄m	ḍ̈ɔ̄m=ɔ̄	ḍ̈ɔ̄m=ɔ́	ḍ̈ɔ̄m=ɔ̋n	‘Arab’
ḍ̈ɔ̄m-g	ḍ̈ɔ̄m-g=ɔ̀	ḍ̈ɔ̄m-g=ɔ́	ḍ̈ɔ̄m-g=ɔ̋n	‘Arabs’

(b) **Noun word clitic allomorphs on various stem-final nouns**

N	ACM	RDM	SBO	
mɛ̄ɛ̄ð	mɛ̄ɛ̄ð=nɛ̄		mɛ̄ɛ̄ð=né	‘tree type’
sāɔ̄	sāɔ̄=nɛ̄		sāɔ̄=né	‘shoe’
rɛ̄ɛ̄	rɛ̄ɛ̄=nɛ̄		rɛ̄ɛ̄=né	‘cotton’
ābbéɛ́	ābbéɛ́=nɛ̄	ābbéɛ́.=ɛ́	ābbéɛ́=né	‘uncle’
ḍ̈ɔ̄m	ḍ̈ɔ̄m=ɛ̄	ḍ̈ɔ̄m=ɛ́	ḍ̈ɔ̄m=ɛ́	‘Arab’
ḍ̈ɔ̄m-g	ḍ̈ɔ̄m-g=ɛ̄	ḍ̈ɔ̄m-g=ɛ̀	ḍ̈ɔ̄m-g=ɛ́	‘Arabs’

The tone lowering rule of {M9} in 3.4.3 states that suffix-initial High and Mid tone are lowered following stem-final Low tone. Most of the noun clitics are in accordance with this rule, but the following are not: the copular clitics *=Ān, =V̄n* and accompaniment clitic *=nĒ* attached to underlying approximants and long vowel-final stems. In all noun words, tone assignment takes the stem tone as its point of departure.

7.2 Copular clitic

7.2.1 Copular segmental morphology

In answer to questions such as *ɲîn néɛ́* 'What is this?' and various other non-verbal clauses described in 14.6, a copular clitic can be attached to noun stems.

(3a)	fɛ́ɛ̄ṭfā=n	àggáár=**ā**	(b)	ɟɔ̄gg=ɔ́	àggáàr-g=**à**
	Feetfa =DEF	hunter =COP		people = DEF	hunter-PL-COP
	'Feetfa is a hunter.'			'The people are hunters.'	

The clitic $=\bar{A}n$ is attached to monosyllabic stems with underlying final approximant, the clitic $=\bar{V}n$ is attached to monosyllabic stems with long vowel, the clitic $=\bar{}n$ is attached to polysyllabic vowel-final stems, and the clitic $=\bar{A}$ is attached to consonant-final singular stems. The clitic $=\grave{A}$ is attached to plural nouns, which are always consonant-final.

Table 15: Copular clitics

Stem-final segment	COP N SG	COP N PL
(Monosyllabic) underlying approximant	=Ān	
(Monosyllabic) long vowel	=V̄n	
(Polysyllabic) vowel	=¯n	
Consonant	=Ā	=À

Monosyllabic underlying approximant-final singular stems

In (4), the copular clitic $=\bar{A}n$ is attached to singular nouns with stem-final dental approximant *ð*. The clitic vowel takes the [ATR] and [round] features of the stem {M3-4}.

(4) **Copular clitic $=\bar{A}n$ on singular nouns with stem-final *ð***

N SG	COP N SG	
ɟááð	ɟááð=ān	'old clothes'
məəð	məəð=ən	'grandfather'
mɛɛð	mɛɛð=ān	'tree type'
kūūð	kūūð=ūn	'shadow'
yààð	yààð=ān	'sister'

As shown in (5), monosyllabic stems with underlying final approximants *w, y* sometimes elide the vowel of the singular copular clitic $=\bar{A}n$ and sometimes retain it, depending on the underlying-final segment and the speed of the utterance. When the underlying approximant surfaces as a vowel, it becomes the onset to a second syllable. When the copular clitic vowel is retained, the stem-final vowel surfaces as

an approximant.

(5) **Copular clitic *= Ān* on monosyllabic underlying approximant final stems**

	Stem-final	N SG	COP N SG		
(a)	aɔ /aw/	káɔ̀	ká.ɔ̀ = n	ká.w = àn	'hyena'
(b)	aaɔ /aaw/	bàà̀ɔ̀	bàà.ɔ̄ = n	bàà.w = ān	'father'
(c)	ɛɔ /ɛw/	bɛ̄ɔ̀	bɛ̄.ɔ̀ = n	bɛ̄.w = àn	'tree type'
(d)	aɛ /ay/	ṭāɛ̀	ṭā.ɛ̀ = n	ṭā.y = àn	'giraffe'
(e)	aaɛ /aay/	gááɛ̀	gáá.ɛ̀ = n	gáá.y = àn	'tree type'
(f)	əəi /əəy/	mə̀ə̀ì	mə̀ə̀.ī = n	mə̀ə̀.y = ən	'farm fence'
(g)	ui /uy/	mūī	mū.ī = n	mū.y = ən	'wildebeest'
(h)	uui /uuy/	ɲūūì	ɲūū.ì = n	ɲūū.y = ən	'leopard'

Most monosyllabic stems with underlying-final approximant *w* and *y* are phonetically somewhere in-between the two utterances of (5). In stems with underlying-final velar approximant *w* as in (a-c), the surface form is usually close to having the velar approximant. In [-ATR] stems with underlying final palatal approximant *y* as in (d-e), the surface form is usually half way between the approximant *y* and vowel *ɛ*. In [+ATR] stems with underlying final *y* as in (f-h), the surface form is usually close to the vowel *i*. Also, the faster the utterance, the closer the surface form is to the shorter form with a stem-final vowel, regardless of the underlying stem-final segment.

Monosyllabic long vowel-final singular stems

When the singular copular clitic = *V̄n* attaches to monosyllabic long vowel-final stems, the clitic becomes a second syllable, in accordance with {M2} of 3.1. The clitic vowel takes on all the features of the stem-final vowel to which it is juxtaposed.

(6) **Copular clitic *= V̄n* on monosyllabic long vowel final stems**

Stem-final	N SG	COP N SG	
ɛ	rɛ̄ɛ̄	rɛ̄ɛ̄. = ɛ̄n	'cotton'
a	máà	máá. = àn	'house'
ɔ	ṭɔ́ɔ́	ṭɔ́ɔ́. = ɔ̄n	'cow'
i	ɟīì	ɟīī. = ìn	'turkey'
ə	wə̄ə̄	wə̄ə̄. = ən	'shade'
u	bùù	bùù. = ūn	'chicken coop roof'

Polysyllabic vowel-final singular stems

The copular clitic *= n̄* is attached to polysyllabic singular nouns with various stem-final long and short vowels in (7a-j). The clitic also attaches to nouns with underlying-final vowel sequence such as *būə* 'tree type' in (k) and to nouns with

underlying-final velar plosives *g* such as *áŋé(g)* 'elephant' in (l). The language treats these singular nouns as vowel-final stems, attaching the vowel-final clitic *=n̄* instead of the consonant-final clitic *=Ā*.

(7) **Copular clitic *=n̄* on singular nouns with stem-final vowels**

	Stem-final	N SG	COP N SG	
(a)	ɛɛ	ābbéɛ́	ābbéɛ̄=n	'uncle'
(b)	ii	ūrīī	ūrīī=n	'ostrich'
(c)	aa	wááyáá	wááyáā=n	'bird type'
(d)	əə	gəūlḍəə	gəūlḍəə=n	'fish'
(e)	ɔɔ	mélɔ̄ɔ̄	mélɔ̄ɔ̄=n	'sugar cane'
(f)	uu	əyúú	əyúū=n	'tooth brush'
(g)	a	ṭááðà	ṭááðà=n	'grandmother'
(h)	ə	əŋə	əŋə=n	'little girl'
(i)	ɔ	ɔnsɔ	ɔnsɔ=n	'cooking plate'
(j)	u	kúúfú	kúúfū=n	'crushed beans'
(k)	uə	būə	bū.ə=n	'tree type'
(l)	(g)	áŋé(g)	áŋɛ̄=n	'elephant'

Consonant-final singular stems

In (8), the copular clitic *=Ā* is attached to singular nouns with various stem-final consonants.

(8) **Copular clitic *=Ā* on singular nouns with stem-final consonants**

Stem-final	N SG	COP N SG	
bb	ɟíləbb	ɟíləbb=ə	'water spring'
ḍ	māāḍ	māāḍ=ā	'snake type'
d	dɔ̄d	dɔ̄d=ɔ̄	'bird type'
ɟɟ	bìmìríɟɟ	bìmìríɟɟ=ə	'bird type'
gg	kàmàlɔ̀gg	kàmàlɔ̀gg=ɔ̀	'woman'
s	márɔ̄ɔ̄s	márɔ̄ɔ̄s=ɔ̄	'spider'
m	ḍəm	ḍəm=ə	'Arab'
n	séɛ̀n	séɛ̀n=à	'ruler'
ɲ	ɲéɛ̀ŋ	ɲéɛ́ŋ=à	'spear type'
ŋ	məɲ	məɲ=ə	'wild cat type'
r	púr	púr=ū	'flower'
l	ḍɔ̀ŋɔ̀l	ḍɔ̀ŋɔ̀l=ɔ̀	'millipede'

Plural stems

With plural nouns, the copular clitic is *=À*. In (9), the singular nouns and singular copular forms are given for comparison.

(9) **Copular clitic *=À* on plural nouns**

Suffix	N SG	N PL	COP N SG	COP N PL	
-̲gg	wáár	wáār-g	wáár=ā	wáàr-g=à	‘insect’
-g̲g	wááyáá	wááyáá-gg	wááyáā=n	wááyáá-gg=à	‘bird’
-̲gg	kúúfú	kúúfú-gg	kúúfū=n	kúúfú-gg=ù	‘beans’
-Āgg	cɛ́lu̲	cɛ́lu̲-āgg	cɛ́lu̲=ā	cɛ́lu̲-āgg=à	‘broom’
-ÉĒgg	púr	púr-íīgg	púr=ū	púr-íīgg=ə	‘flower’
-AAgg	îl	íl-əəgg	íl=ən	íl-əəgg=ə	‘horn’
-AAu̲	kàmàlɔ̀gg	kàmàlɔ̀gg-ààu̲	kàmàlɔ̀gg=ɔ	kàmàlɔ̀gg-ààu̲=à	‘woman’
-̲u̲	ābbɛ́ɛ́	ābbɛ́ɛ̄-u̲	ābbɛ́ɛ̄=n	ābbɛ́ɛ̀-u̲-à	‘uncle’
-u̲/-gg	gərmù-u̲	gərmù-gg	gərmù=u̲=ù	gərmù-gg=ù	‘insect’
-Eu̲/-gg	ɟíŋ-íu̲	ɟíŋ-g	ɟíŋ-íu̲=ə	ɟíŋ-g=ə	‘louse’

7.2.2 Tonal morphology of the copular clitic

The singular copular clitics *=Ān, =V̄n, =̄n,* have underlying Mid tone and the plural copular clitic *=À* has underlying Low tone. The singular copular clitics *=Ān, =V̄n* attached to approximants and long vowel-final stems are an exception to the tone lowering rule of {M9} in 3.4.3 in that clitic Mid tone does not assimilate to stem-final Low tone.

Monosyllabic underlying approximant-final stems

In the noun *yààð=ān* ‘sister=COP’ of (10) with stem-final dental approximant *ð,* the Mid clitic tone does not assimilate to the preceding stem-final Low tone.

(10) **Copular clitic *=Ān* on stem-final *ð* nouns with three tone melodies**

Tone	N SG	N PL	COP N SG	COP N PL	
H	ɟááð	ɟááð-āāgg	ɟááð=ān	ɟááð-āāgg=à	‘old clothes’
M	məəð	məəð-ɔəu̲	məəð=ən	məəð-ɔɔu̲=ə	‘grandfather’
L	yààð	yààð-āāu̲	yààð=ān	yààð-āāu̲=à	‘sister’

Similarly, Mid tone of the copular clitic *=Ān* does not assimilate to preceding Low tone in monosyllabic stems with underlying-final approximants *w* and *y*. However, the Low tone of HL and ML stem tone melodies delinks and reassigns to the clitic syllable in *ká.w=àn* ‘hyena=COP’ and *ɲūū.y=ən* ‘leopard=COP’, even though the clitic has underlying Mid tone, in contradiction of {M6}. In these forms, the reassigned Low tone replaces the clitic Mid tone. The same tone melodies surface on the noun words regardless of whether the underlying stem-final approximant surfaces as a vowel or approximant.

(11) **Copular clitic *=Ān***
on monosyllabic approximant final stems with various tone melodies

Tone	N SG	N PL	COP N SG		COP N PL	
H	ááɛ́	ááy-g	áá.ɛ̄=n	áá.y=ān	ááy-g=à	'honey'
M	mūī	mūy-g	mū.ī=n	mū.y=ən	mūy-g=ə	'wildebeest'
L	bààɔ̀	bààw-āāḍ	bàà.ɔ̄=n	bàà.w=ān	bààw-āāḍ=à	'father'
HL	káɔ̀	kâw-g	ká.ɔ̀=n	ká.w=àn	kâw-g=à	'hyena'
ML	ɲūūì	ɲūùy-g	ɲūū.ì=n	ɲūū.y=ən	ɲūùy-g=ə	'leopard'

Monosyllabic long vowel final stems

In monosyllabic long vowel-final stems, Mid tone of the copular clitic *=V̄n* also does not assimilate to preceding Low stem tone. Stem-final High tone spreads onto the copular clitic, juxtaposed to the stem. The final Low tone of HL and ML melodies is delinked from the stem and reassigns to the clitic, replacing the Mid clitic tone, in contradiction of {M6}.

(12) **Copular clitic *=V̄n***
on monosyllabic long vowel final stems with various tone melodies

Tone	N SG	N PL	COP N SG	COP N PL	
H	cáá	cáá-gg	cáá.=ān	cáá-gg=à	'wild cat'
M	mīī	mīī-gg	mīī.=īn	mīī-gg=ə	'goat'
L	ḍìì	ḍìì-gg	ḍìì.=īn	ḍìì-gg=ə	'rat'
HL	máà	máà-gg	máá.=àn	máà-gg=à	'house'
ML	ɟìì	ɟìì-gg	ɟīī.=ìn	ɟìì-gg=ə	'turkey'
MH	mīí	mīí-gg	mīī.=în	mīí-gg=ə	'chicken'

Polysyllabic vowel final stems

In (13), the copular clitic *=n̄* is attached to singular polysyllabic nouns with various tone melodies and stem-final vowels. The Mid clitic tone is assigned to stems with

(13) **Copular clitic *=n̄***
on vowel-final singular nouns with various tone melodies

Tone	N SG	N PL	COP N SG	COP N PL	
H	wááyáá	wááyáá-gg	wááyáā=n	wááyáá-gg=à	bird type'
M	ūrīī	ūrīī-gg	ūrīī=n	ūrīī-gg=ə	'ostrich'
L	ɔ̀nsɔ̀	ɔ̀nsɔ̀-gg	ɔ̀nsɔ̀=n	ɔ̀nsɔ̀-gg=ɔ̀	'cooking plate'
HL	ɔ́rḍàà	ɔ́rḍàà-gg	ɔ́rḍàà=n	ɔ́rḍàà-gg=à	'army'
HM	sáárfāā	sáárfāā-gg	sáárfāā=n	sáárfāā-gg=à	'rat'
ML	gəūlḍə̀ə̀	gəūlḍə̀ə̀-gg	gəūlḍə̀ə̀=n	gəūlḍə̀ə̀-gg=ə	'fish'
LM	mɔ̀rāā	mɔ̀rāā-gg	mɔ̀rāā=n	mɔ̀rāā-gg=à	'governor'
MH	pɛ̄ɛ̄ḍáá	pɛ̄ɛ̄ḍáā-gg	pɛ̄ɛ̄ḍáā=n	pɛ̄ɛ̄ḍáà-gg=à	'crack'

final High tone, but is not assigned to stems with final Low tone in accordance with {M9}.

Consonant-final stems

In (14), the copular clitic *=Ā* attaches to nouns with stem-final consonants and various tone melodies. The Mid tone of the clitic *=Ā* assimilates to stem-final Low tone in accordance with {M9}.

(14) **Copular clitic *=Ā***
on consonant-final singular nouns with various tone melodies

Tone	N SG	N PL	COP N SG	COP N PL	
H	wáár	wáār-g	wáár=ā	wáàr-g=à	'insect type'
M	ḍəm	ḍəm-g	ḍəm=ə	ḍəm-g=ə	'Arab'
L	kààm	kààm-g	kààm=à	kààm-g=à	'cow type'
HL	sɛ́ɛ̀n	sɛ́ɛ̀n-g	sɛ́ɛ̀n=à	sɛ́ɛ̀n-g=à	'ruler'
HM	ɟórgāāl	ɟórgāāl-g	ɟórgāāl=ā	ɟórgāāl-g=à	'bird type'
ML	kɔ̄ðɛ̀l	kɔ̄ðɛ̀l-g	kɔ̄ðɛ̀l=à	kɔ̄ðɛ̀l-g=à	'baboon'
LH	àggáár	àggáār-g	àggáár=ā	àggáàr-g=à	'hunter, rider'
LM	gɔ̀ɛ̄n	gɔ̀ɛ̄n-g	gɔ̀ɛ̄n=ā	gɔ̀ɛ̄n-g=à	'metal worker'
MH	bāár	bāár-g	bāár=ā	bāár-g=à	'tribe member'

In stems such as *wáār-g* 'insect type' with High-Mid tone assigned to the same stem-final syllable, the Mid tone assimilates to the clitic-final Low tone (*wáàr-g=à*). This is in accordance with the stem Mid tone lowering rule of {M7} in 3.4.2.

(15) **Stem Mid tone assimilating to clitic Low**

Plural formation suffix	N PL	COP N PL	
-g̱	wáār-g	wáàr-g=à	'insect type'
-g̱	àggáār-g	àggáàr-g=à	'hunter, rider'
-gg̱	pɛ̄ɛ̄ḍáā-gg	pɛ̄ɛ̄ḍáà-gg=à	'crack'
-Āgg	ŋārná-āgg	ŋārná-àgg=à	'leach'
-ÉĒgg	púr-íīgg	púr-îgg=ə	'flower'
-ÉĒgg	rāāy-ɛ́ɛ̄gg	rāāy-ɛ́ɛ̀gg=à	'quarrel'
-ḍ̱	ābbɛ́ɛ̄-ḍ	ābbɛ́ɛ̀-ḍ=à	'uncle'
-ḍ/-ĀĀḍ	məy-ɔ́ɔ̄ḍ	məy-ɔ́ɔ̀ḍ=ə	'ancestor'
-ḍ/-g̱	káān-g	káàn-g=à	'fly'
-ḍ/-gg̱	lɔ̄ggɔ́ɔ̄-gg	lɔ̄ggɔ́ɔ̀-gg=ɔ	'locust'

7.3 Definite clitic

The definite clitic indicates the speaker believes a word is active or known information in the mind of the hearer, as illustrated in (16a) and (b). In narratives, the first mention of a participant can be with the definite clitic if the participant is

already know in the mind of the hearers. In (17a), the participant Minjib is unknown to hearers and introduced without the definite clitic, whereas in (b) the Baggara people group are notorious in Gaahmg culture and introduced with the definite clitic.

(16a) wáár=**á** wɛ̰ɖá=n (b) wáār-g=**á** wíə-gg=ə̀
insect=DEF good=COP insect-PL=DEF good-PL=COP
'The insect is good.' 'The insects are good.'

(17a) ɟɛ̄n fãā mān bɛ́lă̰n mīŋɟìbb. ɔ̀ ɛ̄ mūn náán
man old certain named Minjib and with time that
'There was an old man named Minjib. At that time

(b) bāárg=á ŋáɔ́-ā̀n ɲā-lg nà ə̄n-g=ì,
Baggara=DEF search.for /ŋáw/-CONT.P girl-PL REL young-PL=RDM
the Baggara (people group) were kidnapping young girls.' (Minj1-2)

The same definite clitic *=A* is attached to (non-approximant) consonant-final stems. This includes many singular nouns and all plural nouns. The definite clitic *=An* is attached to monosyllabic underlying approximant-final stems, the clitic *=Vn* is attached to monosyllabic long vowel-final stems, the clitic *=n* is attached to polysyllabic vowel-final stems.

Table 16: Definite clitics

Stem-final segment	DEF
(Monosyllabic) underlying approximant	=An
(Monosyllabic) long vowel	=Vn
(Polysyllabic) vowel	=n
Consonant	=Á

Definite clitics are the same segmentally as copular clitics. Therefore, the segmental behaviour of the definite clitic will not be illustrated further, and the focus of the presentation will be on its tone. The definite clitics *=An, =Vn, =n* have no underlying tone and the definite clitic *=Á* attached to stem-final consonants has underlying High tone.

Monosyllabic underlying approximant-final stems

In (18), the definite clitic *=An* is attached to nouns with the stem-final dental approximant *ð* and three tone melodies. The clitic vowel takes the stem-final tone {M5}.

(18) **Definite clitic *=An* on stem-final *ð* nouns with three tone melodies**

Tone	N SG	N PL	DEF N SG	DEF N PL	
H	ɟááð	ɟááð-āāgg	ɟááð=án	ɟááð-āāgg=á	‘old clothes’
M	məəð	məəð-ɔ́əd̰	məəð=ən	məəð-ɔ́əd̰=ɔ́	‘grandfather’
L	yààð	yààð-āād̰	yààð=àn	yààð-āād̰=á	‘sister’

The definite clitic *=An* is also attached to monosyllabic approximant-final stems in which the final underlying approximant *w* or *y* can surface as a vowel or as an approximant. In either, the noun word tone melody is the same. When the clitic vowel is not elided, it takes the stem-final tone {M5-6}.

(19) **Definite clitic *=An***
on monosyllabic approximant final stems with various tone melodies

Tone	N SG	N PL	DEF N SG		DEF N PL	
H	ááé	ááy-g	áá.é=n	áá.y=án	ááy-g=á	‘honey’
M	mūī	mūy-g	mū.ī=n	mū.y=ən	mūy-g=ɔ́	‘wildebeest’
L	bààɔ	bààw-āād̰	bàà.ɔ=n	bàà.w=àn	bààw-āād̰=á	‘father’
HL	káɔ	kâw-g	ká.ɔ=n	ká.w=àn	kâw-g=ā	‘hyena’
ML	ɲūūì	ɲūùy-g	ɲūū.ì=n	ɲūū.y=ən	ɲūùy-g=ə	‘leopard’

Monosyllabic long vowel-final stems

Similarly, the definite clitic *=Vn* is juxtaposed to monosyllabic long vowel final stems {M2} and takes the stem-final tone {M5-6}.

(20) **Definite clitic *=Vn***
on monosyllabic long vowel final stems with various tone melodies

Tone	N SG	N PL	DEF N SG	DEF N PL	
H	cáá	cáá-gg	cáá.=án	cáá-gg=á	‘wild cat’
M	mīī	mīī-gg	mīī.=īn	mīī-gg=ɔ́	‘goat’
L	d̰ìì	d̰ìì-gg	d̰ìì.=ìn	d̰ìì-gg=ə	‘rat’
HL	máà	máà-gg	máá.=àn	máà-gg=ā	‘house’
ML	ɟìì	ɟìì-gg	ɟīī.=ìn	ɟìì-gg=ə	‘turkey’
MH	mīí	mīí-gg	mīī.=ín	mīí-gg=ɔ́	‘chicken’

Polysyllabic vowel-final stems

In (21), the definite clitic *=n* with no underlying tone is attached to nouns with stem-final vowels and various tone melodies, and does not affect the stem tone.

(21) **Definite clitic *=n***
on vowel-final singular nouns with various tone melodies

Tone	N SG	N PL	DEF N SG	DEF N PL	
H	wááyáá	wááyáá-gg	wááyáá=n	wááyáá-gg=á	bird type'
M	ūrīī	ūrīī-gg	ūrīī=n	ūrīī-gg=ɔ̄	'ostrich'
L	ɔ̀nsɔ̀	ɔ̀nsɔ̀-gg	ɔ̀nsɔ̀=n	ɔ̀nsɔ̀-gg=ɔ̄	'cooking plate'
HL	ɔ́rn̰àà	ɔ́rn̰àà-gg	ɔ́rn̰àà=n	ɔ́rn̰àà-gg=ā	'army'
HM	sáárfāā	sáárfāā-gg	sáárfāā=n	sáárfāā-gg=á	'rat'
ML	gəūln̰ə̀ə̀	gəūln̰ə̀ə̀-gg	gəūln̰ə̀ə̀=n	gəūln̰ə̀ə̀-gg=ɔ̄	'fish'
LM	mɔ̀rāā	mɔ̀rāā-gg	mɔ̀rāā=n	mɔ̀rāā-gg=á	'governor'
MH	pɛ̄ɛ̄n̰áá	pɛ̄ɛ̄n̰áā-gg	pɛ̄ɛ̄n̰áá=n	pɛ̄ɛ̄n̰áā-gg=á	'crack'

Consonant-final stems

In (22), the definite clitic *=Á* with underlying High tone is attached to nouns with stem-final consonants and various stem tone melodies. Clitic High tone becomes Mid when the clitic is attached to stem-final Low tone, in accordance with {M9}.

(22) **Definite clitic *=Á***
on consonant-final singular nouns with various tone melodies

Tone	N SG	N PL	DEF N SG	DEF N PL	
H	wáár	wáār-g	wáár=á	wáār-g=á	'insect type'
M	n̰ə̄m	n̰ə̄m-g	n̰ə̄m=ɔ̄	n̰ə̄m-g=ɔ̄	'Arab'
L	kààm	kààm-g	kààm=ā	kààm-g=ā	'cow type'
HL	sɛ́ɛ̀n	sɛ́ɛ̀n-g	sɛ́ɛ̀n=ā	sɛ́ɛ̀n-g=ā	'ruler'
HM	ɟɔ́rgāāl	ɟɔ́rgāāl-g	ɟɔ́rgāāl=á	ɟɔ́rgāāl-g=á	'bird type'
ML	kɔ̄ðɛ̀l	kɔ̄ðɛ̀l-g	kɔ̄ðɛ̀l=ā	kɔ̄ðɛ̀l-g=ā	'baboon'
LH	àggáár	àggáār-g	àggáár=á	àggáār-g=á	'hunter, rider'
LM	gɔ̀ɛ̄n	gɔ̀ɛ̄n-g	gɔ̀ɛ̄n=á	gɔ̀ɛ̄n-g=á	'metal worker'
MH	bāár	bāár-g	bāár=á	bāár-g=á	'tribe member'

7.4 Relative clause definite clitic

Relative clauses are marked or unmarked for definiteness just as noun phrases. When the head of the relative clause is known information, the relative clause definite clitic *=É/=È* attaches to the clause-final word. Relative clause definite clitics agree in number with the noun modified. In (a), the singular clitic with High tone on *fáá-gg=**ɛ́*** 'lines' agrees with the singular noun *kəsə́n-gí* 'friendship'. In (b), the plural clitic with Low tone on *lɛ́ɛ́l-ɛ́ɛ̀gg=**ɛ̀*** 'grasses' agrees with the plural noun *ɟɛ̄gg* 'things'.

(23a) kəsə́ngí ná àɔ̀ ná ɛ́ fáá-gg ɛ́ fáá-gg=**ɛ́**
friendship REL.SG sits REL.SG in line-PL by line-PL=RDM
'The friendship which sits in lines by lines.' (Tifa11)

(b)	ɟə̀gg	é	lɛ̄ɛ̄l-ɛ̄ɛ̄gg=à	bíīgg	nà	àn	léél-éɛ̀gg=**ɛ̀**
	thing.PL.GEN	of	grass.GEN-PL-COP	some	REL.PL	stay	grass-PL=RDM

‘ . . some wild forest animals (lit. some things of grass which were staying in grass).’ (Nyee1-2)

The relative clause definite clitic *=É* with High tone agrees with singular nouns modified by the relative clause, and the clitic *=È* with Low tone agrees with plural nouns.

Table 17: Relative clause definite clitics

Stem-final segment	RDM N SG	RDM N PL
(Polysyllabic) vowel	=É	
Consonant	=É	=È

The singular clitic *=É* attaches to nouns with stem-final consonants or vowels. When attaching to vowels, it becomes an added syllable, juxtaposed to the stem {M2}.

(24) **Relative clause definite clitic *=É* on singular nouns**

Stem-final	N SG	RDM N SG	
Vowel	kāsá	kāsá.=ɛ́	‘boy’
Consonant	məīd̰	məīd̰=í	‘elder’

Singular clitic High tone lowers to Mid following stem-final Low tone {M9}. Stem-final HM tone becomes HL tone as in *àggáàr-g=ɛ̀* ‘hunter’ when followed by the plural clitic Low tone {M7}.

(25) **Relative clause definite clitics *=É/=È* on singular and plural nouns**

Stem-final	N SG	N PL	RDM N SG	RDM N PL	
H/HM	àggáár	àggáār-g	àggáár=ɛ́	àggáàr-g=ɛ̀	‘hunter’
M	kààd̰ēl	kààd̰ēl-ɛ́ɛ́gg	kààd̰ēl=é	kààd̰ēl-ɛ́ɛ́g=è	‘leader’
L	sīīnd̰	sīīnd̰-ə̀gg	sīīnd̰=ī	sīīnd̰-ə̀gg=ì	‘guest’

7.5 Locative copular and dative clitics

The locative copula clitic and dative clitic are analyzed as two different morphemes that happen to have the same form or the same morpheme with two senses. The later is possible since the two clitics never occur together. The morphology of both clitics is presented together in this section.

7.5.1 Locative and dative segmental morphology

Locative copula clitic

In non-verbal locative clauses, the singular or plural locative copula *íīn/ēggàn* separates the subject from the predicate. However in fast speech, both singular and plural copulas attach to the subject noun phrase in the form of the clitic *=An.* The singular locative copula *íīn/éēn* of (26a) is replaced by the clitic *=An* attached to the subject noun in (b). The plural locative copula *ēggàn* of (c) is replaced by the same clitic in (d).

(26) **Locative copular clauses**

(a) àggáár **íīn** wéé bɛ̀ŋɟ (b) àggáár**=ãn** wéé bɛ̀ŋɟ
hunter LCM house beside hunter=LCM house beside
'A hunter is beside a house.'

(c) àggáār-g **ēggàn** wéé bɛ̀ŋɟ (d) àggáār-g**=ãn** wéɛ́ bɛ̀ŋɟ
hunter-PL LCM house beside hunter-PL=LCM house beside
'Hunters are beside a house.'

Dative clitic

The dative has the semantic roles of beneficiary and recipient as seen in the examples of (27). In general, dative constructions are not used with inanimate nouns.

(27) **Dative nouns in clauses**

(a) ɛ̄ bɛ̄ɛ̄ càɔr**=ãn**
he says rabbit-DAT
'He said to the rabbit . . .'

(b) á gàf ɟɛ̀ɛ̀m càɔr-ɛ̄ɛ̄gg**=ãn**
I give something rabbit-PL=DAT
'I give something to the rabbits.'

(c) tíssɔ̀ ṯīnēgg bīīgg sāfāḍḍín**=ãn**
asked questions some.PL Sayfadin-DAT
'They asked Sayfadin some questions.'

The locative copular and dative clitic *=An* is attached to monosyllabic underlying approximant-final stems, the clitic *=Vn* is attached to monosyllabic long vowel-final stems, the clitic *=n̄* is attached to polysyllabic vowel-final stems, and the clitic *=An* is attached to consonant-final stems. In stems with final approximants and stems with final vowels, the locative, dative, definite, and copular forms of nouns

are segmentally identical, differing sometimes only by tone. In stems with final consonant, locative and dative forms of nouns differ from definite and copular forms by a word-final *n*.

Table 18: Locative copular and dative clitics

Stem-final segment	LCM/DAT
(Monosyllabic) underlying approximant	=Án
(Monosyllabic) long vowel	=V̂n
(Polysyllabic) vowel	=n̄
Consonant	=Án

Monosyllabic underlying approximant-final singular stems

In (28), the locative and dative clitic *=Án* is attached to singular nouns with stem-final dental approximant *ð*. The clitic vowel takes the [ATR] and [round] features of the root {M3-4}.

(28) **Locative and dative clitic *=Án* on singular nouns with stem-final *ð***

N SG	LCM/DAT N SG	
ɟááð	ɟááð=ān	'old clothes'
məəð	məəð=ɔ̄n	'grandfather'
mɛ̄ɛ̄ð	mɛ̄ɛ̄ð=ān	'tree type'
kūūð	kūūð=ūn	'shadow'
yààð	yààð=ān	'sister'

Most monosyllabic stems with underlying-final approximants *w, y* are phonetically somewhere inbetween the two utterances of (29).

(29) **Locative/Dative clitic *=Án***
on monosyllabic underlying approximant final stems

	Stem-final	N SG	LCM/DAT N SG		
(a)	aɔ /aw/	káɔ̀	ká.ɔ̀=n	ká.w=àn	'hyena'
(b)	aaɔ /aaw/	bààɔ̀	bàà.ɔ̄=n	bàà.w=ān	'father'
(c)	ɛɔ /ɛw/	bɛ̄ɔ̀	bɛ̄.ɔ̀=n	bɛ̄.w=àn	'tree type'
(d)	aɛ /ay/	ṯāè	ṯā.è=n	ṯā.y=àn	'giraffe'
(e)	aaɛ /aay/	gááè	gáá.è=n	gáá.y=àn	'tree type'
(f)	əəi /əəy/	mə̀ə̀ì	mə̀ə̀.ī=n	mə̀ə̀.y=ə̄n	'farm fence'
(g)	ui /uy/	mūī	mū.ī=n	mū.y=ə̄n	'wildebeest'
(h)	uui /uuy/	ɲūūì	ɲūū.ì=n	ɲūū.y=ən	'leopard'

Monosyllabic long vowel-final singular stems

As in copular and definite forms, when locative copula and dative clitics *= V̂n* attach to monosyllabic long vowel-final stems, the clitic becomes a second syllable

{M2}. The clitic vowel takes on all the features of the stem-final vowel to which it is juxtaposed.

(30) **Locative/Dative clitic = *V̂n* on monosyllabic long vowel final stems**

Stem-final	N SG	LCM/DAT N SG	
ɛ	rɛ̄ɛ̄	rɛ̄ɛ̄. = ɛ̂n	'cotton'
a	máà	máá. = àn	'house'
ɔ	ṭɔ́ɔ́	ṭɔ́ɔ́. = ɔ̂n	'cow'
i	ɟíì	ɟíī. = ìn	'turkey'
ə	wə̄ə̄	wə̄ə̄. = ə̂n	'shade'
u	bùù	bùù. = ūn	'chicken coop roof'

Polysyllabic vowel-final singular stems

In (31), the locative copular and dative clitic = *n̄* is attached to singular nouns with various stem-final long and short vowels.

(31) **Locative/Dative clitic = *n̄* on singular nouns with stem-final vowels**

	Stem-final	N SG	LCM/DAT N SG	
(a)	ɛɛ	ābbɛ́ɛ́	ābbɛ́ɛ̄ = n	'uncle'
(b)	ii	ūrīī	ūrīī = n	'ostrich'
(c)	aa	wááyáá	wááyáā = n	'bird type'
(d)	əə	gəūlḍəə	gəūlḍəə = n	'fish'
(e)	ɔɔ	mɛ́lɔ̄ɔ̄	mɛ́lɔ̄ɔ̄ = n	'sugar cane'
(f)	uu	əyúú	əyúū = n	'tooth brush'
(g)	a	ṭááðà	ṭááðà = n	'grandmother'
(h)	ə	ə̄ŋə	ə̄ŋə = n	'little girl'
(i)	ɔ	ɔnsɔ	ɔnsɔ = n	'cooking plate'
(j)	u	kúfú	kúfū = n	'crushed beans'
(k)	uə	būə	būə = n	'tree type'
(l)	(g)	áŋɛ́(g)	áŋɛ̂ = n	'elephant'

Consonant-final singular stems

In (32), the locative copular and dative clitic *=Ân* is attached to singular nouns with various stem-final consonants.

(32) **Locative and dative clitic *=Ân***
on singular nouns with stem-final consonants

Stem-final	N SG	LCM/DAT N SG	
bb	ɟíləbb	ɟíləbb = ə̄n	'water spring'
ḍ	māāḍ	māāḍ = ân	'snake type'
d	dɔ̄d	dɔ̄d = ɔ̂n	'bird type'

Stem-final	N SG	LCM/DAT N SG	
ɟɟ	bìmìríɟɟ	bìmìríɟɟ = ə̄n	‘bird type’
gg	kàmàlɔ̀gg	kàmàlɔ̀gg = ɔ̄n	‘woman’
s	márɔ̄ɔ̄s	márɔ̄ɔ̄s = ɔ̄n	‘spider’
m	ḍə̄m	ḍə̄m = ə̄n	‘Arab’
n	séɛ̀n	séɛ̀n = ān	‘ruler’
ɲ	ɲéɛ̀ŋ	ɲéɛ̀ŋ = ān	‘spear type’
ŋ	mə̄ɲ	mə̄ɲ = ə̄n	‘wild cat type’
r	púr	púr = ūn	‘flower’
l	ḍɔ̀ŋɔ̀l	ḍɔ̀ŋɔ̀l = ɔ̄n	‘millipede’

Plural stems

In (33), the locative copular and dative clitic is attached to plural nouns with various plural suffixes.

(33) **Locative and dative clitics on plural nouns**

Suffix	N SG	N PL	LCM/DAT N SG	LCM/DAT N PL	
-¯gg	wáár	wáār-g	wáár = ān	wáār-g = ān	‘insect’
-¯gg	wááyáá	wááyáá-gg	wááyáā = n	wááyáá-gg = ān	‘bird’
-¯gg	kúúfú	kúúfú-gg	kúúfū = n	kúúfú-gg = ūn	‘beans’
-Āgg	célḍ	célḍ-āgg	célḍ = ān	célḍ-āgg = ān	‘broom’
-ÉĒgg	púr	púr-íīgg	púr = ūn	púr-íīgg = ə̄n	‘flower’
-AAgg	îl	íl-ɔ̀ɔ̀gg	îl = ə̄n	íl-ɔ̀ɔ̀gg = ə̄n	‘horn’
-AAḍ	kàmàlɔ̀gg	kàmàlɔ̀gg-ààḍ	kàmàlɔ̀gg = ɔ̄n	kàmàlɔ̀gg-ààḍ = ān	‘woman’
-¯ḍ	ābbéé	ābbéɛ̄-ḍ	ābbéɛ̄ = n	ābbéɛ̄-ḍ = ān	‘uncle’
-ḍ/-gg	gɔ̀rmù-ḍ	gɔ̀rmù-gg	gɔ̀rmù = ḍ = ūn	gɔ̀rmù-gg = ūn	‘insect’
-Eḍ/-gg	ɟíŋ-íḍ	ɟíŋ-g	ɟíŋ-íḍ = ə̄n	ɟíŋ-g = ə̄n	‘louse’

7.5.2 Locative copular and dative tonal morphology

The locative copular and dative clitics $=\acute{A}n$, $=\hat{V}n$ have underlying High-Mid tone, and the clitic $=\bar{n}$ on vowel-final stems has underlying Mid tone.

Monosyllabic underlying approximant-final stems

In (34), locative copular and dative clitics are attached to nouns with the stem-final dental approximant *ð* and three tone melodies. Clitic High tone becomes Mid when attached to stem-final Low tone {M9}.

(34) **Locative/Dative clitic *=Án***
on stem-final *ð* nouns with three tone melodies

Tone	N SG	N PL	LCM/DAT N SG	LCM/DAT N PL	
H	ɟááð	ɟááð-āāgg	ɟááð = ān	ɟááð-āāgg = ān	‘old clothes’
M	məəð	məəð-ǝəd̰	məəð = ǝn	məəð-ǝəd̰ = ǝn	‘grandfather’
L	yààð	yààð-āād̰	yààð = ān	yààð-āād̰ = ān	‘sister’

In (35), the locative copula and dative clitic *=Án* is attached to monosyllabic approximant-final stems in which the final approximant can surface as a vowel or as an approximant. In either, the noun word tone melody is the same. High clitic tone lowers to Mid following stem-final Low tone in *bàà.w=ān* ‘father=LCM’. As in the copular and definite forms of such nouns with HL and ML stem tone melodies, the Low tone delinks and reassigns to the clitic, replacing the clitic tone, in contradiction of {M6}.

(35) **Locative/Dative clitic *=Án***
on monosyllabic approximant final stems with various tone melodies

Tone	N SG	N PL	LCM/DAT N SG		LCM/DAT N PL	
H	ááé	ááy-g	áá.ɛ̄ = n	áá.y = ān	ááy-g = á	‘honey’
M	mūī	mūy-g	mū.ī = n	mū.y = ǝn	mūy-g = ǝ́	‘wildebeest’
L	bààɔ	bààw-āād̰	bàà.ɔ̄ = n	bàà.w = ān	bààw-āād̰ = á	‘father’
HL	káɔ	kâw-g	ká.ɔ̀ = n	ká.w = àn	kâw-g = ā	‘hyena’
ML	ɲūūì	ɲūùy-g	ɲūū.ì = n	ɲūū.y = ǝ̀n	ɲūùy-g = ǝ̄	‘leopard’

Monosyllabic long vowel-final stems

In (36), the locative copular and dative clitic *= V́n* is juxtaposed to monosyllabic long vowel-final stems. Clitic High tone again becomes Mid when attached to Low stem melodies {M9}. In HL and ML stem melodies, the final Low tone delinks and reassigns to the clitic, replacing the clitic tone, in contradiction of {M6}.

(36) Locative/Dative clitic *= V́n*
on monosyllabic long vowel final stems with various tone melodies

Tone	N SG	N PL	LCM/DAT N SG	LCM/DAT N PL	
H	cáá	cáá-gg	cáá. = ān	cáá-gg = ān	‘wild cat’
M	mīī	mīī-gg	mīī. = ǐn	mīī-gg = ǝn	‘goat’
L	d̰ìì	d̰ìì-gg	d̰ìì. = īn	d̰ìì-gg = ǝn	‘rat’
HL	máà	máà-gg	máá. = àn	máà-gg = ān	‘house’
ML	ɟīì	ɟīì-gg	ɟīī. = ìn	ɟīì-gg = ǝn	‘turkey’
MH	mīí	mīí-gg	mīī. = ǐn	mīí-gg = ǝn	‘chicken’

Polysyllabic vowel final stems

In (37), the locative copula and dative clitic *= V̄n* is attached to nouns with various

tone melodies and stem-final vowels. Clitic Mid tone assimilates to stem-final Low tone {M9}.

(37) **Locative/Dative clitic =n̄**
on vowel-final singular nouns with various tone melodies

Tone	N SG	N PL	LCM/DAT N SG	LCM/DAT N PL	
H	wááyáá	wááyáā-gg	wááyáā=n	wááyáā-gg=ān	bird type'
M	ūrīī	ūrīī-gg	ūrīī=n	ūrīī-gg=ə̄n	'ostrich'
L	ɔ̀nsɔ̀	ɔ̀nsɔ̀-gg	ɔ̀nsɔ̀=n	ɔ̀nsɔ̀-gg=ɔ̄n	'cooking plate'
HL	ɔ́rn̰àà	ɔ́rn̰àà-gg	ɔ́rn̰àà=n	ɔ́rn̰àà-gg=ān	'army'
HM	sáárfāā	sáárfāā-gg	sáárfāā=n	sáárfāā-gg=ān	'rat'
ML	gəūln̰ə̀ə̀	gəūln̰ə̀ə̀-gg	gəūln̰ə̀ə̀=n	gəūln̰ə̀ə̀-gg=ə̄n	'fish'
LM	mɔ̀rāā	mɔ̀rāā-gg	mɔ̀rāā=n	mɔ̀rāā-gg=ān	'governor'
MH	pɛ̄ɛ̄n̰áá	pɛ̄ɛ̄n̰áā-gg	pɛ̄ɛ̄n̰áā=n	pɛ̄ɛ̄n̰áā-gg=ān	'crack'

Consonant-final stems

In (38), the locative copular and dative clitic =Án is attached to nouns with various tone melodies and stem-final consonants. Clitic High tone becomes Mid when the clitic follows stem-final Low tone {M9}.

(38) **Locative/Dative clitic =Án**
on consonant-final singular nouns with various tone melodies

Tone	N SG	N PL	LCM/DAT N SG	LCM/DAT N PL	
H	wáár	wáār-g	wáár=ān	wáār-g=ān	'insect type'
M	n̰ə̄m	n̰ə̄m-g	n̰ə̄m=ə̄n	n̰ə̄m-g=ə̄n	'Arab'
L	kààm	kààm-g	kààm=ān	kààm-g=ān	'cow type'
HL	sɛ́ɛ̀n	sɛ́ɛ̀n-g	sɛ́ɛ̀n=ān	sɛ́ɛ̀n-g=ān	'ruler'
HM	ɟɔ́rgāāl	ɟɔ́rgāāl-g	ɟɔ́rgāāl=ān	ɟɔ́rgāāl-g=ān	'bird type'
ML	kɔ̄ðɛ̀l	kɔ̄ðɛ̀l-g	kɔ̄ðɛ̀l=ān	kɔ̄ðɛ̀l-g=ān	'baboon'
LH	àggáár	àggáār-g	àggáár=ān	àggáār-g=ān	'hunter, rider'
LM	gɔ̀ɛ̄n	gɔ̀ɛ̄n-g	gɔ̀ɛ̄n=ān	gɔ̀ɛ̄n-g=ān	'metal worker'
MH	bāár	bāár-g	bāár=ān	bāár-g=ān	'tribe member'

7.6 Accompaniment

7.6.1 Accompaniment segmental morphology

As will be discussed in 11.1, the accompaniment clitic is used on nouns in adjuncts introduced by the preposition *ɛ̀* 'with' if the noun has the semantic role of accompaniment.

(39) bāárg = á áðā̀n ànân è ɟɔ̄gg gɔ̄ɔ̄r = ɛ̄
Baggara = DEF coming staying with people Goor = ACM
'The Baggara were coming with the people of Goor.' (Minj4)

The accompaniment clitic $=n\bar{E}$ is attached to stems with underlying-final approximant or final vowel. The clitic $=\bar{E}$ is attached to consonant-final stems.

Table 19: Accompaniment clitics

Stem-final segment	ACM
(Monosyllabic) underlying approximant	= nĒ
(Monosyllabic) long vowel	= nĒ
(Polysyllabic) vowel	= nĒ
Consonant	= É

Monosyllabic underlying approximant final singular stems

In (40), the accompaniment clitic $=n\bar{E}$ is attached to singular nouns with stem-final dental approximant *ð* in (a-e) and to stems with underlying-final approximants *w* or *y* in (f-g). The clitic vowel takes the [ATR] quality of the root {M3}.

(40) **Accompaniment clitic $=n\bar{E}$ on singular nouns with stem-final *ð***

	Stem-final	N SG	ACM N SG	
(a)	ð	ɟááð	ɟááð = nɛ̄	'old clothes'
(b)		mɔ̄ɔ̄ð	mɔ̄ɔ̄ð = nī	'grandfather'
(c)		mɛ̄ɛ̄ð	mɛ̄ɛ̄ð = nɛ̄	'tree type'
(d)		kūūð	kūūð = nī	'shadow'
(e)		yààð	yààð = nɛ̄	'sister'
(f)	ɔ /w/	bààɔ	bààɔ = nɛ̄	'father'
(g)	ɛ /y/	rāāɛ̄	rāāɛ̄ = nɛ̄	'quarrel'

Vowel-final singular stems

In (41), the accompaniment clitic $=n\bar{E}$ is attached to singular nouns with various stem-final long and short vowels as in (a-j). The clitic also attaches to monosyllabic long vowel stems (k) and stems with underlying-final velar plosive *g* (m).

(41) **Accompaniment clitic $=n\bar{E}$ on singular nouns with stem-final vowels**

	Stem-final	N SG	ACM N SG	
(a)	ɛɛ	ābbɛ́ɛ́	ābbɛ́ɛ́ = nɛ̄	'uncle'
(b)	ii	ūrīī	ūrīī = nī	'ostrich'
(c)	aa	wááyáá	wááyáá = nɛ̄	'bird type'
(d)	əə	gəūlḍəə	gəūlḍəə = nī	'fish'
(e)	ɔɔ	mɛ́lɔ̄ɔ̄	mɛ́lɔ̄ɔ̄ = nɛ̄	'sugar cane'

	Stem-final	N SG	ACM N SG	
(f)	uu	ə̄yúú	ə̄yúú = nī	‘tooth brush’
(g)	a	ṭááə̀à	ṭááə̀à = nɛ̄	‘grandmother’
(h)	ə	ə̄ŋ̀ə̀	ə̄ŋ̀ə̀ = nī	‘little girl’
(i)	ɔ	ɔ̀nsɔ̀	ɔ̀nsɔ̀ = nɛ̄	‘cooking plate’
(j)	u	kúfú	kúfú = nī	‘crushed beans’
(k)	aa	cáá	cáá = nɛ̄	‘wild cat’
(l)	uə	būə̀	būə̀ = nī	‘tree type’
(m)	(g)	áŋ́é(g)	áŋ́é = nɛ̄	‘elephant’

Consonant-final singular stems

In (42), the accompaniment clitic $=\hat{E}$ is attached to singular nouns with various stem-final consonants.

(42) **Accompaniment clitic $=\hat{E}$ on singular nouns with stem-final consonants**

Stem-final	N SG	ACM N SG	
bb	ɟílə̀bb	ɟílə̀bb = ī	‘water spring’
ḍ	māāḍ	māāḍ = ɛ̂	‘snake type’
d	dɔ̋d	dɔ̋d = ɛ̂	‘bird type’
ɟɟ	bìmìríɟɟ	bìmìríɟɟ = ǐ	‘bird type’
gg	kàmàlɔ̀gg	kàmàlɔ̀gg = ɛ̄	‘woman’
s	márɔ̄ɔ̄s	márɔ̄ɔ̄s = ɛ̂	‘spider’
m	ḍə̄m	ḍə̄m = ǐ	‘Arab’
n	sɛ́ɛ̀n	sɛ́ɛ̀n = ɛ̄	‘ruler’
ɲ	ɲɛ́ɛ̀ŋ	ɲɛ́ɛ̀ŋ = ɛ̄	‘spear type’
ŋ	mə̄ɲ	mə̄ɲ = ǐ	‘wild cat type’
r	púr	púr = ǐ	‘flower’
l	ḍɔ̀ŋɔ̀l	ḍɔ̀ŋɔ̀l = ɛ̄	‘millipede’

Plural stems

In (43), the accompaniment clitic $=\hat{E}$ is attached to plural nouns with various plural suffixes. The singular nouns and singular accompaniment forms are given for comparison.

(43) **Accompaniment clitic $=\hat{E}$ on plural nouns**

Suffix	N SG	N PL	ACM N SG	ACM N PL	
-a̱gg	wáár	wáār-g	wáár = ɛ̂	wáār-g = ɛ̂	‘insect’
-a̱gg	wááyáá	wááyáá-gg	wááyáá = nɛ̄	wááyáá-gg = ɛ̂	‘bird’
-a̱gg	kúúfú	kúúfú-gg	kúúfú = nī	kúúfú-gg = ǐ	‘beans’
-ĀgG	céḷḍ	céḷḍ-āgg	céḷḍ = ɛ̂	céḷḍ-āgg = ɛ̂	‘broom’
-ÉĒgg	púr	púr-íīgg	púr = ǐ	púr-íīgg = ǐ	‘flower’

Suffix	N SG	N PL	ACM N SG	ACM N PL	
-AAgg	îl	íl-ə̀gg	îl = ī	íl-ə̀gg = ī	‘horn’
-AAḍ̈	kàmàlɔ̀gg	kàmàlɔ̀gg-àà̤	kàmàlɔ̀gg = ɛ̄	kàmàlɔ̀gg-àà̤ = ɛ̄	‘woman’
-ḍ̈	ābbɛ́ɛ́	ābbɛ́ɛ̄-ḍ̈	ābbɛ́ɛ́ = nɛ̄	ābbɛ́ɛ̄-ḍ̈ = ɛ̂	‘uncle’
-ḍ/-gg	gə̀rmù-ḍ̈	gə̀rmù-gg	gə̀rmù-ḍ̈ = ī	gə̀rmù-gg = ī	‘insect’
-Eḍ̈/-gg	ɟíŋ-íḍ̈	ɟíŋ-g	ɟíŋ-íḍ̈ = î	ɟíŋ-g = î	‘louse’

7.6.2 Accompaniment tonal morphology

The accompaniment clitic $=nE\bar{}$ on approximant-final stems and vowel-final stems has underlying Mid tone. However, this clitic is an exception to the tone lowering rule {M9} of 3.4.3. The clitic $=\bar{E}$ on consonant-final stems has underlying HM tone and is in accordance with {M9}.

Dental approximant *ð* final stems

In (44), Mid tone of the clitic $=nE\bar{}$ is not lowered following stem-final Low tone and thus {M9} is not applied to this suffix.

(44) **Accompaniment clitic $=nE\bar{}$**
on stem-final *ð* nouns with three tone melodies

Tone	N SG	N PL	ACM N SG	ACM N PL	
H	ɟááð	ɟááð-āāgg	ɟááð = nɛ̄	ɟááð-āāgg = ɛ̂	‘old clothes’
M	māɔ̄ð	māɔ̄ð-áɔ̄ḍ̈	māɔ̄ð = nī	māɔ̄ð-áɔ̄ḍ̈ = î	‘grandfather’
L	yààð	yààð-āā̤	yààð = nɛ̄	yààð-āā̤ = ɛ̂	‘sister’

Vowel-final stems

In (45), the accompaniment clitic $=nE\bar{}$ is attached to nouns with stem-final vowels and various tone melodies. As in approximant-final stems, Mid tone of the clitic $=nE\bar{}$ is not lowered following stem-final Low tone.

(45) **Accompaniment clitic $=nE\bar{}$**
on vowel-final singular nouns with various tone melodies

Tone	N SG	N PL	ACM N SG	ACM N PL	
H	wááyáá	wááyáá-gg	wááyáá = nɛ̄	wááyáá-gg = ɛ̂	‘bird type’
M	ūrīī	ūrīī-gg	ūrīī = nī	ūrīī-gg = î	‘ostrich’
L	ɔ̀nsɔ̀	ɔ̀nsɔ̀-gg	ɔ̀nsɔ̀ = nɛ̄	ɔ̀nsɔ̀-gg = ɛ̄	‘cooking plate’
HL	ɔ́rḍ̈àà	ɔ́rḍ̈àà-gg	ɔ́rḍ̈àà = nɛ̄	ɔ́rḍ̈àà-gg = ɛ̄	‘army’
HM	sáárfāā	sáárfāā-gg	sáárfāā = nɛ̄	sáárfāā-gg = ɛ̂	‘rat’
ML	gə̄ūlḍ̈ə̀ə̀	gə̄ūlḍ̈ə̀ə̀-gg	gə̄ūlḍ̈ə̀ə̀ = nī	gə̄ūlḍ̈ə̀ə̀-gg = ī	‘fish’
LM	mɔ̀rāā	mɔ̀rāā-gg	mɔ̀rāā = nɛ̄	mɔ̀rāā-gg = ɛ̂	‘governor’
MH	pɛ̄ɛ̄ḍ̈áá	pɛ̄ɛ̄ḍ̈áā-gg	pɛ̄ɛ̄ḍ̈áá = nɛ̄	pɛ̄ɛ̄ḍ̈áā-gg = ɛ̂	‘crack’

Consonant-final stems

In (46), the accompaniment clitic $=\tilde{E}$ is attached to nouns with stem-final consonants and various tone melodies. High tone in the clitic becomes Mid when the clitic is attached to stem-final Low tone {M9}.

(46) **Accompaniment clitic $=\tilde{E}$**
on consonant-final singular nouns with various tone melodies

Tone	N SG	N PL	ACM N SG	ACM N PL	
H	wáár	wáār-g	wáár=ɛ̄	wáār-g=ɛ̄	‘insect type’
M	ḍəm	ḍəm-g	ḍəm=ī	ḍəm-g=ī	‘Arab’
L	kààm	kààm-g	kààm=ɛ̄	kààm-g=ɛ̄	‘cow type’
HL	sɛ́ɛ̀n	sɛ́ɛ̀n-g	sɛ́ɛ̀n=ɛ̄	sɛ́ɛ̀n-g=ɛ̄	‘ruler’
HM	ɟɔ́rgāāl	ɟɔ́rgāāl-g	ɟɔ́rgāāl=ɛ̄	ɟɔ́rgāāl-g=ɛ̄	‘bird type’
ML	kɔ̄ðɛ̀l	kɔ̄ðɛ̀l-g	kɔ̄ðɛ̀l=ɛ̄	kɔ̄ðɛ̀l-g=ɛ̄	‘baboon’
LH	àggáár	àggáār-g	àggáár=ɛ̄	àggáār-g=ɛ̄	‘hunter, rider’
LM	gɔ̀ɛ̄n	gɔ̀ɛ̄n-g	gɔ̀ɛ̄n=ɛ̄	gɔ̀ɛ̄n-g=ɛ̄	‘metal worker’
MH	bāár	bāár-g	bāár=ɛ̄	bāár-g=ɛ̄	‘tribe member’

As discussed in section 2.4, no more than one tone is assigned on short, open syllables in roots. Although the short, open syllable clitic $=\tilde{E}$ allows two tones to be assigned, there is commonly some alternation.

When the accompaniment clitic is attached to stems with final Mid tone, the High of the High-Mid clitic $=\tilde{E}$ is lowered to a pitch half-way between High and Mid tone before falling to Mid tone. The quick ‘half’ High-Mid falling tone sounds like a strong Mid tone syllable, and is different to speakers and hearers than the regular Mid tone.

When the accompaniment clitic $=\tilde{E}$ is attached to stems with final High tone, the High of the High-Mid clitic is sometimes unassigned so that the surface tone of the clitic vowel is only Mid tone. At other times, the Mid of the High-Mid clitic is unassigned so that the surface tone of the clitic vowel is only High tone. Still, at other times, both tones surface on the clitic vowel. These alternations differ for the same nouns for the same speakers, depending on the quickness of speech, rather than because of phonological features of the stem segments. The slower the noun form is spoken, the more likely that both tones will be uttered.

7.7 Subordinate clause-final clitic

In subordinate clauses such as those beginning with the subordinate conjunction *ɛ́ gārá* ‘when’, the clitic $=\acute{E}$ attaches to the clause-final word. The marker $=\acute{E}$ attaches to the subordinate clause of (47a), beginning with the conjunction *ɛ́ gārá*

'when', and to the subordinate clause *ɔ̀ gàɔ́-sā gùrūs=**ɪ́*** 'and when a person gave money,' of (b), having the same function but without the subordinate conjunction.

(47a) ɛ́ gārá kɔ̄s-s=ɪ̄ ūfú-n=**ɪ́**, ɛ̄ dɔ̄ɔ̀s
GP when struck-COMP=SBO1 tree-DEF=SBO 3sN start
'When she struck the tree, she began . . .' (Nyee14)

(b) bɛ̄ɛ̀l mān ṭ̈ā-án ṭ̈ù ɔ̀ gàɔ́-sā gùrūs=**ɪ́**
metal certain was there and give-COMP money=SBO (Ar)
'There was a certain metal token, and when (a person) gave money,

ɛ̄ gəf=ûn=ì ḍ̈-ɔ́ɔ̀s.
3sN give=2sD=3sAM in-hand.2sPs
he gave it to you as certificate of payment (lit. in your hand)' (Fand8-9)

The subordinate clause-final clitic *=É* (SBO) should not be confused with the subordinate verb-final clitics (SBO1, SBO2) of 10.7. In (47a), the clitic *=ɪ́* (SBO1) attaches to the verb *kɔ̄s-s=ɪ́* 'struck=COMP =SBO1' in addition to the clause-final clitic *=É* (SBO) and is a different morpheme.

Subordinate clauses are further discussed in section 15.2 on conjunctions. In 15.3 it will be shown that the subordinate clause-final clitic attaches to interrogative clauses in which the interrogative pronoun is pre-verbal. As shown in (23) of 4.1.11, subordinate clauses can contain relative clauses. In 14.7 the difference between subordinate clauses and relative clauses is discussed.

The subordinate clause clitic *=É* attaches to singular and plural nouns with stem-final consonants and the clitic *=nÉ* attaches to stem-final vowels.

Table 20: Subordinate clause clitic

Stem-final segment	SBO N SG	SBO N PL
Vowel	=nÉ	
Consonant	=É	=É

In (48), the clitic *=nÉ* attaches to vowel-final noun stems with various root tone melodies. Subordinate clitic High tone lowers to Mid following stem-final Low tone {M9}.

(48) **Subordinate clause clitic *=nÉ* attached to vowel-final noun stems**

Tone	N SG	N PL	SBO N SG	SBO N PL	
H	ṭ̈ɔ́ɔ́	ṭ̈ɔ́-gg	ṭ̈ɔ́ɔ́=nɛ́	ṭ̈ɔ́-gg=ɛ́	'cow'
M	mīī	mīī-gg	mīī=nɪ́	mīī-gg=ɪ́	'goat'
L	ḍ̈ìì	ḍ̈ìì-gg	ḍ̈ìì=nī	ḍ̈ìì-gg=ī	'rat'
HL	wírì	wírìì-gg	wírì=nī	wírìì-gg=ī	'bird'

HM	céɛ́ɔ̄	céɛ́ɔ̄-gg	céɛ́ɔ́ = né	céɛ́ɔ́-gg = ɛ́	‘cripple’
ML	ɲūūì	ɲūūì-gg	ɲūūì = nī	ɲūūì-gg = ī	‘leopard’
LM	mɔ̀rāā	mɔ̀rāā-gg	mɔ̀rāā = né	mɔ̀rāā-gg = ɛ́	‘governor’
MH	kāsá	kāsā-gg	kāsá = nɛ́	kāsā-gg = ɛ́	‘boy’

In (49), the clitic *=É* attaches to consonant-final noun stems with various root tone melodies. Subordinate clitic High tone again lowers to Mid following stem-final Low tone {M9}.

(49) **Subordinate clause clitic *=É* attached to consonant-final noun stems**

Tone	N SG	N PL	SBO N SG	SBO N PL	
H	kə́líḍ̪	kə́lí-īgg	kə́líḍ̪ = í	kə́lí-īgg = í	‘bird’
M	ṭ̪ēḍ̪ēl	ṭ̪ēḍ̪ēl-g	ṭ̪ēḍ̪ēl = ɛ́	ṭ̪ēḍ̪ēl-g = ɛ́	‘bird’
L	də̀ìḍ̪	də̀ìḍ̪-ə̀gg	də̀ìḍ̪ = ī	də̀ìḍ̪-ə̀gg = ī	‘scorpion’
HL	ə́sə̀r	ə́sə̀r-g	ə́sə̀r = ī	ə́sə̀r-g = ī	‘army’
HM	márɔ̄ɔ̄s	márɔ̄ɔ̄s-ɔ̄gg	márɔ̄ɔ̄s = ɛ́	márɔ̄ɔ̄s-ɔ̄gg = ɛ́	‘spider’
ML	gəmūùr	gəmūùr-ìigg	gəmūùr = ī	gəmūùr-ìigg = ī	‘dove’
LH	àggáár	àggáár-g	àggáár = ɛ́	àggáár-g = ɛ́	‘hunter’
LM	gə̀ŋīī-ḍ̪	gə̀ŋīī-g	gə̀ŋīī-ḍ̪ = í	gə̀ŋīī-g = í	‘bird’
MH	tēnḍ̪ás	tēnḍ̪ás-āgg	tēnḍ̪ás = ɛ́	tēnḍ̪ás-āgg = ɛ́	‘bird’

8 Adjectives

As discussed in 4.3, adjectives are analyzed as a distinct lexical category from either nouns or verbs since they are not used in some of the syntactic constructions of either nouns or verbs, and there are differences in the morphology from either category. Adjectives are generally not attested (NA) in use as subjects, objects, or objects of prepositions. As will be discussed in 8.3, there are three differences in the stem morphology of nouns and adjectives with final consonants. In verb paradigms, the long forms of subject pronouns precede the adjectival verb instead of short subject pronouns as in true verbs. The plural adjective suffix *-gg* and copular clitic *=A* attach to adjectival verbs of plural persons, whereas these bound morphemes are not attached to any true verb forms. These and other details specifying the difference between adjectives and nouns and verbs are found in 4.3.

Adjective types are discussed in 8.1, stem morphology of qualitative adjectives in 8.2, and word morphology of qualitative adjectives in 8.3.

8.1 Adjective types

Numerals (8.1.1), quantitative adjectives (8.1.2), demonstratives (8.1.3) and qualitative adjectives (8.1.4) immediately follow nouns in nouns phrases and specify some property of the nouns they follow. Thus, all of these can be analyzed categorically as adjectives. Nevertheless, there are some differences. Demonstratives and qualitative adjectives agree in number with the nouns they modify, whereas numerals and quantitative adjectives do not. Rather, numerals and quantitative adjectives have different lexemes depending on whether the nouns they modify are singular or plural. Only the morphology of qualitative adjectives is similar to that of nouns. For further discussion of adjectives in noun phrases, see 14.9.2.

8.1.1 Numerals

The numeral *ṭāmán* ‘one’ is used with singular nouns. All other cardinal numbers are used with plural nouns.

(1a) ār ú=bìlī ɟɔ̄gg kāɛ̄ wá, bɛ̀l ɟɛ̄n **ṭāmán**
hey 2pN=hit people all not hit person one
‘Don’t kill all the people; just kill the one man.’ (Fand29)

(b) ɟāfàrì=n ɛ́ mánɛ̄ ɟɔ̄ ḍàɔ̀-sā càɔ̀r-ɛ̄ɛ̄gg=á **yɔ̄ɔ̄sɔ́**
Jafari=DEF alone just killed rabbits-PL=DEF four
Jafari, by himself, killed four rabbits. (Jafr7)

Gaahmg numerals draw upon words for hands, feet, and eyes. Hands and feet are representative of the number of fingers and toes that they contain. The numeral *áás-áámān* 'five (hand-one)' is based on the five fingers of one hand. The numeral *íḍíg-dáāgg* 'seven (eyes-two)' is based on the two eyes—apparently in addition to the five fingers of one hand which are not included in the numeral. The numeral *ə́sēg-dí* 'ten (hands-also) is based on the ten fingers of two hands. The numeral *ɟāā dùì ə̄ə̄ŋ* 'twenty (person black body)' is based on all the fingers and toes of a black person's body. It is interesting that the word *dùì* 'black' is included in the construction of the numeral, although having nothing to do with the numeral itself. The numerals 'forty', 'sixty', and higher multiples of twenty are 'two bodies', 'three bodies' etc.

(2) **Numerals (cardinal numbers)**

ṭāmán	1	
ḍáāgg	2	
ə́ðə̄	3	
yə̄ə̄sə́	4	
áás-áámān	5	(hand.1sPs-one)
ṭə́lḍìgg	6	
íḍíg-dáāgg	7	(eye.3sPp-two)
íḍígg-ə́ðə̄	8	(eye.3sPp-three)
íḍíg-yə̄ə̄sə́	9	(eye.3sPp-four)
ə́sēg-dí	10	(hand.3sPp-also)
ə́səgḍí ì ná ṭāmán	11	(ten with REL one)
ə́səgḍí ì ná ḍáāgg	12	(ten with REL two)
ɟāā dùì ə̄ə̄ŋ	20	(person black body)
ɟāā dùì ə̄ə̄ŋ ì ná ṭāmán	21	(twenty with REL one)
ɟāā dùì ə̄ə̄ŋ ì ná ḍáāgg	22	(twenty with REL two)
ɟāā dùì ə̄ə̄ŋ ì ná ə́sēgdí	30	(twenty with REL ten)
jɔ̄g dùìgg ìì̱ŋ-ə̄ ḍáāgg	40	(people black body.PL-DEF two)
jɔ̄g dùìgg ìì̱ŋ-ə̄ ḍáāgg ì ná ə́sēgdí	50	(forty with REL ten)
jɔ̄g dùìgg ìì̱ŋ-ə̄ ə́ðə̄	60	(people black body.PL-DEF three)
jɔ̄g dùìgg ìì̱ŋ-ə̄ ə́ðə̄ ì ná ə́sēgdí	70	(sixty with REL ten)
jɔ̄g dùìgg ìì̱ŋ-ə̄ yə̄ə̄sə́	80	(people black body.PL-DEF four)
jɔ̄g dùìgg ìì̱ŋ-ə̄ yə̄ə̄sə́ ì ná ə́sēgdí	90	(eighty with REL ten)
jɔ̄g dùìgg ìì̱ŋ-ə̄ áásáámān	100	(people black body.PL-DEF five)
jɔ̄g dùìgg ìì̱ŋ-ə̄ ə́sēgdí	200	(people black body.PL-DEF ten)

Ordinal numbers are constructed with cardinal numbers in relative clauses used as modifiers of the head noun. However, the numerals *mɔ̄ɔ̀gg* and *yààn* are used for 'first' and 'second' instead of *ṭāmán* 'one' and *ḍáāgg* 'two'.

(3a) ḍù-ḍ = ū ná mɔ̄ɔ̀gg = ɛ̄ wɛ́ḍán
year-SG = DEF REL first = REL good.SG
'The first year is good.'

(b) ḍù-gg = ū nà ɔ́ð = ɛ̄ wíə̀-gg = ə̀
year-PL = DEF REL.PL first = RDM good-PL = COP
'The third year is good.'

(4) **Ordinal numbers**

mɔ̄ɔ̀gg-ɛ̄	'first'
yààn-è	'second'
ɔ́ð-ɛ̄	'third'
yə̄ə̄s-î	'fourth'
āāsāāmân-ì	'fifth'
tə́lḍìg-ì	'sixth'
íḍígḍáàgg-è	'seventh'
íḍíggɔ̂ð-è	'eighth'
íḍígyə̄ə̄s-î	'ninth'
ɔ́sə̄gð-î	'tenth'
ɔ́sə̄gḍí ì ná ṭāmán-ɛ̄	'eleventh'
ɔ́sə̄gḍí ì ná ḍáàgg-è	'twelfth'

8.1.2 Quantitative adjectives

Indefinite adjectives and quantitative adjectives can be grouped into the same semantic and syntactic category. There are different indefinite adjectives depending on whether the nouns they follow and modify are singular or plural.

(5) Mīī **mān** nāmánɛ̂ ɛ́ ūlg-ì mâŋ wá.
goat certain beaten GP thirst.GEN-3sP well not
There was once a very thirsty goat. (Goat1)

Singular and plural referents can have differing or the same root forms. The cardinal number 'one' *ṭāmán* could be derived from *mān* 'any, certain'.

(6) **Indefinite adjectives**

Singular		Plural	
mān	'any, certain'	bíīgg	'certain'
dāàn, yāàn	'different, another'	dāān-ààgg	'others'

There are also different quantitative adjectives depending on whether the nouns they follow and modify are singular or plural.

(7a) mə̄ī̤d kūūd̤=ū d̤àə̀-sā ɟɛ̀ɛ̀m **d̤éé** wá
old.man person.name=DEF kill-COMP thing any not
'The old man of Kuud didn't kill anything.' (Jafr8)

(b) ɛ́ gārá d̤ə́ə̀-s=ǐ īīgg=ə́=r **kāy**=ɛ́
GP when milk-COMP=SBO1 milk=DEF=PF all=SBO
'When all the milk was completely milked, . .' (Nyee25)

(c) ɛ́ də̀ɟ-ɟ āāggá ɛ́ mīī̤d-ə́g **fə̄rə́ɟɟ** wá bə̀=ī
3sN /d̤ə̀ɟ/stone-INF 1pA GP stone-PL few not oh=SBO
'When it pelted us with a lot of stones, . .' (Thng20)

(d) á bās-sā ə́gg **t̤âlg**
1sN throw-COMP time many
'I threw many times.'

Singular and plural referents of quantitative adjectives have differing root forms. There is no attested singular counterpart of *fə̄rə́gg* 'few'.

(8) **Quantitative adjectives**

Singular		Plural	
d̤éé	'any'	kāɛ̄	'all'
bum	'much'	t̤âlg	'many'
-----		fə̄rógg	'few'

8.1.3 Demonstratives

Demonstratives follow and agree in number with the nouns they modify. They are not used pronominally. High tone on the initial syllable marks agreement with a singular noun and Low tone marks agreement with a plural noun.

(9) **Demonstratives**

(a) bìì fīŋə́-d̤ə̄ kə̄r ə́ə̀n **níí** mā mâŋ
let hear word 1sPs this very carefully
'Listen carefully to what I am saying (lit. this my word)!' (Womn3)

(b) ágg fɛ̄ssā d̤ù-gg=ū **nɛ̀ɛ̀** kāɛ̄
1pN grazed year-PL=DEF **these** all
'We grazed (cows) all these years.'

(c) ú t̤ə́ld̤ə̄n=ī t̤ə́-gg=ə́ gâr-g=ā **nàà̤dì** kāɛ̄ ɲíínə̀
2sN putting=them cow-PL=DEF place-PL=DEF **those** all why
'Why were you putting all those cows into a certain place?'

The three-way distinction is for near a speaker, near an addressee, and away from both speaker and addressee. The singular and plural demonstratives *náá(n)* 'that' *nàà(n)* 'those' optionally have a final segment *n*.

(10) **Demonstratives**

DEM SG		DEM PL		
níí, nɛ́ɛ́	'this'	nɛ̀ɛ̀	'these'	near speaker
náá(n)	'that'	nàà(n)	'those'	near addressee
náádī	'that'	nààdì	'those'	away from both

The same three-way distinction is present in demonstrative locative adverbs which can be in short or long form.

(11)

gə̂l	Fə́ndì	bəg-s = ən = în	líɟɟī	ɛ́	kərtūūm	**tɛ̀.**
just	Fandi	catch-COMP = PAS = 3pD	arrived	GP	Khartoum	here

Fandi was captured by them (government officials), and brought here to Khartoum. (Fand6)

(12) **Demonstrative locative adverbs**

Long	Short		
tɛ̀ɛ̀ðɛ́	tɛ̀	'here'	near speaker
tàààá	tà	'there'	near addressee
tììðí	tì	'there'	away from both

8.1.4 Qualitative adjectives

Qualitative adjectives, including adjectives of colour, also follow and agree in number with the noun they modify, as shown by the examples of (13).

(13a)

á	ɲâm	ɟɛ̂r	**bɔ̂r**
1sN	want	sorghum	yellow

'I want yellow sorghum.'

(b)

á	ɲâm	ɟɛ̂r-g	**bɔ̂r-g**
1sN	want	sorghum-PL	yellow-PL

'I want yellow types of sorghums.'

Gaahmg has five colour distinctions.

(14) **Colour adjectives**

ADJ SG		ADJ PL		
ɟāā	dùì	ɟɔ̄gg	dùì-gg	'black person'
lɛ́ɛ́l	ɲáār	lɛ́ɛ́l-g	ɲáār-g	'green grass'
ɲíí-d	pɔ́ɔ̀	ɲíí-gg	pɔ́ɔ̀-g	'white tooth'
áfá-d	bɛ̀rà	áfá-āgg	bɛ̀rà-gg	'red blood'
ɟɛ̂r	bɔ̂r	ɟɛ̂r-g	bɔ̂r-g	'yellow sorghum'

The examples of (15) are representative of other qualitative adjectives.

(15) **Qualitative adjectives**

ADJ SG		ADJ PL		
gāàr	cúú	gààr-èègg	cúú-gg	‘sweet pork’
wɛ́ɛ́	bɛ́r	wís-ə̄g	bɛ́r-g	‘clean house’
kɔ̀lèèð	ît	kɔ̀lèèð-g	ît-gg	‘heavy sword’
ɟɛ̄n	bándạ̄l	ɟɔ̄g	bándāl-g	‘weak person’
kágdạ̀r	áɛ̀	kágdàr-g	áy-g	‘sour food’
tɔ́ɔ́	kɔ́ɔ́fàr	tɔ́-g	kɔ́ɔ́fàr-g	‘thin cow’
kàmàlɔ̀gg	kāyáár	kàmàlɔ̀gg-ààd	kāyáār-g	‘beautiful girl’
dàl	lūsú	dàl-g	lūsú-gg	‘hot cooking pot’
dɛ̄èl	gààl	dɛ̀èl-èègg	gààl-g	‘distant lake’
tààð	kár	tààð-g	kár-g	‘loose door’
sáá	ɔ́n	sá-gg	ɔ́n-g	‘bad wine’
sáàɔ	yáá	sááw-èègg	yáá-gg	‘new grass-cutter’
māàɔ	fūūì	mààw-èègg	fūùy-g	‘male gazelle’
páré	sàmāār	páré-ɛ̄gg	sàmāār-g	‘rough leather.bag’
páré	bāàl	páré-ɛ̄gg	bāàl-g	‘striped bag’
ə̄ŋə	dəmə	ə̄ŋ-g	dəmə-gg	‘blind girl’
ɟɛ̄n	céɛ́	ɟɔ̄gg	céɛ̄-gg	‘unavailable person’
būúl	káé	būūl-g	kāy-g	‘finished bread’
ɟāā	dúsú	ɟāālgé	dúsú-gg	‘ignorant boy’
mɔ̄sɔr	bûr	mɔsɔr-èèg	bûr-g	‘remaining horse’
ɟāā	dəɲər	ɟɔ̄gg	dəɲər-g	‘stuttering boy’

8.2 Qualitative adjective stem morphology

Word structure of qualitative adjectives can be ordered according to the schemes of (16). As in nouns, the adjective stem consists of the root and an optional plural suffix. The adjective word consists of the stem and optional slots for copula, definite, locative, dative, accompaniment, subordinate, and relative definite clause marker clitics.

(16) Adjective stem = root + (PL marker)
Adjective word = [ADJ stem] + ({COP, DEF, LCM, DAT, ACM, SBO, RDM})

Plural formation of qualitative adjectives is similar to that of nouns in that adjective roots attach the segmental suffix *-gg* with more than one tonal allomorph.

8.2.1 Segmental plural formation of adjectives

Plural formation of adjectives nearly always involves attaching the suffix *-gg* in the plural form. As in nouns, the suffix attaches to root-final sonorants and vowels.

Table 21: Adjective Plural Formation

Suffix	Root-final segment	ADJ SG	ADJ PL		Number
-gg	sonorant	dɔ́mɔ̄l	dɔ́mɔ̄l-g	'big'	20
	vowel	yáá	yáá-gg	'new'	10

The plural suffix *-gg* is attested to attach to root-final *r, l, n,* and *y*.

(17) **Plural adjective suffix *-gg***

UR-final	ADJ SG	ADJ PL	
/r/	kár	kár-g	'loose'
/l/	dɔ́mɔ̄l	dɔ́mɔ̄l-g	'big'
/n/	ɔ́n	ɔ́n-g	'bad'
/y/	áɛ̀	ây-g	'sour'
/y/	fūùì	fūùy-g	'male'

The plural suffix *-gg* is also attested to attach to root-final short and long vowels.

(18) **Plural adjective suffix *-gg***

UR-final	ADJ SG	ADJ PL	
/ə/	ḍə̀mə̄	ḍə̀mə̄-gg	'blind'
/u/	lūsú	lūsú-gg	'hot'
/i/	wílí	wílí-gg	'reflective'
/a/	yáá	yáá-gg	'new'
/ə/	bɔ́ɔ́	bɔ́ɔ́-gg	'acidic'
/u/	cúú	cúú-gg	'sweet'
/ɛ/	cɛ́ɛ́	cɛ́ɛ̄-gg	'unavailable'
/i/	îî	îî-gg	'heavy'

Only the adjectives of (19) have been attested with other suffixes and are analyzed as having irregular plural formation.

(19) **Irregular plural adjective formation**

ADJ SG	ADJ PL	
pārrās	pɔ̄rs-íīgg	'full plate'
dāàn	dāān-ààg	'another chicken'
kàráább	kàráá-ɔ̄gg	'troublesome boy'
wɛ̄ḍá	wíɔ̄-gg	'good, beautiful'
mūús	mūūs-ɔ́s	'even, equal'
ɲāán	ɲālgɛ́ɛ́gg	'small, young'
fāā	fāng	'old'
mādā	māng	'big'

8.2.2 Tonal plural formation of adjectives

The following tone melodies have been attested in adjectives.

(20) **Tone melodies in adjectives**

Root tone	ADJ SG	ADJ PL	
H	báár	báár-g	‘weak’
M	ləwə	ləwə-gg	‘round, circular’
L	gààl	gààl-g	‘distant, far’
HL	bûr	bûr-g	‘remaining’
HM	ɲáār	ɲáār-g	‘green’
ML	bāàl	bāàl-g	‘striped, coloured’
MH	mūús	mūūs-ə́s	‘even, equal’
LM	sèggār	sèggār-g	‘strong’
LH	kàráább	kàráá-ɔ̄gg	‘troublesome’
HMH	wílí	wílí-gg	‘reflective mirror

As shown by the contrasts of (21), there are two tonal allomorphs of the segmental suffix *-gg,* one with no underlying tone and one with Mid tone.

(21) **Tone melodies in adjectives**

Suffix	ADJ SG	ADJ PL	
-g̲g	báár	báár-g	‘weak’
- gg	kāyáár	kāyáār-g	‘beautiful’
-g̲g	yáá	yáá-gg	‘new’
- gg	céé	céē-gg	‘unavailable’

8.3 Qualitative adjective clitic morphology

Most clitic allomorphs attaching to nouns with various stem-final segments and number have the same form when attaching to adjectives of the same stem-final segments and number. There are three exceptions attested: the copular clitic $=\bar{A}$ attaches to consonant-final singular nouns, whereas there is no copular marking on consonant-final singular adjectives; the definite clitic $=Vn$ with no underlying tone attaches to monosyllabic long vowel-final nouns, whereas the definite clitic $=\acute{V}n$ with High tone attaches to monosyllabic long vowel-final adjectives; the definite clitic $=\acute{A}$ with High tone attaches to plural nouns, whereas the definite clitic $=\grave{A}$ with Low tone attaches to plural adjectives.

Table 22 lists the various clitics on stem-final segments and (22) gives example adjectives with the same order. Three combinations of clitics are included: the relative clause dative (RDTM)/ relative clause locative copula (RDCM), the relative clause definite and accompaniment (RDM=ACM), and relative clause definite and subordinate (RDM=SBO). Clitics on adjectives with certain stem-final segments

which have not been attested are left blank.

Table 22: Adjective word clitic allophones

Stem-final segment	COP	DEF	RDM	DAT/LCM	RDTM/RLCM
(Monosyllabic)vowel/approx.		**=V́n**	=É		
(polysyllabic) vowel	=n̄	=n	=É	=n̄	=ÉĒn
Consonant	---	=Á	=É	=Án	=ÉĒn
Consonant Noun PL	=À	**=À**	=È	=Án	=ÈÈn

Stem-final segment	ACM	RDM=ACM	SBO	RDM=SBO
(polysyllabic) vowel	=nĒ	ÉÉ=nĒ	=nÉ	ÉÉ=nÉ
Consonant	=Ē	ÉÉ=nĒ	=É	ÉÉ=nÉ
Consonant Noun PL	=Ḕ	ÈÈ=nĒ	=É	ÈÈ=nĒ

(22a) **Adjective word clitic allomorphs on various stem-final adjectives**

ADJ	COP	DEF	RDM	
îî		íî.=ín	îî.=ī	‘heavy’
ḍəmə	ḍəmə=n	ḍəmə=n	ḍəmə.=í	‘blind’
kāyáár	kāyáár	kāyáár=á	kāyáár=ɛ́	‘beautiful’
kāyáār-g	kāyáàr-g=à	kāyáàr-g=à	kāyáàr-g=ɛ̀	‘beautiful-PL’

(b) **Adjective word clitic allomorphs on various stem-final adjectives**

ADJ	DAT/LCM	RDTM/RLCM	ACM	
ḍəmə	ḍəmə=n	ḍəmə.=íīn	ḍəmə=nɛ̄	‘blind’
kāyáár	kāyáár=ân	kāyáár=ɛ́ɛ̄n	kāyáár=ɛ̄	‘beautiful’
kāyáār-g	kāyáār-g=ân	kāyáàr-g=ɛ̀ɛ̀n	kāyáār-g=ɛ̄	‘beautiful-PL’

(c) **Adjective word clitic allomorphs on various stem-final adjectives**

ADJ	RDM=ACM	SBO	RDM=SBO	
ḍəmə	ḍəmə.=íí=nī	ḍəmə=ní	ḍəmə.=íí=ní	‘blind’
kāyáár	kāyáár=ɛ́ɛ́=nɛ̄	kāyáár=ɛ́	kāyáár=ɛ́ɛ́=nɛ́	‘beautiful’
kāyáār-g	kāyáàr-g	kāyáār-g	kāyáàr-g	‘beautiful
	=ɛ̀ɛ̀=nɛ̄	=ɛ́	=ɛ̀ɛ̀=nɛ̄	-PL’

Not enough adjective data was collected to make sure that the copula $=\bar{n}$ and accompaniment $=n\bar{E}$ clitics attached to stem-final vowels do not follow the tone lowering rule of {M9} in 3.4.3 as in nouns, but presumably this is the case.

8.3.1 Copular clitic

Copular clitics attach to adjectives. In the adjective non-verbal clauses of (23), the copular markers agree in number with the adjective to which they attach.

(23a) ṭɔ́ɔ́ sèggār (b) ṭɔ́-gg sèggār-g=**à**
cow strong cow-PL strong-PL=COP
'A cow is strong.' 'Cows are strong.'

(c) ṭɔ́ɔ́=n ḍə̀mə̄=n
cow=DEF blind=COP
'The cow is blind.'

The clitic $=\bar{n}$ attaches to polysyllabic vowel-final singular adjectives as in (23c), and the clitic $=\grave{A}$ attaches to plural adjectives as in (b), the same as in nouns with these stem-final segments. However unlike consonant-final singular nouns which attach the copular clitic $=\bar{A}$, consonant-final singular adjectives are unmarked by any copular clitic, as shown in (a).

Table 23: Copular clitics on adjectives

Stem-final segment	COP ADJ SG	COP ADJ PL
(Polysyllabic) vowel	$=\bar{n}$	
Consonant	---	=À

The copular clitic =*n* attaches to vowel-final singular adjectives and consonant-final singular adjectives are unmarked by any copular clitic.

(24) **Copular clitics on singular adjectives**

Stem-final	ADJ SG	COP ADJ SG	
Vowel	ḍə̀mə̄	ḍə̀mə̄=n	'blind'
Consonant	ɲāán	ɲāán	'young'

Stem-final HM tone becomes HL when followed by a copular clitic with Low tone {M7}.

(25) **Copular clitic $=\grave{A}$ on adjectives with various stem tone melodies**

Stem-final	ADJ SG	ADJ PL	COP ADJ SG	COP ADJ PL	
H	bér	bér-g	bér	bér-g=à	'clean'
M	bándə̄l	bándə̄l-g	bándə̄l	bándə̄l-g=à	'weak'
L	kɔ́ɔ́fàr	kɔ́ɔ́fàr-g	kɔ́ɔ́fàr	kɔ́ɔ́fàr-g=à	'thin'
H/HM	kāyáár	kāyáār-g	kāyáár	kāyáàr-g=à	'beautiful'

8.3.2 Definite clitic

The definite clitic attaches to adjectives and agrees in number with the noun phrase head.

(26a) ṭɔ́ɔ́ ḍəmə = **n** nāām
cow weak = DEF eating
'The blind cow is eating.'

(b) ṭɔ́-gg sèggār-g = **à** nāàm
cow-PL weak-PL = DEF eating
'The weak cows are eating.'

In singular noun phrases with a head noun and adjective modifier, the definite clitic attaches to the adjective unless it is consonant-final and the noun is vowel-final.

(27) **Definite clitic on singular nouns and adjectives**

N-final	ADJ-final	DEF SG NP		
V = DEF	C = (DEF)	wéé = **n**	bér = (**á**)	'the clean house'
C	V = DEF	kɔ̀lèèð	íī = **ín**	'the heavy sword'
C	C = DEF	ɟɛ̄n	bándāl = **á**	'the weak person'
V	V = DEF	bààɔ	fāā = **n**	'the old father'

In plural noun phrases with a head noun and adjective modifier, the definite clitic attaches to the adjective and optionally to the head noun.

(28) **Definite clitic on plural nouns and adjectives**

N-final	ADJ-final	DEF PL NP		
C-PL = (DEF)	C-PL = DEF	wís-ɔ̄g = (**ə́**)	bɛ́r-g = **à**	'the clean houses'
C-PL = (DEF)	C-PL = DEF	kɔ̀lèèð-g = (**ə̄**)	íī-g = **ə̀**	'the heavy swords'
C-PL = (DEF)	C-PL = DEF	ɟɔ̄gg = (**ɔ́**)	bándāl-g = **à**	'the weak persons'
C-PL = (DEF)	C-PL = DEF	bààw-āā = (**á**)	fāng = **à**	'the old fathers'

As with definite clitics on nouns, definite clitics on adjectives differ depending on the stem-final segment. Polysyllabic vowel-final adjectives attach the definite clitic *=n* with no underlying tone and consonant final singular adjectives attach the definite clitic *=Á* with High tone, the same as in nouns with these types of final segments. However, two of the definite clitics attaching to adjectives differ from the clitics attaching to nouns with the same final segments. Monosyllabic vowel-final nouns attach the definite clitic *=Vn* with no underlying tone, but monosyllabic vowel-final adjectives attach the definite clitic *=Ívn* with High tone. Plural nouns attach the definite clitic *=Á* with High tone, but plural adjectives attach the definite clitic *=À* with Low tone.

Table 24: Definite clitics on adjectives

Stem-final segment	DEF ADJ SG	DEF ADJ PL
(Monosyllabic) long vowel or underlying approximant	=Ívn	
(Polysyllabic) vowel	=n	
Consonant	=Á	=À

Monosyllabic long vowel and underlying approximant-final adjectives attach the definite clitic *=Vn* with High tone. In *ḍù.=īn* 'black', High suffix tone lowers to Mid following Low root tone {M9}. In *íī.=ín* 'heavy' and *á.=ɛ́n* 'sour', the underlying HLH tone results as HMH tone in accordance with rule {M10}, although in verbs, the rule only applies when the three tones are assigned to the same syllable.

(29) **Definite clitic *=Vn* on monosyllabic singular adjectives**

Stem-final	ADJ SG	DEF ADJ SG	
/a/	yáá	yáá.=án	'new'
/ə/	bə́ə́	bə́ə́.=ə́n	'acidic'
/u/	cúú	cúú.=ún	'sweet'
/ɛ/	cɛ́ɛ́	cɛ́ɛ́.=ɛ́n	'unavailable'
/i/	îì	íī.=ín	'heavy'
/y/	áɛ̀	á.=ɛ̄n	'sour'
/y/	ḍùì	ḍù.=īn	'black'

Polysyllabic vowel-final adjectives attach the definite clitic *=n* with no underlying tone.

(30) **Definite clitic *=n* on polysyllabic vowel final singular adjectives**

Stem-final	ADJ SG	DEF ADJ SG	
/a/	mādā	mādā=n	'big'
/ə/	ḍə̀mə̄	ḍə̀mə̄=n	'blind'
/u/	lūsú	lūsú=n	'hot'
/i/	wīlí	wīlí=n	'reflective'

Consonant-final singular adjectives attach the definite clitic *=Á*.

(31) **Definite clitic *=Á* on consonant final singular adjectives**

Stem-final	ADJ SG	DEF ADJ SG	
/r/	kár	kár=á	'loose'
/l/	dɔ́mɔ̄l	dɔ́mɔ̄l=ɔ́	'big'
/n/	ə́n	ə́n=ə́	'bad'

Consonant-final adjectives attach the definite clitic *=Á* with High tone and plural adjectives attach the definite clitic *=À* with Low tone. Clitic High tone lowers to Mid following stem-final Low tone {M9} and the Mid of stem-final HM tone

(32) **Definite clitic *=Á* on singular adjectives and *=À* on plural adjectives**

Stem-final	ADJ SG	ADJ PL	DEF ADJ SG	DEF ADJ PL	
H	bɛ́r	bɛ́r-g	bɛ́r=á	bɛ́r-g=à	'clean'
M	bándə̄l	bándə̄l-g	bándə̄l=á	bándə̄l-g=à	'weak'
L	kɔ́ɔ́fàr	kɔ́ɔ́fàr-g	kɔ́ɔ́fàr=ā	kɔ́ɔ́fàr-g=à	'thin'
H/HM	kāyáár	kāyáār-g	kāyáár=á	kāyáàr-g=à	'beautiful'

assimilates to clitic Low tone {M7}.

8.3.3 Relative clause definite clitic

Relative clause definite clitics attach to relative clause-final adjectives in agreement with the noun modied by the clause. In (33a), the singular clitic on *ə́n=**ɪ́*** 'bad=RDM' is in agreement with the singular noun *kɔ̄r* 'word' and in (b), the plural clitic on *ə̄n-g=**ì*** 'young-PL=RDM' is in agreement with the plural noun *ɲālg* 'girls'.

(33a) kɔ́r á kɔ̄r ná ə́n=**ɪ́**
speaks 1sA word REL.SG bad=RDM
'She speaks to me rudely (lit. word which is bad).' (Assa6)

(b) bāárg=á ŋáɔ́-ǎ̀n ɲālg nà ə̄n-g=**ì**
Baggara=DEF search.for-CONT.P girls REL young-PL=RDM
'The Baggara were kidnapping girls which were young.' (Minj2)

The relative clause definite clitics *=É/=È* on singular and plural adjectives are the same as on nouns.

Table 25: Relative clause definite clitics on adjectives

Stem-final segment	RDM ADJ SG	RDM ADJ PL
(Monosyllabic) long vowel or underlying approximant	=É	
(Polysyllabic) vowel	=É	
Consonant	=É	=È

Monosyllabic long vowel and underlying approximant-final adjectives attach the relative clause definite clitic *=É* with High tone.

(34) **Relative clause definite clitic *=É* on monosyllabic singular adjectives**

Stem-final	ADJ SG	RDM ADJ SG	
/a/	yáá	yáá.=ɛ́	'new'
/ə/	bɔ́ɔ́	bɔ́ɔ́.=ɪ́	'acidic'
/u/	cúú	cúú.=ɪ́	'sweet'
/ɛ/	cɛ́ɛ́	cɛ́ɛ́.=ɛ́	'unavailable'
/i/	îì	îì.=ī	'heavy'
/y/	áɛ̀	â.=ɛ̄	'sour'
/y/	ụ̀ùì	ụ̀ù.=ī	'black'

Polysyllabic vowel-final adjectives also attach the clitic *=É*. In fast speech, the stem-final vowel can be elided such as in *lūs=ɪ́* 'hot'.

(35) **Relative clause definite clitic *=É***
on polysyllabic vowel final singular adjectives

Stem-final	ADJ SG	RDM ADJ SG	
/a/	mādā	mādā.=ɛ́	'big'
/ə/	d̰əmə	d̰əmə.=í	'blind'
/u/	lūsú	lūsú.=í	'hot'
/i/	wílí	wílí.=í	'reflective'

Consonant-final singular adjectives attach the relative clause definite clitic *=É*.

(36) **Relative clause definite clitic *=É* on consonant final singular adjectives**

Stem-final	ADJ SG	RDM ADJ SG	
/r/	kár	kár=ɛ́	'loose'
/l/	dɔ́mɔ̄l	dɔ́mɔ̄l=ɛ́	'big'
/n/	ɔ́n	ɔ́n=í	'bad'

Consonant-final adjectives attach the clitic *=É* with High tone and plural adjectives attach the clitic *=È* with Low tone. Clitic High tone lowers to Mid following stem-final Low tone {M9} and the Mid of stem-final HM tone assimilates to clitic Low tone {M7}.

(37) **Relative clause definite clitic *=É/=È* on singular and plural adjectives**

Stem-final	ADJ SG	ADJ PL	RDM ADJ SG	RDM ADJ PL	
H	bɛ́r	bɛ́r-g	bɛ́r=ɛ́	bɛ́r-g=ɛ̀	'clean'
M	bándə̰āl	bándə̰āl-g	bándə̰āl=ɛ́	bándə̰āl-g=ɛ̀	'weak'
L	kɔ́ɔ́fàr	kɔ́ɔ́fàr-g	kɔ́ɔ́fàr=ɛ̄	kɔ́ɔ́fàr-g=ɛ̀	'thin'
H/HM	kāyáár	kāyáār-g	kāyáár=ɛ́	kāyáàr-g=ɛ̀	'beautiful'

8.3.4 Dative and locative copular clitics

As in nouns, dative and locative copular clitics have the same morphology in adjectives and are both discussed in this section. The dative clitic attaches to noun phrase-final adjectives to indicate recipient or beneficiary roles.

(38) bəsərəniiggə ɟɔ̄gg ɲālg=**ā̂n**
were.lying people young=DAT
'They were lying to the young people.'

The singular locative copula *íīn/ɛ́ɛ̄n* of (39a) is replaced by the clitic *=Ân* attached to the adjective in (b). The plural locative copula *ɛ̄ggàn* of (c) is replaced by the same clitic in (d).

(39) **Locative copular clauses**

(a) ɟāā bánḍāl **íīn** wéé̋ bɛ̀ɲɟ
person weak LCM house beside
'A weak person is beside a house.'

(b) ɟāā bánḍāl=**ān** wéé̋ bɛ̀ɲɟ
person weak=LCM house beside
'A weak person is beside a house.'

(c) ɟɔ̄gg bánḍāl-g **ɛ̄ggàn** wéé̋ bɛ̀ɲɟ
people weak-PL LCM house beside
'Weak people are beside a house.'

(d) ɟɔ̄gg bánḍāl-g=**ān** wéé̋ bɛ̀ɲɟ
people weak-PL=LCM house beside
'Weak people are beside a house.'

Polysyllabic vowel-final adjectives attach the dative and locative copular clitic *=n̄*, and consonant-final singular and plural adjectives attach the clitic *=Án* with HM tone, the same as in nouns with these types of final segments.

Table 26: Dative and locative copular clitics on adjectives

Stem-final segment	DAT/LCM ADJ SG	DAT/LCM ADJ PL
(Polysyllabic) vowel	=n̄	
Consonant	=Án	=Án

The dative and locative copula clitic *=n̄* attaches to vowel-final adjectives and the clitic *=Án* attaches to consonant-final adjectives.

(40) **Dative and locative copular clitic on singular adjectives**

Stem-final	ADJ SG	DAT/LCM ADJ SG	
Vowel	ḍ̈əmə̄	ḍ̈əmə̄=n	'blind'
Consonant	ɲāán	ɲāán=ān	'young'

The clitic *=Án* attaches to both singular and plural adjectives. Clitic High tone lowers to Mid following stem-final Low tone {M9}.

(41) **Dative and locative copular clitic *=Án* on adjectives**

Stem-final	ADJ SG	ADJ PL	DAT/LCM ADJ SG	DAT/LCM ADJ PL	
H	bér	bér-g	bér=ān	bér-g=ān	'clean'
M	bánḍāl	bánḍāl-g	bánḍāl=ān	bánḍāl-g=ān	'weak'
L	kɔ́ɔ́fàr	kɔ́ɔ́fàr-g	kɔ́ɔ́fàr=ān	kɔ́ɔ́fàr-g=ān	'thin'
H/HM	kāyáár	kāyáār-g	kāyáár=ān	kāyáār-g=ān	'beautiful'

8.3.5 Relative clause dative/locative copular clitics

The relative clause dative and locative copular clitics have the same morphology and are both discussed in this section. Dative relative clauses are always marked with the clitic *=ÉĒn/=ÈÈn* which agrees in number with the head noun of the relative clause.

(42a) á gàf ɟèèm ɟāā ná sèggār=**éēn**
1sN give something person REL strong=RDTM
'I give something to the strong person.'

(b) á gàf ɟèèm ɟɔ̄gg nà sèggār-g=**èèn**
1sN give something person REL strong=RDTM
'I give something to the strong people'

The relative clause clitic *=É* and locative copula *íín/éēn* of (42a) is replaced by the singular clitic *=ÉĒn* in (b). The relative clause clitic *=È* and locative copula *ēggàn* of (c) is replaced by the plural clitic *=ÈÈn* in (d). Unlike locative copular clitics, relative clause copular clitics only attach to definite noun phrases and not phrases unmarked for definiteness; relative clauses unmarked for definiteness only use locative copulas *íín/éēn* and *ēggàn.*

(43) **Relative clause locative copular clauses**

(a) ɟāā ná bánḍāl=**é** **íín** wéé bèŋɟ
person REL weak=RDM LCM house beside
'The weak person is beside a house.'

(b) ɟāā ná bánḍāl=**éēn** wéé bèŋɟ
person REL weak=RDM.LCM house beside
'The weak person is beside a house.'

(c) ɟɔ̄gg nà bánḍāl-g=**è** **ēggàn** wéé bèŋɟ
people REL weak-PL=RDM LCM house beside
'The weak people are beside a house.'

(d) ɟɔ̄gg nà bánḍāl-g=**èèn** wéé bèŋɟ
people REL weak-PL=RDM.LCM house beside
'The weak people are beside a house.'

Singular relative clauses with final adjectives attach the dative and locative copular clitic *=ÉĒn*, and plural relative clauses attach the clitic *=ÈÈn.*

Table 27: Relative clause dative/locative copular clitics on adjectives

Stem-final segment	RDTM/RLCM ADJ SG	RDTM/RLCM ADJ PL
(Polysyllabic) vowel	=ÉĒn	
Consonant	=ÉĒn	=ÈÈn

The relative clause dative and locative copular clitic *=ÉĒn* attaches to both vowel-final and consonant-final adjectives.

(44) **Relative clause dative/locative copular clitics *=ÉĒn* on singular adjectives**

Stem-final	ADJ SG	RDTM/RLCM ADJ SG	
Vowel	ḍə̀mə̄	ḍə̀mə̄.=íìn	'blind'
Consonant	ɲāán	ɲāán=éēn	'young'

Singular adjectives attach the clitic *=ÉĒn* with HM tone and plural adjectives attach the clitic *=ÈÈn* with Low tone. Clitic High tone lowers to Mid following stem-final Low tone {M9}. Stem-final HM tone becomes HL tone before clitic Low tone {M7}.

(45) **Relative clause dative/locative copular clitics *=ÉĒn/=ÈÈn* on singular and plural adjectives**

Stem-final	ADJ SG	ADJ PL	RDTM/RLCM ADJ SG	RDTM/RLCM ADJ PL	
H	bér	bér-g	bér=éēn	bér-g=èèn	'clean'
M	bándə̄āl	bándə̄āl-g	bándə̄āl=éēn	bándə̄āl-g=èèn	'weak'
L	kɔ́ɔ́fàr	kɔ́ɔ́fàr-g	kɔ́ɔ́fàr=ēēn	kɔ́ɔ́fàr-g=èèn	'thin'
H/HM	kāyáár	kāyáār-g	kāyáár=éēn	kāyáàr-g=èèn	'beautiful'

8.3.6 Accompaniment clitic

Accompaniment clitics attach to noun phrase-final adjectives.

(46) bāárg=á áðā̀n è ɲāā ná sèggār=ɛ̄
Baggara=DEF coming with person REL strong=ACM
'The Baggara were coming with a strong person.'

Polysyllabic vowel-final adjectives attach the accompaniment clitic *=nĒ* with Mid tone, and consonant-final singular and plural adjectives attach the clitic *=Ē* with HM tone, the same as in nouns with these types of final segments.

Table 28: Accompaniment clitics on adjectives

Stem-final segment	ACM ADJ SG	ACM ADJ PL
(Polysyllabic) vowel	=nĒ	
Consonant	=Ē	=Ē

The accompaniment clitic *=nĒ* attaches to vowel-final adjectives and the clitic *=Ẽ* attaches to consonant-final adjectives.

(47) **Accompaniment clitics on singular adjectives**

Stem-final	ADJ SG	ACM ADJ SG	
Vowel	ḍəmə	ḍəmə=nɛ̄	'blind'
Consonant	ɲāán	ɲāán=ɛ̃	'young'

The clitic *=Ẽ* attaches to both singular and plural adjectives. Clitic High tone lowers to Mid following stem-final Low tone {M9}.

(48) **Accompaniment clitic *=Ẽ* on singular and plural adjectives**

Stem-final	ADJ SG	ADJ PL	ACM ADJ SG	ACM ADJ PL	
H	bɛ́r	bér-g	bér=ɛ̃	bér-g=ɛ̃	'clean'
M	bándāl	bándāl-g	bándāl=ɛ̃	bándāl-g=ɛ̃	'weak'
L	kɔ́ɔ́fàr	kɔ́ɔ́fàr-g	kɔ́ɔ́fàr=ɛ̄	kɔ́ɔ́fàr-g=ɛ̄	'thin'
H/HM	kāyáár	kāyáār-g	kāyáár=ɛ̃	kāyáār-g=ɛ̃	'beautiful'

8.3.7 Relative clause definite and accompaniment clitics

Accompaniment relative clauses can be marked or unmarked for definiteness. When unmarked, the accompaniment clitic attaches relative clause-finally, as in (49). When marked, the accompaniment clitic attaches after the relative clause definite clitic, as in (50). The relative clause definite and accompaniment clitics *=ÉÉ=nĒ/ =ÈÈ=nĒ* agree in number with the head noun of the relative clause.

(49) bāárg=á áðằn è ɟāā ná sèggār=**ɛ̃**
Baggara=DEF coming with person REL strong=ACM
'The Baggara were coming with a strong person.'

(50) bāárg=á áðằn è ɟāā ná sèggār=**ɛ́ɛ́=nɛ̄**
Baggara=DEF coming with person REL strong=RDM=ACM
'The Baggara were coming with the strong person.'

Singular adjectives attach the relative clause definite and accompaniment clitic *=ÉÉ=nĒ*, and plural adjectives attach the clitic *=ÈÈ=nĒ*.

Table 29: Relative clause definite and accompaniment clitics on adjectives

Stem-final segment	RDM=ACM ADJ SG	RDM=ACM ADJ PL
(Polysyllabic) vowel	=ÉÉ=nĒ	
Consonant	=ÉÉ=nĒ	=ÈÈ=nĒ

The relative clause definite and accompaniment clitic *=ÉÉ=nĒ* attaches to both vowel-final and consonant-final adjectives.

(51) **Relative clause definite and accompaniment *=ÉÉ=nĒ* on singular adjectives**

Stem-final	ADJ SG	RDM=ACM ADJ SG	
Vowel	ḍə̀mə̄	ḍə̀mə̄. = íí = nī	'blind'
Consonant	ɲāán	ɲāán = ɛ́ɛ́ = nɛ̄	'young'

Singular adjectives attach the clitic *=ÉÉ=nĒ* with H=M tone and plural adjectives attach the clitic *=ÈÈ=nĒ* with Low=Mid tone. Relative clause clitic High tone lowers to Mid following stem-final Low tone {M9}. Stem-final HM tone becomes HL tone before relative clause clitic Low tone {M7}.

(52) **Relative clause definite and accompaniment *=ÉÉ=nĒ/=ÈÈ=nĒ* on singular and plural adjectives**

Stem-final	ADJ SG	ADJ PL	RDM=ACM ADJ SG	RDM=ACM ADJ SG	
H	bɛ́r	bɛ́r-g	bɛ́r = ɛ́ɛ́ = nɛ̄	bɛ́r-g = ɛ̀ɛ̀ = nɛ̄	'clean'
M	bándə̤āl	bándə̤āl-g	bándə̤āl = ɛ́ɛ́ = nɛ̄	bándə̤āl-g = ɛ̀ɛ̀ = nɛ̄	'weak'
L	kɔ́ɔ́fàr	kɔ́ɔ́fàr-g	kɔ́ɔ́fàr = ɛ̄ɛ̄ = nɛ̄	kɔ́ɔ́fàr-g = ɛ̀ɛ̀ = nɛ̄	'thin'
H/HM	kāyáár	kāyáār-g	kāyáár = ɛ́ɛ́ = nɛ̄	kāyáàr-g = ɛ̀ɛ̀ = nɛ̄	'beautiful'

8.3.8 Subordinate clause-final clitic

The clitic *=É* attaches clause-final adjectives of subordinate clauses such as with the conjunction *ɛ́ gārá* 'when'.

(53) ɛ́ gārá bə̀rə̤ = ə̄ tə̤úr-s = ɪ̄ ɟāā ná sɛ̀ggār = **ɛ́**
GP when lion = DEF see-COMP = SBO1 person REL strong = SBO
'When the lion saw a strong person, . . '

The subordinate clause clitic *=É* attaches to singular and plural adjectives with stem-final consonants and the clitic *=nÉ* attaches to stem-final vowels, the same as in nouns with these types of final segments.

Table 30: Subordinate clause clitic

Stem-final segment	SBO ADJ SG	SBO ADJ PL
Vowel	=nÉ	
Consonant	=É	=É

Monosyllabic long vowel and underlying approximant-final adjectives attach the subordinate clause clitic *=nÉ*. Occasionally, the clitic can be attached without *n* as in *ɪ̂ɪ̄. =ɪ̄* 'heavy = SBO'.

(54) **Subordinate clause clitic *=nÉ***
on monosyllabic singular adjectives

Stem-final	ADJ SG	SBO ADJ SG	
/a/	yáá	yáá = né	‘new’
/ə/	bə́ə́	bə́ə́ = ní	‘acidic’
/u/	cúú	cúú = ní	‘sweet’
/ɛ/	cɛ́ɛ́	cɛ́ɛ́ = né	‘unavailable’
/i/	îi	îi = nī	‘heavy’
/y/	áɛ̀	áɛ̀ = nɛ̄	‘sour’
/y/	ḍ̈ùì	ḍ̈ùì = nī	‘black’

Polysyllabic vowel-final adjectives also attach the subordinate clitic *=nÉ,* and Occasionally the clitic can be attached without *n* as in *lūsú. =í* ‘hot = SBO’.

(55) **Subordinate clause clitic *=nÉ***
on polysyllabic vowel-final singular adjectives

Stem-final	ADJ SG	SBO ADJ SG		
/a/	mādā	mādā = né	mādā = ɛ́	‘big’
/ə/	ḍəmə	ḍəmə = ní	ḍəmə = í	‘blind’
/u/	lūsú	lūsú = ní	lūsú = í	‘hot’
/i/	wílí	wílí = ní	wílí = í	‘reflective’

Consonant-final singular adjectives attach the subordinate clitic *=É.*

(56) **Subordinate clause clitic *=É* on consonant-final singular adjectives**

Stem-final	ADJ SG	SBO ADJ SG	
/r/	kár	kár = ɛ́	‘loose’
/l/	dɔ́mɔ̄l	dɔ́mɔ̄l = ɛ́	‘big’
/n/	ɔ́n	ɔ́n = í	‘bad’

Consonant-final singular and plural adjectives attach the subordinate clause clitic *=É* with High tone which lowers to Mid following stem-final Low tone {M9}.

(57) **Subordinate clause clitic *=É* on singular and plural adjectives**

Stem-final	ADJ SG	ADJ PL	SBO ADJ SG	SBO ADJ PL	
H	bɛ́r	bɛ́r-g	bɛ́r = ɛ́	bɛ́r-g = ɛ́	‘clean’
M	bándə̄l	bándə̄l-g	bándə̄l = ɛ́	bándə̄l-g = ɛ́	‘weak’
L	kɔ́ɔ́fàr	kɔ́ɔ́fàr-g	kɔ́ɔ́fàr = ɛ̄	kɔ́ɔ́fàr-g = ɛ̄	‘thin’
H/HM	kāyáár	kāyáār-g	kāyáár = ɛ́	kāyáār-g = ɛ́	‘beautiful’

8.3.9 Relative clause definite and subordinate clause clitics

Relative clauses in subordinate clauses can be marked or unmarked for definiteness. When unmarked, the subordinate clitic attaches relative clause-final, as in (a). When

marked, the subordinate clitic attaches after the relative clause definite clitic, as in (b). The relative clause definite and subordinate clitic *=ÉÉ=nÉ/=ÈÈ=nÈ* agrees in number with the head of the relative clause.

(58a) ɛ́ gārá bə̀rḍə̄ ṭúr-s=ǐ ɟāā ná sèggār=**ɛ́**
GP when lion.DEF see-COMP=SBO1 boy REL strong=SBO
'When the lion saw a strong person, . . '

(b) ɛ́ gārá bə̀rḍə̄ ṭúr-s=ǐ ɟāā ná sèggār=**ɛ́ɛ́=né**
GP when lion.DEF see-COMP=SBO1 boy REL strong=RDM=SBO
'When the lion saw the strong person, . . '

Singular adjectives attach the relative clause definite and subordinate clitic *=ÉÉ=nÉ*, and plural adjectives attach the clitic *=ÈÈ=nÈ*.

Table 31: Relative clause definite and subordinate clause clitics on adjectives

Stem-final segment	RDM=SBO ADJ SG	RDM=SBO ADJ PL
(Polysyllabic) vowel	=ÉÉ=nÉ	
Consonant	=ÉÉ=nÉ	=ÈÈ=nÈ

The relative clause definite and subordinate clitic *=ÉÉ=nÉ* attaches to both vowel-final and consonant-final adjectives.

(59) **Relative clause definite and subordinate clitic *=ÉÉ=nÉ* on singular adjectives**

Stem-final	ADJ SG	RDM=SBO ADJ SG	
Vowel	ḍə̀mə̄	ḍə̀mə̄.=íí=ní	'blind'
Consonant	ɲāán	ɲāán=ɛ́ɛ́=né	'young'

Singular adjectives attach the clitic *=ÉÉ=nÉ* with H tone and plural adjectives attach the clitic *=ÈÈ=nÈ* with Low=Mid tone, where the subordinate clitic *=nÉ* High tone lowers to Mid following relative clause clitic *=ÈÈ* Low tone {M9}. Relative clause clitic High tone lowers to Mid following stem-final Low tone {M9}. Stem-final HM tone becomes HL tone before relative clause clitic Low tone {M7}.

(60) **Relative clause definite and subordinate clitics *=ÉÉ=nÉ/=ÈÈ=nÈ* on singular and plural adjectives**

Stem-final	ADJ SG	ADJ PL	RDM=SBO ADJ SG	RDM=SBO ADJ PL	
H	bér	bér-g	bér=ɛ́ɛ́=né	bér-g=èè=nɛ̄	'clean'
M	bánḍāl	bánḍāl-g	bánḍāl=ɛ́ɛ́=né	bánḍāl-g=èè=nɛ̄	'weak'
L	kɔ́ɔ́fàr	kɔ́ɔ́fàr-g	kɔ́ɔ́fàr=ɛ̄ɛ̄=né	kɔ́ɔ́fàr-g=èè=nɛ̄	'thin'
H/HM	kāyáár	kāyáār-g	kāyáár=ɛ́ɛ́=né	kāyáàr-g=èè=nɛ̄	'beautiful'

9 Verb stem morphology

9.1 Introduction

The verb word structure can be ordered according to the schemes of (1). The verb root tends to be monosyllabic, with optional onset and coda. The verb stem is composed of the root, and optional slots for antipassive (ANTIP), causative (CAUS), and modal or aspect morphemes. The verb word is made up of the stem and optional slots for agented passive (PAS.A), passive (PAS) or bound pronoun, and imperfect (IPF), perfect (PF), subordinate (SBO1,2), or relative clause definite marker clitics (RDM).

(1) Verb root = (C)V(C)(C)
Verb stem = [Verb root] + (ANTIP) + (CAUS) +
({INF, SBJV, IMP, COMP, INCP, CONT, IMP.D, COMP.D, CONT.D})
Verb word = [Verb stem] + ({PAS.A, PAS, PRON}) + ({IPF, PF, SBO, RDM})

The verb word is further represented in table 32 by the order and options of each position or 'slot', where each item in the column is an example option. The morphemes are briefly explained following the table, after which, a few examples are given in (3).

Table 32: Verb word bound morphemes and ordering

Verb stem				Outside verb stem	
root	ANTIP	CAUS	Modality/ Aspect	PAS.A, PAS, PRON	IPF, PF SBO, RDM
[V]	-An$_{ANTIP}$,	-s^{+}A$_{CAUS}$ -ḍ$^{+}$A$_{CAUS}$	-C$_{INF}$ -Ø, -C(A)$_{SBJV}$ -ḍA$_{SBJV.PL}$ -Ø, -n$_{IMP}$ -ḍ$^{+}$A$_{IMP.PL}$ -sA$_{COMP}$ -Ø$_{INCP}$ -Ā̲n$_{CONT.P}$ -Á̲n$_{CONT.N}$ -CÁggĀ$_{COMP.D}$ -(CAg)gAn$_{CONT.N.D}$ -(CÁg)gĀ$_{IMP.D}$ -ḍúū$_{IMP.PL.D}$ -CA̲r$_{PF}$	=É, =ÉĒ$_{PAS.A}$ =Ā̲nÁ̲, =Á̲$_{PAS}$ =E$_{3sA}$ =aaggá$_{1pA}$ =ĩn$_{3sD}$ =ãggən$_{1pD}$	=É$_{IPF}$ =È(ggÀ)$_{IPF}$ =ɪ́$_{IPF}$ =ĩ̀(ggə̀)$_{IPF}$ =Ē$_{SBO1}$ =ɪ̄$_{SBO1}$ =É$_{SBO2}$ =ū$_{SBO2}$ =É$_{RDM}$ =È$_{RDM}$ =A̲r$_{PF}$ =r$_{PF}$ =gg$_{VN.PL}$ =Agg$_{VN.PL}$

When a verb is marked as having no object, it attaches the antipassive suffix *-An,* which precedes any other morphemes (9.10). Causative suffixes *-s^{+}A, -ḍ$^{+}$A* have [+ATR] quality which spreads in both directions in the verb word (9.11).

Third singular and first, second, and third plural subjunctive (SBJV) forms are distinguished from first and second person singular forms by the suffix *-ḍA* (9.3). Imperatives (IMP, IMP.PL) addressed to more than one person are distinguished from imperatives addressed to one person by the suffix *-ḍ⁺A* (9.4).

Aspect is marked segmentally in the verb word—by the completive (COMP) suffix *-sA* in (2a) and the continuous suffixes *-Án/-Ān* in (b-c). Past tense is marked by tone on the verb stem—High tone on the non-past continuous (CONT.N) suffix *-Án* in (b) and MH on the past continuous (CONT.P) suffix *-Ān* in (c). Future tense is marked by tone outside the verb word on the subject pronoun—High tone on the non-future subject pronoun *á* in (d) and HM on the future subject pronoun *â* in (e).

(2) **Clauses showing aspect and tense**

(a)	COMP	á	ḍùr-**sù**	kɔ́lɔ́ḍ=ɔ́	'I buried the egg.'
(b)	CONT.N	á, ā	ḍùr-**ən**	kɔ́lɔ́ḍ=ɔ́	'I am/will be burying the egg.'
(c)	CONT.P	á, ā	ḍùr-**ɔ̄n**	kɔ́lɔ́ḍ=ɔ́	'I was burying the egg.'
(d)	INCP	**á**	ḍùr	kɔ́lɔ́ḍ=ɔ́	'I bury the egg.'
(e)	INCP FUT	**ā**	ḍùr	kɔ́lɔ́ḍ=ɔ́	'I will bury the egg.'

Aspect is divided into completive and incompletive action. As mentioned, completive verbs are marked by a morpheme (9.5). There is no incompletive (INCP) morpheme, but in the absence of all aspect or mood morphemes, 'incompletive' is the interpretation of the verb form (9.6). The incompletive can be specified as continuous, thereby taking a past or non-past suffix (9.7). Deictic (D) suffixes such as *-CÁggĀ, -(CAg)gAn, -(CÁg)gĀ, -ḍúū* indicating direction and distance also attach to the root (9.9).

Agented passive (PAS.A) clitics *=Ẽ, =ÉẼ*, often used in clauses with object focus to indicate a post-verbal encoding of an agent (or experiencer), agree in number with the agent (10.2). The passive (PAS) clitic *=ĀnÁ* attaches to stems with vowel-final suffixes whereas *=Á* attaches to stems with consonant-final suffixes and suffix-less stems (10.3). Object pronoun (ACC) (10.4), dative pronoun (DAT) (10.5), imperfect (IPF) (10.6), and verb-final subordinate (SBO1,2) (10.7) clitics indicate person and number. The relative clause definite marker (RDM) agrees in number with the nominative person form (10.9). A perfect (PF) bound morpheme *-CAr, =Ar, =r* can attach to nouns or verbs and can have various allomorphs for various verb forms. Although the morpheme *-CAr* on imperative and incompletive verbs is analyzed as a suffix and part of the stem, it is discussed along with the other perfect bound morphemes in (10.8), which are clitics and outside the stem. Verbal noun (VN) plural clitics *=gg, =Agg* attach to incompletive surface forms to nominalize the verb (10.10). Adjectives used as verbs and suffixing verb inflectional suffixes are also discussed (10.11).

In addition, there is evidence for a middle (MID) verb form which, in at least a

handful of verbs, is distinguished by [+ATR] vowels and tone change on the root. However, since only a limited amount of data was collected on this form, the middle is not presented in the verb morphology, but only in 14.5.2 on transitive verbs.

In (3), example verb forms are given with formulations with each of the five morpheme slots. The symbol Ø indicates that the slot is not filled by any morpheme.

(3) **Example verb forms and formulation**

Verb form	Formulation
INCP 3sN	$[V]_{Root}$ + Ø + Ø + Ø + Ø + Ø
	kɔ́m 'destroy, chop'
ANTIP CAUS SBJV 2pN	$[V]_{Root}$+ An_{ANTIP} + $ḍ^{+}A_{CAUS}$ + $ḍA_{SBJV}$ + Ø + Ø
	kúm-ūn-ḍ-ɔ̄n 'to cause to destroy something'
ANTIP COMP PAS	$[V]_{Root}$ + An_{ANTIP} + Ø + sA_{COMP} + $\underline{\bar{A}}n\underline{\acute{A}}_{PAS}$ + Ø
	kɔ́m-ɔ̄n-s = ānā́ 'something was destroyed'
COMP 3sN/2pA	$[V]_{Root}$ + Ø + Ø + sA_{COMP} + Ø + ɔ́ɔ̄ggɔ́$_{2pA}$ + Ø
	kɔ́m-s = ɔ́ɔ̄ggɔ́ 'he destroyed you'
COMP 3sN/2pA RDM	$[V]_{Root}$ + Ø + Ø + sA_{COMP} + Ø + ɔ́ɔ̄ggɔ́$_{2pA}$ + $É_{RDM}$
	kɔ́m-ḍ = ɔ́ɔ̄gg = é 'he who destroyed you'

Verb stem morphology (suffixes) is discussed in this chapter and verb word morphology (clitics) is discussed in the next. The majority of verb suffixes are inflectional morphemes, the exceptions being the antipassive and causative suffixes. The majority of verb clitics are derivational or clausal morphemes, the exceptions being the imperfect, and perfect clitics. Whereas some inflectional suffixes cannot combine with other inflectional suffixes (*COMP-CONT), nearly all clitics can combine with all inflectional suffixes.

As in nouns, a primary distinction between roots and stems in verbs is whether the bound morpheme attaches to underlying-final segments or to surface-final segments. Suffixes attaching to verb roots attach to underlying root-final segments, whereas clitics attaching to verb stems attach to surface-final segments.

In (4a), the past continuous suffix *-Á̲n* attaches to the underlying short vowel in *pā.-án* 'guard.3sN-CONT.P', whereas the third singular object clitic *=Ê* attaches to the surface long vowel of the incompletive form (*pāā. =ɛ̄*). In (4b-f), the object clitic attaches to the surface vowels of the incompletive forms rather than to the underlying plosives or approximants. However, in (b-c, e-f), the root-final segment can optionally surface as an approximant, just as when copular and definite clitics are attached to underlying approximant-final stems shown in (5) of 7.2.1 (*káɔ̀/ká.ɔ̀ =n, ká.w =àn* 'hyena=COP'; *ṭāɛ̀/ṭā.ɛ̀ =n, ṭā.y =àn* 'giraffe=COP'). The verb of (g) with root-final consonant is given for comparison.

(4) **Roots and stems compared**

	Underlying root UR	Surface root INF	Surface root-final INCP. 3sN	Verb stem suffix INCP.3sN -CONT.P	Verb word suffix INCP.3sN =3sA	
(a)	/pa/ M	pā-d̰ [pād̰˳˺]	pāā	pā.-án	pāā.=ɛ̄	‘guard’
(b)	/ab/ L	àb-b [àb̰˳˺]	àɔ̄	àw-án	àɔ̀.=ɛ̄, àw=ɛ̄	‘sit’
(c)	/kaɟ/ H	káɟ-ɟ [káɟ˳˺]	káé	káy-án	káé.=ɛ̄, káy=ɛ̄	‘bring’
(d)	/cig/ M	cīg-g [cīg˳˺]	cīī	cī.-ə́n	cīī.=ɪ̄	‘wear’
(e)	/ɲaw/ H	ɲáw-w [ɲáw]	ɲáɔ́	ɲáw-án	ɲáɔ́.=ɛ̄, ɲáw=ɛ̄	‘request’
(f)	/kɔy/ H	kɔ́y-y [kɔ́y]	kɔ́é	kɔ́y-án	kɔ́é.=ɛ̄, kɔ́y=ɛ̄	‘cook’
(g)	/ɲam/ M	ɲām-m [ɲām]	ɲām	ɲām-án	ɲām=ɛ̄	‘break’

Although no verb form is the same as the root for every verb, the infinitive form is the best representation of the root because it includes all underlying segments and tone. Most commonly, the infinitive form does not contain additional segments or tone other than the copied final consonant. There are seven attested tone melodies in verbs, although there are only two attested verbs with the melodies HM and ML (*bɛ́l* ‘name, call’, *lɛ́ɛ̄* ‘come, arrive’; *dɔ̄ɔ̀s* ‘stand’, *būɲd̰* ‘make big’).

(5) **Tonal contrasts in infinitive verb forms (see 9.2)**

	Root tone	INF	
(a)	H	fír-r	‘smell, pray’
(b)	M	cɔ̄r-r	‘help’
(c)	L	d̰ùr-r	‘bury’
(d)	HL	pə̂r-r	‘attach’
(e)	HM (rare)	bɛ̂l-l	‘name, call’
(f)	ML (rare)	dɔ̄ɔ̀s-s	‘stand’
(g)	MH	kə̋ð-ð	‘strike, ram’

Finite verb forms are inflected for subject person by tone added to the stem-final syllable. Regardless of the root tone, High tone is assigned to the stem-final syllable of third singular verbs; Low tone is assigned to the stem-final syllable of third plural verbs; and Mid tone is assigned to the stem-final syllable of first and second person forms. The fact that first and second person share the same tone might be seen as marking their shared property of being participants of the speech event.

(6) **Paradigm of completive verb *kɔ́m-sA* 'chop-COMP' with subject pronouns (see 9.5)**

á	kɔ́m-sɔ̄	1s	āgg	kɔ́m-sɔ̄	1p
ɔ́, ú =	kúm-sū	2s	ɔ̄gg, ūg =	kúm-sū	2p
ɛ̄	kɔ́m-sɔ́	3s	ɛ̄ggà	kɔ́m-sɔ̀	3p

Root tone replacement is used for antipassives, causatives, and verbal nouns. In antipassive forms, root tone melodies are replaced by other tone melodies: High changes to HM, Mid changes to MH, and Low changes to LH.

(7) **Antipassive suffix *-An* on third singular completive verbs (see 9.10.2)**

Root tone	3SN COMP	ANTIP tone	3SN ANTIP COMP	
H	fír-sɔ́	HM	fír-ɔ̄n-sɔ́	'smell'
M	cɔ̄r-sɔ́	MH	cɔ̄r-ɔ́n-sɔ́	'help'
L	ḍ̈ùr-sū	LH	ḍ̈ùr-ūn-sú	'bury'

In causative forms, root tone melodies are also replaced by other tone melodies, as shown in (8).

(8) **Third singular causative completive verbs (see 9.11.2)**

Root tone	3SN COMP	CAUS tone	3SN CAUS COMP	
H	fír-sɔ́	HM	f ̂ír-sɔ́	'smell'
M	cɔ̄r-sɔ́	HM	cûr-sú	'help'
L	ḍ̈ùr-sū	ML	ḍ̈ûr-sū	'bury'
MH	kɔ̋s-sɔ́	HM	kɔ̂s-sɔ́	'strike'

Finally, in verbal nouns, root tone melodies are replaced by other tone melodies, as shown in (9).

(9) **Verbal noun plural suffixes *-Agg, =gg* (see 10.10)**

Root tone	INF	VN tone	VN SG	VN PL	
H	pál-l	M	pāl	pāl-āgg, pāl = g	'cut'
L	f ɛ̀l-l	ML	f ɛ̂l	fɛ̄l-āgg, f ɛ̂l = g	'tell'
HL	pîr-r	ML	p̂ìr	pīr-ɔ̀gg, p̂ìr = g	'deceive'
HM	bɛ́l-l	M	bɛ̄l	bɛ̄l-āgg	'name'
MH	kɔ̋ð-ð	M	kɔ̄n	kɔ̄ð-ɔ̄gg	'strike'

As in nouns, the starting point for verb stem tone assignment is the root tone, whereas the starting point of verb word tone assignment is the stem tone. The rules {M1-11} are applied to all verb suffixes. However, one or more of these rules, the tone rules {M5-11} in particular, are not applied in some of the verb clitics.

The chart of (10) summarizes the criteria for determining which verb bound morphemes are suffixes and thus a part of the stem, and which verb bound morphemes are clitics and thus outside of the stem, but part of the word. The perfect *=r* and relative clause definite clitics are attested to attach to more than one word category, as shown in chapter 4. All clitics with the exception of the verbal noun clitics can attach to all inflectional suffixes. Many of the clitics are attested to attach to the surface-final segments of stems as will be verified in the various sections of chapter 10[32]. Finally, one or more rules {M1-11} are not applied to some of the verb clitics, as will be summarized in 10.1 and later shown in the various sections. Although the four criteria are not all valid for any one clitic, none of these criteria are valid for any of the suffixes. Thus, they each individually lend support of the clitics being a different kind of morpheme than the suffixes.

(10) **Criteria for determining verb clitics (stem morphemes) vs. suffixes (root morphemes)**

		Attaches to more than one word category	Attaches to inflectional morphemes	Attaches to surface-final segments	Certain tone rules are not applied	Analyzed as a clitic (word mor-pheme)
9.3	SBJV	no	no	no	no	no
9.4	IMP	no	no	no	no	no
9.5	COMP	no	no	no	no	no
9.7	CONT	no	no	no	no	no
9.9	D	no	no	no	no	no
9.10	ANTIP	no	no	no	no	no
9.11	CAUS	no	no	no	no	no
10.8	PF *-Car*	no	no	no	no	no
10.2	PAS.A	no	yes	yes	yes	yes
10.3	PAS	no	yes	yes	yes	yes
10.4	Object PRON	no	yes	yes	yes	yes
10.5	Dative PRON	no	yes	yes	yes	yes
10.6	IPF	no	yes	unknown	yes	yes
10.7	SBO1, SBO2	no	yes	unknown	yes	yes
10.8	PF *=Ar, =r*	yes	yes	unknown	unkwn.	yes
10.9	RDM	yes	yes	yes	unkwn.	yes
10.10	VN PL	no	no	yes	unkwn.	yes

[32] With further data, several other clitics in (10) may be attested to attach to surface-final segments.

Verb stem segmental morphology of the basic verb forms is presented in sections 9.2 through 9.7, followed by tonal morphology of these morphemes in 9.8. Afterwards, tone morphology follows segmental morphology for each morpheme. In stating the function of verb forms, genres in which the verb form frequently occurs are sometimes mentioned, although genre does not dictate which verb form is used.

9.2 Infinitive

Infinitives are the most common form used in foregrounded nuclear clauses of narratives, i.e. sequences of events. As such, they often encode actions that can be translated into English as past tense, such as in (11). Infinitives commonly occur following the infinitive verb *dɔ̄ɔ̀s* 'start' as in (11a), but can follow various other verb forms and can be the first verb of a clause or sentence.

(11a) ānēnḍá ɛ̄ **dɔ̄ɔ̀s-s** ɛ̄ **bàg-g** áŋɛ́=n
then 3pN start-INF 3pN grab-INF elephant=DEF
'Then they started to grab an elephant.' (Nyee8)

(b) mīī=n ɛ̄ **gʉ̀ɲ-ɲ** lɔ̂ŋ āl̤=á ɛ̄ **wā̰ɟ-ɟ** t̤ú
goat=DEF 3sN agree-INF then fox=DEF 3sN go-INF out
'The goat agreed and then the fox got out.' (Goat16-17)

As such, infinitives are used in finite sentences. As discussed in 9.3, subjunctive verbs are commonly used in typical non-finite contexts such as 'want to X'.

Infinitive forms differ from finite forms in that they do not change with subject person, either in tone or [ATR] quality. Also, the subject pronouns preceding an infinitive verb differ from those of other verb forms. Singular pronouns of such verbs all have Mid tone and plural pronouns have Low tone. Also, second person pronouns are not clitics prefixed to the infinitive verbs, evidenced by the fact that they do not take the [ATR] quality of the verb. Because of these differences with other verb forms which change according to the subject person, this form which does not change with the subject is analyzed as the infinitive.

(12) **Infinitive paradigms**

(a)	'fall'			(b)	'bury'		
	ā	wál-l	1sN		ā	ḍ̤ùr-r	1sN
	ɔ̄	wál-l	2sN		ɔ̄	ḍ̤ùr-r	2sN
	ɛ̄	wál-l	3sN		ɛ̄	ḍ̤ùr-r	3sN
	à(gg)	wál-l	1pN		à(gg)	ḍ̤ùr-r	1pN
	ɔ̀(gg)	wál-l	2pN		ɔ̀(gg)	ḍ̤ùr-r	2pN
	ɛ̀(gg)	wál-l	3pN		ɛ̀(gg)	ḍ̤ùr-r	3pN
	PRON	fall.INF			PRON	bury.INF	

Table 33: Infinitive suffix

All root-final consonants	-C

Infinitive verbs generally surface the same as the root. Since plosives and approximants are not weakened word-finally in accordance with {P1b} of 2.1.3, it is posited that a copied final consonant is added to the underlying-final segment which surfaces as a single segment. Roots with final *n* as in (13h) optionally surface without the final consonant and then with a lengthened vowel, in accordance with {P4} in 2.3.3. Vowel-final roots add the segment *-d̰* as in (o) or do not add any suffix as in (p). It is possible that the vowel-final verb of (o) used to have final *d̰* and that the vowel-final verb of (p) used to have final *n*, since these segments optionally surface in some forms of the verb as will be seen in following sections.

(13) **Infinitive verbs with various root-final segments**

	Root	INF	
(a)	/ab/ L	àb-b [àb̰ˀ]	'sit'
(b)	/kaɟ/ H	káɟ-ɟ [káɟ̰ˀ]	'bring'
(c)	/cig/ M	cīg-g [cīg̰ˀ]	'wear'
(d)	/cud̰/ M	cūd̰-d̰ [cūd̰̰ˀ]	'climb'
(e)	/lɔf/ L	lɔ̀f-f [lɔ̀f]	'do magic'
(f)	/las/ M	lās-s [lās]	'roll-up'
(g)	/ɲam/ M	ɲām-m [ɲām]	'break'
(h)	/gɔn/ L	gɔ̀n-n [gɔ̀n], gɔ̀ɔ̀	'grab'
(i)	/guŋ/ L	gùŋ-ŋ [gùŋ]	'agree'
(j)	/mal/ M	māl-l [māl]	'gather'
(k)	/wɛr/ M	wɛ̄r-r [wɛ̄r]	'watch'
(l)	/ɲaw/ H	ɲáw-w [ɲáɔ́]	'request'
(m)	/kɔy/ H	kɔ́y-y [kɔ́é]	'cook'
(n)	/fɛð/ H	fɛ́ð-ð [fɛ́ð]	'release'
(o)	/pa/ M	pā-d̰ [pād̰̰ˀ]	'guard'
(p)	/bɛɛ/ L	bɛ̀ɛ̀	'say'

9.3 Subjunctive

Subjunctive verb forms are used to introduce post-nuclear (subordinate) clauses which indicate the purpose of a nuclear (main) clause. These verbs are introduced by a subject pronoun or by the subjunctive particle *ā* 'to'. Subjunctives are common following imperative verbs such as in (14a). They may have a different subject than that of the previous verb, as seen in (c).

(14a) ɛ̄ bɛ̀ɛ̀ "lɛ́ɛ̄ **ā** **nám-d̰ā** ɲɛ́ɛ́rɛ̀mà=n!"
3pN said.INCP come.IMP SBJV eat-SBJV.1pN devil.name=DEF
'They said, "Let's eat the nyeerma!" ' (Nyee7)

(b) ɛ̄ wár kɔ̀lɛ̀ɛ̀ð **ā** **kɔ́m-ḍɔ́** ɟɔ̄g = ɔ́ = r
3sN took.INCP (sword) SBJV cut-SBJV.3sN people = DEF = EV
‘ . . taking a koleez sword to kill (hack up completely) the people.’
(Fand5)

(c) mīī = n á gàf-àn ɟɔ̄gg fāŋ = ân **ā** **nɔ́m-ḍ = ** îggə̀
goat = DEF 1sN give-CONT.N people old = DAT SBJV /nām/eat.3pN-SBJV = IPF
‘ . . (but) the goat I am giving to the old men to eat.’ (Jooj12)

Regardless of what grammatical verb form the subjunctive follows, it has the same segmental form. In (a) it follows a verb, in (b) an incompletive verb, and in (c) a continuous form.

Subjunctive verbs add the suffix *-ḍA* to the root, except in first and second singular person forms, where other suffixes can sometimes be added depending on the root-final segments. A subject pronoun with Mid tone introduces the subjunctive verb. Plural pronouns before such verbs do not have the plural marker *-gg*, and second person pronouns are optionally [+/- ATR] regardless of the [ATR] quality of the root vowel. The subjunctive particle *ā* is an optional alternative for introducing third person subjunctive verbs, as shown in (14b,c).

(15) **Subjunctive paradigms**

(a) ‘to run’

ā	gàl-(à)	1sN
ɔ̄, ū =	gə̀l-(ə)	2sN
ɛ̄, ā	gàl-ḍā	3sN
ā	gàl-ḍà	1pN
ɔ̄, ū =	gə̀l-ḍə̀	2pN
ɛ̄, ā	gāl-ḍà	3pN
PRON	run-SBJV	

(b) ‘to cut’

ā	rùm-(ù)	1sN
ɔ̄, ū =	rùm-(ù)	2sN
ɛ̄, ā	rùm-ḍū	3sN
ā	rùm-ḍù	1pN
ɔ̄, ū =	rùm-ḍù	2pN
ɛ̄, ā	rūm-ḍù	3pN
PRON	cut-SBJV	

First and second singular subjunctive verbs most commonly have the same segments as the root, but may take predictable suffixes according to the root-final segment, as shown in table 34, where segments in parentheses are optional. Other subjunctive forms take the suffix *-ḍA*, where A is a back vowel taking the [ATR] and [round]

Table 34: Subjunctive suffixes

	SBJV 1sN, 2sN	SBJV 3sN, 1pN, 2pN, 3pN
Root-final *b, ɟ, g*	-C(A)	-ḍA
Root-final w, y	-(n)(A)	-ḍA
Root-final vowel	-ḍ(A)	-ḍA
Other root-final segments	-(A)	-ḍA

features of the root.

In (16), first and third singular subjunctive forms with each of the root-final consonants are given. As in (i-k), first singular subjunctive verbs with root-final *b, ɟ, g* attach the suffix *-CA* where *C* has the same features as the root-final consonant. As in (f-g), first singular forms with root-final approximants *w* and *y* attach the suffix *-(n)(A)* and the underlying approximant surfaces as a vowel, as will be explained shortly. The suffix-initial *-n* is sometimes elided, and when this happens, the approximant remains a vowel. As in (o), first singular subjunctives with root-final vowel add the same suffix as in third singular subjunctives *-d̰(A)*, except that the vowel is optional, or add the suffix *-n(a)* as in (p). First singular subjunctives with other root-final segments optionally attach the suffix *-(A)*.

(16) **Subjunctive verb forms with various root-final segments**

	Root	SBJV 1sN	SBJV 3sN	
(a)	/cud̰/ M	cṵ̄d̰, cúd̰-ū	cúd̰-d̰ú [cúd̰ú]	‘climb’
(b)	/las/ M	lās, lás-ā	lád̰-d̰á [lád̰á]	‘roll-up’
(c)	/gɔn/ L	gɔ̀n, gɔ̀n-ɔ̀	gɔ̀d̰-d̰ɔ̄ [gɔ̀d̰ɔ̄]	‘grab’
(d)	/fɛð/ H	fɛ̄ð, fɛ́ð-ā	fɛ́d̰-d̰á [fɛ́d̰á]	‘release’
			fɛ́ð-ðá [fɛ́ðá]	‘release’
(e)	/wɛr/ M	wɛ̄r, wɛ́r-ā	wɛ́r-rá [wɛ́r:á], wɛ́r-d̰á	‘watch’
(f)	/ɲaw/ H	ɲáɔ̄-n(ɔ̄), ɲáɔ́.-ɔ̄	ɲáw-wá [ɲáwá], ɲáɔ́-d̰ɔ́	‘request’
(g)	/kɔy/ H	kɔ́ɛ̄-n(ɔ̄), kɔ́ɛ́.-ɔ̄	kɔ́ɛ́.-ɛ́, kɔ́ɛ́-d̰ɔ́	‘cook’
(h)	/ab/ L	àb-b, àb-bà [àbà]	àɔ̀-d̰ɔ̄	‘sit’
(i)	/kaɟ/ H	kā̀ɟ-ɟ, káɟ-ɟā [káɟā]	káɛ́-d̰á	‘bring’
(j)	/cig/ M	cī̀g-g, cíg-gə̄ [cígə̄]	cíg-d̰ɔ́	‘wear’
(k)	/lɔf/ L	lɔ̀f, lɔ̀f-ɔ̀	lɔ̀f-d̰ɔ̄	‘do magic’
(l)	/ɲam/ M	ɲā̀m, ɲám-ā	ɲám-d̰á	‘break’
(m)	/guŋ/ L	gṵ̀ŋ, gṵ̀ŋ-ù	gṵ̀ŋ-d̰ū	‘agree’
(n)	/mal/ M	mā̀l, mál-ā	mál-d̰á	‘gather’
(o)	/pa/ M	pā̀-d̰, pá-d̰ā	pá-d̰á	‘guard’
(p)	/bɛɛ/ L	bɛ̀ɛ̀-n, bɛ̀ɛ̀-nà	bɛ̀ɛ̀-d̰ā, bɛ̀ɛ̀-ā	‘say’

Third singular subjunctives have various alternations which are only attested in verb morphology. Those of (16a-d) undergo a coronal assimilation process. The root-final coronal consonants *d̰, s, n, ð* take on all the features of the suffix-initial coronal *d̰*. In 9.5, it will be seen how the same root-final segments assimilate to the initial *s* of the completive suffix *-sA*.

The third singular subjunctive forms of (16d-f) also undergo an assimilation process. The suffix-initial dental plosive assimilates to *ð, r*, and *w*. There are two forms for plural subjunctives with root-final *ð* as in (d): the root-final consonant either assimilates to the suffix consonant as in *fɛ́d̰-d̰ā* ‘release’, or the suffix consonant assimilates to the root-final consonant as in *fɛ́ð-ðā* ‘release’. In (g), the suffix-

initial plosive may also assimilate to the underlying approximant *y* (kɔ́y.-yá) which weakens to the vowel *ɛ* after the suffix vowel *a* is elided (kɔ́é.-é). This assimilation process to the root-final *ð, r*, and *w* does not always apply for every word with every speaker, but varies from word to word and from speaker to speaker.

Rule {P1b} in section 2.1.3 states that /b/, /ɟ/, /w/, /y/ are weakened word-finally to vowels with the same [ATR] quality as the preceding vowel. The same weakening process occurs syllable-finally before a consonant-initial suffix, provided that the underlying root-final consonant is not the same as the suffix-initial consonant. In the third singular subjunctive forms of (f-i), *b* becomes *ɔ* (*àɔ̀-ḍɔ̀* 'sit'), *ɟ* becomes *ɛ* (*káɛ́-ḍā* 'bring'), *w* becomes *ɔ* (*ɲáɔ́-ḍɔ́* 'request'), and *y* becomes *ɛ* (*kɔ́ɛ́-ḍɔ́* 'cook') before the consonant-initial suffix *-ḍA*. The [+round] feature spread to the suffix vowel as in *ɲáɔ́-ḍɔ́* 'request' is further support of the root-final segment weakening to a vowel. Similarly, in the first singular forms of (f-g), *w* becomes *ɔ* (*ɲáɔ́-nɔ́* 'request'), and *y* becomes *ɛ* (*kɔ́ɛ́-nɔ́* 'cook') before the consonant-initial suffix *-n(A)*. However, *b,ɟ* do not become *ɔ,ɛ* in the first singular forms *àb-bà* 'sit', *káɟ-ɟā* 'bring' of (h-i), and *w* does not become *ɔ* in the third singular form *ɲáw-wā* 'request' of (f), since the suffix-initial consonant has become the same as the underlying root-final consonant.

9.4 Imperative

The singular imperative is used for commanding one person as shown in (17a-b), whereas the imperative plural is used for commanding more than one person as shown in the second imperative of (c). Imperative forms may occur with a second person subject pronoun as in (b) or without as in (a, c).

(17) **Imperative examples**

(a)	haʃim,	**kɔ́r-ɔ́**	kɔ̄r-ɛ̄ɛ̄gg	cúgg				
	Hashim	/kɔr/say-IMP	word-PL	nice.PL				
	'Hashim, speak nice words!'							
(b)	"sàlàḍ = ā",	ɛ̄	bɛ̀ɛ̀,	"**ū = wɔ́r**	ūūŋ	cābb	ánɛ̄ɛ́n"	
	Hyena = DEF	3sN	say.INF	2sN = /wár/carry.IMP	2sR	up	like.this	
	' "Hyena", he said, "Make yourself upright . . " '(Nyee32)							
(c)	**bìì**	**fīŋɔ́ḍ-ḍə̄**	kɔ̄r	ɔ́ɔ̀n	níí	mà	mâŋ	
	let.IMP	/fīŋɔ́n/hear-IMP.PL	word	1sPs	this	very	carefully	
	'Please hear what I have to say!' (Womn3)							

Singular imperative forms generally have the same segmental form as the root, although a handful of imperative verbs attach suffixes, and some root-final segments are weakened when suffixes are not attached. Imperative plural forms take the

suffix - *d̪A*$^+$, where A^+ is underlyingly specified as [+ATR] and spreads the quality leftward to the root.

Table 35: Imperative suffixes

	IMP	IMP PL
Root-final w, y	-n	-d̪A$^+$
Other root-final segments	-Ø	-d̪A$^+$

Both imperative forms with various root-final consonants are shown in (18). Singular imperatives with root-final *n* as in (c) optionally elide the final segment. Imperatives with root-final *w* and *y* optionally attach the suffix *-n* as in (f-g) which causes the root-final approximants to surface as vowels. Without the suffix, root-final approximants, as well as root-final plosives (h-j), are weakened to vowels or elided, in accordance with {P1b}. In imperative forms with root-final vowel, elided *n*, or elided *g* such as in (c, j, o), the root vowel is lengthened, in accordance with {P4}. Some imperatives with root-final vowel as in (p) add the suffix *-na*.

(18) **Imperative verb forms with various root-final segments**

	Root	IMP	IMP PL	
(a)	/cud̪/ M	cūd̪-ú	cúd̪-d̪ū [cúd̪ū]	'climb'
(b)	/las/ M	lās	lə́d̪-d̪ə̄ [lə́d̪ə̄]	'roll-up'
(c)	/gɔn/ L	gɔ̀n, gɔ̀ɔ̀	gùd̪-d̪ù [gùd̪ù]	'grab'
(d)	/fɛð/ H	fɛ́ð	fíd̪-d̪ə̄ [fíd̪ə̄]	'release'
(d)			fíð-ðə̄ [fíðə̄]	'release'
(e)	/wɛr/ M	wɛ̄r	wír-rə̄ [wír:ə̄], wír-d̪ə̄	'watch'
(f)	/ɲaw/ H	ɲáɔ́, ɲáɔ́-n	ɲə́ú.-ū, ɲə́ú-d̪ū	'request'
(g)	/kɔy/ H	kɔ́ɛ́, kɔ́ɛ́-n	kúí-ū, kúí-d̪ū	'cook'
(h)	/ab/ L	àɔ̀	ə̀ù-d̪ù	'sit'
(i)	/kaɟ/ H	káɛ́	kə́í-d̪ə̄	'bring'
(j)	/cig/ M	cīī	cíg-d̪ə̄	'wear'
(k)	/lɔf/ L	lɔ̀f	lùù-d̪ù	'do magic'
(l)	/ɲam/ M	ɲām	ɲə́m-d̪ə̄	'break'
(m)	/guɲ/ L	gùɲ-ū	gùɲ-d̪ù	'agree'
(n)	/mal/ M	māl	mə́l-d̪ə̄	'gather'
(o)	/pa/ M	pāā	pə́-d̪ə̄	'guard'
(p)	/bɛɛ/ L	bɛ̀ɛ̀-nā	bìì-d̪ə̀	'say'

The plural imperative forms mostly have the same consonant alternations as plural subjunctive forms. In the plural imperatives of (18a-d) the root-final coronal consonants *d̪, s, n, ð* assimilate to the suffix-initial *d̪*. In (d-e), the suffix-initial *d̪* assimilates to root-final *ð* and r. Possibly in (f-g), the suffix-initial *d̪* also assimilates to the root-final *w* and *y*, which then become vowels. In (f-i), the approximants *w, y* and plosives *b, ɟ* are weakened syllable-finally to vowels with the

same [ATR] quality as the preceding vowel. Similarly, the root-final *f* of (k) is also weakened syllable-finally to *u*.

A handful of singular imperatives with root-final *ḍ, s, ɲ, n, l, r, ɟ* attach the suffix *-A* such as in (18a, m). The vast majority of imperatives with these root-final segments do not attach the suffix but *dáàn-a* 'push', *dɔ̄ɔ̀s-ɔ̄* 'stand, begin', *bɛ̄l-á* 'possess', and *sír-ɔ̄* 'make smooth' are some that do attach the suffix.

9.5 Completive

The completive verb form is used to describe actions that are finished. In 9.6, we discuss how incompletive forms are used for actions that are not finished. These forms should not be confused with the perfect and imperfect forms of 10.6 and 10.8 which indicate that an action remains or does not remain in the present or future. In (19), these forms are compared.

(19) **Completive and incompletive compared with perfective and imperfective**

(a)	COMP	ɛ̄	cúr-**sú**	ʈɔ́ɔ́n	'He tied the cow.' (action is finished)
(b)	INCP	ɛ̄	cúr	ʈɔ́ɔ́n	'He ties the cow.' (action is still happening or will still happen)
(c)	INCP PF	ɛ̄	cúr = **rər**	ʈɔ́ɔ́n	'He ties the cow.' (it will not need to be tied again)
(d)	INCP IPF	ɛ̄	cúr-**í**	ʈɔ́ɔ́n	'He ties the cow.' (it will later need to be tied again)

In that the completive action is claimed to be already finished, the completive suffix is a marker for certainty. As such, it is more commonly used in foregrounded nuclear clauses of non-fictional narratives as in (a) than in foregrounded clauses of fictional narratives. As shown in (b), it is also commonly used in tail-head linkage points of departure which link old information of a previous clause with a new nuclear clause.

(20) **Completive examples**

(a) ɟāfàrì = n é mánɛ̄ ɟɔ̄ **ḍàɔ̀-sɔ̄** càɔ̀r-ɛ̄ɛ̄gg = á yə̄ə̄sə́
Jafari = DEF alone just /ḍàf/kill-COMP rabbits-PL = DEF four
'Jafari, by himself, killed four rabbits.' (Jafr7)

(b) ɛ́ gārá ɛ̄ **wīr-s** = ǐ ɔ́gg ḍūmùùn ʈàw = ɛ̄ɛ̄ = n
GP when 3SN /wɛ̄r/notice-COMP = SBO1 place towards up = SBO = DEF
'When he looked up, . . ' (Goat7)

Table 36: Completive suffix

All root-final segments	-sA

A completive paradigm is shown in (21). Second person subject pronouns are optionally [+/- ATR] regardless of the [ATR] quality of the root vowel.

(21) **Completive paradigms**

(a) 'bought the food'

á	màr-sà	nāms = á	1sN
ɔ́, ú =	mər-sə	nāms = á	2sN
ɛ̄	màr-sā	nāms = á	3sN
āgg	màr-sà	nāms = á	1pN
ɔ̄gg,			
ūg =	mər-sə	nāms = á	2pN
ɛ̄ggà	mār-sà	nāms = á	3pN
PRON	buy-COMP	food=DEF	

(b) 'buried the egg'

á	ḍùr-sù	kɔ́lɔ́ḍ = ɔ́	1sN
ɔ́, ú =	ḍùr-sù	kɔ́lɔ́ḍ = ɔ́	2sN
ɛ̄	ḍùr-sū	kɔ́lɔ́ḍ = ɔ́	3sN
āgg	ḍùr-sù	kɔ́lɔ́ḍ = ɔ́	1pN
ɔ̄gg,			
ūg =	ḍùr-sù	kɔ́lɔ́ḍ = ɔ́	2sN
ɛ̄ggà	ḍūr-sù	kɔ́lɔ́ḍ = ɔ́	3pN
PRON	bury-COMP	egg=DEF	

Completive forms are listed in (22) with various root-final consonants. In the forms of (a-c), root-final *ḍ, s, n* undergo assimilation to the suffix-initial *s*, just as they were shown to undergo assimilation to the subjunctive and imperative plural suffix-intial *ḍ* in 9.3-9.4. However, unlike in subjunctive and imperative plural forms, root-final *ð* in (d) is weakened to a vowel, just as root-final *w, y, b* in (e-g) are weakened to vowels in syllable-final position.

(22) **Completive verb forms with various root-final segments**

	Root	COMP 3SN	
(a)	/cuḍ/ M	cūs-sú	'climb'
(b)	/las/ M	lās-sá	'roll-up'
(c)	/gɔn/ L	gɔ̀s-sɔ̄	'grab'
(d)	/fɛð/ H	fɛ́é-sá	'release'
(e)	/ɲaw/ H	ɲáɔ́-sɔ́	'request'
(f)	/kɔy/ H	kɔ́é-sɔ́	'cook'
(g)	/ab/ L	àɔ̀-sɔ̄	'sit'
(h)	/kaɟ/ H	káɟ-ɟá	'bring'
(i)	/mal/ M	māl-ḍá	'gather'
(j)	/wɛr/ M	wɛ̄r-sá	'watch'
(k)	/cig/ M	cīg-sə́	'wear'
(l)	/lɔf/ L	lɔ̀f-sɔ̄	'do magic'
(m)	/ɲam/ M	ɲām-sá	'break'
(n)	/guɲ/ L	gùɲ-sū	'agree'
(o)	/pa/ M	pā-sá	'guard'
(p)	/bɛɛ/ L	bɛ̀ɛ̀-sā	'say'

One assimilation process is unique to completive verb forms as seen in (22h-i). The suffix-initial *s* of the completive form becomes *ɟ* following root-final *ɟ* and becomes

ḍ following root-final *l*. Also, root-final *f* surfaces in most completive forms, however it weakens to *ɔ* in *gàɔ-sɔ* 'gave' and *ḍàɔ-sɔ* 'beat'.

9.6 Incompletive

Incompletive verb forms are used to describe actions that are ongoing, continuous, habitual, or otherwise not finished. They are common in direct speech. The examples of (23) illustrate some of the functions of incompletive verbs. In (a), the incompletive verb is used as habitual action, in (b) a stative verb (of an embedded complement clause), in (c) irrealis action, in (d) an interrogative (of a background clause in a historical narrative), and in (e) simultaneous tail-head linkage. Continuous incompletive forms, a subset of incompletive verbs, are discussed in the following section.

(23) **Incompletive examples**

(a) **kɔ́r** á kɔ̄r ná ə́n = í
speak.INCP 1sA word REL.SG bad = RDM
'She speaks to me rudely.' (Assa6)

(b) ɛ̄ gə̄ms-ɔ́ggə̄ mīī = n ɛ̄ **nāā** ɛ́ fɔ̄l
3sN /gə̆m/find-COMP.D goat = DEF 3sN /nāg/lay.INCP GP hole.GEN
'He discovered the goat down in the well.' (Goat10)

(c) ɛ̄ lā **gə̀f =** ì wá, ɛ̄ gə̀ù-s = î = r[33]
3sN UN /gàf/give.INCP = 3sAM not 3sN /gàf/give-COMP = IPF = PF
'He would not give it, since he had already given.' (Fand3)

(d) ú = **ɲíl** gàr = ā súùgg îlg ɛ́ gārá fɛ́ð-ắn = á ɟɛ̀gg = ā
2pN = know /ɲɛ́l/INCP place = DEF market in where placed /fɛ́ð/-CONT.P = PAS things = DEF
'Do you know the place in the market in Faaz where things are placed?' (Fan27)

(e) ɛ́ gārá ālḍ-á **ḍə̂n** = ï īīgg = í = n,
GP when fox /ḍə̂n/milk.INCP = SBO1 milk = SBO = DEF
'While fox was milking,

kúə̄ = n ɛ̄ māl-l fān tàɔ̀,
froth = DEF 3sN gather-INF on top
froth accumulated in the pan.' (Nyee22-23)

[33] As discussed in 10.8, when the perfect clitic attaches to a completive imperfect verb as in (23c), the meaning is distant past action.

Unlike completives, no suffix is attached to incompletive forms. Thus, incompletives generally have the same segmental form as the root, except that root-final segments weaken to vowels in accordance with {P1b}.

Table 37: Incompletive suffix

All root-final segments	-Ø

The incompletive paradigms of (24) can describe an ongoing action. Second person subject pronouns are optionally [+/- ATR] regardless of the [ATR] quality of the root vowel.

(24) **Incompletive paradigms**

(a)	'run'			(b)	'bury the egg'			
	á	kār	1sN		á	ḍ̈ùr	kɔ́lɔ́ḍ̈=ɔ́	1sN
	ɔ́, ú=	kər	2sN		ɔ́, ú=	ḍ̈ùr	kɔ́lɔ́ḍ̈=ɔ́	2sN
	ɛ̄	kār	3sN		ɛ̄	ḍ̈ùr	kɔ́lɔ́ḍ̈=ɔ́	3sN
	āgg	kār	1pN		āgg	ḍ̈ùr	kɔ́lɔ́ḍ̈=ɔ́	1pN
	ɔ̄gg, ūg=	kər	2pN		ɔ̄gg, ūg=	ḍ̈ùr	kɔ́lɔ́ḍ̈=ɔ́	2sN
	ɛ̄ggà	kàr	3pN		ɛ̄ggà	ḍ̈ûr	kɔ́lɔ́ḍ̈=ɔ́	3pN
	PRON	run.			PRON	bury.	egg=DEF	
		INCP				INCP		

Third singular incompletive verbs are listed in (25) according to root-final consonants, along with infinitive, first singular subjunctive, and singular imperatives for comparison. As in singular imperatives, root-final *b, ɟ, w, y* in incompletive forms of (a-b, l-m) are weakened to vowels {P1b} and *g* in (c) is elided word-finally {P2}. Incompletive forms with root-final *w* and *y*, optionally attach the suffix *-n*. In incompletive forms with root-final vowel or elided *g* such as in (c,o), the underlying short vowel is lengthened {P4}.

(25) **Incompletive verb forms with various root-final segments**

	Root	INF	SBJV 1sN	IMP	INCP 3sN	
(a)	/ab/ L	àb-b	àb-b	àɔ̀	àɔ̄	'sit'
(b)	/kaɟ/ H	káɟ-ɟ	kâɟ-ɟ	káɛ́	káɛ́	'bring'
(c)	/cig/ M	cīg-g	cîg-g	cīī	cīī	'wear'
(d)	/cuḍ̈/ M	cūḍ̈-ḍ̈	cûḍ̈	cūḍ̈-ú	cūḍ̈	'climb'
(e)	/lɔf/ L	lɔ̀f-f	lɔ̀f	lɔ̀f	lɔ̄f	'do magic'
(f)	/las/ M	lās-s	lâs	lās	lās	'roll-up'
(g)	/ŋam/ M	ŋām-m	ŋâm	ŋām	ŋām	'break'
(h)	/gɔn/ L	gɔ̀n-n, gɔ̀ɔ̀	gɔ̀n-(ɔ)	gɔ̀n, gɔ̀ɔ̀	gɔ̄n, gɔ̀ɔ̄	'grab'
(i)	/guŋ/ L	gùŋ-ŋ	gùŋ	gùŋ-ū	gǔŋ	'agree'
(j)	/mal/ M	māl-l	mâl	māl	māl	'gather'
(k)	/wɛr/ M	wɛ̄r-r	wɛ̂r	wɛ̄r	wɛ̄r	'watch'

	Root	INF	SBJV 1sN	IMP	INCP 3sN	
(l)	/ɲaw/ H	ɲáw-w	ɲáɔ̄-n	ɲáɔ́-(n)	ɲáɔ́-(n)	‘request’
(m)	/kɔy/ H	kɔ́y-y	kɔ́ɛ̄-n	kɔ́ɛ́-(n)	kɔ́ɛ́-(n)	‘cook’
(n)	/fɛð/ H	fɛ́ð-ð	f ɛ̋ð	fɛ́ð	fɛ́ð-(n)	‘release’
(o)	/pa/ M	pā-d̤	pā-d̤	pāā	pāā, pād̤	‘guard’
(p)	/bɛɛ/ L	bɛ̀ɛ̀	bɛ̀ɛ̀-n	bɛ̀ɛ̀-nā	bɛ̀ɛ̄-(n)	‘say’

Other incompletive forms with lengthened root vowel are shown in (26).

(26) **Incompletive verbs with lengthened vowels**

Root	INCP 3sN	
/nag/ M	nāā	‘sleep’
/bag/ L	bàā	‘take’
/cag/ H	cáá	‘bathe’
/ɟag/ M	ɟāā	‘mix’
/cig/ M	cīī	‘wear’
/cug/ H	cúú	‘send’
/gug/ L	gùū	‘vomit’

9.6.1 Incompletive as habitual

In Gaahmg, there is no form used exclusively for habitual actions. Rather, habitual actions are described using either the incompletive or continuous, the continuous form being the more common. For some verbs, such as ‘sleep’, there is more than one form possible to describe habitual action: *nāa* (incompletive) and *nāan* (continuous). For other verbs, the choice of incompletive or continuous form for habitual action is based on the semantics of the verb. More study is needed to determine semantic groupings that predict the correct habitual verb form.

Examples of incompletive verbs used for habitual action are given in (27) and examples of continuous verbs for habitual action will be given in 9.7.

(27) **Verbs using incompletive form for habitual action**

Root	INCP 3sN	
/nag/ M	nāā	‘sleep’
/gal/ L	gàl	‘run’
/kar/ M	kār	‘run’
/kɔr/ H	kór	‘speak’
/war/ H	wár	‘take’
/ab/ L	àɔ̄	‘sit’
/cur/ H	cúr	‘tie’

9.6.2 Incompletive as future

All verbs can use the incompletive form for future actions from the time of speaking. To refer explicitly to the future, tone is altered on the subject pronoun. There is no future marking on the verb itself; the incompletive future has the same segmental and tonal form as other incompletives.

Future incompletive paradigms are given in (28). In first and second person subject pronouns, Mid tone is assigned along with High tone on the final syllable, resulting in falling tone. In the third singular nominative pronoun, the Mid tone is changed to High. With third plural certain future verbs, the third singular nominative pronoun with High tone is also used, and the third plural subject pronoun optionally precedes it.

(28) **Future incompletive paradigms**

(a) 'will run'

ā	gàl	1sN	
ɔ̄,	ū = gə̀l	2sN	
ɛ́	gə̀l	3sN	
āggā	gàl	1pN	
ɔ̄ggɔ̄,	ūggū = gə̀l	2pN	
(ɛ̄ggà) ɛ́	gàl	3pN	
PRON	run.		
	INCP		

(b) 'will bury the egg'

ā	ḍ̈ùr	kólɔ́ḍ̈ = ɔ́	1sN	
ɔ̄,	ū = ḍ̈ùr	kólɔ́ḍ̈ = ɔ́	2sN	
ɛ́	ḍ̈ù̈r	kólɔ́ḍ̈ = ɔ́	3sN	
āggā	ḍ̈ùr	kólɔ́ḍ̈ = ɔ́	1pN	
ɔ̄ggɔ̄,	ūggū = ḍ̈ùr	kólɔ́ḍ̈ = ɔ́	2sN	
(ɛ̄ggà) ɛ́	ḍ̈ùr	kólɔ́ḍ̈ = ɔ́	3pN	
PRON	bury.	egg=DEF		
	INCP			

9.7 Continuous

Continuous verb forms are used for actions that are ongoing, or continue over time, and are not completed at the time of speaking. The past continuous form is used for ongoing actions at a reference point in the past, whereas the non-past continuous form is used for ongoing actions that are still continuing at the time of speaking. Although the incompletive form alone can imply that the action is ongoing, using the continuous non-past form makes the continuous action overt.

Continuous past verbs are commonly used in background clauses of narratives, as in (29a). Continuous non-past verbs are used in expository and hortatory texts, as in (b). Both are used in direct speech and conversations (c) and both are used habitually (b, d).

(29) **Continuous examples**

(a) bāárg = á **áð-á̰ n** àn-ân è ɟɔ̄gg gɔ̄ɔ̄r = ɛ̂

Baggara = DEF	coming-	staying-	with	people	Goor = ACM	
	CONT.P	CONT.P				

'The Baggara were coming with the people of Goor.' (Minj4)

(b) ṭâl é fáá-gg é fáá-gg; **āw-àn** é bùggɔ̄ŋ
create. GP line-PL GP line-PL /àb/sit- GP group.PL
INCP.3pN CONT.N.3p
'They create lines; they usually sit in groups.' (Tifa8-9)

(c) mīī=n á gàf-**àn** ɟɔ̄gg fāŋ=ān ā nɔ́m-ḍ=îggə̀
goat= 1sN give/- people old=DAT SBJV /nām/eat-
DEF CONT.N SBJV=IPF.3p
'The goat I am giving to the old men to eat.' (Jooj12)

(d) ú=ɲíl gàr=ā súùgg îlg é gārá **fɛ́ð-ān**=á ɟɛ̀gg=ā
2pN= place= market in where placed things=
know DEF DEF
/ɲɛ́l/INCP /fɛ́ð/-CONT.P=PAS
'Do you know the place in the market in Faaz where things were placed (down for selling)?' (Fan27)

Whereas the incompletive has no suffix, the continuous form attaches the suffix *-A̲n* to the root, where *A̲* is a back [-round] vowel. Continuous past and non-past forms differ only by different underlying tone on the suffix: H for non-past continuous and MH for past continuous.

Table 38: Incompletive suffix

	CONT.N	CONT.P
All root-final segments	-Án	-Ǎn

Continuous non-past paradigms are shown in (30). When the non-future set of subject pronouns, which are underlined in (30), is used with continuous non-past verbs, the continuous action has already begun. When the future set of pronouns is used with continuous non-past verbs, the continuous action will begin soon or in some cases has already begun. Second person subject pronouns are optionally

(30) **Continuous non-past paradigms**

(a) 'running'

á, ā	gàl-àn	1sN	
ɔ́, ɔ̄, ú, ū=	gəl-ən	2sN	
ɛ̄, ɛ́	gàl-ăn	3sN	
āggá, āggā	gàl-àn	1pN	
ɔ̄ggɔ́, ɔ̄ggɔ̄,			
ūggú, ūggū=	gəl-ən	2pN	
ɛ̄ggà	gāl-àn	3pN	
PRON	run. CONT.N		

(b) 'burying the egg'

á, ā	ḍùr-ən	kɔ́lɔ́ḍ=ɔ́	1sN	
ɔ́, ɔ̄, ú, ū=	ḍùr-ən	kɔ́lɔ́ḍ=ɔ́	2sN	
ɛ̄, ɛ́	ḍùr-ən	kɔ́lɔ́ḍ=ɔ́	3sN	
āggá, āggā	ḍùr-ən	kɔ́lɔ́ḍ=ɔ́	1pN	
ɔ̄ggɔ́, ɔ̄ggɔ̄,				
ūggú, ūggū=	ḍùr-ən	kɔ́lɔ́ḍ=ɔ́	2sN	
ɛ̄ggà	ḍūr-ən	kɔ́lɔ́ḍ=ɔ́	3pN	
PRON	bury. CONT.N	egg=DEF		

[+/- ATR] regardless of the [ATR] quality of the root vowel.

As shown in (31), continuous past forms are the same as continuous non-past forms except for tone. Both sets of subject pronouns (future and non-future) may precede continuous past forms, although there is no difference in meaning—both mean an action that continued before the time of the utterance.

(31) **Continuous past paradigms**

(a)	'was running'			(b)	'was burying the egg'			
	á, ā	gàl-ān	1sN		á, ā	ḍùr-ən	kɔ́lɔ́ḍ=ɔ	1sN
	ɔ́, ɔ, ú, ū=	gəl-ən	2sN		ɔ́, ɔ, ú, ū=	ḍùr-ən	kɔ́lɔ́ḍ=ɔ	2sN
	ɛ̄, ɛ́	gàl-án	3sN		ɛ̄, ɛ́	ḍùr-ən	kɔ́lɔ́ḍ=ɔ	3sN
	āggá, āggā	gàl-ān	1pN		āggá, āggā	ḍùr-ən	kɔ́lɔ́ḍ=ɔ	1pN
	ɔ̄ggɔ́, ɔ̄ggɔ̄,				ɔ̄ggɔ́, ɔ̄ggɔ̄,			
	ūggú, ūggū=	gəl-ən	2pN		ūggú, ūggū=	ḍùr-ən	kɔ́lɔ́ḍ=ɔ	2sN
	ɛ̄ggà	gàl-ān	3pN		ɛ̄ggà	ḍùr-ən	kɔ́lɔ́ḍ=ɔ	3pN
	PRON	run. CONT.N			PRON	bury. CONT.N	egg=DEF	

In (32), continuous past forms are shown with various root-final segments. In (a-b), root-final *b, ɟ* are weakened to approximants {P1a} and in (c), *g* is elided {P2}. The suffix is attached to vowel-final roots such as in (o), as a second syllable juxtaposed to the first, in accordance with {M2} in 3.1. In the continuous verb with root /*kɔ*/ 'call', the suffix vowel remains unrounded (*kɔ̄.-ān*). Continuous forms optionally attach the suffix *-CAn*[34], where C assimilates to the root-final consonant which then surfaces as a single unweakened segment. Forms with root-final *w, y*, ð as in (l-n) optionally attach the suffix *-nAn*. Some forms with root-final vowel such as in (p) also take this suffix.

(32) **Continuous past forms with various root-final segments**

	Root	CONT.P 3sN		
(a)	/ab/ L	àw-án	àb-bán [àbán]	'sit'
(b)	/kaɟ/ H	káy-án	káɟ-ɟán [káɟán]	'bring'
(c)	/cig/ M	cī.-ɔ́n	cīg-gɔ́n [cīgɔ́n]	'wear'
(d)	/cuḍ/ M	cūḍ-ún	cūḍ-ḍún [cūḍún]	'climb'
(e)	/lɔf/ L	lɔ̀f-án	lɔ̀f-fán [lɔ̀fán]	'do magic'
(f)	/las/ M	lās-án	lās-sán [lāsán]	'roll-up'
(g)	/ɲam/ M	ɲām-án	ɲām-mán [ɲāmán]	'break'
(h)	/gɔn/ L	gɔ̀n-án	gɔ̀n-nán [gɔ̀nán]	'grab'

[34] The continuous form with suffix *-CAn* could be a shorten form of the deictic continuous form with suffix *-(CAg)gAn* shown in (52) of 9.9, as the verbs in these forms are similar or identical.

	Root	CONT.P 3sN		
(i)	/gu̱ɲ/ L	gù̱ɲ-ə́n	gù̱ɲ-ɲə́n [gù̱ɲə́n]	‘agree’
(j)	/mal/ M	māl-án	māl-lán [mālán]	‘gather’
(k)	/wɛr/ M	wɛ̄r-án	wɛ̄r-rán [wɛ̄rán]	‘watch’
(l)	/ɲaw/ H	ɲáw-án	ɲáɔ́-nán	‘request’
(m)	/kɔy/ H	kɔ́y-án	kɔ́ɛ́-nán	‘cook’
(n)	/fɛð/ H	fɛ́ð-án	fɛ́ð-nán	‘release’
(o)	/pa/ M	pā.-án		‘guard’
(p)	/bɛɛ/ L		bɛ̀ɛ̀-nán	‘say’

As shown in (29b,d), continuous non-past and past can both be used for habitual actions. Some examples in non-past form are listed in (33).

(33) **Verbs using continuous non-past form for habitual action**

	Root	CONT.N 3sN			Root	CONT.N 3sN	
(a)	/d̰af/	d̰àf-ă̄n	‘beat’	(h)	/cig/	cī-ín	‘wear’
(b)	/gaf/	gàf-ă̄n	‘give’	(i)	/t̰if/	t̰īf-ə́n	‘tie’
(c)	/mag/	mā-án	‘drink’	(j)	/t̰ir/	t̰ír-ə́n	‘kill’
(d)	/fɛj/	fɛ́y-én	‘clean’	(k)	/cug/	cú-ún	‘send’
(e)	/nag/	nā-án	‘sleep’	(l)	/lɛg/	lɛ̄-én	‘come’
(f)	/ku/	kū-ún	‘build’	(m)	/bɛl/	bɛ́l-án	‘call’
(g)	/nag/	ná-án	‘read’	(n)	/mər/	mə́r-ə́n	‘sell’

9.8 Verb stem tone assignment

We now present the tone of all inflectional verb forms presented thus far, although not all in the same order as in previous sections. The verb stem suffixes discussed to this point have no underlying tone except for the past continuous suffix *-A̋n* with MH tone, the non-past continuous suffix *-Án* with High tone, and the imperative suffix *-Á* with High tone which attaches to a few imperative verbs.

Table 39: Verb stem suffixes

SBJV 1sN, 2sN	-CA, -d̰A
SBJV 3sN, 1pN, 2pN, 3pN	-d̰A
IMP	-Á
IMP.PL	-d̰$^{+}$A
COMP	-sA
CONT.P	-A̋n
CONT.N	-Án

In all finite verb forms, Mid tone is assigned to the stem-final syllable of first and second person forms, High tone is assigned to the stem-final syllable of third singular verbs, and Low tone is assigned to the stem-final syllable of third plural verbs. Thus, although many of the inflectional verb suffixes have no underlying

tone, tone is assigned to the suffixes according to these tonal inflections for subject person agreement.

Table 40: Subject person inflectional tone

	1sN	2sN	3sN	1pN	2pN	3pN
Root tone	+M	+M	+H	+M	+M	+L

9.8.1 Infinitive tone

Underlying tone surfaces unchanged in infinitive verbs, and such forms do not inflect for person by tone changes. The same seven tone melodies as in 9.1 are presented here for reference.

(34) **Tonal contrasts in infinitive verb forms**

	Root tone	INF	
(a)	H	fír-r	'smell, pray'
(b)	M	cɔ̄r-r	'help'
(c)	L	ḍùr-r	'bury'
(d)	HL	pə̂r-r	'attach'
(e)	HM	bɛ́l-l	'name, call'
(f)	ML	dɔ̄ɔ̀s-s	'stand'
(g)	MH	kə̌ð-ð	'strike, ram'

9.8.2 Completive tone

In (35), first singular, third singular, and third plural subject completive forms with various root tone melodies are compared. Mid tone assigned to the suffix in first singular forms becomes Low when following Low tone, as in (c,d,f). High tone assigned to the suffix in third singular forms becomes Mid when following Low tone in (c,d,f). These processes are in accordance with the tone lowering rule {M9} of 3.4.3. Low tone assigned to the suffix in third plural forms causes the root Low tone melody of (c) to be come Mid, in accordance with the raising rule {M8} of 3.4.2. In (e), the Mid tone of the HM root tone becomes Low in accordance with the lowering rule {M7} of 3.4.2.

(35) **Completive forms with various root tone melodies**

	Root tone	COMP 1SN	COMP 3sN	COMP 3pN	
(a)	H	fír-sə̄	fír-sə́	fír-sə̀	'smell'
(b)	M	cɔ̄r-sɔ̄	cɔ̄r-sɔ́	cɔ̄r-sɔ̀	'help'
(c)	L	ḍùr-sù	ḍùr-sū	ḍūr-sù	'bury'
(d)	HL	pə̂r-sə̀	pə̂r-sə̄	pə̂r-sə̀	'attach'
(e)	HM	bɛ́l-ḍā	bɛ́l-ḍá	bɛ̂l-ḍà	'name'
(f)	ML	dɔ̄ɔ̀s-sɔ̀	dɔ̄ɔ̀s-sɔ̄	dɔ̄ɔ̀s-sɔ̀	'stand'
(g)	MH	kə̌s-sə̄	kə̌s-sə́	kə̌s-sə̀	'strike'

9.8.3 Subjunctive tone

Subjunctive tone assignment as in (36) is the same as in completive forms except that roots with Mid tone melodies as in (b) are replaced by High tone for unknown reasons. Suffix Mid tone in first singular and second plural forms assimilates to root-final Low tone {M9}, as in (c,d,f). Suffix High tone in third singular forms becomes Mid when following Low tone {M9} in (c,d,f). Suffix Low tone in third plural forms causes the root Low tone of (c) to become Mid {M8}, and in (e) the Mid tone of the HM root tone becomes Low {M7}.

(36) **Subjunctive forms with various root tone melodies**

	Root tone	SBJV 1sN	SBJV 2pN	SBJV 3sN	SBJV 3pN	
(a)	H	fˆir	fír-rə̄	fír-rə́	fír-rə̀	‘smell’
(b)	M	cɔ̄r	cúr-rū	cɔ́r-rɔ́	cɔ́r-rɔ̀	‘help’
(c)	L	ḍùr	ḍùr-rù	ḍùr-rū	ḍūr-rù	‘bury’
(d)	HL	pə̂r	pə̂r-rə̀	pə̂r-rə̄	pə̂r-rə̀	‘attach’
(e)	HM	bɛ̂l	bîl-ḍə̄	bɛ̂l-ḍá	bɛ̂l-ḍà	‘name’
(f)	ML	dɔ̄ɔ̀s-ɔ̀	dūùḍ-ḍù	dɔ̄ɔ̀ḍ-ḍə̄	dɔ̄ɔ̀ḍ-ḍɔ̀	‘stand’
(g)	MH	kə̄̆ð	kə̄ḍ-ḍə̄	kə̄ḍ-ḍɔ́	kə̄ḍ-ḍə̀	‘strike’

9.8.4 Incompletive tone

Tone assignment for incompletive forms is mostly the same as for completive and subordinate forms. First singular Mid tone assimilates to root-final Low tone {M9}, as in (c,d,f). Third singular High tone becomes Mid when following Low tone {M9} in (c,f). Third plural Low tone causes the root Low tone melody of (c) to become Mid {M8}, and in (e) the Mid tone of the HM root tone becomes Low {M7}. For unknown reasons, final High tone in third singular forms with Mid root tone melody as in (b) does not surface. However, when a vowel-initial clitic with no underlying tone is attached such as the second person object pronoun *=O*, the clitic surfaces with High tone (*cɔ̄r=ɔ́ɔ́n*). When the third singular High tone is added to incompletive forms with HL root tone melody, the combination HLH tone surfaces as HMH tone in accordance with the combination rule {M10} in 3.4.4.

(37) **Incompletive forms with various root tone melodies**

	Root tone	INCP 1sN	INCP 3sN	INCP 3pN	
(a)	H	fˆir	fír	fˆîr	‘smell’
(b)	M	cɔ̄r	cɔ̄r	cɔ̂r	‘help’
(c)	L	ḍùr	ḍūr	ḍûr	‘bury’
(d)	HL	pə̂r	pə̄́r	pə̂r	‘attach’
(e)	HM	bɛ̂l	bɛ́̄l	bɛ̂l	‘name’
(f)	ML	dɔ̄ɔ̀s	dɔ̄ɔ̄̆s	dɔ̄ɔ̀s	‘stand’
(g)	MH	kə̄̆ð	kə̄ð	kə̄̀ð	‘strike’

9.8.5 Imperative tone

Tone assignment of the singular imperative is the same as the root tone, although when the suffix *-Á* is added to some singular imperatives, it has High tone which becomes Mid following preceding Low {M9}, as in (38f). Final Mid tone is assigned to imperative plural forms but assimilates to the preceding Low {M9} in (c,d,f). Like the subjunctive, in imperative plural forms with Mid root tone melodies as (b), the root tone is replaced by High tone.

(38) **Imperative forms with various root tone melodies**

	Root tone	IMP	IMP.PL	
(a)	H	fír-ə́	fír-rə̄	'smell'
(b)	M	cɔ̄r	cúr-rū	'help'
(c)	L	ḍ̈ùr	ḍ̈ùr-rù	'bury'
(d)	HL	pə̂r	pə̂r-rə̀	'attach'
(e)	HM	bɛ́l-á	bîl-ḍ̈ə̄	'name'
(f)	ML	dɔ̄ɔ̀s-ɔ̄	dūùḍ̈-ḍ̈ù	'stand'
(g)	MH	kə̌ð-ə́	kə̌ḍ̈-ḍ̈ə̄	'strike'

9.8.6 Continuous past tone

In tone assignment of continuous forms, some of the same rules as well as additional rules apply. Although a few rules account for tone assignment in nearly all continuous forms, when and how they apply is less predictable. In (39), the continuous past forms with various root tone melodies are shown together for comparison, but each of the three person forms are dealt with separately in following paragraphs in order to demonstrate the applications of all rules. When an object pronoun attaches to verbs with HL and ML root tone melodies as in (d,f), different tone results on the continuous past suffix than when there is no object pronoun.

(39) **Continuous past forms *-Án* (MH) with various root tone melodies**

	Root tone	CONT.P 1SN	CONT.P 3SN	CONT.P 3PN	
(a)	H	fír-ə̄́n	fír-ə̌n	fír-ə̀n	'smell'
(b)	M	cɔ̄r-ān	cɔ̄r-án	cɔ̄r-ân	'help'
(c)	L	ḍ̈ùr-ɔ̄n	ḍ̈ùr-ɔ́n	ḍ̈ùr-ɔ̂n	'bury'
(d)	HL	pə́r-ə̌n	pə́r-ə̌n	pə́r-ə̀n	'attach'
		pə́r-ə̌n=ī	pə́r-ə̌n=ī	pə́r-ə̌n=ì	'attach it'
(e)	HM	bél-ā̄́n	bél-ắn	bél-ā̀n	'name'
(f)	ML	dɔ̄ɔ̀s-ă̄n	dɔ̄ɔ̀s-ă̄n	dɔ̄ɔ̀s-ā̀n	'stand'
		bṵ̀ŋ-ḍ̈-ə̄n=ī	bṵ̀ŋ-ḍ̈-ə̄n=ī	bṵ̀ŋ-ḍ̈-ə̄n=ì	'make it big'
(g)	MH	kə̌ð-ə̄́n	kə̌ð-ə̌n	kə̌ð-ə̀n	'strike'

In the first singular continuous past forms of (40), the Mid tone morpheme is assigned to the end of the continuous suffix *-Án* (MH) to become *-Ā́n* (MHM). In

(c,d,f), the initial Mid tone of the suffix -*A̲n* assimilates to the preceding Low tone {M9} and unites with it. In (d,f), the resulting L-HM tone then becomes L-M {M9}, or in (d) when the third singular object clitic =*E* with no underlying tone is attached, the resulting HL-HM becomes H-MHM {M10}. In (f), when the third singular object clitic is attached, the underlying tone surfaces unchanged.

(40) **First singular past continuous -*A̲n* (MHM) with various root tone melodies**

	Root tone	Stem Tone Formation	Rule Applied	INF	CONT.P 1SN	
(a)	H	H-MHM>H-MHM		fír-r	fír-ə̄n	'smell'
(b)	M	M-MHM>M-HM		cɔ̄r-r	cɔ̄r-ān	'help'
(c)	L	L-MHM>L-HM	L-M>L-L	ḍùr-r	ḍùr-ən	'bury'
(d)	HL	HL-MHM>HL-HM >H-LM	L-M>L-L; L-H>L-M	pôr-r	pór-ən	'attach'
		HL-MHM>HL-HM >H-MHM	L-M>L-L; HLH>HMH		pór-ən=ī	'attach it'
(e)	HM	HM-MHM> H-MHM		bɛ́l-l	bél-ā̄n	'name'
(f)	ML	ML-MHM> ML-HM> ML-LM	L-M>L-L; L-H>L-M	dɔ̄ɔ̀s-s	dɔ̄ɔ̀s-ǎn	'stand'
		ML-MHM> ML-MHM		bǔŋ-ḍ	bǔŋ-ḍ-ən=ī	'make it big'
(g)	MH	MH-MHM> MH-MHM		kəðð-ð	kəðð-ə̄n	'strike'

In High-initial two tone root melodies such as (40d-e), the second tone of the melody surfaces on the suffix, delinked from the root. However, in other root melodies, the root tones remain assigned to the root. When three tones surface on the past continuous suffix such as in (a,e,g), High tone is lowered to 'half High' pitch, being one of three tones on a mid weight syllable, similar to tone of the accompaniment clitic =*Ê* described in 7.6.2.

In the third singular forms of (41), High tone is assigned to the end of the continuous suffix -*A̲n* (MH), which already has final High tone. In (c,d,f), the initial Mid tone of the suffix -*A̲n* assimilates to the preceding Low tone {M9}. In (d), the resulting H-LH becomes H-MH {M10} when the third singular object =*Ê* with HM tone is attached, and in (f), the underlying tone surfaces unchanged when the third singular object is attached.

(41) **First third past continuous *-Án* (MH) with various root tone melodies**

	Root tone	Stem Tone Formation	Rule Applied	INF	CONT.P 3sN	
(a)	H	H-MH>H-MH		fír-r	fír-ə̋n	‘smell’
(b)	M	M-MH>M-H		cɔ̄r-r	cɔ̄r-án	‘help’
(c)	L	L-MH>L-H	L-M>L-L	ḍ̈ùr-r	ḍ̈ùr-ə̋n	‘bury’
(d)	HL	HL-MH>H-LH	L-M>L-L	pə̂r-r	pə́r-ə̌n	‘attach’
		HL-MH>H-LH >H-MH	L-M>L-L; HLH>HMH	pə̂r-r	pə́r-ə̋n=ì	‘attach it’
(e)	HM	HM-MH>H-MH		bɛ́l-l	bɛ́l-ă̋n	‘name’
(f)	ML	ML-MH>ML-LH	L-M>L-L	dɔ̄ɔ̀s-s	dɔ̄ɔ̀s-ă̋n	‘stand’
		ML-MH>ML-MH		bṵ̀ŋ-ḍ̈	bṵ̀ŋ-ḍ̈-ə̋n=ì	‘make it big’
(g)	MH	MH-MH>MH-MH		kə̋ð-ð	kə̋ð-ə̋n	‘strike’

In the third plural forms of (42), Low tone is assigned to the end of the continuous suffix to become *-A̋̀n* (MHL). In (c,d,f), the initial Mid tone of the suffix *-A̋̀n* assimilates to the preceding Low {M9}. In (d), the resulting H-LHL tone becomes H-LML in accordance with the combination rule {M11} in 3.4.4, or the tone becomes H-MHL {M10} when the third singular object clitic *=E* with no underlying tone is attached. In (f), the LHL tone also becomes LML {M11}, or the underlying tone surfaces unchanged when the third singular object is attached.

(42) **Third plural past continuous *-A̋̀n* (MHL) with various root tone melodies**

	Root tone	Stem Tone Formation	Rule Applied	INF	CONT.P 3pN	
(a)	H	H-MHL>H-MHL		fír-r	fír-ə̋̀n	‘smell’
(b)	M	M-MHL>M-HL		cɔ̄r-r	cɔ̄r-ân	‘help’
(c)	L	L-MHL>L-HL	L-M > L-L	ḍ̈ùr-r	ḍ̈ùr-ə̂n	‘bury’
(d)	HL	HL-MHL>H-LHL >H-LML	L-M > L-L; LHL > LML	pə̂r-r	pə́r-ə̋̀n	‘attach’
		HL-MHL>H-LHL >H-MHL	L-M > L-L; HLH > HMH		pə́r-ə̋n=ì	‘attach it’
(e)	HM	HM-MHL> HM-MHL		bɛ́l-l	bɛ́l-ă̋̀n	‘name’
(f)	ML	ML-MHL> ML-LHL> ML-LML	L-M > L-L; LHL > LML	dɔ̄ɔ̀s-s	dɔ̄ɔ̀s-ă̋̀n	‘stand’
		ML-MHL> ML-MHL		bṵ̀ŋ-ḍ̈	bṵ̀ŋ-ḍ̈-ə̋n=ì	‘make it big’
(g)	MH	MH-MHL> MH-MHL		kə̋ð-ð	kə̋ð-ə̋̀n	‘strike’

9.8.7 Continuous non-past tone

In (43), continuous non-past forms with various root tone melodies are shown together for comparison, and each of the three person forms are dealt with separately in following paragraphs. In each of the three forms, a new assimilation rule is used: M-H>M-M, which states that High suffix tone assimilates to preceding Mid. However, the rule only applies in forms with HM root tone melodies as in (e) and not in forms with Mid root tone melody as in (b). Thus, the assimilation rule is more of an exception than a rule, and for this reason is not included in the morphophonological rules of chapter 3. Where it applies in the derivations to follow, it is marked with a diamond (◊) to distinguish it from the regular morphophonological rules.

(43) **Continuous non-past forms *-Án* (H) with various root tone melodies**

	Root tone	CONT.N 1SN	CONT.N 3SN	CONT.N 3PN	
(a)	H	fír-ən	fír-ón	fír-ən	'smell'
(b)	M	cɔ̄r-ān	cɔ̄r-án	cɔ̄r-ân	'help'
(c)	L	ḍùr-ən	ḍùr-ən	ḍūr-ən	'bury'
(d)	HL	pɔ́r-ən	pɔ́r-ən	pɔ́r-ən	'attach'
(e)	HM	bɛ́l-ān	bɛ́l-ān	bɛ́l-ān	'name'
(f)	ML	dɔ̄ɔ̀s-ān	dɔ̄ɔ̀s-ān	dɔ̄ɔ̀s-àn	'stand'
(g)	MH	kə̄ð-ən	kə̄ð-ón	kə̄ð-ən	'strike'

In the first singular continuous past forms of (44), the Mid tone morpheme is assigned to the end of the continuous suffix *-Án* (H) to become *-Ān* (HM). In (c,d,f), the initial High tone of the suffix *-Ān* becomes Mid {M9}. In (c,d), the resulting L-M tone then becomes L-L {M9}, where the same rule applies twice to the same verb forms. As mentioned, the initial High tone of the suffix assimilates to the preceding Mid tone of HM root tone melodies {◊} as in (e), but not to the root Mid tone of (b). As in continuous past forms, in (44d-e), the second tone of the root

(44) **First singular non-past continuous *-Ān* (HM) with various root tone melodies**

	Root tone	Stem Tone Formation	Rule Applied	INF	CONT.N 1SN	
(a)	H	H-HM>H-HM		fír-r	fír-ən	'smell'
(b)	M	M-HM>M-HM		cɔ̄r-r	cɔ̄r-ān	'help'
(c)	L	L-HM>L-M >L-L	L-H>L-M; L-M>L-L	ḍùr-r	ḍùr-ən	'bury'
(d)	HL	HL-HM>HL-M >H-L	L-H>L-M; L-M>L-L	pɔ̂r-r	pɔ́r-ən	'attach'
(e)	HM	HM-HM>H-M	M-H>M-M ◊	bɛ̂l-l	bɛ́l-ān	'name'
(f)	ML	ML-HM>ML-M	L-H>L-M	dɔ̄ɔ̀s-s	dɔ̄ɔ̀s-ān	'stand'
(g)	MH	MH-HM>MH-MH		kə̄ð-ð	kə̄ð-ən	'strike'

melody surfaces on the suffix and delinks from the root, but in (f-g), the root melody remains assigned to the root.

In the third singular forms of (45), High tone is assigned to the end of the continuous suffix *-Á̲n*, which already has High tone. In (c,d,f), the High tone of the suffix *-Á̲n* becomes Mid {M9}. For unknown reasons, the resulting L-M tone does not become L-L by a second application of {M9} as in the verbs of (44c,d). Again the initial High tone of the suffix assimilates to the preceding Mid tone {◊} in (e) but not in (b).

(45) **Third singular non-past continuous *-Á̲n* (H) with various root tone melodies**

	Root tone	Stem Tone Formation	Rule Applied	INF	CONT.N 3sN	
(a)	H	H-H>H-H		fír-r	fír-ón	'smell'
(b)	M	M-H>M-H		cɔ̄r-r	cɔ̄r-án	'help'
(c)	L	L-H>L-LM	L-H>L-M	d̰ùr-r	d̰ùr-ən	'bury'
(d)	HL	HL-H>H-LM	L-H>L-M	pə̂r-r	pə́r-ən	'attach'
(e)	HM	HM-H>H-M	M-H>M-M ◊	bɛ̋l-l	bɛ́l-ān	'name'
(f)	ML	ML-H>ML-M	L-H>L-M	dɔ̄ɔ̀s-s	dɔ̄ɔ̀s-ān	'stand'
(g)	MH	MH-H>MH-H		kə̋ð-ð	kə̋ð-ón	'strike'

In the third plural forms of (46), Low tone is assigned to the end of the continuous suffix *-Á̲n* to become *-Â̲n* (HL). In (c,d,f), the initial High tone of the suffix *-Â̲n* becomes Mid {M9}. In (d, f), Mid tone of the resulting HL-ML tone assimilates to the preceding Low {M9}, where the same rule applies twice to the same verb forms. In (c), the root Low tone is raised to Mid {M8}. The initial High tone of the suffix assimilates to the preceding Mid tone {◊} in (e) but not in (b).

(46) **Third plural non-past continuous *-Â̲n* (HL) with various root tone melodies**

	Root tone	Stem Tone Formation	Rule Applied	INF	CONT.N 3pN	
(a)	H	H-HL>H-HL		fír-r	fír-ôn	'smell'
(b)	M	M-HL>M-HL		cɔ̄r-r	cɔ̄r-ân	'help'
(c)	L	L-HL>L-ML >M-ML	L-H>L-M; L-L>M-L	d̰ùr-r	d̰ūr-ən	'bury'
(d)	HL	HL-HL>HL-ML >H-L	L-H>L-M; L-M>L-L	pə̂r-r	pə́r-ən	'attach'
(e)	HM	HM-HL>H-ML	M-H>M-M ◊	bɛ̋l-l	bɛ́l-àn	'name'
(f)	ML	ML-HL>ML-ML >ML-L	L-M>L-L L-M>L-L	dɔ̄ɔ̀s-s	dɔ̄ɔ̀s-àn	'stand'
(g)	MH	MH-HL>MH-HL		kə̋ð-ð	kə̋ð-ən	'strike'

9.9 Deictic

Direction and distance can be indicated morphologically in the verb by a deictic suffix. The suffix indicates that the action happens at a distance from the speaker, or the action happens towards the speaker. The meaning is '(Subject) will go and do X' or '(Subject) comes while doing X'. In (47a-b), a comparison is given between the common incompletive and the deictic incompletive, and in (c-d) between the imperative and deictic imperative.

(47) **Incompletive with and without deictic**

(a)	ā kɔ́m gùlḍū	'I will chop.INCP a tree.'
(b)	ā kɔ́m-**gɔ̄n** gùlḍū	'I will chop-INCP.D a tree. (I will go far and chop a tree.)'
(c)	wár fɛ̄gg bíīgg ɛ̄ ḍɔ̀ɔ̀nɛ̄	'Take water some there with you.'
(d)	wár-**rággā** fɛ̄gg bíīgg ɛ̄ ḍɔ̀ɔ̀nɛ̄	'Take-IMP.D water some there with you. (Bring some water with you.)'

(48) lə̂ŋ ɛ̄ mā-**ḍággā** fɛ̄gg = á bɛ̄ðér-r
until 3sN drank-COMP.D water = DEF satisfied-INF
'He went and drank until he was satisfied.' (Goat12-13)

Table 41 lists the suffixes for various deictic verb forms. Segments in parentheses are optionally elided in verbs with most root-final segments.

Table 41: Deictic suffixes

COMP.D	CONT.P.D	CONT.N.D	IMP.D	IMP.PL.D
-CÁggĀ	-(CAAg)gAn	-(CAg)gAn	-(CÁg)gĀ	-ḍúū

Like the infinitive, the deictic completive suffix *-CÁggĀ* does not change according to person forms of the verb. Second person forms with this suffix do not become [+ATR] as they do in finite verb forms, and there is no person inflection with tone changes. However, the continuous past deictic, continuous non-past deictic and

(49) **Completive and past continuous distance paradigms**

(a) 'drink'

	COMP	COMP.D
ā	mā-sā	mā-ḍággā
ɔ̄	mɔ̄-sɔ̄	mā-ḍággā
ɛ̄	mā-sá	mā-ḍággā
àgg	mā-sā	mā-ḍággā
ɔ̀gg	mɔ̄-sɔ̄	mā-ḍággā
ègg	mā-sà	mā-ḍággā

(b) 'chop'

	CONT.P	CONT.P.D	
á	kɔ́m-ā̄n	kɔ́m-māággân	1sN
ɔ́, ú =	kúm-ɔ̄́n	kúm-mɔ̄ɔ́ggɔ̄n	2sN
ɛ̄	kɔ́m-ān	kɔ́m-māággán	3sN
āgg	kɔ́m-ā̄n	kɔ́m-māággân	1pN
ɔ́gg, ūgg =	kúm-ɔ̄́n	kúm-mɔ̄ɔ́ggɔ̄n	2pN
ēggà	kɔ́m-ā̀n	kɔ́m-māággân	3pN

imperative deictic verbs do change according to person forms of the verb.

(50) **Continuous non-past distance paradigm 'chop'**

	CONT.N	CONT.N.D	
ā	kɔ́m-ān	kɔ́m-gɔ̄n	1sN
ɔ̄, ū=	kúm-ɔ̄n	kúm-gū̄n	2sN
ɛ́	kɔ́m-án	kɔ́m-gɔ́n	3sN
āggā	kɔ́m-ān	kɔ́m-gɔ̄n	1pN
ɔ̄ggɔ̄, ūggū=	kúm-ɔ̄n	kúm-gū̄n	2pN
ɛ̄ggà	kɔ́m-ân	kɔ́m-gɔ̄n	3pN

(51) **Imperative distance verbs**

IMP	IMP.D	IMP.PL	IMP.PL.D	
kɔ́m	kɔ́m-gɔ̄	kúm-dū	kúm-ḍ-úū	'chop'
māā	mā-ḍággā	mɔ́-ḍɔ̄	mɔ̄-ḍ-úū	'drink'

In (52), third singular forms are shown with the deictic completive suffix *-CÁggĀ* and deictic continuous non-past suffix *-(CAg)gAn* attached to verb roots with various final segments. The continuous forms are optionally shortened in verbs with many root-final segments. The initial consonant of the suffixes takes on all the features of the root-final consonant and becomes *ḍ*, *n*, or does not surface when attached to vowel-final roots. Geminate segments surface as single segments.

(52) **Third singular deictic completive *-CÁggĀ* and continuous non-past *-C(Ag)gAn* verbs**

		COMP.D 3SN	CONT.N.D 3SN		
(a)	/ab/ L	àb-bāggā	àb-bāggán	àb-gán	'sit'
(b)	/kaɟ/ H	káɟ-ɟággā	káɟ-ɟággán	káɟ-ɟán	'bring'
(c)	/cig/ M	cīg-gɔ́ggɔ̄	cīg-gɔ́ggɔ́n	cīg-gɔ́n	'wear'
(d)	/cuḍ/ M	cūḍ-ḍúggū	cūḍ-ḍúggún	cūḍ-ḍún	'climb'
(e)	/lɔf/ L	lɔ̀f-fɔ̄ggɔ̄	lɔ̀f-fɔ̄ggɔ́n	lɔ̀f-gɔ́n	'do magic'
(f)	/las/ M	lās-sággā	lās-sággán		'roll-up'
(g)	/ɲam/ M	ɲām-mággā	ɲām-mággán	ɲām-gán	'break'
(h)	/gɔn/ L	gɔ̀n-nɔ̄ggɔ̄	gɔ̀n-nɔ̄ggɔ́n	gɔ̀n-gɔ́n	'grab'
(i)	/guŋ/ L	gùŋ-ɲūggū	gùŋ-ɲūggún	gùŋ-gún	'agree'
(j)	/mal/ M	māl-lággá	māl-lággán	māl-gán	'gather'
(k)	/wɛr/ M	wɛ̄r-rággá	wɛ̄r-rággán	wɛ̄r-gán	'watch'
(l)	/ɲaw/ H	ɲáw-wággā	ɲáw-wággán		'request'
(m)	/kɔy/ H	kɔ́y-yɔ́ggɔ̄	kɔ́y-yággán		'cook'
(n)	/fɛð/ H	fɛ́ð-ðággā	fɛ́ð-ðággán		'release'
(o)	/pa/ M	pā-ḍággā	pā-ḍággán	pā-ḍán	'guard'
(p)	/bɛɛ/ L	bɛ̀ɛ̀.-(n)āggā	bɛ̀ɛ̀.-(n)āggán		'say'

In (53), the deictic completive suffix *-CÁggĀ* with underlying HM tone and the deictic continuous non-past suffix *-CÁggÁn* with H tone is attached to verb roots with various tone melodies. Completive and continuous forms are shown for comparison. Suffix-initial High tone becomes Mid following Low {M9} in (c,d,f).

(53) **Third singular deictic completive *-CÁggĀ* and continuous non-past *-(Ág)gÁn* verb forms**

	Root tone	COMP 3sN	COMP.D 3sN	CONT.N 3sN	CONT.N.D 3sN	
(a)	H	fír-sə́	fír-ə́ggə̄	fír-əń	fír-(ə́g)gə́n	‘smell’
(b)	M	cɔ̄r-sɔ́	cɔ̄r-ɔ́ggɔ̄	cɔ̄r-án	cɔ̄r-(ɔ́g)gɔ́n	‘help’
(c)	L	ḍùr-sū	ḍùr-ūggū	ḍùr-ðn	ḍùr-(ūg)gún	‘bury’
(d)	HL	pə̂r-sə̄	pə̂r-ə̄ggə̄	pə́r-ðn	pə̂r-(ə̄g)gə́n	‘attach’
(e)	HM	bɛ̂l-ḍá	bɛ̂l-ággā	bɛ́l-ān	bɛ̂l-(ág)gán	‘name’
(f)	ML	dɔ̄ɔ̀s-sɔ̄	dɔ̄ɔ̀s-ɔ̄ggɔ̄	dɔ̄ɔ̀s-ān	dɔ̄ɔ̀s-(ɔ̄g)gɔ́n	‘make-big’
(g)	MH	kə̋s-sə́	kə̋ð-ə́ggə̄	kə̋ð-əń	kə̋ð-(ə́g)gə́n	‘strike’

Deictic imperative plural forms with suffix *-úū* with HM tone have similar tone assignment.

(54) **Deictic imperative plural *-úū* verb forms**

	Root tone	IMP.PL	IMP.PL.D	
(a)	H	fír-rə̄	fír-r-úū	‘smell’
(b)	M	cúr-rū	cūr-r-úū	‘help’
(c)	L	ḍùr-rù	ḍùr-r-ūū	‘bury’
(d)	HL	pə̂r-rə̄	pə̂r-r-ūū	‘attach’
(e)	HM	bɛ̂l-ḍə̄	bɛ̂l-ḍ-úū	‘name’
(f)	ML	dūùḍ-ḍù	dūùḍ-ḍ-ūū	‘make-big’
(g)	MH	kə̋ḍ-ḍə̄	kə̋ḍ-ḍ-úū	‘strike’

9.10 Antipassive verb forms

When a speaker uses a transitive verb and wants to indicate that an implied object is unknown or is intentionally not mentioned, he or she does so by attaching the antipassive suffix *-An* to the verb root. In (55a), the simple completive verb *ɲām-sá* ‘break’ is contrasted with the antipassive completive *ɲām-án-sá* in (b). For further examples, see 14.5.4 on verbal valency of transitive verbs.

(55a)	kāsá = n	ɲām-sá	gùlḍū	(b)	kāsá = n	ɲām-**án**-sá
	boy = DEF	/ɲam/break-COMP	branch		boy=DEF	/ɲam/break-ANTIP-COMP
	‘The boy broke a branch.’				‘The boy broke something.’	

9.10.1 Antipassive segmental morphology

The antipassive suffix *-An* attaches to the verb root before inflectional suffixes are added.

Table 42: Antipassive suffixes

Incompletive	-**An**
Subjunctive	-**An**, -**An**-ḍA
Completive	-**An**-sA
Continuous non-past	-**An**-An

In (56-57), antipassive paradigms are compared with non-antipassive verb paradigms.

(56) **Antipassive completive and incompletive paradigms 'break'**

(a)

	COMP	ANTIP COMP
á	ŋām-sā	ŋām-án-sā
ɔ́, ú=	ŋəm-sə	ŋəm-ən-sə
ɛ̄	ŋām-sá	ŋām-án-sá
āgg	ŋām-sā	ŋām-án-sā
ɔ̄gg, ūgg=	ŋəm-sə	ŋəm-ən-sə
ɛ̄ggà	ŋām-sà	ŋām-án-sà

(b)

	INCP	ANTIP INCP	
ā	ŋām	ŋāām-án	1sN
ɔ̄, ū=	ŋəm	ŋəəm-ən	2sN
ɛ́	ŋām	ŋāām-án	3sN
āggá	ŋām	ŋāām-án	1pN
ɔ̄ggɔ́, ūggú=	ŋəm	ŋəəm-ən	2pN
ɛ̄ggà	ŋàm	ŋāām-ân	3pN

(57) **Antipassive subjunctive and continuous non-past paradigms**

(a) 'break'

	SBJV	ANTIP SBJV
ā	ŋám	ŋāām-án
ɔ̄, ū=	ŋəm	ŋəəm-ən
ɛ̄	ŋám-ḍá	ŋāām-án-ḍá
ā	ŋám-ḍā	ŋāām-án-ḍā
ɔ̄, ū=	ŋəm-ḍə	ŋəəm-ən-ḍə
ɛ̄	ŋám-ḍà	ŋāām-án-ḍà

(b) 'work'

	CONT.N	ANTIP CONT.N	
ā	káám-àn	káám-àn-ān	1sN
ɔ̄, ū=	kəəm-ən	kəəm-ən-ən	2sN
ɛ́	káám-ǎn	káám-àn-ān	3sN
āggá	káám-àn	káám-àn-ān	1pN
ɔ̄ggɔ́, ūggú=	kəəm-ən	kəəm-ən-ən	2pN
ɛ̄ggà	káám-àn	káám-àn-àn	3pN

In (58), third singular completive forms and third singular antipassive completive forms with suffix *-An-sA* are shown with various root-final segments. As in continuous forms, root-final *b, ɟ* are intervocalically weakened to approximants {P1a} and *g* is elided {P2} in (a-c). The antipassive and completive suffix takes the round feature of the root.

(58) **Antipassive completive *-An-sA***

	Root	COMP 3sN	ANTIP COMP 3sN	
(a)	/ab/ L	àɔ̀-sɔ̄	àw-ān-sá	‘sit’
(b)	/kaɟ/ H	káɟ-ɟá	káy-ān-sá	‘bring’
(c)	/cig/ M	cīg-sɔ́	cī.-ɔ́n-sɔ́	‘wear’
(d)	/cuḍ/ M	cūs-sú	cūḍ-ún-sú	‘climb’
(e)	/lɔf/ L	lɔ̀f-sɔ̄	lɔ̀f-ɔ̄n-sɔ́	‘do magic’
(f)	/las/ M	lās-sá	lās-án-sá	‘roll-up’
(g)	/ɲam/ M	ɲām-sá	ɲām-án-sá	‘break’
(h)	/gɔn/ L	gɔ̀s-sɔ̄	gɔ̀n-ɔ̄n-sɔ́	‘grab’
(i)	/guŋ/ L	gùŋ-sū	gùŋ-ūn-sú	‘agree’
(j)	/mal/ M	māl-ḍá	māl-án-sá	‘gather’
(k)	/wɛr/ M	wɛ̄r-sá	wɛ̄r-án-sá	‘watch’
(l)	/ɲaw/ H	ɲáɔ́-sɔ́	ɲáw-ān-sá	‘request’
(m)	/kɔy/ H	kɔ́é-sɔ́	kɔ́y-ɔ̄n-sɔ́	‘cook’
(n)	/fɛð/ H	fɛ́é-sá	fɛ́ð-ān-sá	‘release’
(o)	/pa/ M	pā-sá	pā.-án-sá	‘guard’

9.10.2 Antipassive tonal morphology

The antipassive suffix *-An* has no underlying tone. However, three root tone melodies change in antipassive forms, as shown by table 43.

Table 43: Antipassive tone changes

Root tone melody	Antipassive root tone melody
H	HM
M	MH
L	LH
HL, HM, ML, MH	no change

Since the antipassive suffix *-An* has no underlying tone, the second tone of the root tone melody is delinked and reassigned to the antipassive suffix in accordance with {M6} in 3.4.1. As in all third singular finite verbs, High tone is assigned to the final

(59) **Antipassive suffix *–An* on third singular completive verbs**

	Root tone	3sN COMP	ANTIP tone	3sN ANTIP COMP	
(a)	H	fír-sɔ́	HM	fír-ɔ̄n-sɔ́	‘smell’
(b)	M	cɔ̄r-sɔ́	MH	cɔ̄r-ɔ́n-sɔ́	‘help’
©	L	ḍùr-sū	LH	ḍùr-ūn-sú	‘bury’
(d)	HL	pɔ̂r-sɔ̄	HL	pɔ́r-ɔ̄n-sɔ̄	‘attach’
(e)	HM	bɛ́l-ḍá	HM	bɛ́l-ān-sá	‘name’
(f)	ML	bŭŋ-sū	ML	būŋ-ḍ-ùn-sū	‘make-big’
(g)	MH	kə̌s-sɔ́	MH	kə̄ð-ɔ́n-sɔ́	‘strike’

syllable which becomes Mid following Low tone {M9} in (c,d,f).

9.11 Causative

A causative verb is used to indicate the reason or initiative of the action being a different argument than that which does the action. In other words, it expresses that there is an external causer and adds an argument to the clause. In the causative continuous form of (60a) with causative suffix *-ḏ*$^{+}$*A*, the subject verbal noun *ṯīf ɔ̄n* 'tying' causes the *būŋūrgə́* 'youth' to sit. The root verb /káàm/ 'work' in the causative completive form of (b) with suffix *-s*$^{+}$*A* means 'bother'. In (c), the simple completive verb *cúrsū* 'tie' is compared with the causative completive form of the same verb *cūrsū* 'tie' in (d), which functions as a speech act of giving a command. Although the causative completive suffix *-s*$^{+}$*A* attaches in (d), the only difference is a tone change on the root.

(60) **Causatives examples**

(a)

ṯīf-ɔ̄n	ɛ́	gɔ̄ɔ̄m-g = ə̀	ɔ̄ù-**ḏ**-ɔ̄n	būŋūr-g = ə́	ṯáḏ
tying	GP	Gaam.GEN -PL = DEF	make.sit	youth-PL = DEF	down
/ṯīf/-CONT.N.NOM.SG		/gə̀əm-g/	/àb/-CAUS-CONT.N		

'The tying of the Gaahmg youth enables them to sit down.' (Tifa3)

(b)

ɟāām	kə́əm-**s** = ī	ḏ-ɛ́ɛ̄n	wá
someone	/káàm/bothered-CAUS.COMP = PAS.A	PP-3sO	not

'No one was bothered by it.' (Thng25)

(c)

á	cúr-sū	mīīn	ṯáḏ
1sN	/cúr/tie-COMP	goat.DEF	up

'I tied up the goat.'

(d)

á	cūr-**sū**	mīīn	ṯáḏ	háʃīm
1sN	/cúr/tie-CAUS.COMP	goat.DEF	up	(name)

'I commanded Hashim to tie up the goat.'

The causative suffix functions as a transitivizer in some verbs, making intransitive verbs such as *ṯír* 'die' become transitive (*ṯír-rɔ̄* 'kill'). However, the causative suffix can also derive verbs from transitive verbs such as *máār* 'buy', *mɔ̄r-rɔ̄* 'sell' in which the role of agent in 'buy' switches to experiencer in 'sell'. Some verbs such as *pə́r-ḏɔ̄* 'jump' have been derived from a verb of which there is no longer the underived form in use.

9.11.1 Causative segmental morphology

The causative suffixes are *-s*$^{+}$*A*, *-ḏ*$^{+}$*A* where $^{+}$*A* is a back [+ATR] vowel taking the [round] feature of the root and spreading [+ATR] quality to the verb stem. The suffix *-s*$^{+}$*A* attaches to form causative completive verbs, whereas the suffix *-ḏ*$^{+}$*A*

attaches to form other causative verb forms.

Table 44: Causative suffix

Completives	-s^{+}A
Other verb forms	-ḍ$^{+}$A

The list of (61) compares the un-derived main verb form and derived causative form of the roots /*mar*/ 'buy/sell' and /*ṭir*/ 'die/kill'. In each verb, the main form differs from the causative form by tone, [ATR] quality, or the suffix -*ḍ*$^{+}$*A*.

(61) **Causative 'kill' and 'sell' forms compared with non-causative forms 'die' and 'buy'**

	/māār/	/mə̄r-ḍ/	/ṭīr/	/ṭī̱r-ḍ/
Verb form	'buy'	'sell'	'die'	'kill'
INF	māār-r	mə̄r-ḍ	ṭīr-r	ṭī̱r-ḍ
COMP.3sN	máár-sá	mə̄r-sə́	ṭír-sə́	ṭī̱r-sə́
SBJV.1sN	máār	mə̄r-ḍə̄	ṭīr	ṭī̱r-ḍə̄
SBJV.3sN	máár-ḍá	mə̄r-ḍə́	ṭír-ḍə́	ṭī̱r-ḍə́
IMP	māār	mə̄r-ḍə́	ṭīr	ṭī̱r-ḍə́
IMP.PL	máə́r-ḍə̄	mə̄r-ḍə̄	ṭír-ḍə̄	ṭī̱r-ḍə̄
INCP.3sN	māār	mə̄r-ḍə́	ṭīr	ṭī̱r-ḍə́
CONT.P.3sN	māār-án	mə̄r-ḍ-án	ṭīr-án	ṭī̱r-ḍ-án
ANTIP-COMP.3SN	māār-án-sá	mə́r-ən-sə́	ṭīr-án-sə́	ṭír-ən-sə́

The vowel of the causative suffix is elided when followed by the vowel-initial continuous suffix, in accordance with the vowel elision rule {M1} in 3.1.

In (62), causative completive and incompletive paradigms are compared with non-causative forms, and in (63), causative subjunctive and continuous non-past forms are compared. All person forms of causative subjunctive verbs have the same segmental form.

(62) **Causative completive and incompletive paradigms 'buy-sell' /māār/ 'buy' - /mə̄r-ḍ/ 'sell'**

(a) PRON	COMP	CAUS COMP	(b) PRON	INCP	CAUS INCP	
á	māār-sā	mə̄r-sə̄	ā̱	māār	mə̄r-ḍə̄	1sN
ú=	mə̄ə̄r-sə̄	mə̄r-sə̄	ū̱=	mə̄ə̄r	mə̄r-ḍə̄	2sN
ɛ̄	māār-sá	mə̄r-sə́	ɛ́	māār	mə̄r-ḍə́	3sN
āgg	māār-sā	mə̄r-sə̄	āggá	māār	mə̄r-ḍə̄	1pN
ūgg=	mə̄ə̄r-sə̄	mə̄r-sə̄	ūggú=	mə̄ə̄r	mə̄r-ḍə̄	2pN
ɛ̄ggà	māār-sà	mə̂r-sə̀	ɛ̄ggà	māàr	mə̂r-ḍə̀	3pN

(63) **Causative subjunctive and continuous non-past paradigms**
/ṯīr/ 'die' - /ṯír-ḍ/ 'kill'

(a)	PRON	SBJV	CAUS SBJV	(b)	PRON	CONT.P	CAUS CONT.P	
	ā	ṯír	ṯír-ḍə		á	ṯīr-ən	ṯír-ḍ-ən	1sN
	ū=	ṯír	ṯír-ḍə		ú=	ṯīr-ən	ṯír-ḍ-ən	2sN
	ē	ṯír-rá	ṯír-ḍá		ē	ṯīr-án	ṯír-ḍ-án	3sN
	ā	ṯír-rə	ṯír-ḍə		āgg	ṯīr-ən	ṯír-ḍ-ən	1pN
	ū=	ṯír-rə	ṯír-ḍə		ūgg=	ṯīr-ən	ṯír-ḍ-ən	2pN
	ē	ṯír-rə	ṯîr-ḍə		ēggà	ṯīr-ən	ṯír-ḍ-ən	3pN

The causative infinitive forms in (64) are listed with the non-causative infinitive forms for comparison. The semantics of each pair are close, supporting the claim that they are derived from the same root. Not all causatives are derived from verbs. The causative *kúūn-ḍ* 'sing, play' in (f) is derived from the noun *kɔ̄n* 'birth (n)' and the causative *ɲɔ̄n-ḍ* 'make small' in (g) is derived from the adjective *ɲāān* 'small, young'.

(64) **Causative and non-causative infinitive verbs**

	Root	INF		CAUS Root	CAUS INF	
(a)	/muð/ H	múð-ð	'meet'	/muḍ-ḍ/ HM	mūḍ-ḍ	'gather'
(b)	/kɔɛɟ/ H	kɔ́é-ɟ	'enter'	/kui-ḍ/ HM	kúī-ḍ	'welcome'
(c)	/kɔr/ H	kɔ́r-r	'speak'	/kur-ḍ/ HM	kūr-ḍ	'read'
(d)	/rag/ M	rāg-g	'stop.IT'	/rəə-ḍ/ HM	rə́ə-ḍ	'stop (TR)'
(e)	/kɔn/ M	kɔ̄n-n	'birth (n)'	/kuun-ḍ/ HM	kúūn-ḍ	'sing, play'
(f)	/ɲaan/ M	ɲāān-n	'small (adj)'	/ɲən-ḍ/ HM	ɲə́n-ḍ	'make small'
(g)	/mar/ M	māār-r	'buy'	/mər-ḍ/ HM	mə́r-ḍ	'sell'
(h)	/ṯir/ M	ṯīr-r	'die'	/ṯir-ḍ/ HM	ṯír-ḍ	'kill'

Causative infinitive, subjunctive, imperative, and incompletive forms are listed in (65) for the same verbs as in (64) and are segmentally identical. As in other finite forms, person inflection is marked by adding tone to the stem-final syllable (Mid to

(65) **Causative forms compared**

	CAUS INF	CAUS SBJV. 1sN	CAUS SBJV. 3sN	CAUS IMP	CAUS IMP.PL	CAUS INCP. 3sN	
(a)	mūḍ-ḍ	mūḍ-ḍū	mūḍ-ḍú	mūḍ-ḍú	mūḍ-ḍū	mūḍ-ḍú	'gather'
(b)	kúī-ḍ	kúī-ḍə	kúī-ḍə́	kúī-ḍə́	kúī-ḍə	kúī-ḍə́	'welcome'
(c)	kūr-ḍ	kūr-ḍū	kūr-ḍú	kūr-ḍú	kūr-ḍū	kūr-ḍú	'read'
(f)	rə́ə-ḍ	rə́ə-ḍə	rə́ə-ḍə́	rə́ə-ḍə́	rə́ə-ḍə	rə́ə-ḍə́	'stop (TR)'
(g)	kúūn-ḍ	kúūn-ḍū	kúūn-ḍú	kúūn-ḍú	kúūn-ḍū	kúūn-ḍú	'sing, play'
(h)	ɲə́n-ḍ	ɲə́n-ḍə	ɲə́n-ḍə́	ɲə́n-ḍə́	ɲə́n-ḍə	ɲə́n-ḍə́	'make small'
(i)	mə́r-ḍ	mə́r-ḍə	mə́r-ḍə́	mə́r-ḍə́	mə́r-ḍə	mə́r-ḍə́	'sell'
(j)	ṯír-ḍ	ṯír-ḍə	ṯír-ḍə́	ṯír-ḍə́	ṯír-ḍə	ṯír-ḍə́	'kill'

first singular subjunctive and imperative plural forms; High to third singular subjunctive and incompletive forms). Subject pronouns and subjunctive particles distinguish incompletives and subjunctives from imperative forms which may occur without pronouns. Context must be relied upon for other identical forms.

As is discussed further in 14.5.5, antipassive causative clauses indicate that one or more of the non-agent arguments are unknown. In (66a) the object broken is unknown, in (b) the one breaking the branch is unknown, and in (c) both are unknown.

(66a) àggáár ɲə́m-ən-sə́ ɟɛ̄n
hunter /ɲām/break.CAUS-ANTIP-COMP person
'A hunter made the person break something.'

(b) àggáár ɲə́m-ən-sə́ gūlḍūn
hunter /ɲām/break.CAUS-ANTIP-COMP branch
'A hunter made someone break the branch.'

(c) àggáár ɲə́m-ən-sə́
hunter /ɲām/break.CAUS-ANTIP-COMP
'A hunter made someone break something.'

When the causative and antipassive suffixes come together in the same verb stem, the antipassive suffix precedes the causative suffix, as seen in the verb forms of (67).

(67) **Antipassive completive, incompletive, and continuous non-past causative forms**

	Root	COMP CAUS ANTIP 3sN	INCP CAUS ANTIP 3sN	CONT.N CAUS ANTIP 3sN	
(a)	/pal/	pə́l-ən-sə́	pə́l-ən-ḍə́	pə́l-ən-ḍ-ən	'cut'
(b)	/ɲam/	ɲə́m-ən-sə́	ɲə́m-ən-ḍə́	ɲə́l-ən-ḍ-ən	'break'
		Root-ANTIP-COMP.CAUS	Root-ANTIP-CAUS	Root-ANTIP-CAUS-CONT.N	

9.11.2 Causative tone assignment

Table 45: Causative tone changes

Root tone melody	Causative root tone melody
H	HM
M	HM
L	ML
HL, HM, ML	no change
MH	HM

The causative suffixes *-s⁺A, -ḍ⁺A* have no underlying tone. However, four root tone melodies change in causative forms, as shown by table 45.

After root tone changes, tone assignment in causative verbs is the same as for other verb stems with those melodies. Third singular High tone assigned to the final syllable becomes Mid following Low {M9} in (c,d,f).

(68) **Third singular causative completive verbs**

	Root tone	COMP 3sN	CAUS tone	CAUS COMP 3sN	
(a)	H	fír-sə́	HM	f ̂ír-sə́	‘smell’
(b)	M	cə̄r-sə́	HM	cûr-sú	‘help’
(c)	L	ḍùr-sū	ML	ḍûr-sū	‘bury’
(d)	HL	pər-sə̄	HL	pər-sə̄	‘attach’
(e)	HM	bɛ̋l-ḍá	HM	bîl-ḍə́	‘name’
(f)	ML	dɔ̄ɔ̀s-sɔ̄	ML	dūùs-sū	‘stand’
(g)	MH	kɤ̋s-sə́	HM	kə̄s-sə́	‘strike’

Causative incompletive verbs in first singular, third singular, and third plural are shown in (69) for various tone melodies. Third singular High tone, third plural Low tone, and first and second person Mid tone assign to the final syllables.

(69) **Causative incompletive verbs**

	Root tone	CAUS tone	INCP CAUS 1sN	INCP CAUS 3sN	INCP CAUS 3pN	
(a)	H	HM	f ̂ír-ḍə̄	f ̂ír-ḍə́	f ̂ír-ḍə̀	‘smell’
(b)	M	HM	cûr-ḍū	cûr-ḍú	cûr-ḍù	‘help’
(c)	L	ML	ḍûr-ḍù	ḍûr-ḍū	ḍûr-ḍù	‘bury’
(d)	HL	HL	pər-ḍə̀	pər-ḍə̄	pər-ḍə̀	‘attach’
(e)	HM	HM	bîl-ḍā	bîl-ḍá	bîl-ḍà	‘name’
(f)	ML	ML	dūùḍ-ḍù	dūùḍ-ḍū	dūùḍ-ḍù	‘stand’
(g)	MH	HM	kə̄s-sə̄	kə̄s-sə́	kə̂s-sə̀	‘strike’

In antipassive causative forms, the root tone becomes causative tone instead of antipassive tone. The causative two-tone melodies are spread out over two syllables when the antipassive suffix is attached to the root. In the third singular antipassive completive forms of (70), High tone attaches to the stem-final syllable.

(70) **Third singular antipassive causative completive verbs**

	Root tone	CAUS tone	CAUS COMP 3SN	ANTIP CAUS COMP 3SN	
(a)	H	HM	fˆîr-sə́	fír-ən-sə́	‘smell’
(b)	M	HM	cūr-sú	cúr-ūn-sú	‘help’
(c)	L	ML	ḍùr-sū	ḍūr-ùn-sū	‘bury’
(d)	HL	HL	pə̂r-sə̄	pə́r-ən-sə̄	‘attach’
(e)	HM	HM	bīl-ḍə́	bíl-ən-sə́	‘name’
(f)	ML	ML	dūùs-sū	dūùs-ùn-sū	‘stand’
(g)	MH	HM	kə̄s-sə́	kə́ð-ən-sə́	‘strike’

10 Verb word morphology

10.1 Introduction

At this point, the morphology of verb stems has been described. We now continue with a morphological description of the verb word. Whereas verb inflectional suffixes have been shown to attach to underlying-final segments, the verbal clitics of this chapter attach to surface-final segments of inflectional suffixes or elide them.

When vowel-initial clitics are attached to vowel-final suffixes of stems such as completive forms, the stem-final vowel is elided according to the rule {M1} in 3.1 When the agented passive clitic *=Ẽ* attaches to *cɔ̄r-sɔ́* 'help.3sN-COMP', the suffix-final vowel is elided (*cɔ̄r-s=ɛ́* 'help.3sN-COMP=PAS.A'). In suffix-less stems, clitics attach to surface-final segments. The verb nominalizer clitic *=gg* attaches to the surface-final segments of the incompletive form *bāā̄* 'throw' rather than to the underlying segments /*ba*/, and thus surfaces with a long vowel (*bāā=gg* 'throw=PL').

Verb word tonal morphology is similar to verb stem tonal morphology, but with some differences. As shown in chapter 9 on stem morphology, subject person tone is added to stem-final syllables: Mid tone on first and second person verbs, High tone on third singular verbs, and Low tone on third plural verbs.

(1) **Subject person tone on completive stems**

	Root tone	COMP 1SN	COMP 3sN	COMP 3pN	
(a)	H	fír-sɔ̄	fír-sɔ́	fír-sɔ̀	'smell'
(b)	M	cɔ̄r-sɔ̄	cɔ̄r-sɔ́	cɔ̄r-sɔ̀	'help'
(c)	L	ḍ̰ùr-sù	ḍ̰ùr-sū	ḍ̰ūr-sù	'bury'

In that verb stem tone assignment is the point of departure for verb word tone assignment, subject person tone is commonly spread or delinked and reattached to clitics with no underlying tone {M5-6}. However, when clitics with underlying tone are added, subject person tone generally does not surface or cause alternations.

In (2), third singular *=E, =Ẽ* and second plural *=OOggÓ, =ÓŌggÓ* object clitics are attached to first singular, third singular, and third plural subject completive verbs. The tone of each clitic allomorph is different depending on the subject person verb form to which it is attached. Thus, the clitic allomorphs are listed in parentheses next to each form. The object clitics attached to first singular and third plural verbs have no underlying tone on initial vowels. Thus, they are assigned the subject person tone from the elided completive suffix vowel. The initial vowels of the clitics are assigned first singular Mid tone in (a), and are assigned third plural Low tone in (c). However, the clitics in (b) with underlying initial High tone are not assigned subject person tone.

(2) **Object clitics attached to various subject verb forms**

		'smell-COMP'	'smell-COMP=3sA'	'smell-COMP=2pA'
(a)	1sN	fír-sə̄	fír-s=ī (=E)	fír-s=ūūggú (=OOggÓ)
(b)	3sN	fír-sə́	fír-s=ī̂ (=Ē)	fír-s=úūggú (=ÓŌggÓ)
(c)	3pN	fír-sə̀	fír-s=ì (=E)	fír-s=ùùggū (=OOggÓ)

In verb stem morphology, alternations are according to rules {M1-M11}. However, it is common for clitics attached to verb stems to not alternate according to these rules. The chart of (3) is given as a summary of how the rules are not applied to such clitics. Although not a defining aspect of clitics, non-application of rules in bound morphemes is viewed as support for the element being a clitic rather than a suffix.

(3) **Rules applying in derivational and clausal clitics**

	Clitic	Rules applying
PAS.A	=Ē	{M9} applies for INCP and COMP but not for CONT.P
PAS	=ĀnÁ, =Á	{M9} does not apply
Object PRON	various	Person marker tone spreads to all clitic-initial vowels without underlying tone; {M7-9} apply in all forms except that {M9} does not apply for 3pN marked *=ûggə̀*.
Dative PRON	various	All clitics have underlying tone; No tone rules apply
IPF	various	All clitics have underlying tone; No tone rules apply
SBO1,2	various	{M7-8} apply to third singular *=ɤ́* 'when' , {M9} applies to third singular *=Ê* and second plural *=ū́* 'if'; for other clitics, no tone rules apply
PF	=Ar, -Car	Person marker tone is assigned to the bound morphemes; {M7-9} apply
RDM	=É	{M9} applies; {M1} does not apply in past continuous
VN PL	=Agg, =EEgg, =AAgg	{M5-6} apply after root tone changes

10.2 Agented passive clitic

The verbal clitic *=Ê, =ÉĒ* indicates a third person agent (or experiencer) encoded post-verbally in a prepositional phrase or in genitive case. The clitic agrees in number with the encoded agent when in genitive case but not when in a prepositional phrase. The clitic is called an 'agented passive (PAS.A)' marker in this thesis. It is commonly used when patients or themes are in focus, being pre-verbal. In agented passive clauses, an explicit agent is required and the encoding of the agent is required to be post-verbal. Further, the agent is marked as a non-argument,

demoted to a prepositional phrase as in (a) or in genitive case as in (b), and thus no longer the syntactic subject. The clauses of (c-d) have singular and plural agents encoded in post-verbal positions, where the clitics *=Ɛ̄, =Éɛ̄* agree in number with the agent. However, the clitic *=Ɛ̄* of (4a) does not agree in number with the plural agent *káɛ́ggà* 'witchdoctor' in the prepositional phrase.

(4) **Agented passive clitic examples**

(a) gààr cúɔ́ . . . nām-án=**ɛ̄** ɛ́ káɛ́-gg=à
pork sweet /nam/eat-CONT.P=PAS.A by witchdoctor-PL=DEF
'Sweet pork . . . was being eaten by witchdoctors.'

(b) nāms ŋ̀náɔ́-s=**ɛ̄** āggāàr
food /ŋaw/need-COMP=PAS.A hunter.GEN
'Food is needed by the hunter.'

(c) gùlù̱ūn ŋ̀nằm-s=**ɛ̄** ɟ̀ɛ̂n
branch break-COMP=PAS.A person.GEN
'The branch was broken by the person.'

(d) gùlù̱ūn ŋ̀nằm-s=**ɛ́ɛ̄** ɟ̀ɔ́gɔ̀
branch break-COMP=PAS.A people.GEN
'The branch was broken by the people.'

In agented passive clauses, the semantic patient or theme, encoded as a noun in (5a) or pronoun as in (b), is pre-verbal. The semantic patient or theme is encoded as the syntactic subject, evidenced by the pronoun taking the same form as the third person subject pronoun (of active verbs) which can be short or long.

(5) **Pre-verbal third singular themes**

(a) **mīī=n** gàɔ̀-s=**ɛ̄** ɟ̀ɛ̂n
goat=DEF give-COMP=PAS.A person.GEN
'The goat was given by the person.'

(b) **ɛ̄(ɛ̄n)** gàɔ̀-s=**ɛ̄** ɟ̀ɛ̂n
3sN give-COMP=PAS.A person.GEN
'It (goat) was given by the person.'

The clitic is only attested with transitive verbs, and can be used when the clause has no patient or theme, as in the antipassive clause of (6b). It is not used in agentless passive clauses where the syntactic subject (patient) follows the verb, as does *ŋ̀tɔ́ɔ́n* 'cow' in (d).

(6a) ɟ̀ɛ̄n ŋ̀nām-**án**-sá
person break-ANTIP-COMP
'The person broke something.'

(b) ŋ̀nām-**án**-s=**ɛ̄** ɟ̀ɛ̂n
break-ANTIP-COMP=PAS.A person.GEN
'The person broke something.'

(c)	ṭɔ́ɔ́ = n	ḍàɔ̀-s = **ānā́**	(d)	ḍàɔ̀-s = **ānā́**	ṭɔ́ɔ́ = n
	cow = DEF	strike-COMP = PAS		strike-COMP = PAS	cow = DEF
	'The cow was struck.'			'The cow was struck.'	

Only third person agents can be encoded post-verbally and clauses such as '*The person gave me.' with a first person pre-verbal pronoun are not possible. Thus, there are only two agented passive markers. In addition, only third singular patients or themes are possible in agented passive clauses and not clauses such as '*I am needed by the hunter.' Agented passive clitics are also discussed in the section on verbal valency in 14.5.1.

Table 46: Agented passive clitic

Third singular subject	=Ɛ́
Third plural subject	=Éɛ̄

10.2.1 Agented passive segmental morphology

Agented passive clitics are attached to verb stems. When the root is stem-final, such as in incompletive forms, no segments are elided, even if the stem is vowel-final. In this case, the clitic is juxtaposed to the stem (*pāā. =ɛ́* 'guard=PAS.A') in accordance with {M2} of 3.1. However, final vowels which are not part of the root, such as suffix-final vowels in completive and subjunctive plural forms, are elided by the initial vowel of agented passive clitics (*cɔ̄r-sɔ́* 'help-COMP.3sN', *cɔ̄r-s =ɛ́* 'help-COMP=PAS.A'), in accordance with {M1} of 3.1.

In (7), third singular incompletive forms with agented passive clitic *=Ɛ́* are shown with various root-final segments. The clitic attaches to the surface-final segments of the incompletive form rather than to the underlying form, as seen by the long vowels in (c, h, o-p) when the clitic is juxtaposed to open syllables. In (b-c, l-m), the root-final segment can optionally surface as a vowel or an approximant.

(7) **Third singular agented passive clitic *=Ɛ́***
on incompletive forms with various root-final segments

	Root	INCP 3sN	PAS.A INCP 3SN	
(a)	/ab/ L	àɔ̄	àɔ̀. = ɛ̄, àw = ɛ̄	'sit'
(b)	/kaɟ/ H	káé	káɛ́. = ɛ́, káy = ɛ́	'bring'
(c)	/cig/ M	cīī	cīī. = ī́	'wear'
(d)	/cuḍ/ M	cūḍ	cūḍ = ī́	'climb'
(e)	/lɔf/ L	lɔ̄f	lɔ̀f = ɛ̄	'do magic'
(f)	/las/ M	lās	lās = ɛ́	'roll-up'
(g)	/ɲam/ M	ɲām	ɲām = ɛ́	'break'
(h)	/gɔn/ L	gɔ̄n, gɔ̀ɔ̄	gɔ̀n = ɛ̄, gɔ̀ɔ̀. = ɛ̄	'grab'

Root	INCP 3sN	PAS.A INCP 3SN

(i)	/guɲ/ L	gṵɲ	gùɲ = ī	‘agree’
(j)	/mal/ M	māl	māl = ɛ̄	‘gather’
(k)	/wɛr/ M	wɛ̄r	wɛ̄r = ɛ̄	‘watch’
(l)	/ɲaw/ H	ɲáɔ́-(n)	ɲáw = ɛ̄, ɲáɔ́-n = ɛ̄	‘request’
(m)	/kɔy/ H	kɔ́ɛ́-(n)	kɔ́y = ɛ̄, kɔ́ɛ́-n = ɛ̄	‘cook’
(n)	/fɛð/ H	fɛ́ð-(n)	fɛ́ð = ɛ̄, fɛ́ð-n = ɛ̄	‘release’
(o)	/pa/ M	pāā, pā-ḍ	pāā. = ɛ̄, pā-ḍ = ɛ̄	‘guard’
(p)	/bɛɛ/ L	bɛ̀ɛ̄-(n)	bɛ̀ɛ̀. = ɛ̄, bɛ̀ɛ̀-n = ɛ̄	‘say’

10.2.2 Agented passive tonal morphology

The agented passive clitic $=\hat{E}$ has underlying HM tone. In (8), it is attached to third singular completive and incompletive verbs, and in (9) it is attached to third singular continuous past verbs. In completive and incompletive forms, the initial High tone of the agented passive clitic becomes Mid following root-final Low tone {M9} as in (c,d,f). For unknown reasons, completive and incompletive forms with Mid root tone melody and agented passive clitic have MH tone on the root as in (8b), but not in continuous past forms with Mid root tone melody as in (9b).

(8) **Agented passive clitic $=\hat{E}$ on completive and incompletive verbs**

	Root tone	COMP 3sN	PAS.A COMP 3sN	INCP 3sN	PAS.A INCP 3sN	
(a)	H	fír-sɔ́	fír-s = ī	fír	fír = ī	‘smell’
(b)	M	cɔ̄r-sɔ́	cɔ̄r-s = ɛ̄	cɔ̄r	cɔ̄r = ɛ̄	‘help’
(c)	L	ḍùr-sū	ḍùr-s = ī	ḍùr	ḍùr = ī	‘bury’
(d)	HL	pə̂r-sə̄	pə̂r-s = ī	pə́r	pə̂r = ī	‘attach’
(e)	HM	bɛ̂l-ḍá	bɛ̂l-d = ɛ̄	bɛ́l	bɛ̂l = ɛ̄	‘name’
(f)	ML	dɔ̄ɔ̀s-sɔ̄	dɔ̄ɔ̀s-s = ɛ̄	dɔ̄ɔ̄s	dɔ̄ɔ̀s = ɛ̄	‘stand’
(g)	MH	kə̌s-sɔ́	kə̌s-s = ī	kə̌ð	kə̌ð = ī	‘strike’

It is posited that there is no stem-final third singular High tone in the agented passive forms of (8) since the clitic-initial High tone lowers to Mid {M9} in (c,d,f). However, it is posited that there is stem-final High tone in the continuous past forms of (9) which causes the clitic-initial High tone not to lower (not applying {M9}).

(9) **Agented passive clitic $=\hat{E}$ on continuous past verbs**

	Root tone	CONT.P 3sN	PAS.A CONT.P 3sN	
(a)	H	fír-ə̋n	fír-ə̋n = ī	‘smell’
(b)	M	cɔ̄r-án	cɔ̄r-ān = ɛ̄	‘help’
(c)	L	ḍùr-ə́n	ḍùr-ə̄n = ī	‘bury’
(d)	HL	pə́r-ə̌n	pə́r-ə̌n = ī	‘attach’
(e)	HM	bél-ă̌n	bél-ă̌n = ɛ̄	‘name’
(f)	ML	dɔ̄ɔ̀s-ă̌n	dɔ̄ɔ̀s-ă̌n = ɛ̄	‘stand’
(g)	MH	kə̌ð-ə̋n	kə̌ð-ə̋n = ī	‘strike’

In a few isolated suffixes of the language, when High tone occurs on two adjacent syllables of suffixes, Mid tone is inserted between them on the first of the two syllables. Thus, Mid tone is added to the continuous past suffix in (9b,c) but not on other forms where there is an initial Mid or Low tone preceding the High on the continuous suffix.

The agented passive clitic is attached to antipassive verbs with post-verbal encoded agents as in (10).

(10) ɲām-án-s=ɛ̃ ɟɛ̂n
break-ANTIP-COMP=PAS.A man.GEN
'The person broke something.'

In (11), the agented passive clitic is attached to third singular antipassive completive verbs. High tone of the agented passive clitic becomes Mid following final Low tone {M9} in (d,f) since there is no third singular High tone present.

(11) **Agented passive clitic *=Ɛ̃* and antipassive suffix *-An* on third singular completive verbs**

	ANTIP tone	ANTIP COMP 3SN	PAS.A ANTIP-COMP 3SN	
(a)	HM	fír-ən-sə́	fír-ən-s=ɪ̂	'smell'
(b)	MH	cə̄r-ə́n-sə́	cə̄r-ə́n-s=ɛ̃	'help'
(c)	LH	ḍùr-ūn-sú	ḍùr-ūn-s=ɪ̂	'bury'
(d)	HL	pə́r-ən-sə̄	pə́r-ən-s=ɪ	'attach'
(e)	HM	bɛ́l-ān-sá	bɛ́l-ān-s=ɛ̃	'name'
(f)	ML	būŋ-ḍ-ùn-sū	būŋ-ḍ-ùn-s=ɪ	'make-big'
(g)	MH	kə̄ð-ə́n-sə́	kə̄ð-ə́n-s=ɪ̂	'strike'

10.3 Passive (Agentless)

In contrast with the agented passive of 10.2, which always has an explicit agent in the clause, the passive of this section never encodes an agent. Passive and active forms are compared in (12). In the normal SVO word order of active transitive clauses such as (a-b, d), the noun preceding the verb is the subject and agent. In (b), the L-M tone (with L-H becoming L-M by {M9}) of the completive form indicates the third singular subject while L-L tone would indicate a third plural subject. In passive clauses such as (c,e), the clitic *=ĀnÁ* indicates that an implied agent is absent from the clause. In that case, the patient (syntactic subject) normally precedes the verb as in (c) but may follow the verb as in (e) and in (13). The clitic *=ÁnÁ* attaches to stems with vowel-final suffixes such as the completive forms of (c,e) and the clitic *=Á* attaches to stems with consonant-final suffixes such as the continuous past form of (13) and to suffix-less stems.

(12) **Passive and active forms compared**

(a) kāsá ḍàɔ̀-sɔ̄ ṭɔ́ɔ́=n
'A boy struck the cow.'

(b) ḍàɔ̀-sɔ̄ ṭɔ́ɔ́=n
'He struck the cow.'

(c) ṭɔ́ɔ́=n ḍàɔ̀-s=**ānā́**
'The cow was struck.'

(d) ṭɔ́ɔ́-n ḍàɔ̀-sā ɟɛ̄n
'The cow struck the person.'

(e) ḍàɔ̀-s=**ānā́** ṭɔ́ɔ́=n
'The cow was struck.'

(13) fɛ́ð-ǎn=**á** ɟɛ̀gg=ā ṭáḍ
/fɛ/put-CONT.P=PAS things=DEF down
'Things were being laid down.' (Fand27-28)

Unlike agented passive clitics, passive clitics do not distinguish number; the same passive clitics are used for both singular and plural implied agents and for singular and plural stated patients or theme (syntactic subjects). In passive clauses, only third person patients or themes are possible; clauses such as '*I was struck' are not possible.

Third person dative or object pronouns can be attached to passive verbs. A dative pronoun attached to a passive verb as in (14a) refers to a beneficiary or recipient [35], whereas an object pronoun as in (b-d) refers to a patient or theme. The dative pronoun alone can represent a recipient as in (a) and the object pronoun alone can represent a patient, or the pronouns along with a noun reference can represent these roles as in (b-c). In 5.3, it was mentioned that subjects of active clauses can include both a noun and pronoun reference in the same clause, the pronoun added for emphasis such as for switch reference from a different participant. Syntactic subjects (recipients, patients) of passive clauses can also include both a noun and pronoun reference for emphasis, such as for switch reference in (b) and salience in (c). The *kāsā-gg* 'boys' of (c) is salient in that the theme of the hortatory text is tying (or training) boys in the customs appropriate for manhood.

(14) **Passives with dative and object pronouns**

(a) gəf-**ɔ̄n**=îggə̀n wárā mân ɛ́ gārá ḍàf-ān=**á** ṭálɔ̀=nɛ̄.
given=them paper(Ar) certain GP when collect tax=SBO
/gàf/-PAS=3pD /dàf/-CONT.N=PAS
'They were given a receipt when the tax money was collected.' (Fand7)

[35] The dative pronoun attached to passive verbs implies that dative nouns can have the role of beneficiary or recipient in passive clauses, such as in *jɔ̄gg=ɔ̄n gəf-**ɔ̄nɔ́** wárā* 'The people were given paper (people=DAT give=PAS paper)'. Because of limited time, no such clauses were elicited, but presumably such clauses are possible in Gaahmg.

(b) gôl fɔ́nḍì bàg-s=**ān**=ɛ́n[36] líɟ-ɟ=ì é kārṭūūm ṭè.
just Fandi caught-him arrived to Khartoum here
/bàg/-COMP=PAS=3sA /lɛ́ɟ/-COMP=IPF.3sN
'Fandi was captured and brought here to Khartoum.' (Fand6)

(c) bìì kāsā-gg ṭíú-ḍ=**ān**=îiggə̀ lə̂ŋ páḍ
let boy-PL to.be.tied=they until always
/bìɟ/IMP /ṭīf/-SBJV=PAS=3pA
'Let boys forever and always be tied.' (Tifa13)

The clitic =*Á*n*Á* attaches to stems with vowel-final suffixes such as subjunctive and completive forms and the clitic =*Á* attaches to stems with consonant-final suffixes such as continuous forms or to suffix-less stems such as incompletive forms. Passives are also discussed in 14.5.3.

Table 47: Passive clitics

Stems with vowel-final suffixes	=ĀnÁ
Stems with consonant-final suffixes, Suffix-less stems	=Á

10.3.1 Passive segmental morphology

In (15), incompletive forms with passive clitic =*Á* are shown with various root-final segments. As with agented passive clitics, passive clitics attach to the surface-final segments of incompletive forms rather than to underlying segments.

(15) **Passive incompletive verbs**

	UR	INCP 3sN	PAS INCP	
(a)	/ṭab/ H	ṭáɔ́	ṭáɔ́.=á, ṭáw=á	'add'
(b)	/kaɟ/ H	káɛ́	káɛ́.=á, káy=á	'bring'
(c)	/cig/ M	cīī	cíí.=á	'wear'
(d)	/cuḍ/ M	cūḍ	cúḍ=ɔ́	'climb'
(e)	/tif/ M	tīf	tíf=ɔ́	'tie'
(f)	/las/ M	lās	lás=á	'roll-up'
(g)	/ɲam/ M	ɲām	ɲám=á	'break'
(h)	/gɔn/ L	gɔ̃n, gɔ̀ɔ̃	gɔ̀n=á	'grab'
(i)	/guɲ/ L	gṵɲ	gùɲ=ɔ́	'agree'

[36] The third singular pronoun =*ɛ́n* differs from the object pronoun by an added *n*, which may be present in (b) to help distinguish the pronoun from the passive clitic alone =*āná* which also has a final vowel. For further discussion about optional *n* on object pronouns, see 10.4.1. Or, the pronoun =*ɛ́n* may be the long subject pronoun *ɛ́ɛ́n* attached word-finally instead of preceding the verb as in active clauses.

	UR	INCP 3sN	PAS INCP	
(j)	/mal/ M	māl	mál = á	‘gather’
(k)	/wɛr/ M	wɛ̄r	wɛ́r = á	‘watch’
(l)	/ɲaw/ H	ɲáɔ́-(n)	ɲáɔ́. = á, ɲáɔ́-n = á	‘request’
(m)	/kɔy/ H	kɔ́ɛ́-(n)	kɔ́ɛ́. = á, kɔ́ɛ́-n = á	‘cook’
(n)	/fɛð/ H	fɛ́ð-(n)	fɛ́ð = á	‘release’
(o)	/pa/ M	pāā, pā-ḍ	páá. = á, pá-ḍ = á	‘guard’
(p)	/bɛɛ/ L	bɛ̀ɛ̄-(n)	bɛ̀ɛ̀. = á, bɛ̀ɛ̀-n = á	‘say’

Antipassive passive clauses are used to indicate an implied agent and unknown object.

(16) ɲām-án-s = āná
break-ANTIP-COMP=PAS
‘Something was broken.’

In (17), antipassive passive completive and incompletive forms are shown.

(17) **Antipassive passive completive and incompletive forms**

	Root	COMP PAS	COMP ANTIP PAS	INCP PAS	INCP ANTIP PAS	
(a)	/kɔm/ H	kɔ́m-s = āná	kɔ́m-ɔ̄n-s = āná	kɔ́m = á	kɔ́m-ɔ̄n = á	‘chop’
(b)	/war/ H	wár-s = āná	wár-ān-s = āná	wár = á	wár-ān = á	‘take’
		Root-COMP = PAS	Root-ANTIP-COMP = PAS	Root = PAS	Root-ANTIP = PAS	

Causative passive clauses are used to indicate an implied, unstated agent of a causative verb.

(18) gùlḍūn ɲɔ̄m-s = ɔ̄nɔ́ ɟɛ̄n
branch break.CAUS-COMP=PAS person
‘The person was made to break the branch.’

In (19), causative passive incompletive, completive, and continuous past forms are shown. The vowel of the causative suffix *-ḍA* is elided in the incompletive and continuous forms, and the causative completive suffix *-s*$^{+}$*A* attaches in completive forms.

(19) **Causative passive completive, incompletive, and continuous past** forms

	Root	CAUS INCP PAS	CAUS COMP PAS	CAUS CONT.P PAS	
(a)	/kɔr/	kū̱r-d̰ = ə́	kū̱r-s = ə̄nə́	kúr-d̰-ə̄n = ə́	‘read’
(b)	/t̰ir/	t̰ī̱r-d̰ = ə́	t̰ī̱r-s = ə̄nə́	t̰ír-d̰-ə̄n = ə́	‘kill’
(c)	/kɔn/	kúūn-d̰ = ə́	kúūs-s = ə̄nə́	kúún-d̰-ə̄n = ə́	‘sing’
		Root-CAUS = PAS	Root-CAUS. COMP = PAS	Root-CAUS-CONT.P = PAS	

Antipassive causative passive clauses indicate an implied agent and one or more unknown non-agent arguments.

(20) ɟɛ̄n ɲə́m-ə̄n-s = ə̄nə́
person break.CAUS-ANTIP-COMP=PAS
‘The person was made to break something.’

(21) ɲə́m-ə̄n-s = ə̄nə́
/ɲām/break.CAUS-ANTIP-COMP=PAS
‘Someone was made to break something.’

10.3.2 Passive tonal morphology

The passive clitic *=A̱nÁ* on stems with vowel-final suffixes as in (22) has underlying M,H tone, and the passive clitic *=Á* on consonant-final stems as in (23) has underlying High tone. Tone in these clitics does not follow the lowering rule {M9}. In (22c,d,f), passive clitic *=A̱nÁ* Mid tone does not assimilate to stem-final Low tone, thus not applying {M9}.

(22) **Passive clitic *=A̱nÁ* on completive and subjunctive verbs**

	Root tone	COMP 3sN	PAS COMP	SBJV 3sN	PAS SBJV	
(a)	H	fír-sə́	fír-s = ə̄nə́	fír-rə́	fír-r = ə̄nə́	‘smell’
(b)	M	cɔ̄r-sɔ́	cɔ̄r-s = ānā́	cɔ́r-rɔ́	cɔ́r-r = ānā́	‘help’
(c)	L	d̰ùr-sū	d̰ùr-s = ə̄nə́	d̰ùr-rū	d̰ùr-r = ə̄nə́	‘bury’
(d)	HL	pə̂r-sə̄	pə̂r-s = ə̄nə́	pə̂r-rə̄	pə̂r-r = ə̄nə́	‘attach’
(e)	HM	bɛ̂l-d̰á	bɛ̂l-d̰ = ə̄nə́	bɛ̂l-d̰á	bɛ̂l-d̰ = ānā́	‘name’
(f)	ML	bù̱ŋ-sū	bù̱ŋ-s = ə̄nə́	bù̱ŋ-d̰ə̄	bù̱ŋ-d̰ = ə̄nə́	‘make-big’
(g)	MH	kə̋s-sə́	kə̋s-s = ə̄nə́	kə̋d̰-d̰á	kə̋d̰-d̰ = ə̄nə́	‘strike’

In (23c,d,f), passive clitic *=Á̱* High tone does not lower to Mid following stem-final Low tone, thus not applying {M9}. In passive incompletive forms, Mid root tone melody as in (22b) becomes High, as in subjunctive forms. In the continuous past forms of (23b,c), Mid tone is inserted on the first of the two bound morpheme syllables, each with High tone. In the continuous past forms with agented passive clitic in (9b,c), Mid tone was also inserted on the first of two bound morpheme syllables with High tone.

(23) **Passive clitic =*Á* on incompletive and continuous past verbs**

	Root tone	INCP 3sN	PAS INCP	CONT.P 3sN	PAS CONT.P	
(a)	H	fír	fír = ə́	fír-ən	fír-ən = ə́	'smell'
(b)	M	cɔ̄r	cɔ́r = á	cɔ̄r-án	cɔ̄r-ān = á	'help'
(c)	L	ḍùr	ḍùr = ə́	ḍùr-ən	ḍùr-ən = ə́	'bury'
(d)	HL	pə́r	pə́r = ə́	pə́r-ən	pə́r-ən = ə́	'attach'
(e)	HM	bɛ́l	bɛ́l = á	bɛ́l-ān	bɛ́l-ān = á	'name'
(f)	ML	bùŋ-ḍū	bùŋ-ḍ = ə́	bùŋ-ḍ-ən	bùŋ-ḍ-ən = ə́	'make-big'
(g)	MH	kə̄ð	kə̄ð = ə́	kə̄ð-ən	kə̄ð-ən = ə́	'strike'

In (24), the passive clitic *=ĀnÁ* is attached to third singular antipassive completive verbs. In each, the antipassive two-tone melodies are spread out over the first two syllables and the Mid-High passive tone surfaces on the final two syllables.

(24) **Antipassive passive completive verbs with clitic *=ĀnÁ***

	Root tone	ANTIP tone	ANTIP COMP 3sN	PAS ANTIP COMP	
(a)	H	HM	fír-ən-sə́	fír-ən-s = ənə́	'smell'
(b)	M	MH	cɔ̄r-ɔ́n-sɔ́	cɔ̄r-ɔ́n-s = ānā́	'help'
(c)	L	LH	ḍùr-ūn-sú	ḍùr-ūn-s = ənə́	'bury'
(d)	HL	HL	pə́r-ən-sə̄	pə́r-ən-s = ənə́	'attach'
(e)	HM	HM	bɛ́l-ān-sā́	bɛ́l-ān-s = ānā́	'name'
(f)	ML	ML	būŋ-ḍ-ùn-sū	būŋ-ḍ-ùn-s = ənə́	'make-big'
(g)	MH	MH	kə̄ð-ɔ́n-sə́	kə̄ð-ɔ́n-s = ənə́	'strike'

In (25), the passive clitic *=ĀnÁ* is attached to third singular causative completive verbs. In each, the causative two-tone melodies surface on the first syllable and the Mid-High passive tone surfaces on the final two syllables.

(25) **Causative passive verbs with clitic *=ĀnÁ***

	Root tone	CAUS tone	CAUS COMP 3sN	PAS CAUS COMP	
(a)	H	HM	fˆír-sə́	fˆír-s = ənə́	'smell'
(b)	M	HM	cûr-sú	cûr-s = ənə́	'help'
(c)	L	ML	ḍûr-sū	ḍûr-s = ənə́	'bury'
(d)	HL	HL	pə̂r-sə̄	pə̂r-s = ənə́	'attach'
(e)	HM	HM	bîl-ḍə́	bîl-ḍ = ənə́	'name'
(f)	ML	ML	bûŋ-sū	bûŋ-s = ənə́	'stand'
(g)	MH	HM	kə̂s-sə́	kə̂s-s = ənə́	'strike'

In (26), the passive clitic *=ĀnÁ* is attached to third singular antipassive causative completive verbs. In each, the causative two-tone melodies surface on the first two syllables and the Mid-High passive tone surfaces on the final two syllables.

(26) **Antipassive causative passive completive verbs with clitic *=ĀnÁ***

	Root tone	CAUS tone	CAUS COMP 3sN	CAUS ANTIP COMP 3sN	PAS CAUS ANTIP COMP	
(a)	H	HM	fˆîr-sə́	fír-ən-sə́	fír-ən-s=ənə́	'smell'
(b)	M	HM	cūr-sú	cúr-ūn-sú	cúr-ūn-s=ənə́	'help'
(c)	L	ML	ḍūr-sū	ḍūr-ùn-sū	ḍūr-ùn-s=ənə́	'bury'
(d)	HL	HL	pə̂r-sə̄	pə́r-ən-sə̄	pə́r-ən-s=ənə́	'attach'
(e)	HM	HM	bîl-ḍə́	bíl-ən-sə́	bíl-ən-s=ənə́	'name'
(f)	ML	ML	būŋ-sū	būŋ-ḍ-ùn-sū	būŋ-ḍ-ùn-s=ənə́	'stand'
(g)	MH	HM	kə̄s-sə́	kə́ð-ən-sə́	kə́ð-ən-s=ənə́	'strike'

10.4 Object pronouns

Second and third person object pronouns are clitics attached to verb stems, whereas first person object pronouns are analyzed as separate morphemes since they do not undergo changes in [ATR] quality. As presented in 5.4, the unmarked object pronouns are relisted in (27). Several person object pronouns have tonal allomorphs which are discussed in the following section on object pronoun tonal morphology.

(27) **Unmarked object pronouns**

Singular person pronouns		Plural person pronouns	
a	1sA	aaggá, áāggá	1pA
=O	2sA	=OOggÓ, =ÓŌggÓ	2pA
=E, =É	3sA	=EEggÀ, =ÉÈggÀ	3pA

First person pronouns have back unrounded [-ATR] vowels which do not become [+ATR] regardless of the root they follow. Thus they are analyzed as separate morphemes. When first person object pronouns follow verb stems with suffixes such as the completive forms *cə̄r-sá* 'help-COMP', *cúr-sú* 'tie-COMP' of (28), the stem-final vowel is elided and the tone of the verb root spreads to the object pronoun, just as if the first person object were a clitic as the other object pronouns. In 12.1, it is shown that independent body part locatives sometimes have elided vowels and tone changes similar to clitics. The first person object pronouns are no more unusual in their alternations than these body part locatives.

(28a) ɛ̄ cə̄r-s á
3sN /cə̄r/help-COMP 1sA
'He helped me.'

(b) ɛ̄ cúr-s á
3sN /cúr/tie-COMP 1sA
'He tied me.'

Marked third person object pronouns are [+ATR] and also have tonal allomorphs.

(29) **Marked third person object pronouns**

Singular person pronouns		Plural person pronouns	
=i, =ì, =îggì	3sAM	=iiggə́, =ìiggə́, =îggə́	3pAM

As mentioned in 5.4, one difference between the two sets of third object pronouns is grammatical agreement with the subordinate clause in which the noun referents are introduced. In (30a), the unmarked [-ATR] object pronoun attached to *wár-s=**è*** 'take-COMP=3sA' refers to the noun *páré=n* 'bag=DEF' introduced in the subordinate 'if' clause, whereas in (b) the marked [+ATR] object pronoun attached to *wór=**ì*** 'take.INCP=3sAM' refers to a noun introduced by the subordinate conjunction *é gārá* 'when'.

(30) **Third singular marked and unmarked object pronouns**

(a)	ɟāā=n	ɛ̄	ŋǎŋ-s=ɛ̂	páré=n=é,	á	lɛ́ɛ̄	wár-s=**ɛ̀**
	person	3sN	file-COMP	bag=DEF	1sN	come.	take-COMP
	=DEF		=SBO2	=SBO		INCP	=3sA

'If the person filed/sanded the leather bag, I will come take it.'

(b)	é gārá	ɟāā=n	ŋə̄ŋ-s=ǐ	páré=n=é,	á	lɛ́ɛ̄	wər=**ì**
	(GP)	person	/ŋān/file-COMP	bag=DEF	1sN	come.	take.INCP
	when	=DEF	=SBO1	=SBO		INCP	=3sAM

'When the person has filed the bag, I will come take it.'

As discussed in 10.2, the agented passive clitic $=\hat{E}$ of (31a-b) indicates a third person agent (or experiencer) encoded post-verbally in a prepositional phrase or in genitive case, and agrees in number with the subject. Post-verbal agents are in genitive case which is marked by a tone change. In such clauses, the semantic patient or theme (syntactic subject), encoded as a noun in (a) or pronoun as in (b), is pre-verbal.

(31) **Pre-verbal third singular themes**

(a)	**mīī=n**	gàɔ-s=**ɛ̄**	ɟɛ̂n	(b)	**ɛ̄(ɛ̄n)**	gàɔ-s=**ɛ̄**	ɟɛ̂n
	goat=DEF	give-	person.		3sN	give-	person.
		COMP=PAS.A	GEN			COMP=PAS.A	GEN
	'The goat was given by the person.'				'It (goat) was given by the person.'		

We now compare marked and unmarked objects and syntactic subjects (semantic patients or themes) of agented passive clauses. We compare third singular and plural subjects with third singular and plural objects. Clauses which compare the grammatical structures are first shown in (32), and the resulting verb forms which compare the morphemes are shown in the chart of (33).

In each of the clauses of (32), a third singular subject is combined with a third singular object. These grammatical structures are representative of the singular and plural combinations of subjects and objects shown in the chart to follow. In (a), the subject verb form has no object pronoun, in (b) the verb has an unmarked object pronoun, and in (c) a marked object pronoun. The clause of (d) has the same meaning as those of (b-c), but the pronoun patient is in focus, being a syntatic

subject of an agented passive clause. The same clause with a noun patient is given in (e) for comparison.

(32) **Third singular subject with third singular object (3sN - 3sA)**

No object pronoun

(a) ɟɛ̄n bèl-ḍā mīīn
person beat-COMP goat.DEF
'The person beat the goat.'

Unmarked object pronoun

(b) ɟɛ̄n bèl-ḍ̈ = **ɛ̄**
person beat-COMP = 3SA
'The person beat it (goat).'

Marked object pronoun

(c) ɟɛ̄n bīl-ḍ̈ = **ì**
person beat-COMP = 3SAM
'The person beat it (goat).'

Subject pronoun

(d) **ɛ̄(ɛ̄n)** bèl-ḍ̈ = **ɛ̄** ɟɛ̂n
3sN beat-COMP = PAS.A person.GEN
'It (goat) was beaten by the person.'

Subject noun

(e) mīī = n bèl-ḍ̈ = **ɛ̄** ɟɛ̂n
goat = DEF beat-COMP = PAS.A person.GEN
'The goat was beaten by the person.'

In the chart of (33), the four rows show the various combinations of singular and plural subjects with the marked and unmarked plural objects. In correspondence with the grammatical structures of (32), column (a) shows subject forms without object pronouns, (b) shows subject forms with unmarked object pronouns, (c) shows subject forms with marked object pronouns, (d) shows syntactic pronoun subjects of agented passive clauses, and for comparison, (e) shows syntactic noun subjects of agented passive clauses.

(33) **Third singular and plural subject and object verb forms of *bèl* 'beat' compared**

NOM	ACC	(a) No object PRON	(b) Unmarked object PRON	(c) Marked object PRON	(d) Subject PRON	(e) Subject N
3sN	3sA(M)	bèl-ḍā	bèl-ḍ̈ = **ɛ̄**	bīl-ḍ̈ = **ì**	**ɛ̄(ɛ̄n)** bèl-ḍ̈ = ɛ̄	mīīn bèl-d = ɛ̄
3pN	3sA(M)	bɛ̄l-ḍà	bɛ̄l-ḍ̈ = **è**	bīl-ḍ̈ = **îiggì**	**ɛ̄(ɛ̄n)** bèl-ḍ̈ = ɛ̄ɛ̄	mīīn bèl-ḍ̈ = ɛ̄ɛ̄
3sN	3pA(M)	bèl-ḍā	bèl-ḍ̈ = **ɛ̄ɛ̄ggà**	bīl-ḍ̈ = **ìiggè**	**ɛ̄ggà** bèl-ḍ̈ = ɛ̄	mīīgg bèl-ḍ̈ = ɛ̄
3pN	3pA(M)	bɛ̄l-ḍà	bɛ̄l-ḍ̈ = **ɛ̄èggà**	bìl-ḍ̈ = **îiggè**	**ɛ̄ggà** bèl-ḍ̈ = ɛ̄ɛ̄	mīīgg bèl-ḍ̈ = ɛ̄ɛ̄

As shown in (33), unmarked third object pronouns segmentally agree in number with their referent; the segment *-gg-* marks the plural object (*bèl-ḍ=ɛ̄ɛ̄ggà* 'beat=3sN/3pA', *bɛ̄l-ḍ=ɛ̄èggà* 'beat=3pN/3pA'). The different tonal allomorphs of the objects predictably attach to different subject forms as further described in 10.4.2. In marked third object pronouns, the segment *-gg-* marks the plural object (*bīl-ḍ=ìiggə̀* 'beat=3sN/3pAM', *bìl-ḍ=îggə̀* 'beat=3pN/3pAM') as well as a singular object combined with a plural subject (*bīlḍ=ìiggì* 'beat=3pN/3sAM'). Again, the different tonal allomorphs of the objects predictably attach to different subject forms. Syntactic pronoun subjects of agented passive clauses have the same form as subjects of active clauses [*ɛ̄(ɛ̄n)* 'he (3sN)', *ɛ̄ggà* 'they (3pN)']. They are independent and agree in number with the referent. For these pre-verbal patients or themes, the agented passive verb clitic *=Ɛ̄* marks that a singular agent comes after the verb and the suffix *=Éɛ̄* marks that a plural agent comes after the verb.

10.4.1 Object pronoun segmental morphology

In (34), the third singular unmarked object clitic *=Ɛ̄* and marked clitic *=ì* are attached to incompletive verbs with various root-final segments. The clitics attach to the surface-final segments of the incompletive form rather than to the underlying segments.

(34) **Third singular object clitics *=Ɛ̄*, *=ì* on incompletive verbs**

	UR	INCP 3sN	INCP 3sN/3sA	INCP 3sN/3sAM	
(a)	/ab/ L	àɔ̄	àɔ̀. = ɛ̄, àw = ɛ̄	ə̄ū. = ì, ə̄w = ì	'sit'
(b)	/kaɟ/ H	káɛ́	káɛ́. = ɛ̂, káy = ɛ̂	kə́í. = ì, kə́y = ì	'bring'
(c)	/cig/ M	cīī	cīī. = ǐ	cīī. = ì	'wear'
(d)	/cuḍ/ M	cūḍ	cūḍ = ǐ	cūḍ = ì	'climb'
(e)	/lɔf/ L	lɔ̄f	lɔ̀f = ɛ̄	lūf = ì	'do magic'
(f)	/las/ M	lās	lās = ɛ̂	lə̄s = ì	'roll-up'
(g)	/ɲam/ M	ɲām	ɲām = ɛ̂	ɲə̄m = ì	'break'
(h)	/gɔn/ L	gɔ̄n, gɔ̀ɔ̄	gɔ̀n = ɛ̄, gɔ̀ɔ̀. = ɛ̄	gūn = ì, gūū. = ì	'grab'
(i)	/guɲ/ L	gŭɲ	gŭɲ = ī	gūɲ = ì	'agree'
(j)	/mal/ M	māl	māl = ɛ̂	mə̄l = ì	'gather'
(k)	/wɛr/ M	wɛ̄r	wɛ̄r = ɛ̂	wīr = ì	'watch'
(l)	/ɲaw/ H	ɲáɔ́-(n)	ɲáɔ́. = ɛ̂, ɲáw = ɛ̂	ɲə́ú. = ì, ɲə́ú = nì	'request'
(m)	/kɔy/ H	kɔ́ɛ́-(n)	kɔ́ɛ́. = ɛ̂, kɔ́y = ɛ̂	kúí. = ì, kúí = nì	'cook'
(n)	/fɛð/ H	fɛ́ð-(n)	fɛ́ð = ɛ̂, fɛ́ð = nɛ̂	fíð = ì, fíð = nì	'release'
(o)	/pa/ M	pāā, pā-ḍ	pāā = ɛ̄, pā-ḍ = ɛ̂	pə̄ə̄ = ì, pə̄-ḍ = ì	'guard'
(p)	/bɛɛ/ L	bɛ̀ɛ̄-(n)	bɛ̀ɛ̀ = ɛ̄, bɛ̀ɛ̀-n = ɛ̄	bīī. = ì, bīī-n = ì	'say'

When object clitics are attached to polysyllabic, vowel-final stems, such as in the completive form *cɔ̄r-sɔ́* 'help.3sN-COMP', the stem suffix vowel is elided {M1} as in *cɔ̄r-s=ɛ́* 'help.3sN-COMP=3sA'. When a singular person object clitic vowel is the same as the elided completive suffix vowel, the object clitic vowel can be

lengthened and *n* added so as to distinguish the two bound morphemes *cɔ̄r-s=ɔ́(ɔ́n)* 'help.3sN-COMP=2sA'. In (35), the first singular *a* and second singular *=O* object pronouns follow third singular completive forms with various root vowels. The segments in parentheses are optionally added to distinguish the object pronoun from the completive suffix alone.

(35) **Object pronouns *A, =O* on third singular completives**

UR	3sN	3sN/1sA	3sN/2sA	
/ɟɛr/ L	ɟèr-sā	ɟèr-s ā(ān)	ɟèr-s=ɔ̄	'forget'
/kaam/ HL	káàm-sā	káàm-s ā(ān)	káàm-s=ɔ̄	'work'
/cɔr/ M	cɔ̄r-sɔ́	cɔ̄r-s á	cɔ̄r-s=ɔ́(ɔ́n)	'help'
/cur/ H	cúr-sú	cúr-s á	cúr-s=ú(ún)	'tie'

10.4.2 Object pronoun tonal morphology

Underlying tone for object pronouns is shown in table 48. For several object pronouns, there are different tonal allomorphs when attached to different subject forms. Third singular *=Ē,* first plural *áāggá* and second plural *=ÓŌggÓ* objects have underlying initial HM tone when attached to third singular verbs, but otherwise have no tone on the first syllable. Third plural *=ÉÈggÀ* objects have underlying initial HL tone when attached to third singular and third plural verbs, but otherwise have no tone on the first syllable. First *a* and second *=O* singular objects have no underlying tone regardless of the subject form to which they are attached. Third marked objects have underlying initial Low tone *=ì, =ìiggə* when attached to third singular verbs, and have underlying initial HL tone *=îggì, =îggə* when attached to third plural verbs, but otherwise have no tone on the first syllable.

Table 48: Tone of object pronouns on subject person verb forms

	Unmarked						Marked	
	1sA	2sA	3sA	1pA	2pA	3pA	3sAM	3pAM
1sN		=O	=E		=OOggÓ	=EEggÀ	=i	=iiggə
2sN	a		=E	aaggá		=EEggÀ	=i	=iiggə
3sN	a	=O	=Ē	áāggá	=ÓŌggÓ	=ÉÈggÀ	=ì	=ìiggə
1pN		=O	=E		=OOggÓ	=EEggÀ	=i	=iiggə
2pN	a		=E	aaggá		=EEggÀ	=i	=iiggə
3pN	a	=O	=E	aaggá	=OOggÓ	=ÉÈggÀ	=îggì	=îggə

Tone assignment on object pronouns attached to incompletive, completive, and continuous forms is mostly the same for respective person forms to which the objects are attached. We now present various object pronouns with these three verb forms.

In (36), the second singular *=O,* third singular *=E,* second plural *=OOggÓ,* and third plural *=EEggÀ* object pronouns are attached to first singular incompletive

forms with various root tone melodies. First person Mid tone is assigned to initial clitic vowels with no underlying tone {M5-6}, but assimilates to preceding Low {M9} in (c,d,f).

(36) **First singular incompletive verbs with second singular *=O*, third singular *=E*, second plural *=OOggÓ*, and third plural *=EEggÀ* object pronouns**

	Root tone	INCP 1sN	INCP 1sN/ 2sA	INCP 1sN/ 3sA	INCP 1sN/ 2pA	INCP 1sN/ 3pA	
(a)	H	fír	fír = ū	fír = ī	fír = ūūggú	fír = īīggə	'smell'
(b)	M	cɔ̄r	cɔ̄r = ɔ̄	cɔ̄r = ɛ̄	cɔ̄r = ɔ̄ɔ̄ggó	cɔ̄r = ɛ̄ɛ̄ggà	'help'
(c)	L	ḍ̈ùr	ḍ̈ùr = ù	ḍ̈ùr = ì	ḍ̈ùr = ùùggū	ḍ̈ùr = ììggə̀	'bury'
(d)	HL	pə̂r	pə̂r = ù	pə̂r = ì	pə̂r = ùùggū	pə̂r = ììggə̀	'attach'
(e)	HM	bɛ̂l	bɛ̂l = ɔ̄	bɛ̂l = ɛ̄	bɛ̂l = ɔ̄ɔ̄ggó	bɛ̂l = ɛ̄ɛ̄ggà	'name'
(f)	ML	bṵ̈ŋ-ḍ̈ù	bṵ̈ŋ-ḍ̈ = ù	bṵ̈ŋḍ̈ = ì	bṵ̈ŋ-ḍ̈ = ùùggū	bṵ̈ŋ-ḍ̈ = ììggə̀	'make-big'
(g)	MH	kə̋ ð	kə̋ð = ū	kə̋ð = ī	kə̋ð = ūūggú	kə̋ð = īīggə̀	'strike'

In (37), the first singular *a [-ATR]*, third singular *=Ẽ*, first plural *áāggá [-ATR]*, and third plural *=ÉÈggÀ* object pronouns are attached to third singular incompletive verbs. Third singular High tone is assigned to the first singular object pronoun with no underlying tone {M5-6} but becomes Mid following Low in (c,d,f) {M9}. Underlying initial High tone on the other three object pronouns also becomes Low in (c,d,f) {M9}.

(37) **Third singular incompletive verbs with first singular *a*, third singular *=Ẽ*, first plural *áāggá*, and third plural *=ÉÈggÀ* object pronouns**

	Root tone	INCP 3sN	INCP 3sN/ 1sA	INCP 3sN/ 3sA	INCP 3sN/ 1pA	INCP 3sN/ 3pA	
(a)	H	fír	fír á	fír = ī	fír áāggá	fír = īggə̀	'smell'
(b)	M	cɔ̄r	cɔ̄r á	cɔ̄r = ɛ̄	cɔ̄r áāggá	cɔ̄r = ɛ́ɛ̀ggà	'help'
(c)	L	ḍ̈ùr	ḍ̈ùr ā	ḍ̈ùr = ī	ḍ̈ùr āāggá	ḍ̈ùr = ìggə̀	'bury'
(d)	HL	pə̋ r	pə̂r ā	pə̂r = ī	pə̂r āāggá	pə̂r = ìggə̀	'attach'
(e)	HM	bɛ̋ l	bɛ̂l á	bɛ̂l = ɛ̄	bɛ̂l áāggá	bɛ̂l = ɛ́ɛ̀ggà	'name'
(f)	ML	bùn-ḍ̈ū	bṵ̈ŋ-ḍ̈ ā	bṵ̈ŋ-ḍ̈ = ī	bṵ̈ŋ-ḍ̈ āāggá	bṵ̈ŋ-ḍ̈ = ìggə̀	'make. big'
(g)	MH	kə̋ð	kə̋ð á	kə̋ð = ī	kə̋ð áāggá	kə̋ð = ìggə̀	'strike'

In (38), the same four object pronouns are attached to third plural incompletive verbs, in which the third singular *=E* and first plural *aaggá* have different tonal allomorphs with no underlying initial tone. Third plural Low tone is assigned to the initial vowels of the first three object pronouns having no underlying tone {M5-6}. The underlying initial High tone of the third plural object pronoun *ÉÈggÀ* becomes Mid following Low {M9} in (c,d,f).

(38) **Third plural incompletive verbs with first singular *a [-ATR]*, third singular *=E*, first plural *aaggá [-ATR]*, and third plural *=ÉÈggÀ* object pronouns**

	Root tone	INCP 3pN	INCP 3pN/ 1SA	INCP 3pN/ 3SA	INCP 3pN/ 1pA	INCP 3pN/ 3pA	
(a)	H	fír	fír à	fír=ì	fír ààggā	fír=îggə	'smell'
(b)	M	cɔ̄r	cɔ̄r à	cɔ̄r=è	cɔ̄r ààggā	cɔ̄r=éèggà	'help'
(c)	L	ḍ̱ūr	ḍ̱ūr à	ḍ̱ūr=ì	ḍ̱ūr ààggā	ḍ̱ùr=ìiggə	'bury'
(d)	HL	pə̂r	pə̂r à	pə̂r=ì	pə̂r ààggā	pə̂r=ìiggə	'attach'
(e)	HM	bɛ̂l	bɛ̂l à	bɛ̂l=è	bɛ̂l ààggā	bɛ̂l=éèggà	'name'
(f)	ML	bū̱ŋ-ḍ̱ù	bū̱ŋ-ḍ̱ à	bū̱ŋ-ḍ̱=ì	bū̱ŋ-ḍ̱ ààggā	bū̱ŋ-ḍ̱=ìiggə	'make-big'
(g)	MH	kə̌ð	kə̌ð à	kə̌ð=ì	kə̌ð ààggā	kə̌ð=îggə	'strike'

Similar tone assignment is shown for the same object pronouns on first singular, third singular, and third plural completive verbs in (39-41). In (39), first person Mid

(39) **First singular completive verbs with second singular *=O*, third singular *=E*, second plural *=OOggÓ*, and third plural *=EEggÀ* object pronouns**

	Root tone	COMP 1SN	COMP 1SN/ 2SA	COMP 1SN/ 3SA	COMP 1SN/ 2pA	COMP 1SN/ 3pA	
(a)	H	fír-sə	fír-s=ū	fír-s=ī	fír-s=ūūggú	fír-s=īiggə	'smell'
(b)	M	cɔ̄r-sɔ̄	cɔ̄r-s=ɔ̄	cɔ̄r-s=ɛ̄	cɔ̄r-s=ɔ̄ɔ̄ggó	cɔ̄r-s=ɛ̄ɛ̄ggà	'help'
(c)	L	ḍ̱ùr-sù	ḍ̱ùr-s=ù	ḍ̱ùr-s=ì	ḍ̱ùr-s=ùùggū	ḍ̱ùr-s=ìiggə	'bury'
(d)	HL	pə̂r-sə	pə̂r-s=ù	pə̂r-s=ì	pə̂r-s=ùùggū	pə̂r-s=ìiggə	'attach'
(e)	HM	bɛ̂l-ḍ̱ā	bɛ̂l-ḍ̱=ɔ̄	bɛ̂l-ḍ̱=ɛ̄	bɛ̂l-ḍ̱=ɔ̄ɔ̄ggó	bɛ̂l-ḍ̱=ɛ̄ɛ̄ggà	'name'
(f)	ML	bū̱ŋ-sù	bū̱ŋ-s=ù	bū̱ŋ-s=ì	bū̱ŋ-s=ùùggū	bū̱ŋ-s=ìiggə	'make-big'
(g)	MH	kə̌s-sə	kə̌s-s=ū	kə̌s-s=ī	kə̌s-s=ūūggú	kə̌s-s=īiggə	'strike'

tone is assigned to initial object vowels with no underlying tone {M5-6}.

In (40), both third singular High tone assigned to the first singular object pronoun *a* with no underlying tone {M5-6} and underlying initial High tone on the other three object pronouns becomes Mid {M9} in (c,d,f).

(40) **Third singular completive verbs with first singular *a*, third singular *=Ē*, first plural *áāggá*, and third plural *=ÉÈggÀ* object pronouns**

	Root tone	COMP 3sN	COMP 3sN/ 1sA	COMP 3sN/ 3sA	COMP 3sN/ 1pA	COMP 3sN/ 3pA	
(a)	H	fír-sə́	fír-s á	fír-s=î	fír-s áāggá	fír-s= îggə	'smell'
(b)	M	cɔ̄r-sɔ́	cɔ̄r-s á	cɔ̄r-s=ɛ̂	cɔ̄r-s áāggá	cɔ̄r-s= éɛ̀ggà	'help'
(c)	L	ḍ̈ùr-sū	ḍ̈ùr-s ā	ḍ̈ùr-s=ī	ḍ̈ùr-s āāggá	ḍ̈ùr-s= îggə	'bury'
(d)	HL	pə̂r-sə̄	pə̂r-s ā	pə̂r-s=ī	pə̂r-s āāggá	pə̂r-s= îggə	'attach'
(e)	HM	bɛ́l-ḍ́á	bɛ́l-ḍ́ á	bɛ́l-ḍ́=ɛ̂	bɛ́l-ḍ́ áāggá	bɛ́l-ḍ́= éɛ̀ggà	'name'
(f)	ML	bṵ̀ŋ-sū	bṵ̀ŋ-s ā	bṵ̀ŋ-s=ī	bṵ̀ŋ-s āāggá	bṵ̀ŋ-s= îggə	'make-big'
(g)	MH	kə̋s-sə́	kə̋s-s á	kə̋s-s=î	kə̋s-s áāggá	kə̋s-s= îggə	'strike'

In (41), third plural Low tone is assigned to initial vowels of the first three object pronouns having no underlying tone {M5-6}. The underlying initial High tone of the third plural object pronoun becomes Mid {M9} in (c,d,f).

(41) **Third plural completive verbs with first singular *a*, third singular *=E*, first plural *aaggá*, and third plural *=ÉÈggÀ* object pronouns**

	Root tone	COMP 3pN	COMP 3pN/ 1sA	COMP 3pN/ 3sA	COMP 3pN/ 1pA	COMP 3pN/ 3pA	
(a)	H	fír-sə̀	fír-s à	fír-s=ì	fír-s ààggā	fír-s= îggə	'smell'
(b)	M	cɔ̄r-sɔ̀	cɔ̄r-s à	cɔ̄r-s=ɛ̀	cɔ̄r-s ààggā	cɔ̄r-s= éɛ̀ggà	'help'
(c)	L	ḍ̈ūr-sù	ḍ̈ūr-s à	ḍ̈ūr-s=ì	ḍ̈ūr-s ààggā	ḍ̈ùr-s= îggə	'bury'
(d)	HL	pə̂r-sə̀	pə̂r-s à	pə̂r-s=ì	pə̂r-s ààggā	pə̂r-s= îggə	'attach'

	Root tone	COMP 3pN	COMP 3pN/ 1sA	COMP 3pN/ 3sA	COMP 3pN/ 1pA	COMP 3pN/ 3pA	
(e)	HM	bêl-ḍà	bêl-ḍ à	bêl-ḍ = ɛ̀	bêl-ḍ ààggā	bɛ́l-ḍ = ɛ́ɛ̀ggà	‘name’
(f)	ML	bṵ̀ŋ-sù	bṵ̀ŋ-s à	bṵ̀ŋ-s = ì	bṵ̀ŋ-s ààggā	bṵ̀ŋ-s = ìiggə̀	‘make-big’
(g)	MH	kə̋s-sə̀	kə̋s-s à	kə̋s-s = ì	kə̋s-s ààggā	kə̋s-s = ìiggə̀	‘strike’

Similar tone assignment is shown for object pronouns attached to first singular, third singular, and third plural continuous past verbs in (42-44), although with a few differences. In (42), first person Mid tone is assigned to initial object vowels with no underlying tone {M6}.

(42) **First singular continuous past verbs with third singular *=E*, second plural *=OOggÓ*, and third plural *=EEggÀ* object pronouns**

	Root tone	CONT.P 1sN	CONT.P 1sN/3sA	CONT.P 1sN/2pA	CONT.P 1sN/3pA	
(a)	H	fír-ə̋̄n	fír-ən = ūūggú	fír-ən = ūūggú	fír-ən = iiggə̀	‘smell’
(b)	M	cə̄r-ān	cə̄r-án = ɛ̄	cə̄r-án = ɔ̄ɔ̄ggó	cə̄r-án = ɛ̄ɛ̄ggà	‘help’
(c)	L	ḍùr-ən	ḍùr-ən = ī	ḍùr-ən = ūūggú	ḍùr-ən = iiggə̀	‘bury’
(d)	HL	pə́r-ən	pə́r-ən = ī	pə́r-ən = ūūggú	pə́r-ən = iiggə̀	‘attach’
(e)	HM	bɛ́l-ā̋̄n	bɛ́l-ān = ɛ̄	bɛ́l-ān = ɔ̄ɔ̄ggó	bɛ́l-ān = ɛ̄ɛ̄ggà	‘name’
(f)	ML	bṵ̀ŋ-ḍ-ən	bṵ̀ŋ-ḍ-ən = ī	bṵ̀ŋ-ḍ-ən = ūūggú	bṵ̀ŋ-ḍ-ən = iiggə̀	‘make-big’
(g)	MH	kə̋ð-ə̋̄n	kə̋ð-ən = ī	kə̋ð-ən = ūūggú	kə̋ð-ən = iiggə̀	‘strike’

In (43), underlying initial High tone on the three object pronouns remains High following High tone on the continuous past suffix.

(43) **Third singular continuous past verbs with third singular *=Ē*, first plural *áāggá*, and third plural *=ÉÈggÀ* object pronouns**

	Root tone	CONT.P 3sN	CONT.P 3sN/3sA	CONT.P 3sN/1pA	CONT.P 3sN/3pA	
(a)	H	fír-ən	fír-ən = ī	fír-ən áāggá	fír-ən = iiggə̀	‘smell’
(b)	M	cə̄r-án	cə̄r-án = ɛ̄	cə̄r-án áāggá	cə̄r-án = ɛ́ɛ̀ggà	‘help’

	Root tone	CONT.P 3sN	CONT.P 3sN/3sA	CONT.P 3sN/1pA	CONT.P 3sN/3pA	
(c)	L	ḍùr-ən	ḍùr-ən = ì	ḍùr-ən áāggá	ḍùr-ən = ìggə	'bury'
(d)	HL	pər-ən	pər-ən = ì	pər-ən áāggá	pər-ən = ìggə	'attach'
(e)	HM	bɛ́l-án	bɛ́l-án = ɛ̀	bɛ́l-án áāggá	bɛ́l-án = ɛ́ɛ̀ggà	'name'
(f)	ML	bṵ̀ŋ-ḍ̀-ən	bṵ̀ŋ-ḍ̀-ən = ì	bṵ̀ŋ-ḍ̀-ən áāggá	bṵ̀ŋ-ḍ̀-ən = ìggə	'make-big'
(g)	MH	kə̋ð-ən	kə̋ð-ən = ì	kə̋ð-ən áāggá	kə̋ð-ən = ìggə	'strike'

In (44), third plural Low tone is assigned to initial vowels of the first two object pronouns, having no underlying tone. The underlying initial High tone of the third plural object pronoun remains High following High tone on the continuous past suffix. For unknown reasons there is no stem-final third plural Low tone present in such forms or the initial High tone of the third plural object clitic is not lowered if stem-final Low tone is present {M9 does not apply}.

(44) **Third plural continuous past verbs with third singular *=E*, first plural *aaggá*, and third plural *=ÉÈggÀ* object pronouns**

	Root tone	CONT.P 3pN	CONT.P 3pN/3sA	CONT.P 3pN/1pA	CONT.P 3pN/3pA	
(a)	H	fír-ə̋̀n	fír-ən = ì	fír-ən ààggā	fír-ən = ìggə	'smell'
(b)	M	cɔ̄r-ân	cɔ̄r-án = ɛ̀	cɔ̄r-án ààggā	cɔ̄r-án = ɛ́ɛ̀ggà	'help'
(c)	L	ḍùr-ən	ḍùr-ən = ì	ḍùr-ən ààggā	ḍùr-ən = ìggə	'bury'
(d)	HL	pər-ə̀n	pər-ən = ì	pər-ən ààggā	pər-ən = ìggə	'attach'
(e)	HM	bɛ́l-ā̀n	bɛ́l-án = ɛ̀	bɛ́l-án ààggā	bɛ́l-án = ɛ́ɛ̀ggà	'name'
(f)	ML	bṵ̀ŋ-ḍ̀-ə̀n	bṵ̀ŋ-ḍ̀-ən = ì	bṵ̀ŋ-ḍ̀-ən ààggā	bṵ̀ŋ-ḍ̀-ən = ìggə	'make-big'
(g)	MH	kə̋ð-ə̋̀n	kə̋ð-ən = ì	kə̋ð-ən ààggā	kə̋ð-ən = ìggə	'strike'

We also show marked object pronouns attached to three persons of completive forms. In (45), the third singular *=i* and third plural *=iiggə* marked object pronouns are attached to first singular completive forms. Second person Mid tone is

(45) **First singular completive verbs with third singular *=i* and third plural *=iiggə* marked object pronouns**

	Root tone	COMP 1sN	COMP 1sN/3sAM	COMP 1sN/3pAM	
(a)	H	fír-sə́	fír-s = ī	fír-s = īiggə	'smell'
(b)	M	cɔ̄r-sə́	cūr-s = ī	cūr-s = īiggə	'help'
(c)	L	ḍùr-sū	ḍùr-s = ì	ḍùr-s = ìiggə	'bury'
(d)	HL	pə̂r-sə̄	pə̂r-s = ì	pə̂r-s = ìiggə	'attach'
(e)	HM	bɛ̂l-ḍá	bîl-ḍ = ī	bîl-ḍ = īiggə	'name'
(f)	ML	bṵ̀ŋ-sū	bṵ̀ŋ-s = ì	bṵ̀ŋ-s = ìiggə	'make-big'
(g)	MH	kə̋s-sə́	kə̋s-s = ī	kə̋s-s = īiggə	'strike'

assigned to initial object pronoun vowels with no underlying tone, but assimilates to preceding Low {M9} in (c,d,f).

In (46), the third singular *=ì* and third plural *=ìiggə* object pronouns with underlying Low tone are attached to third singular completive verbs. Third singular High tone is not present on the completive suffix since Low root tone in (c) becomes Mid {M8} and the Mid of HM root tone in (e) assimilates to the object clitic Low tone {M7}.

(46) **Third singular completive verbs with third singular *=ì* and third plural *=ìiggə* object pronouns**

	Root tone	COMP 3sN	COMP 3sN/3sAM	COMP 3sN/3pAM	
(a)	H	fír-sə́	fír-s=ì	fír-s=ìiggə	'smell'
(b)	M	cɔ̄r-sə́	cūr-s=ì	cūr-s=ìiggə	'help'
(c)	L	ḍùr-sū	ḍūr-s=ì	ḍūr-s=ìiggə	'bury'
(d)	HL	pə̂r-sə̄	pə̂r-s=ì	pə̂r-s=ìiggə	'attach'
(e)	HM	bɛ̂l-ḍá	bîl-ḍ=ì	bîl-ḍ=ìiggə	'name'
(f)	ML	bṵ̀ŋ-sū	bṵ̀ŋ-s=ì	bṵ̀ŋ-s=ìiggə	'make-big'
(g)	MH	kə̋s-sə́	kə̋s-s=ì	kə̋s-s=ìiggə	'strike'

In (47), the third singular *=îggì* and third plural *=îggə* object pronouns with underlying initial HL tone are attached to third plural completive verbs. In third singular object clitics, initial High tone becomes Mid following Low tone in (c,d,f) {M9}, but in third plural object clitics, for unknown reasons, initial High tone does not alternate {M9 is not applied}.

(47) **Third plural completive verbs with third singular *=îggì* and third plural *=îggə* object pronouns**

	Root tone	COMP 3pN	COMP 3pN/3sAM	COMP 3pN/3pAM	
(a)	H	fír-sə̀	fír-s=îggì	fír-s=îggə	'smell'
(b)	M	cɔ̄r-sɔ̀	cūr-s=îggì	cūr-s=îggə	'help'
(c)	L	ḍūr-sù	ḍùr-s=ìiggì	ḍùr-s=îggə	'bury'
(d)	HL	pə̂r-sə̀	pə̂r-s=ìiggì	pə̂r-s=îggə	'attach'
(e)	HM	bɛ̂l-ḍà	bîl-ḍ=îggì	bîl-ḍ=îggə	'name'
(f)	ML	bṵ̀ŋ-sù	bṵ̀ŋ-s=ìiggì	bṵ̀ŋ-s=îggə	'make-big'
(g)	MH	kə̋s-sə̀	kə̋s-s=îgì	kə̋s-s=îggə	'strike'

10.5 Dative pronouns

As discussed in section 5.5, dative pronouns have the semantic roles of beneficiary or recipient.

(48) ɟɔ̄gg gɔ̄ɔ̄r = ɔ́ bà ə́s-s = **ðggə̄n** ɟɛ̀gg ə́n-g = ì
people Goor = DEF oh became-for.us /áð/-COMP = 1pD things bad-PL = RDM
'The Goor tribe became our enemies (lit. to us bad things).' (Minj6).

All dative clitics have [+ATR] quality which spreads to the verb stem. Like object pronons, dative pronouns have tonal allomorphs for different subject person verbs to which they attach.

(49) **Dative pronouns**

Singular person pronouns		Plural person pronouns	
= ə̄n, = ðn	1sD	= ə̄ggə́n, = ðggə̄n	1pD
= ū̀n, = ǔn	2sD	= ū̀ggún, = ǔggūn	2pD
= ī̀n, = ǐn	3sD	= ī̀ggə̀n, = ǐggə̀n	3pD

10.5.1 Dative pronoun segmental morphology

In (50), the third singular dative clitic *=ī̀n* is attached to incompletive forms with various stem-final segments. The clitic attaches to the surface-final segments of the incompletive form rather than to the underlying segments.

(50) **Third singular incompletive verbs with third singular dative pronoun *=ī̀n***

		INCP 3sN	INCP 3sN/3sD	
(a)	/ab/ L	àɔ̄	ə̀w = ī̀n	'sit'
(b)	/kaɟ/ H	káé	kə́y = ī̀n	'bring'
(c)	/cig/ M	cīī	cīī. = ī̀n	'wear'
(d)	/cuɖ/ M	cūɖ	cūɖ = ī̀n	'climb'
(e)	/lɔf/ L	lɔ̄f	lù̀f = ī̀n	'do magic'
(f)	/las/ M	lās	lə̄s = ī̀n	'roll-up'
(g)	/ɲam/ M	ɲām	ɲə̄m = ī̀n	'break'
(h)	/gɔn/ L	gɔ̄n, gɔ̀ɔ̄	gùn = ī̀n, gùù. = ī̀n	'grab'
(i)	/guŋ/ L	gŭŋ	gùŋ = ī̀n	'agree'
(j)	/mal/ M	māl	mə̄l = ī̀n	'gather'
(k)	/wɛr/ M	wɛ̄r	wīr = ī̀n	'watch'
(l)	/ɲaw/ H	ɲáɔ́-(n)	ɲə́w = ī̀n, ɲə́ú-n = ī̀n	'request'
(m)	/kɔy/ H	kɔ́é-(n)	kúy = ī̀n, kúí-n = ī̀n	'cook'
(n)	/fɛð/ H	fɛ́ð-(n)	fíð = ī̀n, fíð-n = ī̀n	'release'
(o)	/pa/ M	pāā, pā-ɖ	pə̄ə̄. = ī̀n, pə̄-ɖ = ī̀n	'guard'
(p)	/bɛɛ/ L	bɛ̀ɛ̄-(n)	bìì. = ī̀n, bìì-n = ī̀n	'say'

10.5.2 Dative pronoun tonal morphology

All dative pronouns have underlying tone as shown in table 49. Dative clitic tonal

allomorphs for third plural subject forms have initial LM tone. Dative clitics for all other subject person forms have initial HM tone, or in the case of the third plural dative clitic, HL tone. All dative clitics are attached to verb forms without tonal alternations.

Table 49: Tone of dative pronouns

1sN, 2sN, 3sN, 1pN, 2pN	3pN	
=ɔ̃n	=ðn	1sD
=ū̃n	=ǔn	2sD
=ĩn	=ɪ̃n	3sD
=ɔ̃ggə́n	=ðggə̄n	1pD
=ū̃ggún	=ǔggūn	2pD
=ĩggə̀n	=ɪ̃ggə̀n	3pD

In (51), the second singular *=ū̃n*, third singular *=ĩn*, second plural *=ū̃ggún*, and third plural *-ĩggə̀n* dative pronouns are attached to first singular completive forms with various root tone melodies.

(51) **First singular completive verbs with second singular *=ū̃n*, third singular *=ĩn*, second plural *=ū̃ggún*, and third plural *=ĩggə̀n* dative pronouns**

	Root tone	COMP 1sN	COMP 1sN/ 2sD	COMP 1sN/ 3sD	COMP 1sN/ 2pD	COMP 1sN/ 3pD	
(a)	H	fír-sə̄	fír-s=ū̃n	fír-s=ĩn	fír-s= ū̃ggún	fír-s= ĩggə̀n	‘smell’
(b)	M	cɔ̄r-sɔ̄	cūr-s=ū̃n	cū-s=ĩn	cūr-s= ū̃ggún	cūr-s= ĩggə̀n	‘help’
(c)	L	ḍ̈ùr-sù	ḍ̈ùr-s=ū̃n	ḍ̈ùr-s=ĩn	ḍ̈ùr-s= ū̃ggún	ḍ̈ùr-s= ĩggə̀n	‘bury’
(d)	HL	pə̂r-sə̀	pə̂r-s=ū̃n	pə̂r-s=ĩn	pə̂r-s= ū̃ggún	pə̂r-s= ĩggə̀n	‘attach’
(e)	HM	bɛ̋l-ḍ̈ā	bĩ̂l-ḍ̈=ū̃n	bĩ̂l-ḍ̈=ĩn	bĩ̂l-ḍ̈= ū̃ggún	bĩ̂l-ḍ̈= ĩggə̀n	‘name’
(f)	ML	dɔ̃ɔ̀s-sɔ̀	dūùs-s=ū̃n	dūùs-s=ĩn	dūùs-s= ū̃ggún	dūùs-s= ĩggə̀n	‘stand’
(g)	MH	kə̋s-sə̄	kə̋s-s=ū̃n	kə̋s-s=ĩn	kə̋s-s= ū̃ggún	kə̋s-s= ĩggə̀n	‘strike’

In (52), the first singular *=ɔ̃n*, third singular *=ĩn*, first plural *=ɔ̃ggə́n*, and third plural *=ĩggə̀n* dative pronouns are attached to third singular completive forms.

(52) **Third singular completive verbs with first singular *=ə̂n*, third singular *=ə̂n*, first plural *=ə̂ggə́n*, and third plural *=ə̂ggə̀n* dative pronouns**

	Root tone	COMP 3sN	COMP 3sN/ 1sD	COMP 3sN/ 3sD	COMP 3sN/ 1pD	COMP 3sN/ 3pD	
(a)	H	fír-sə́	fír-s=ə̂n	fír-s=ə̂n	fír-s= ə̂ggə́n	fír-s= ə̂ggə̀n	‘smell’
(b)	M	cə̄r-sə́	cūr-s=ə̂n	cū-s=ə̂n	cūr-s= ə̂ggə́n	cūr-s= ə̂ggə̀n	‘help’
(c)	L	ḍùr-sū	ḍùr-s=ə̂n	ḍùr-s=ə̂n	ḍùr-s= ə̂ggə́n	ḍùr-s= ə̂ggə̀n	‘bury’
(d)	HL	pə̂r-sə̄	pə̂r-s=ə̂n	pə̂r-s=ə̂n	pə̂r-s= ə̂ggə́n	pə̂r-s= ə̂ggə̀n	‘attach’
(e)	HM	bɛ̂l-ḍá	bîl-ḍ=ə̂n	bîl-ḍ=ə̂n	bîl-ḍ= ə̂ggə́n	bîl-ḍ= ə̂ggə̀n	‘name’
(f)	ML	dɔ̄ɔ̀s-sɔ̀	dūùs-s=ə̂n	dūùs-s=ə̂n	dūùs-s= ə̂ggə́n	dūùs-s= ə̂ggə̀n	‘stand’
(g)	MH	kə̄s-sə́	kə̄s-s=ə̂n	kə̄s-s=ə̂n	kə̄s-s= ə̂ggə́n	kə̄s-s= ə̂ggə̀n	‘strike’

In (53), the first singular *=ə̌n*, third singular *=ə̌n*, first plural *=ə̌ggə̄n*, and third plural *=ə̌ggə̀n* dative pronouns are attached to third plural completive forms.

(53) **Third plural completive verbs with first singular *=ə̌n*, third singular *=ə̌n*, first plural *=ə̌ggə̄n*, and third plural *=ə̌ggə̀n* dative pronouns**

	Root tone	COMP 3pN	COMP 3pN/ 1sD	COMP 3pN/ 3sD	COMP 3pN/ 1pD	COMP 3pN/ 3pD	
(a)	H	fír-sə̀	fír-s=ə̌n	fír-s=ə̌n	fír-s= ə̌ggə̄n	fír-s= ə̌ggə̀n	‘smell’
(b)	M	cə̄r-sɔ̀	cūr-s=ə̌n	cū-s=ə̌n	cūr-s= ə̌ggə̄n	cūr-s= ə̌ggə̀n	‘help’
(c)	L	ḍūr-sù	ḍūr-s=ə̌n	ḍūr-s=ə̌n	ḍūr-s= ə̌ggə̄n	ḍūr-s= ə̌ggə̀n	‘bury’
(d)	HL	pə̂r-sə̀	pə̂r-s=ə̌n	pə̂r-s=ə̌n	pə̂r-s= ə̌ggə̄n	pə̂r-s= ə̌ggə̀n	‘attach’
(e)	HM	bɛ̂l-ḍà	bîl-ḍ=ə̌n	bîl-ḍ=ə̌n	bîl-ḍ= ə̌ggə̄n	bîl-ḍ= ə̌ggə̀n	‘name’
(f)	ML	dɔ̄ɔ̀s-sɔ̀	dūùs-s=ə̌n	dūùs-s=ə̌n	dūùs-s= ə̌ggə̄n	dūùs-s= ə̌ggə̀n	‘stand’
(g)	MH	kə̄s-sə̀	kə̄s-s=ə̌n	kə̄s-s=ə̌n	kə̄s-s= ə̌ggə̄n	kə̄s-s= ə̌ggə̀n	‘strike’

10.6 Imperfect verbs

In this thesis, the term 'perfect' discussed in 10.8 is used for verbs with a past or present action that remains or results in the present or future. The imperfect is simply the counterpart of such verbs. Namely, imperfect verbs indicate that a past or present action does not remain or result in the present or future. It should not be confused with imperfective aspect, which in other languages indicates an ongoing process. In (54a), the subjunctive imperfect verb indicates that although the goat will drink water, he will at some time become thirsty and need to drink again. In (b), the continuous past imperfect verb indicates that at the time the narrative takes place, the Baggara had horses, but may no longer have horses at the time the narrative is told. There is similar meaning for the incompletive imperfect verbs of (c-d). In the interrogative and declarative clauses in hortatory genre of (e), the incompletive imperfect verbs are used as habituals.

(54) **Imperfect examples**

(a) ɛ̄ wāɟ-ɟ ḍūmùùn wāā-lg ā mā-ḍ = **ɛ́** fɛ̄gg
3sN go-INF towards water. source-in SBJV /mā/drink- SBJV = IPF.3sN water
'He set out for the well in order to drink water.' (Goat2-3)

(b) bāárg = á ṭɛ̀ɛ̀ðá bɛ̄l-án = **ɛ̀ɛ̀ggà** mɔ̀sɔ̀r-ɛ̀ɛ̀g = ɛ̄ bà
Baggara = DEF here having-CONT.P = IPF.3pN horse-PL = SBO oh
'The Baggara had horses.' (Minj8)

(c) ágg cúr = **ɔ̄** ṭɔ́ɔ́ mān ṭáḍ
1pN tie.INCP = IPF.1pN cow certain down
'We tied down a buffalo over there.' (Nyee19)

(d) wɔ́r = **í** gààm = ā ṭú
/wár/bring.INCP = IPF.3sN hill.name = DEF out
'He brought (the people of the) Gaam hill out.' (Fand18)

(e) ɟīnná ɟɔ̄gg fūūì-gg = ɔ̀ wɔ̄ìn = **ìiggɔ̀** tú wɔ̂r = **ìiggɔ̀**
that people male-PL = DEF /wāɟ/go.INCP = IPF. 3pN out /wár/marry. INCP = IPF.3pN
'Why do men go out to marry

ɔ́ɔ́gg = ɛ́ ɲíínɔ̄? ɟīnná wɔ̄ìn = **ìiggɔ̀** tú = í ɛ́ kɔ̄rá
women = IPF what that /wāɟ/go.INCP = IPF.3pN out = SBO GP because
a second wife? They go out because . . ' (Womn8-9)

As seen by the paradigms of (55), the imperfect clitic agrees with the subject person, but allomorphs sometimes differ from one grammatical verb form to another.

Second person forms are always [+ATR], as well as the clitics for most other person forms of incompletive imperfect verbs, but clitics of first and third person forms in completive, subjunctive, and continuous past verbs are [-ATR]. Singular person clitics have short vowels and plural person clitics have long vowels.

(55) **Imperfect paradigms on completive, subjunctive, incompletive, and continuous past verbs**

COMP=IPF	SBJV=IPF	INCP=IPF	CONT.P=IPF	
bɛ̄l-ḍ̈=ɛ̂	mā-ḍ̈=ā(n)	wə́r=î	wāy-án=ɛ̄	1sN
bīl-ḍ̈=î	mə̄-ḍ̈=ə̄(n)	wə́r=î	wə̄y-ə́n=ī	2sN
bɛ̄l-ḍ̈=ɛ́	mā-ḍ̈=ɛ́	wə́r=í	wāy-án=ɛ̀	3sN
bɛ̄l-ḍ̈=áā	mā-ḍ̈=áā	wár=áā	wāy-án=āā	1pN
bīl-ḍ̈=úū	mə̄-ḍ̈=úū	wə́r=úū	wə̄y-ə́n=ūū	2pN
bɛ̄l-ḍ̈=ɛ́ɛ̀(ggà)	mā-ḍ̈=ɛ́ɛ̀	wə́r=îì(ggə̀)	wāy-án=ɛ̀ɛ̀(ggà)	3pN
/bɛ̄l/ ‘possess’	/mā/ ‘drink’	/wár/ ‘bring’	/wāɟ/ ‘going’	

The imperfect clitic is optionally used along with the clause-final subordinate clitic *=É*. The imperfect clitic *=Ɛ̄* alone can be used as in (56a), the subordinate clitic *=É* alone can be attached clause-finally as in (b), or both can be attached as in (c). At least (a-b), if not also (c), have the same meaning.

(56) **First singular imperfect clitic *=Ɛ̄***
and subordinate clitic *=É*

(a) āān á bɛ̄l-ḍ̈=**ɛ̂** mɔ̀sɔ̀r-ɛ̀ɛ̀g=ā
(b) āān á bɛ̄l-ḍ̈-ā mɔ̀sɔ̀r-ɛ̀ɛ̀g=**ɛ̄**
(c) āān á bɛ̄l-ḍ̈=**ɛ̂** mɔ̀sɔ̀r-ɛ̀ɛ̀g=**ɛ̄**
‘I had owned horses.’

In third plural forms, the segments *ggà* of the imperfect clitic *=ÉÈ(ggÀ)* are not present when the clause-final subordinate clitic *=É* is not present as in (57a).

(57) **Third plural imperfect *=ÉÈ(ggÀ)***
and subordinate clitic *=É*

(a) ɛ̄ggà bɛ̄l-ḍ̈-**ɛ́ɛ̀** mɔ̀sɔ̀r-ɛ̀ɛ̀g=ā
(b) ɛ̄ggà bɛ̄l-ḍ̈-à mɔ̀sɔ̀r-ɛ̀ɛ̀g=**ɛ̄**
(c) ɛ̄ggà bɛ̄l-ḍ̈-**ɛ́ɛ̀ggà** mɔ̀sɔ̀r-ɛ̀ɛ̀g=**ɛ̄**
‘They had owned horses.’

As with passive and dative clitics, tone of imperfect clitics does not alternate. In (58), the third singular imperfect clitic *=É* with underlying High tone and the third plural imperfect clitic *=ÉÈ(ggÀ)* with underlying HL tone are attached to completive forms without alternation. In third plural forms, there is no third plural Low tone present on the completive suffix since the Low root tone melody of (c)

does not become Mid ({M8} does not apply), and the Mid of the HM root tone melody of (e) does not become Low ({M7} does not apply).

(58) **Third singular *=É* and plural *=ÉÈ(ggÀ)* imperfect clitics on completive verbs**

	Root tone	COMP 3sN	IPF COMP 3sN	COMP 3pN	IPF COMP 3pN	
(a)	H	fír-sə́	fír-s = í	fír-sə̀	fír-s = îi(ggə̀)	'smell'
(b)	M	cɔ̄r-sɔ́	cɔ̄r-s = ɛ́	cɔ̄r-sɔ̀	cɔ̄r-s = ɛ́ɛ̀(ggà)	'help'
(c)	L	ḍ̲ùr-sū	ḍ̲ùr-s = í	ḍ̲ūr-sù	ḍ̲ùr-s = îi(ggə̀)	'bury'
(d)	HL	pə̂r-sə̄	pə̂r-s = í	pə̂r-sə̀	pə̂r-s = îi(ggə̀)	'attach'
(e)	HM	bɛ̌l-ḍ̲á	bɛ̌l-ḍ̲ = ɛ́	bɛ̂l-ḍ̲à	bɛ̌l-ḍ̲ = ɛ́ɛ̀(ggà)	'name'
(f)	ML	bṵ̀ŋ-sū	bṵ̀ŋ-s = í	bṵ̀ŋ-sù	bṵ̀ŋ-s = îi(ggə̀)	'make-big'
(g)	MH	kə̋s-sə́	kə̋s-s = í	kə̋s-sə̀	kə̋s-s = îi(ggə̀)	'strike'

In (59), similar tone assignment is shown for third singular and third plural imperative suffixes on subjunctive verbs.

(59) **Third singular *=É* and plural *=ÉÈ* imperfect clitics on subjunctive verbs**

	Root tone	SBJV 3sN	IPF SBJV 3sN	SBJV 3pN	IPF SBJV 3pN	
(a)	H	fír-rə́	fír-r = í	fír-rə̀	fír-r = îi	'smell'
(b)	M	cɔ́r-rɔ́	cɔ́r-r = ɛ́	cɔ́r-rɔ̀	cɔ̄r-r = ɛ́ɛ̀	'help'
(c)	L	ḍ̲ùr-rū	ḍ̲ùr-r = í	ḍ̲ūr-rù	ḍ̲ùr-r = îi	'bury'
(d)	HL	pə̂r-rə̄	pə̂r-r = í	pə̂r-rə̀	pə̂r-r = îi	'attach'
(e)	HM	bɛ̌l-ḍ̲á	bɛ̌l-ḍ̲ = ɛ́	bɛ̂l-ḍ̲à	bɛ̌l-ḍ̲ = ɛ́ɛ̀	'name'
(f)	ML	bṵ̀ŋ-ḍ̲ɔ̄	bṵ̀ŋ-ḍ̲ = í	bṵ̀n-ḍ̲ɔ̀	bṵ̀ŋ-ḍ̲ = îi	'make-big'
(g)	MH	kə̋ḍ̲-ḍ̲ɔ́	kə̋ḍ̲-ḍ̲ = í	kə̋ḍ̲-ḍ̲ə̀	kə̋ḍ̲-ḍ̲ = îi	'strike'

In the third singular and plural incompletive imperfect verbs of (60), the initial High tone of the third singular *=í* and third plural *=îi(ggə̀)* imperfect clitics does not

(60) **Third singular *=í* and plural *=îi(ggə̀)* imperfect clitics on incompletive verbs**

	Root tone	INCP 3sN	IPF INCP 3sN	INCP 3pN	IPF INCP 3pN	
(a)	H	fír	fír = í	f îr	fír = îi(ggə̀)	'smell'
(b)	M	cɔ̄r	cūr = í	cɔ̂r	cūr = îiggə̀	'help'
(c)	L	ḍ̲ūr	ḍ̲ùr = í	ḍ̲ûr	ḍ̲ùr = îi(ggə̀)	'bury'
(d)	HL	pə̂́r	pə̂r = í	pə̂r	pə̂r = îi(ggə̀)	'attach'
(e)	HM	bɛ́l	bîl = í	bɛ̂l	bîl = îi(ggə̀)	'name'
(f)	ML	bṵ̀n-ḍ̲ū	bṵ̀ŋ-ḍ̲ = í	bṵ̀ŋ-ḍ̲ù	bṵ̀ŋ-ḍ̲ = îi(ggə̀)	'make-big'
(g)	MH	kə̋ð	kə̋ð = í	kə̋̀ð	kə̋ð = îi(ggə̀)	'strike'

alternate.

In (61), the third singular *=È* and third plural *=ÈÈ(ggÀ)* imperfect clitics, both with underlying Low tone, are attached to continuous past verbs without alternation.

(61) **Third singular *=È* and plural *=ÈÈ(ggÀ)* imperfect clitics on continuous past verbs**

	Root tone	CONT.P 3sN	IPF CONT.P 3sN	CONT.P 3pN	IPF CONT.P 3pN	
(a)	H	fír-ən	fír-ən=ì	fír-ə̀n	fír-ən=ìì(ggə)	'smell'
(b)	M	cɔ̄r-án	cɔ̄r-án=è	cɔ̄r-ân	cɔ̄r-án=èè(ggà)	'help'
(c)	L	ḍ̲ùr-ən	ḍ̲ùr-ən=ì	ḍ̲ùr-ən	ḍ̲ùr-ən=ìì(ggə)	'bury'
(d)	HL	pər-ən	pər-ən=ì	pər-ə̀n	pər-ən=ìì(ggə)	'attach'
(e)	HM	bɛ́l-ān	bɛ́l-ān=è	bɛ́l-ā̀n	bɛ́l-ān=èè(ggà)	'name'
(f)	ML	bṵ̀ŋ-ḍ̲-ən	bṵ̀ŋ-ḍ̲-ən=ì	bṵ̀ŋ-ḍ̲-ə̀n	bṵ̀ŋ-ḍ̲-ən=ìì(ggə)	'make-big'
(g)	MH	kəð-ən	kəð-ən=ì	kəð-ə̀n	kəð-ən=ìì(ggə)	'strike'

10.7 Subordinate verb-final clitic

In 4.1.10, 7.7, and 8.3.8, clause-final subordinate clitics were discussed. In this section, verb-final subordinate clitics are discussed, which differ in form and function from clause-final subordinate clitics. Whereas clause-final subordinate clitics mark the end of subordinate clauses, verb-final subordinate clitics mark verbs as being in a subordinate clause and in which type of subordinate clause. There are three verb-final subordinate clitics which appear with different subordinating conjunctions introducing the clause. Third person subordinate clitics are listed in table 50 and are shown in example clauses which follow. The first verb-final subordinate clitic listed is introduced by either the conjunctions 'when' or 'because'.

Table 50: Subordinate clitics on completive verbs

	clause-final	verb-final		
		'when, because'	'if'	'but'
	SBO	SBO1	SBO2	SBO3
3sN	=É	=ɪ̌	=Ê	=Ế
3pN	=È	=îggɪ̌	=Ê	=Ế

In (62), three subordinate clauses are sentence-initial, all marked with the clause-final subordinate clitic *=É* (SBO). The verb-final clitics *=ɪ̌* (SBO1) and *=Ê* (SBO2) are attached to verbs in the same clause with the clause-final clitic. In (a-b), the verb-final subordinate clitic *=ɪ̌* (SBO1) attaches in clauses introduced with the conjunctions *ɛ́ gārá* 'when' or *ɛ́ kɔ̄rá* 'because'. In (c), the verb-final subordinate clitic *=Ê* (SBO2) attaches in the conditional 'if' clause, not introduced by any

conjunction. In conditional 'if' clauses, the subject pronoun *ɛ̄* 'he' is required between the noun subject and verb. The verb *wə́r=ì* 'take=3sAM' in the result clauses of (a-b) has incompletive aspect and the verb *wár-s=ɛ̀* 'take-COMP=3sA' in the result clause of (c) has completive aspect. In addition, the object pronoun attached to the verbs in the result clause of (a-b) is the marked [+ATR] object clitic *=ì*, whereas in (c) is the unmarked [-ATR] object clitic *=È*.

(62) **Sentence-initial subordinate clauses**

(a)	**ɛ́ gārá**	ɟāā=n	**ŋə̄ŋ-s=ì**	páré=n=**ɛ́**,	á	léɛ̄	wə́r=**ì**
	(GP)	person	/ŋān/file-COMP	bag=DEF	1sN	come.	take.INCP
	when	=DEF	=SBO1	=SBO		INCP	=3sAM

'**When** the person has filed/sanded/rubbed the leather bag, I will come take it.'

(b)	**ɛ́ kōrá**	ɟāā=n	**ŋə̄ŋ-s=ì**	páré=n=**ɛ́**,	á	léɛ̄	wə́r=**ì**
	GP	person	file-COMP	bag=DEF	1sN	come.	take.INCP
	because	=DEF	=SBO1	=SBO		INCP	=3sAM

'**Because** the person has filed the bag, I will come take it.'

(c)	ɟāā=n	ɛ̄	**ŋə́ŋ-s=ɛ̂**	páré=n=**ɛ́**,	á	léɛ̄	wár-s=**ɛ̀**
	person	3sN	file-COMP	bag=DEF	1sN	come.	take-COMP
	=DEF		=SBO2	=SBO		INCP	=3sA

'**If** the person filed the leather bag, I will come take it.'

The clause-final subordinate clitic *=É* (SBO) attaches to the final word of the clause, regardless of word category, except that it does not usually attach when the clause-final element is a verb. The clause-final clitic *=É* (SBO) attaches in (a), but not in (b) where the verb-final 'if' clitic *=Ê* (SBO2) attaches to a clause-final verb.

(63) **Clause-final subordinate clitic *=É***

(a)	ɟāā=n	ɛ̄	**ŋə́ŋ-s=ɛ̂**	páré=n	ná	wɛ̰́=ɛ́ɛ́n=**ɛ́**,	á . . .
	person	3sN	file-COMP	bag=DEF	REL	good=RDM=SBO	1sN
	=DEF		=SBO2				

'If the person filed the leather bag which is good, I . . '

(b)	ɟāā=n	ɛ̄	**ŋə́ŋ-s=ɛ̂,**	á	léɛ̄
	person=DEF	3sN	file-COMP=SBO2	1sN	come.INCP

'If the person filed, I will come.'

However, as will be discussed in 14.7, the relative clause definite clitic *=É* (RDM) and clause-final subordinate clitic *=É* (SBO) can both be attached to verbs when clause-final in definite relative clauses. In 15.3, it will be shown that the clause-final subordinate clitic *=É* (SBO) attaches in interrogative clauses when interrogative pronouns are pre-verbal. In 15.3, it will also be shown that when an interrogative

pronoun replacing an adverb is pre-verbal, the verb-final subordinate clitic =ɪ̈ (SBO1) is attached to the verb.

The same distinctions are made by verb-final clitics when the subordinate clause is sentence-final as when the subordinate clause is sentence-initial.

(64) **Sentence-final subordinate clauses**

(a)	á	líī,	**é gārá**	ɟāā = n	**ŋə̄ɲ-s = ɪ̈**	páré = n = **é**
	1sN	come.COMP	GP when	person = DEF	file-COMP = SBO1	bag = DEF = SBO

'I came **when** the person had filed the bag.'

(b)	á	líī,	**é kɔ̄rá**	ɟāā = n	**ŋə̄ɲ-s = ɪ̈**	páré = n = **é**
	1sN	come.COMP	GP because	person = DEF	file-COMP = SBO1	bag = DEF = SBO

'I came **because** the person had filed the bag.'

(c)	ā	líī,	ɟāā = n	ɛ̄	**ŋǎɲ-s = ɛ̄**	páré = n = **é**
	1sN	come.COMP	person = DEF	3sN	file-COMP = SBO2	bag = DEF = SBO

'I will come **if** the person has filed the bag.'

As shown in (65), the same verb-final subordinate 'when' (SBO1) clitic agrees in person with the subject when attached to completive, subjunctive, incompletive, and continuous past verbs.

(65) **Subordinate 'when' paradigms on completive, subjunctive, incompletive, and continuous past verb 'file'**

	COMP=SBO1	SBJV=SBO1	INCP=SBO1	CONT.P=SBO1	
	'when'	'when'	'while'	'when'	
á	ŋāɲ-s = ɛ̄	ŋáɲ = ɛ̄	ŋāɲ = ɛ̄	ŋāɲ-án = ɛ̄	1sN
ɔ̄	ŋə̄ɲ-s = ī	ŋə́ɲ = ī	ŋə̄ɲ = ī	ŋə̄ɲ-ə́n = ī	2sN
ɛ̄	ŋə̄ɲ-s = ɪ̈	ŋə́ɲ-ḍ = ɪ̈	ŋə̄ɲ = ɪ̈	ŋə̄ɲ-ə́n = ɪ̈	3sN
āgg	ŋāɲ-s = ā	ŋáɲ-ḍ = ā	ŋāɲ = ā	ŋāɲ-án = ā	1pN
ɔ̄gg	ŋə̄ɲ-s = ū	ŋə́ɲ-ḍ = ū	ŋə̄ɲ = ū	ŋə̄ɲ-ə́n = ū	2pN
ɛ̄ggà	ŋə̄ɲ-s = íggɪ̈	ŋə́ɲ-ḍ = íggɪ̈	ŋə̄ɲ = íggɪ̈	ŋə̄ɲ-ə́n = íggɪ̈	3pN

As shown in (66), the verb-final subordinate clitic introduced by the conjunction 'because' is the same clitic as that introduced by the conjunction 'when' (SBO1).

(66) **Subordinate ‘because’ paradigm**

COMP=SBO1 ‘because’	
ŋāɲ-s = ɛ̄	1sN
ŋəɲ-s = ī	2sN
ŋəɲ-s = ǐ	3sN
ŋāɲ-s = ā	1pN
ŋəɲ-s = ū	2pN
ŋəɲ-s = îiggĭ	3pN
‘file’	

For the verb-final subordinate ‘if’ (SBO2) clitic, there is more variance from one grammatical verb form to another than with the subordinate ‘when’ (SBO1) clitic. As in imperfect clitics attached to incompletive forms, all subjunctive ‘if’ persons except first plural have [+ATR] clitics. In subordinate ‘if’ verbs, tone differs on subjunctive suffixes from that of other verb forms. Continuous past subordinate ‘if’ forms are like infinitive forms, in that all person forms are the same.

(67) **Subordinate ‘if’ paradigms on completive, subjunctive, incompletive, and continuous past verb ‘file’**

	COMP=SBO2 ‘if’	SBJV=SBO2 ‘if’	INCP=SBO2 ‘if’	CONT.P=SBO2 ‘if’	
āān ā	ŋǎŋ-s = ɛ̂	ŋāŋ = é	ŋəŋ = î	ŋāŋ = ágā	1sN
ɔ̄ɔ̄n ɔ̄	ŋǎŋ-s = î	ŋəŋ = í	ŋəŋ = î	ŋāŋ = ágā	2sN
ɛ̄ɛ̄n ɛ̄	ŋǎŋ-s = ɛ̂	ŋáŋ-ḍ = é	ŋəŋ = î	ŋāŋ = ágā	3sN
āggá à	ŋǎŋ-s = â	ŋáŋ-ḍ = ă	ŋāŋ = â	ŋāŋ = ágā	1pN
ɔ̄ggɔ́ ɔ̀	ŋǎŋ-s = û	ŋáŋ-ḍ = ŭ	ŋəŋ = û	ŋāŋ = ágā	2pN
ɛ̄ggà ɛ̀	ŋǎŋ-s = ɛ̂	ŋáŋ-ḍ = ɛ̆	ŋəŋ = î	ŋāŋ = ágā	3pN

The subordinate ‘but’ (SBO3) clitic is similar to the subordinate ‘if’ (SBO2) clitic, but its paradigm differs from that of the ‘if’ clitic in root tone and in the third singular clitic. In subjunctive verbs, the subordinate ‘but’ clitic is the same as the subordinate ‘when’ (SBO1) clitic.

(68) **Subordinate ‘because, but’ paradigms on completive and subjunctive verbs**

COMP=SBO1 ‘because’	COMP=SBO3 ‘but’	SBJV=SBO3 ‘but’	
ŋāŋ-s = ɛ̄	ŋáŋ-s = ɛ̂	gàl = ɛ̄	1sN
ŋəŋ-s = ī	ŋǎŋ-s = î	gə̀l = ī	2sN
ŋəŋ-s = ǐ	ŋáŋ-s = é	gə̀l-ḍ = ǐ	3sN
ŋāŋ-s = ā	ŋáŋ-s = â	gàl-ḍ = ā	1pN
ŋəŋ-s = ū	ŋǎŋ-s = û	gə̀l-ḍ = ū	2pN
ŋəŋ-s = îiggĭ	ŋáŋ-s = ɛ̂	gə̀l-ḍ = îiggĭ	3pN
‘file’	‘file’	‘ram’	

As with imperfect clitics, underlying tone on subordinate 'when' and 'but' clitics does not alternate. In (69), the first singular subordinate 'when' (SBO1) clitic *=Ē* with underlying Mid tone and the third singular clitic *=ɪ̌* with LM tone are attached to completive verbs without alternation. Mid clitic tone does not assimilate to preceding Low tone in (c,d,f) ({M9} does not apply). In third singular forms, third singular High tone is not present on the completive suffix since Low root tone in (c) becomes Mid {M8} and the M of HM root tone in (e) assimilates to the subordinate clitic initial Low tone {M7}.

(69) **First singular *=Ē* and third singular *=ɪ̌* subordinate 'when' (SBO1) clitic on completive verbs**

	Root	COMP	SBO1 COMP	COMP	SBO1 COMP	
	tone	1sN	1sN	3sN	3sN	
(a)	H	fír-sə̄	fír-s=ī	fír-sɔ́	fír-s=ɪ̌	'smell'
(b)	M	cɔ̄r-sɔ̄	cɔ̄r-s=ɛ̄	cɔ̄r-sɔ́	cūr-s=ɪ̌	'help'
(c)	L	ḍ̰ùr-sù	ḍ̰ùr-s=ī	ḍ̰ùr-sū	ḍ̰ūr-s=ɪ̌	'bury'
(d)	HL	pə̂r-sə̀	pə̂r-s=ī	pə̂r-sə̄	pə̂r-s=ɪ̌	'attach'
(e)	HM	bɛ́l-ḍ̰ā	bɛ́l-ḍ̰=ɛ̄	bɛ́l-ḍ̰á	bîl-ḍ̰=ɪ̌	'name'
(f)	ML	dɔ̄ɔ̀s-sɔ̀	dɔ̄ɔ̀s-s=ɛ̄	dɔ̄ɔ̀s-sɔ̄	dūùs-s=ɪ̌	'stand'
(g)	MH	kə̌s-sə̄	kə̌s-s=ī	kə̌s-sɔ́	kə̌s-s=ɪ̌	'strike'

Similar tone assignment takes place for incompletive forms with the same subordinate clitics.

(70) **First singular *=Ē* and third singular *=ɪ̌* subordinate 'when' (SBO1) clitic on incompletive verbs**

	Root	INCP	SBO1 INCP	INCP	SBO1 INCP	
	tone	1sN	1sN	3sN	3sN	
(a)	H	fˆîr	fír=ī	fír	fír=ɪ̌	'smell'
(b)	M	cɔ̄r	cɔ̄r=ɛ̄	cɔ̄r	cūr=ɪ̌	'help'
(c)	L	ḍ̰ùr	ḍ̰ùr=ī	ḍ̰ūr	ḍ̰ūr=ɪ̌	'bury'
(d)	HL	pə̂r	pə̂r=ī	pə́r	pə̂r=ɪ̌	'attach'
(e)	HM	bɛ́l	bɛ́l=ɛ̄	bɛ́l	bîl=ɪ̌	'name'
(f)	ML	dɔ̄ɔ̀s	dɔ̄ɔ̀s=ɛ̄	dɔ̄ɔ̄s	dūùs=ɪ̌	'make-big'
(g)	MH	kə̄ð	kə̌s=ī	kə̌ð	kə̌s=ɪ̌	'strike'

In (71), the third plural subordinate 'when' (SBO1) clitic *=ɪ̂ggɪ̌* with HL, LM tone is attached to completive and incompletive verbs without alternation.

(71) **Third plural =*îggī* subordinate**
'when' (SBO1) clitic on completive and incompletive verbs

	Root tone	COMP 3pN	SBO1 COMP 3pN	INCP 3pN	SBO1 INCP 3PN	
(a)	H	fír-sə	fír-s = îggī	f îr	fír = îggī	'smell'
(b)	M	cɔ̄r-sɔ̀	cūr-s = îggī	cɔ̄r	cūr = îggī	'help'
(c)	L	d̰ūr-sù	d̰ùr-s = îggī	d̰ūr	d̰ùr = îggī	'bury'
(d)	HL	pə̂r-sə̀	pə̂r-s = îggī	pə̂r	pə̂r = îggī	'attach'
(e)	HM	bɛ̂l-d̰à	bîl-d̰ = îggī	bɛ̂l	bîl = îggī	'name'
(f)	ML	dɔ̄ɔ̀s-sɔ̀	dūùs-s = îggī	dɔ̄ɔ̀s	dūùs = îggī	'make-big'
(g)	MH	kə̋s-sə̀	kə̋s-s = îggī	kə̋ s̀ ð	kə̋s = îggī	'strike'

In (72), the third singular subordinate 'but' (SBO3) clitic $=\acute{E}$ with underlying H tone is attached to completive verbs, also without alternation.

(72) **Third singular $=\acute{E}$ subordinate**
'but' (SBO3) clitic on completive verbs

	Root tone	COMP 3sN	SBO3 COMP 3sN	
(a)	H	fír-sə́	fír-s = í	'smell'
(b)	M	cɔ̄r-sɔ́	cɔ́r-s = ɛ́	'help'
(c)	L	d̰ùr-sū	d̰ùr-s = í	'bury'
(d)	HL	pə̂r-sə̄	pə̂r-s = í	'attach'
(e)	HM	bɛ̂l-d̰á	bɛ̂l-d̰ = ɛ́	'name'
(f)	ML	dɔ̄ɔ̀s-sɔ̄	dɔ̄ɔ̀s-s = ɛ́	'stand'
(g)	MH	kə̋s-sə́	kə̋s-s = í	'strike'

Unlike subordinate 'when' and 'but' clitics, in the subordinate 'if' (SBO2) clitic, tone does alternate according to the tone lowering rule {M9}. In (73), the third singular $=\hat{E}$ and second plural $=\bar{u}$ subordinate 'if' clitics, both with underlying HM tone, are attached to completive verbs. The clitic-initial High tone becomes Mid following Low tone in (c,d,f). Further, Mid root tone melody becomes MH as in (b), just as

(73) **Third singular $=\hat{E}$ and second plural $=\bar{u}$ subordinate**
'if' (SBO2) clitic on completive verbs

	Root tone	COMP 3sN	SBO2 COMP 3sN	COMP 2pN	SBO2 COMP 2pN	
(a)	H	fír-sə́	fír-s = î	fír-sə̄	fír-s = ū	'smell'
(b)	M	cɔ̄r-sɔ́	cɔ̄r-s = ɛ̂	cūr-sū	cū́r-s = ū	'help'
(c)	L	d̰ùr-sū	d̰ùr-s = ī	d̰ùr-sù	d̰ùr-s = ū	'bury'
(d)	HL	pə̂r-sə̄	pə̂r-s = ī	pə̂r-sə̀	pə̂r-s = ū	'attach'
(e)	HM	bɛ̂l-d̰á	bɛ̂l-d̰ = ɛ̂	bîl-d̰ə̄	bîl-d̰ = ū	'name'
(f)	ML	dɔ̄ɔ̀s-sɔ̄	dɔ̄ɔ̀s-s = ɛ̄	dūùs-sù	dūùs-s = ū	'stand'
(g)	MH	kə̋s-sə́	kə̋s-s = î	kə̋s-sə̄	kə̋s-s = ū	'strike'

Mid root tone melody was shown to become MH when the agented passive clitic is attached in (8).

10.8 Perfect verbs

Perfect verbs are the counterpart of imperfect verbs. They are used for past or present actions that remain or result in the present or future. In (74a), the clitic indicates that the government did not leave after they became established in Faath area, even to the time of telling the narrative. In (b), the perfective clitic indicates that the money had already been given and should not need to be given again. In (c), the clitic, although on the noun object instead of the verb, indicates that the action of cutting remains and will not need to be done again.

(74) **Perfect examples**

(a)	ṭāɛ́n	mɔ̀rā = n	líín	àw-sā = **r**	fááð-āŋ.
	then	government = DEF	/lɛ́/arrive. INCP	/àb/sat-COMP = PF	Faath-body

'Then the government (forces) arrived
and became established in Faath area.' (Fand16-17)

(b)	ɛ̄	lā	gɔ̌f = ì		wá,	ɛ̄	gɔ̀ù-s-íì = **r**.
	3sN	UNC	/gàf/give.INCP = 3sAM		not	3sN	/gàf/give-COMP-IPF = PF

'He would not give it (money), (since) he had already given.' (Fand3)

(c)	ɛ̄	wár-r	kɔ̀lɛ̀ɛ̀ð	ā	kɔ́m-ḍá	ɟɔ̄g = ɔ́ = **r**.
	3sN	took-INF	(sword)	SBJV	cut-SBJV.3sN	people = DEF = PF

'He took a koleez sword to kill (hack up completely) the people.' (Fand5)

The perfect clitic is attached to verbs in (74a-b), but to a noun in (c). The same meaning in (c) results when the clitic attaches to the verb (*kɔ́m-ḍá=r*) and not on the noun object (*ɟɔ̄g = ɔ́*). When the perfect clitic attaches to a completive imperfect verb as in (75b), the meaning can be distant past action. The difference between the completive with perfect clitic and the completive imperfect with perfect clitic is distance between event time and speech time.

(75) **Perfect completive and completive imperfect verbs**

(a)	á	gàɔ̀-sà = r	COMP = PF	'I had given.'
(b)	á	gàɔ̀-s-ɛ́ɛ̄ = r	COMP-IPF = PF	'I had given a long time ago.'

Completive, subjunctive, and completive imperfect paradigms with perfect clitic are the same as without the clitic except that completive imperfect singular person forms have lengthened vowel when the clitic is added.

(76) **Perfect verb paradigms on completive, subjunctive, and completive imperfect verbs**

COMP=PF	SBJV=PF	COMP-IPF=PF	
àw-sà=r	kɔ́m-ā=r	gàɔ̀-s-ɛ́ɛ̄=r	1sN
ə̀w-sə̀=r	kúm-ə̄=r	gə̀u-s-íī=r	2sN
àw-sā=r	kɔ́m-ḍá=r	gàɔ̀r-s-ɛ́ɛ̄=r, gə̀ù-s-îî=r	3sN
àw-sà=r	kɔ́m-ḍā=r	gàɔ̀r-s-áā=r	1pN
ə̀w-sə̀=r	kúm-ḍə̄=r	gə̀ù-s-úū=r	2pN
āw-sà=r	kɔ́m-ḍà=r	gàɔ̀r-s-ɛ́ɛ̀(ggà)=r	3pN
'had remained'	'had cut'	'had given'	

The perfect also occurs on incompletive, continuous, and imperatives, although with different forms of the bound morpheme. In (77a-b), the non-past continuous verb *gàf-àn* 'give-CONT.N' is contrasted with the non-past continuous perfect form with clitic *=Ar*. In (c-d), the simple imperative verb *bɛ̀l* 'beat' is contrasted with the imperative perfect form with the suffix *-CAr*. As will be shown shortly, the perfect morpheme on incompletive and imperative verbs is a suffix which attaches to underlying root-final segments, rather than a clitic which attaches to surface-final segments.

(77) **Perfect continuous non-past and imperative**

(a)	ā	gàf-àn	mīī	INCP-CONT.N	'I will be giving a goat.'
(b)	ā	gàf-àn**=ār**	mīī	INCP-CONT.N=PF	'I will give a goat (and not take it back).'
(c)		bɛ̀l	ɟɔ́!	IMP	'Just beat!'
(d)		bɛ̀l-**lār**	ɟɔ́!	IMP-PF	'Just beat completely! (so that it won't need to be beaten again).'

Perfect incompletive and non-past continuous paradigms are in given in (78).

(78) **Perfect verb paradigms on incompletive and continuous non-past verbs**

CONT.N=PF	INCP-PF	
cɔ̄r-án=ār	cúr-rə̄r	1sN
cūr-ɔ́n=ə̄r	cúr-rə̄r	2sN
cɔ̄r-án=ár	cúr-rə́r	3sN
cɔ̄r-án=ār	cúr-rə̄r	1pN
cūr-ɔ́n=ə̄r	cúr-rə̄r	2pN
cɔ̄r-án=àr	cúr-rə̀r	3pN
'will have helped'	'have tied'	

Perfect morphemes are listed in table 51. The incompletive and imperative perfect is a suffix attaching to the root, whereas the perfect on other forms is a clitic attaching to the stem.

Table 51: Perfective morphemes

Incompletive, imperative	-C<u>A</u>r
Continuous non-past	=<u>A</u>r
Other verb forms	=r

In (79), the perfect suffix *-C<u>A</u>r* is attached to incompletive verbs. The suffix-initial consonant takes on all the features of the root-final consonant and becomes the dental plosive *ḍ* when attached to vowel-final roots. The resulting geminate plosives surface as single segments. If the perfect morpheme were a clitic attaching to the surface-final segments, among other differences the short vowel of *pā-ḍár* 'guard' in (o) would be long.

(79) **Third singular perfect incompletive clitic *-C<u>A</u>r***

	UR	INCP 3sN	PF INCP 3sN	
(a)	/ab/ L	àɔ̄	àb-bār	'sit'
(b)	/kaɟ/ H	káé	káɟ-ɟár	'bring'
(c)	/cig/ M	cīi	cīg-gə́r	'wear'
(d)	/cuḍ/ M	cūḍ	cūḍ-ḍə́r	'climb'
(e)	/lɔf/ L	lɔ̄f	lɔ̀f-fār	'do magic'
(f)	/las/ M	lās	lās-sár	'roll-up'
(g)	/ɲam/ M	ɲām	ɲām-már	'break'
(h)	/gɔn/ L	gɔ̄n	gɔ̀n-nār	'grab'
(i)	/guŋ/ L	gʉ̀ŋ	gʉ̀ŋ-ŋə̄r	'agree'
(j)	/mal/ M	māl	māl-lár	'gather'
(k)	/wɛr/ M	wɛ̄r	wɛ̄r-rár	'watch'
(l)	/ɲaw/ H	ɲáɔ́-(n)	ɲáw-wár	'request'
(m)	/kɔy/ H	kɔ́é-(n)	kɔ́y-yár	'cook'
(n)	/fɛð/ H	fɛ́ð-(n)	fɛ́ð-ðár	'release'
(o)	/pa/ M	pāā	pā-ḍár	'guard'

Perfect bound morphemes have no underlying tone and Mid, High, or Low tone is assigned to the perfect morphemes with vowels according to subject person inflection. In the third singular incompletive perfect verbs of (80), the third singular High tone assigned to the perfect suffix becomes Mid following Low tone {M9} in (c,d,f).

(80) **Perfect *-CA̲r* on third singular incompletive verbs**

	Root tone	INCP 3sN	PF INCP 3SN	
(a)	H	fír	fír-rər	'smell'
(b)	M	cɔ̄r	cɔ̄r-rár	'help'
(c)	L	ḍ̰ùr	ḍ̰ùr-rər	'bury'
(d)	HL	pɔ̋́r	pɔ̂r-rər	'attach'
(e)	HM	bɛ̋́l	bɛ̂l-lár	'name'
(f)	ML	dɔ̄ɔ̄̀s	dɔ̄ɔs-sər	'stand'
(g)	MH	kə̋ð	kə̋ð-ðár	'strike'

10.9 Relative clause clitic on verbs

The relative clause definite clitic *=É* attaches to the last element of a definite relative clause. In this section, its behaviour is studied when attached to clause-final verbs.

(81) bɛ̀ɛ̀nāḍ̰=á Ṯél ná ṭ̰ál-ḍ̰ áāgg**=ɛ́** ɲɔ́m=ì wá.
wrongdoing-DEF God REL /ṭ̰ál/create-COMP /ɲám/want. not
1pA=RDM INCP=3sAM
'God who created us doesn't want us to do wrong.' (Womn12)

Verbs of relative clauses have infinitive forms; the roots of verbs in relative clauses do not become [+ATR] in second person forms. However, they do take inflectional suffixes, and they can be marked for definiteness by the relative clause clitic *=É, =È* which agrees in number with the subject. The relative clause completive and subjunctive suffixes unmarked for definiteness are the same as in finite forms, but the relative clause continuous past suffix is without a final *n* (*-Á̲* instead of *-Á̲n*).

Table 52: Relative clause clitics on verbs

	Unmarked for Definiteness	Definite	
		SG	PL
Incompletive	INF	INF=É	INF=È
Completive	INF-sA	INF-s=É	INF-s=È
Continuous past	INF-Á̲	INF-Á̲n=É	INF-Á̲=È
Subjunctive	INF-A, INF-ḍ̰A	INF=EÉ, INF-ḍ̰=ÉÉ	INF-ḍ̰=ÈÈ

The relative clause (RC) incompletive paradigm of (82a) is unmarked for definiteness and is the same as the infinitive form. The relative clause paradigm of (b) is marked for definiteness where the clitic *=É* with High tone indicates a singular subject and the clitic *=È* with Low tone indicates a plural subject.

(82) **Incompletive relative clause paradigm '__ who files is good.'**

(a)	INCP.RC (Unmarked for definiteness)						(b)	INCP.RC =RDM (Definite)	
	āān	ná	**ŋāŋ**	á	wɛ̂ḍán	1sN		**ŋāŋ = ɛ́**	1sN
	ɔ̄ɔ̄n	ná	**ŋāŋ**	ú =	wíḍɔ̀n	2sN		**ŋāŋ = ɛ́**	2sN
	ɛ̄ɛ̄n	ná	**ŋāŋ**	(ɛ́)	wɛ̂ḍán	3sN		**ŋāŋ = ɛ́**	3sN
	āggá	nà	**ŋāŋ**	āgg	wíəggə̀	1pN		**ŋāŋ = ɛ̀**	1pN
	ɔ̄ggó	nà	**ŋāŋ**	ɔ̄gg	wíəggə̀	2pN		**ŋāŋ = ɛ̀**	2pN
	ɛ̄ggà	nà	**ŋāŋ**	(ɛ̄ggà)	wíəggə̀	3pN		**ŋāŋ = ɛ̀**	3pN
	PRON	REL	file.	PRON	good			file.	
			INCP					INCP=RDM	

Similarly, paradigms of other verb forms in relative clauses are given in (83). Relative clause incompletive, completive, and continuous past verbs unmarked for definiteness do not have person tone marking assigned to the final syllable, but subjunctive forms do. In each of the verb forms in definite relative clauses, a definite clitic with High tone marks singular person subject and a definite clitic with Low tone marks plural person subject. Subjunctive relative clause definite verbs add a long clitic *=ÉÉ, =ÈÈ*, whereas other verbs add a short clitic. In past continuous relative clause forms, the definite clitic *=É* does not elide the continuous suffix vowel *-a* of *ŋāŋ-á. =ɛ́* 'file-CONT.P.RC=RDM' and is an exception to {M1} of 3.1.

(83) **Completive, continuous, subjunctive relative clause paradigms of 'file'**

COMP. RC	COMP. RC = RDM	CONT.P. RC	CONT.P. RC = RDM	SBJV. RC	SBJV. RC = RDM	
ŋāŋ-sá	ŋāŋ-s = ɛ́	ŋāŋ-â	ŋāŋ-â. = ɛ́	ŋáŋnā	ŋáŋ = ɛ̄ɛ́	1sN
ŋāŋ-sá	ŋāŋ-s = ɛ́	ŋāŋ-â	ŋāŋ-â. = ɛ́	ŋáŋnā	ŋə́ŋ = ɪ̄ɪ́	2sN
ŋāŋ-sá	ŋāŋ-s = ɛ́	ŋāŋ-â	ŋāŋ-â. = ɛ́	ŋáŋ-ḍá	ŋáŋ-ḍ = ɛ́ɛ́	3sN
ŋāŋ-sá	ŋāŋ-s = ɛ̂	ŋāŋ-â	ŋāŋ-â. = ɛ̀	ŋáŋ-ḍā	ŋáŋ-ḍ = ɛ̀ɛ̀	1pN
ŋāŋ-sá	ŋāŋ-s = ɛ̂	ŋāŋ-â	ŋāŋ-â. = ɛ̀	ŋáŋ-ḍā	ŋə́ŋ-ḍ = ɪ̀ɪ̀	2pN
ŋāŋ-sá	ŋāŋ-s = ɛ̂	ŋāŋ-â	ŋāŋ-â. = ɛ̀	ŋáŋ-ḍà	ŋáŋ-ḍ = ɛ̀ɛ̀	3pN

As shown in (84), the relative clause singular definite clitic *=É* attaches to the surface forms of (non-relative clause) incompletive forms rather than to unmarked relative clause incompletive verbs, which are infinitive forms. If the clitic were attached to infinitive forms, among other differences, the long vowel of *cīī. =í* 'wear=RDM' in (c) would be short and the geminate *gg* would surface.

(84) **Relative clause singular definite clitic =*É* on incompletive verbs with various root-final segments**

		INCP 3sN	Unmarked INCP.RC 3sN (INF)	Definite RDM INCP.RC 3sN	
(a)	/ab/ L	àɔ̄	àb-b	àɔ̀. = ɛ̄, àw = ɛ̄	‘sit’
(b)	/kaɟ/ H	káɛ́	káɟ-ɟ	káɛ̄. = ɛ́, kā́y = ɛ́	‘bring’
(c)	/cig/ M	cīī	cīg-g	cīī. = í	‘wear’
(d)	/cuḍ/ M	cūḍ	cūḍ-ḍ	cūḍ = í	‘climb’
(e)	/lɔf/ L	lɔ̀f	lɔ̀f-f	lɔ̀f = ɛ̄	‘do magic’
(f)	/las/ M	lās	lās-s	lās = ɛ́	‘roll-up’
(g)	/ɲam/ M	ɲām	ɲām-m	ɲām = ɛ́	‘break’
(h)	/gɔn/ L	gɔ̃n, gɔ̀ɔ̄	gɔ̀n-n	gɔ̀n = ɛ̄, gɔ̀ɔ̀. = ɛ̄	‘grab’
(i)	/guŋ/ L	gŭŋ	gŭŋ-ŋ	gŭŋ = ī	‘agree’
(j)	/mal/ M	māl	māl-l	māl = ɛ́	‘gather’
(k)	/wɛr/ M	wɛ̄r	wɛ̄r-r	wɛ̄r = ɛ́	‘watch’
(l)	/ɲaw/ H	ɲáɔ́-(n)	ɲáw-w	ɲáɔ̄. = ɛ́, ɲáɔ̄-n = ɛ́	‘request’
(m)	/kɔy/ H	kɔ́ɛ́-(n)	kɔ́y-y	kɔ́ɛ̄. = ɛ́, kɔ́ɛ̄-n = ɛ́	‘cook’
(n)	/fɛð/ H	fɛ́ð-(n)	fɛ́ð-ð	f ɛ̂ð = ɛ́, f ɛ̂ð-n = ɛ́	‘release’
(o)	/pa/ M	pāā, pāḍ	pā-ḍ	pāā. = ɛ́, pā-ḍ = ɛ́	‘guard’
(p)	/bɛɛ/ L	bɛ̀ɛ̄-(n)	bɛ̀ɛ̀	bɛ̀ɛ̀. = ɛ̄	‘say’

In (85), third singular completive and incompletive verbs of definite and unmarked relative clauses are shown. The unmarked completive verbs have Mid tone assigned to the completive suffix which assimilates to preceding Low {M9} in (c,d,f). For unknown reasons, High tone is assigned to the completive suffix of Mid root tone melodies as in (b). Unlike completive verbs of nuclear clauses, in completive verbs of definite relative clauses, the completive suffix tone remains even though the suffix vowel is elided. The underlying High tone of the definite clitic lowers to Mid when assigned along with completive Low tone {M9} in (c,d,f). In unmarked incompletive forms, there is no evidence of Mid tone added to the root. However, Mid tone surfaces on incompletive roots with High root tone melodies as in (a) when

(85) **Relative definite marker clitic =*É* on third singular completive and incompletive verbs**

	Root tone	COMP.RC 3sN	RDM COMP.RC 3sN	INCP.RC 3sN	RDM INCP.RC 3sN	
(a)	H	fĭr-sə	fĭr-s = ĭ	fĭr	f ĭr = í	‘smell’
(b)	M	cɔ̄r-sɔ́	cɔ̄r-s = ɛ́	cɔ̄r	cɔ̄r = ɛ́	‘help’
(c)	L	ḍùr-sù	ḍùr-s = ŭ	ḍùr	ḍùr = ī	‘bury’
(d)	HL	pə̂r-sə	pə̂r-s = ĭ	pə̂r	pə̂r = ī	‘attach’
(e)	HM	bɛ̋l-ḍā	bɛ̋l-ḍ = ɛ̆	bɛ̋l	bɛ̋l = ɛ́	‘name’
(f)	ML	dɔ̄ɔ̀s-sà	dɔ̄ɔ̀s-s = ɛ̆	dɔ̄ɔ̀s	dɔ̄ɔ̀s = ɛ̄	‘make-big’
(g)	MH	kə̋s-sə	kə̋s-s = ĭ	kə̋ð	kə̋ð = í	‘strike’

the relative definite clitic is added.

In (86), third singular continuous and subjunctive verbs of definite and unmarked relative clauses are shown. The unmarked continuous verbs have MHM tone assigned to the continuous suffix. These verbs have the same tonal alternations as first singular continuous past verbs in non-relative clauses shown in 9.8.6. When the definite clitic attaches as a second syllable, juxtaposed to the continuous suffix syllable (not applying {M1}), the final Mid tone of the continuous suffix assigns to the clitic in (a,d-g). The underlying High tone of the continuous suffix then surfaces in (d,f).

(86) **Relative definite marker clitic *=Ə́* on third singular continuous past and first singular subjunctive verbs**

	Root tone	CONT.P.RC 3sN	RDM CONT.P.RC 3sN	SBJV.RC 1sN	RDM SBJV.RC 1sN	
(a)	H	fír-ə̄	fír-ă.=ī	fír-ə	fír=īí	'smell'
(b)	M	cɔ̄r-ā	cɔ̄r-ā.=ɛ́	cɔ́r-ɔ̄	cɔ́r=ɛ̄ɛ́	'help'
(c)	L	ḍ̀ùr-ɔ̀	ḍ̀ùr-ɔ̀.=í	ḍ̀ùr-ə̀	ḍ̀ùr=ìī	'bury'
(d)	HL	pɔ́r-ə̀	pɔ́r-ə̌.=ī	pɔ̂r-ə̀	pɔ̂r=ìī	'attach'
(e)	HM	bɛ́l-ā̀	bɛ̄l-ā.=ɛ́	bɛ̄l-ā	bɛ̄l=ɛ̄ɛ́	'name'
(f)	ML	dɔ̄ɔ̀s-ā̀	dɔ̄ɔ̀s-ă.=ɛ́	dɔ̄ɔ̀s-à	dɔ̄ɔ̀s=ɛ̀ɛ̄	'make-big'
(g)	MH	kə̄ð-ə̄	kə̄ð-ə̄.=ī	kə̄ð-ə̄	kə̄ð=īí	'strike'

First singular subjunctive verbs of relative clauses shown in (86) have similar tone assignment to completive verbs of relative clauses. Unmarked subjunctive verbs have Mid tone assigned to the subjunctive suffix which assimilates to preceding Low {M9} in (c,d,f). The underlying High tone of the definite clitic lowers to Mid when assigned along with subjunctive Low tone {M9} in (c,d,f).

10.10 Verbal nouns

Verbal nouns can be modified by adjectives, just as other nouns, and have singular and plural forms. The verbal nouns of (87a,c) are modified by singular adjectives, whereas the nouns of (b, d) are modified by plural adjectives.

(87) **Verbal noun examples**

(a)	**kɔ̄r**	ɛ́	ṭ̀āāðà	ná	kúr-s=ī	wɛ̄ḍ̀án
	speaking	GP	grandmother.GEN	REL	/kɔ́r/speak-COMP=RDM	good.SG
	'Grandmother's word is good.'					

(b)	**kɔ̄r-ɛ̄ɛ̄gg**	ɛ́	ṭ̀āāðà	ná	kúr-s=ī	wíə̀-gg=ə̀
	speaking-PL	GP	grandmother.GEN	REL	/kɔ́r/speak-COMP=RDM	good-PL=COP
	'Grandmother's words are good.'					

(c)	**bāð**	ə̄ən	wɛ̄d̪án		(d)	**bāð-àgg**	ə́nə̀gə̀	wíə̀-ggə̀
	throwing	1sPs	good.SG			throwing-PL	1sPp	good-PL
	'My throw is good.'					'My throws are good.'		

The verbal noun is not used as such in counting as are other nouns. It is not possible to say 'one throw' or 'many throws'. Rather, the countable action is communicated with the verb and the word *ógg* 'place/time' as in the phrases of (88).

(88a)	á	bās-sā	ógg	t̪āmán		(b)	á	bās-sā	ógg	t̪âlg
	1sN	throw-COMP	time	one			1sN	throw-COMP	time	many
	'I threw once.'						'I threw many times.'			

Singular verbal nouns have the same segmental form as the incompletive, although often with different tone. Plural verbal nouns are formed by attaching one of four clitics to the incompletive surface form, depending on the surface-final segment, and altering the tone.

Table 53: Plural verbal noun clitics

	VN PL clitic
Surface-final sonorant, vowel	=gg
Underlying root-final obstruents	=Agg
Underlying root-final sonorant	=Agg, =EEgg, =AAgg

As shown in (89), singular verbal nouns have the same segmental forms as the incompletive, which optionally attach the suffix *-n* to roots with root-final approximants *y, w* and some root-final vowels. The plural clitic *=gg* is attached to singular incompletive forms with surface-final sonorants or vowels. If the plural marker were attached to underlying-final segments, among other differences, the

(89) **Plural verbal noun clitic *=gg***

		INF	INCP 3SN	VN SG	VN PL	
(b)	/d̪ɔɟ/ L	d̪ɔ̀ɟ-ɟ	d̪ɔ̀ɛ̄	d̪ɔ̄ɛ̀	d̪ɔ̄ɛ̀=gg	'throw stones'
(c)	/cag/ H	cág-g	cáá	cāā	cāā=gg	'bathe, wash'
(g)	/kɔm/ H	kɔ́m-m	kɔ́m	kɔ̄m	kɔ̄m=g	'cut, destroy'
(h)	/cɛɛn/ L	cɛ̀ɛ̀n-n	cɛ̀ɛ̄n	cɛ̄ɛ̀n	cɛ̄ɛ̀n=g	'play'
(i)	/ŋaɲ/ M	ŋāɲ-ɲ	ŋāɲ	ŋāɲ	ŋāɲ=g	'file, sand'
(j)	/bɛl/L	bɛ̀l-l	bɛ̄l	bɛ̄l	bɛ̄l=g	'hit, beat'
(k)	/ar/ M	ār-r	ār	ār	ār=g	'scrape'
(l)	/ɲaw/ H	ɲáw-w	ɲáɔ́-(n)	ɲāɔ̄-(n)	ɲāɔ̄-(n)=g	'request'
(m)	/kɔy/ H	kɔ́y-y	kɔ́ɛ́-(n)	kɔ̄ɛ̄-(n)	kɔ̄ɛ̄-(n)=g	'cook'
(o)	/ba/ M	bā-d̪	bāā	bāā	bāā=gg	'throw, hit'
(p)	/bɛɛ/ L	bɛ̀ɛ̄	bɛ̀ɛ̄-(n)	bɛ̄ɛ̀-(n)	bɛ̄ɛ̀-n=g	'say'

long vowel of *bāā=gg* 'throw=PL' in (o) would be short.

The plural clitic *=Agg* is attached to root-final obstruents *d̰, f, s* as in (90a-c), to the sonorants *ð* and *ɲ* as in (d-e), and occasionally to other sonorants as in (f-i). For unknown reasons, the segment *g* is inserted before root-final *d̰* in plural verbal nouns such as *cūgd̰=ūg* 'climb' in (a).

(90) **Plural verbal noun clitic *=Agg***

	Root	INF	INCP 3SN	VN SG	VN PL	
(a)	/cud̰/ M	cūd̰-d̰	cūd̰	---	cūgd̰=ūg	'climb'
(b)	/lɔf/ L	lɔ̀f-f	lɔ̄f	lɔ̄f-ɔ	lɔ̄f=ɔ̀gg	'do magic'
(c)	/las/ M	lās-s	lās	lās	lās=āgg	'roll-up'
(d)	/kuuð/ H	kūūð-ð	kūūð	kūūð	kūūð=ūgg	'build'
(e)	/gaɲ/ L	gàɲ-ɲ	gàɲ	gàɲ	gāɲ=àg	'laugh'
(f)	/bɛr/ H	bɛ́r-r	bɛ́r	bɛ̄r	bɛ̄r=āgg	'tell'
(g)	/bɛl/ M	bɛ̄l-l	bɛ̄l	bɛ̄l	bɛ̄l=āgg, bɛ̄l=g	'have, possess'
(h)	/ɲam/ H	ɲám-m	ɲám	ɲāɔ̄-(n)	ɲām=āgg	'want, love'
(i)	/bɔn/ L	bɔ̀n-n	bɔ̀n	bɔ̀n	bɔ̄n=ɔ̀gg	'wait'

The verbal noun clitic *=Agg* attaches to the incompletive surface form such as *ɲám* 'want' instead of to the singular verbal noun surface form *ɲāɔ̄-(n)*, as evidenced by the *m* in *ɲām=āgg*.

A few plural verbal nouns with root-final sonorants attach the clitics *=AAgg* or *=EEgg*.

(91) **Plural verbal noun clitic *=AAgg***

	Root	INF	INCP 3SN	VN SG	VN PL	
(a)	/ɲɛl/ H	ɲél-l	ɲél	ɲɛ̄l	ɲɛ̄l=āāg	'know'

(92) **Plural verbal noun clitic *=EEgg***

	Root	INF	INCP 3SN	VN SG	VN PL	
(a)	/kɔr/ H	kɔ́r-r	kɔ́r	kɔ̄r	kɔ̄r=ɛ̄ɛ̄gg	'speak, say'
(b)	/kaam/ HL	káàm-m	káǎm	kàðáàm	kàðáám=ɛ̀ɛ̀gg	'work, deal'

Verbal noun clitics have no underlying tone. However, the root tone melody changes in verbal noun forms, as seen by the tone changes in table 54. Verbs with root tone melodies L, HL, and ML have ML tone melody in verbal nouns. Verbs

Table 54: Verbal noun tone changes

Root tone melody	Verbal noun tone melody
L, HL, ML	ML
all other melodies	M

with all other root tone melodies have Mid tone in verbal nouns.

In (92), the clitic *=Agg* is attached to verbal nouns with various root tone melodies. Verbal nouns have tone melodies as described in table 54. Since the clitic *=Agg* has no underlying tone, the Low tone of ML root melodies reassigns to the clitic {M6} in (d,f) and Mid tone spreads to the clitic in other forms {M5}.

(92) **Verbal noun plural clitics *=Agg, =gg***

	Root tone	INF	VN tone	VN SG	VN PL	
(a)	H	pál-l	M	pāl	pāl=āgg, pāl=g	‘cut’
(b)	M	bɛ̄l-l	M	bɛ̄l	bɛ̄l=āgg, bɛ̄l=g	‘possess’
(c)	L	f ɛ̀l-l	ML	f ɛ̃l	fɛ̃l=āgg, f ɛ̃l=g	‘tell’
(d)	HL	pîr-r	ML	pĩr	pīr=ɔ̀gg, pĩr=g	‘deceive’
(e)	HM	bɛ̄l-l	M	bɛ̄l	bɛ̄l=āgg	‘name’
(f)	ML	dɔ̄ɔ̀s-s	ML	---	dɔ̄gs=ɔ̀gg	‘stand’
(g)	MH	kə̋ð-ð	M	kə̄n	kə̄ð=ə̄gg	‘strike’

10.11 Adjectival verbs

Adjectives can be used as verbs, although not always with the same syntax or morphology as true verbs, as compared in 4.3. The long form of the subject pronoun precedes the adjectival verb instead of the short subject pronoun as in true verbs. The plural adjective suffix *-gg* and copular clitic *=A* attach to adjectival verbs of plural persons. These features mark adjectival verbs as being different than active verbs. The verbs of (93) have subject tone inflection (final Mid for second person, final High for third singular, final Low for third plural) and [+ATR] second person forms as do other verbs. However, in some adjectival verbs, person inflection is not as regular.

(93) **Adjectival verb paradigms**

(a) ‘___ am/are/is clean.’

āān	bɛ̃r	1sN
ɔ̄ɔ̄n	bîr	2sN
ɛ̄ɛ̄n	bɛ́r	3sN
āggá	bɛ́r-g=ā	1pN
ɔ̄ggɔ́	bír-g=ə̄	2pN
ɛ̄ggà	bɛ́r-g=à	3pN

(b) ‘___ am/are/is beautiful.’

āān	kāyáār	1sN
ɔ̄ɔ̄n	kəyɔ́ə̄r	2sN
ɛ̄ɛ̄n	kāyáár	3sN
āggá	kāyáár-g=ā	1pN
ɔ̄ggɔ́	kəyɔ́ɔ́r-g=ə̄	2pN
ɛ̄ggà	kāyáár-g=à	3pN

Adjectival infinitive forms often surface the same as adjectives modifying singular nouns. Underlying-final geminate segments of infinitive forms surface as single segments. Many infinitive forms of adjectives such as (94e, i, j) are irregular in that they do not have a final geminate consonant but a different suffix.

(94) **Adjectival infinitive forms**

	ADJ SG	ADJ PL	INF	
(a)	bér	bér-g	bēr-r	‘clean’
(b)	gààl	gààl-g	gààl-l	‘far’
(c)	áè	áè-gg	àɟ-ɟ	‘sour’
(d)	cúú	cúú-g	cūū	‘sweet’
(e)	fāā	fān-g	fān-g	‘old’
(f)	bánn̰āl	bánn̰āl-g	bānn̰ál-l	‘weak’
(g)	kɔ́ɔ́fàr	kɔ́ɔ́fàr-g	kɔ̀ɔ̀fàr-r	‘thin’
(h)	kāyáár	kāyáār-g	kāyáár-r	‘beautiful’
(i)	wɛ̄n̰án	wíə-gg	wēnn̰á-n̰	‘good’
(j)	lūsú	lūsú-gg	lùùs-ə̄n̰	‘hot’
(k)	n̰ə̀mə̄	n̰ə̀mə̄-gg	n̰ə̀ə̀m-m	‘blind’
(l)	ɲāán	ɲāā-lgɛ́ɛ́g	ɲāān-n	‘young’

In (95), first and third singular and second and third plural forms of incompletive adjectival verbs are shown. The suffix *-n* is common in singular person suffixes, and the suffix *-gg* is required in all plural person suffixes. Although third singular High tone and third plural Low tone generally occur word-finally on adjectives, second person Mid tone is not as regular on second plural forms, as second plural forms of (b,c,h) have final Low tone. Further, second person [+ATR] quality is not as regular as in true verbs, as second plural forms of (b,c,g) have [-ATR] quality ({M3} is not applied). Among the adjectival verbs attested, those of (95) are the most regular in final segment alternations, tone and vowel quality. Others are even more irregular.

(95) **Incompletive person forms of adjectival verbs**

	INF	INCP 1sN	INCP 3sN	INCP 2pN	INCP 3pN	
(a)	bēr-r	bɛ̄r	bɛ́r	bír-g = ə̄	bɛ́r-g = à	‘clean’
(b)	gààl-l	gààl	gàāl	gààl-g = à	gààl-g = à	‘far’
(c)	àɟ-ɟ	áè-n	áɛ̄-n	áè-gg = à	áè-gg = à	‘sour’
(d)	cūū	cúū-n	cúú-n	cú-gg = ū	cú-gg = ù	‘sweet’
(e)	---	ìì-n	íĭ-n	ìì-gg = ə̀	ìì-gg = ə̀	‘heavy’
(f)	fān-g	fāān	fāān	fə̄n-g = ə̄	fān-g = à	‘old’
(g)	bānn̰ál-l	bánn̰āl	bánn̰āl	bánn̰āl-g = ā	bánn̰àl-g = à	‘weak’
(h)	kɔ̀ɔ̀fàr-r	kɔ́ɔ́fàr	kɔ́ɔ́f ə̀r	kúúfər-g = ə̀	kɔ́ɔ́fàr-g = à	‘thin’
(i)	kāyáár-r	kāyáār	kāyáár	kəyɔ́ɔ́r-g = ə̄	kāyáár-g = à	‘beautiful’
(j)	wēnn̰á-n̰	wɛ̄n̰án	wɛ́n̰án	wíə̄-gg = ə̄	wíə̄-gg = ə̀	‘good’
(k)	lùùs-ə̄n̰	lūsū-n	lūsú-n	lūsú-gg = ū	lūsú-gg = ù	‘hot’
(l)	n̰ə̀ə̀m-m	n̰ə̀ə̀mə̀-n	n̰ə̀ə̀mə̄-n	n̰ə̀ə̀mə̄-gg = ə̄	n̰ə̀ə̀mə̄-gg = ə̀	‘blind’
(m)	ɲāān-n	ɲāān	ɲāán	ɲə̄ə̄-lgíígg = ə̄	ɲāā-lgɛ́ɛ́gg = à	‘young’

Adjectival verbs have various grammatical forms such as the incompletive, completive, and continuous past forms of (96).

(96) **Third singular incompletive, completive and continuous past adjectival verbs**

	INF	INCP 3SN	COMP 3SN	CONT.P 3SN	
(a)	bēr-r	bér	bēr-sá	bér-án	‘clean’
(b)	gààl-l	gàāl	gààl-ḍà	gààl-ān	‘far’
(c)	àɟ-ɟ	áɛ̆-n	àɟ-ɟā	ā̆y-án	‘sour’
(d)	cūū	cúú-n	cúū-n-sú	cúú-n-ə́n	‘sweet’
(e)	---	íĭ-n	ìɟ-ɟə̄	íy-ə̄n	‘heavy’
(f)	fān-g	fāān	fàn-gā-sā	fāān-án	‘old’
(g)	bāndạ́l-l	bándạ̄l	bándạ̄l-sá	bándạ̄l-án	‘weak’
(h)	kɔ̀ɔ̀fàr-r	kɔ́ɔ́f ăr	kɔ̀ɔ̀fàr-sā	kɔ́ɔ́fār-án	‘thin’
(i)	kāyáár-r	kāyáár	kāyáár-sá	kāyáár-án	‘beautiful’
(j)	wɛ̄nḍá-ḍ	wɛ́ḍán	wɛ̄nḍá-sá	wɛ́ḍán-án	‘good’
(k)	lùùs-ə̄ḍ	lūsú-n	lūsú-n-sú	lūsú-n-ə́n	‘hot’
(l)	ḍɔ̀ɔ̀m-m	ḍɔ̀ɔ̀mə̄-n	ḍɔ̀ɔ̀mɔ̀-sə̄	ḍɔ̀ɔ̀mə̄-gg-ə́n	‘blind’
(m)	ɲāān-n	ɲāán	ɲāán-sá	ɲāán-án	‘young’

11 Prepositions

Preposition is a lexical category including four independent prepositions and one prepositional prefix. Prepositions introduce noun phrases which function as modifiers or adjuncts of the preceding noun or verb. Four independent prepositions can have the same segmental form *ɛ* but differ in tone or grammatical marking on the prepositional phrase. The animate accompaniment preposition *ɛ̀* 'with' has Low tone, the inanimate preposition *ɛ̄* 'with' has Mid tone, and the general preposition *ɛ́, í* (GP) has High tone. The general preposition has free variation in vowel quality regardless of the [ATR] quality of surrounding words. When the general preposition is used to introduce a genitive phrase, the noun following the preposition undergoes a tone change. The preposition marker prefix *d̪-* is used for introducing phrases with initial pronouns.

Table 55: Prepositions

è	'with'	Animate accompaniment preposition
ē	'with'	Inanimate accompaniment preposition
é, í	GP; 'to, from, in, at, by, of'	General preposition: Goal, source, time, location, instrument, or genitive
d̪-	'to, from, in, by'	Pronoun preposition marker

11.1 Animate accompaniment preposition

The preposition *ɛ̀* 'with' having Low tone is used for introducing animate accompaniment phrases. In such phrases, the accompaniment marker clitic *=Ɛ̃* attaches to the final word of the accompaniment phrase. The accompaniment marker *=Ɛ̃* for consonant-final stems is attached to the noun *ālḍ=ɛ̄* 'fox' in (1a) and to *kūūḍ=ī* 'person.name' in (b).

(1) **Animate accompaniment preposition *ɛ̀* 'with'**

(a) sàlàḍ=ā **ɛ̀** ālḍ=**ɛ̄** ɛ̄ bɛ̀ɛ̀
hyena=DEF with fox=ACM 3pN said.INF
'Hyena and Fox said . . ' (Nyee16)

(b) ɟāfàrì=n **ɛ̀** māīḍ kūūḍ=**ī** wāɟ-ɟà é wīlɔ̀ns
Jafari=DEF with old.man person. name=ACM went GP hunting.GEN
'Jafari and an older man of the Kuud clan went on a hunt.' (Jafr1)

11.2 Inanimate accompaniment preposition

The preposition *ɛ̀* 'with' having Mid tone is used for introducing inanimate accompaniment adjunct phrases. The accompaniment marker clitic is not attached

to such phrases.

(2) **Inanimate accompaniment preposition *ɛ̄* 'with'**

(a) ɛ̄ máà īīŋ ɛ̄ àn-n mɔ̄sɔ̀r ɔ̄ɔ̄l
3sN prides.INF 3sR 3sN stay-INF horse up
' . . taking pride in himself as he sits up on the horse

ɛ̄ páré = n é mə̀ŋ̀ìl = ə̀ ḍ-éɛ̀s
with skin.bag = DEF GP /mə̀ŋ̀ìl/devil.GEN = DEF PP-hand.3sPs
with an animal-skin bag having demonic power in his hand.' (Minj14-15)

(b) ānɛ̄nḍá Ṭél ɛ̄ kúnḍ = ú ɛ̄ áḍ **ɛ̄** wáɛ̄ḍá,
then God 3sPs heart = DEF 3sN becomes with joy
'Therefore God will be pleased
(lit. God's heart becomes with joy).' (Womn17)

11.3 General preposition

The preposition *ɛ́, í* 'to, from, in, at, by' introduces adjunct phrases that indicate goal, time, location, or instrument/source. Goal phrases can be used along with a following locative adverb *ṭɛ* 'there' as in (3a) or along with a preceding adverbial locative *ḍumuun* 'far' as in (b). The first prepositional phrase *ɛ́ nāānḍá* 'in day' of (b) has the role of time. In (c), the prepositional phrase has the role of location,

(3) **General preposition *ɛ́, í* (GP)**

(a) gə̂l fə̄nḍì bə̀gsə̄n = ĩn líɟɟĭ **ɛ́** kə̄rṭūūm ṭɛ̀.
just Fandi caught.by-them arrived GP Khartoum here
'Fandi was captured by them and brought here to Khartoum.' (Fand6)

(b) á wāɟ-ɟā **ɛ́** nāānḍá mān ḍūmùùn **ɛ́** ḍààl
1sN went-COMP GP day certain towards GP (valley name)
'One day I went to Dal Valley.' (Jooj1)

(c) āgg bìɟ āgg gə̀l-g = ɔ̄ nà dáāgg ɛ̀ɛ̀n **ɛ́** ɲəəgg
1pN left 1pP friend-PL = DEF REL.PL two 3sN GP behind
'We left our other two companions behind.' (Thng5-6)

(d) é dɔ̀ɟ-ɟ āāggá **ɛ́** mīīḍ-ə́g fɔ̄rɔ́ɟɟ wá bə̀ = ī
3sN stone-INF 1pA GP stone-PL few not oh = SBO
'When it pelted us with a lot of stones, . . ' (Thng20)

(e) gààr cúə́ . . . nām-án = **ɛ̄** **ɛ́** káé-gg = à
pork sweet /nam/eat-CONT.P=PAS.A GP witchdoctor-PL=DEF
'Sweet pork . . . was being eaten by witchdoctors.'

in (d), the role of instrument, and in (e), the role of agent.

This preposition is also used in the formation of two conjunctions: *é gārá* 'when, while (lit. by place.DEF)', *é kɔ̄rá* 'because (lit. by word.DEF)'. Conjunction is another lexical category and discussed in 15.2. In 13.4, it will be shown that the general preposition introduces prepositional phrases used as adjuncts indicating time é nāānḛ = á yāàn 'another day (lit. at day another)'.

The general preposition is also used to introduce genitive phrases which indicate possession, or close relation of certain objects or actions. In such phrases, the noun following the preposition undergoes a tone change and is the possessor of the noun preceding the preposition, or is the noun to which the preceding noun is closely related. In (4a), the *ɲɛ̄ɛ̄rɛ̄mâ = n* 'devil.GEN=DEF' is the possessor of *ɲālg* 'children'. In (b), the word preceding the genitive phrase is a verb and the genitive phrase functions as an adjunct. As discussed in 6.5, the tone of each genitive noun has Mid-Low or High-Low, regardless of the root tone.

(4) **General preposition *é, ɛ́* (GP)**

(a)	ā	gâr-rā	ā	nám-ḍá	ɲālg	**é**	ɲɛ̄ɛ̄rɛ̄mâ = n	
	SBJV	be.able-SBJV.3sN	SBJV	eat-SBJV. 3sN	children	GP	/ɲéɛ́rɛ̀màn/ devil.GEN = DEF	

'. . . so as to eat the nyeerma offspring.' (Nyee10)

(b)	ɛ̄	gəms-ɔ́ggə	mīī = n	ɛ̄	nāā	**é**	fɔ̄l
	3sN	found-M.COMP	goat = DEF	3sN	laying.INCP	GP	/fɔ́l/hole.GEN

'He discovered the goat down in the well.' (Goat10)

(c)	càɔ̀r	nɛ́ɛ́-n	**é**	sālāḍ = à	**è**	âlḛ	**è**	ɟɛ̀gg	
	tale	this-DEF	GP	/sàlàd = à/ hyena.GEN = COP	with	/ālḛ/ fox.GEN	with	/jɛ̀g/ thing.PL.GEN	

'This story is about a hyena, fox, and some

é	lɛ̄ɛ̄l-ɛ̄ɛ̄g = à	bíīgg	nà	àn	lɛ́ɛ́l-ɛ́ɛ̀gg = ɛ̀	
GP	/lɛ́ɛ́l-ɛ́ɛ̄g/grass. GEN-PL = COP	some	REL.PL	stay	forest-PL = RDM	

wild forest animals.' (Nyee1-2)

In (4c), there are three possessors (*sālāḍà* 'hyena', *âlḛ* 'fox', *ɟɛ̀gg* 'things') of a single item (*càɔ̀r nɛ́ɛ́n* 'this tale') introduced by the general preposition *é* (GP) with High tone and two animate accompaniment prepositions *è* 'with' with Low tone. There is no animate accompaniment clitic *=Ê* attached to the nouns *âlḛ* 'fox' and *ɟɛ̀gg* 'things' possibly because the general preposition *é* (GP) with genitive use has scope over them, causing them to undergo genitive tone change. The object *lɛ̄ɛ̄lɛ̄ɛ̄ggà* 'grasses' in the genitive phrase *ɟɛ̀gg é lɛ̄ɛ̄lɛ̄ɛ̄ggà* 'things of grasses' is

introduced by a general preposition *ɛ́* (GP) with High tone since it is not a fourth possessor of *càɔ̀r nɛ́ɛ́n* 'this tale', but of *ɟɛ̄gg* 'things'.

As discussed in 10.2 and 14.5.1, the genitive is also used to encode agents of agented passive clauses as in (5).

(5) nāms ŋáɔ́-s=**ɛ̄** **āggāàr**
food /ŋaw/need-COMP=PAS.A /àgáár/hunter.GEN
'Food is needed by the hunter.'

11.4 Prepositional prefix for pronouns

The consonant prefix *ḍ-* is used instead of the independent general preposition *ɛ́* (GP) when marking prepositional phrases beginning with possessive pronouns, prepositional pronouns, locative prepositional pronouns, or inherently possessed body parts—all of which are vowel-initial.[37]

In (6a), the preposition attaches to the possessive pronoun *ɛ̄* 'his' of the possessive phrase to indicate 'in his chest'. In (b), the preposition attaches to the prepositional pronoun *-ā́ggá* 'us' to indicate 'from us'. In (c), the preposition attaches to the locative prepositional pronoun *-ɛ́ɛ́ŋ* 'behind.3sO' to indicate 'to behind him'. In (d), the preposition attaches to the possessed body part noun *ɔ̄ɔ̄ŋ* to indicate 'on your back'. In (a,d), the prepositional phrases have the role of location, in (b) the role of source, and in (c) the role of goal.

(6) **Prepositional prefix *ḍ-***

(a) ɟɛ̄n ɛ̄ bìl=ì **ḍ̈**-ɛ̄ kúnḍ̈
person 3sN shot=3sAM PP-3sP chest
'A person shot him in his chest.' (Fand30)

(b) ɟɔ̄gg ɛ̄gg óðï bà, ɛ̄gg wár ɟɛ̀gg=ā **ḍ̈**-ā́ggá kāɛ̄
people 3pN come oh 3pN take things=DEF PP-1pO all
'When these people come, they take all (our) things from us.' (Minj7)

(c) ālḍ̈=á ɛ̄ pə̂rḍ̈-ì **ḍ̈**-ɛ́ɛ́ŋ, lə̂ŋ ɛ̄ māḍ̈ággā
fox=DEF 3sN jump-3sAM PP-behind.3sO until 3sN drank
'Fox jumped over him (into the well) and drank until . . ' (Goat12)

(d) ā rə̆g-sâ **ḍ̈**-ɔ̄ɔ̄ŋ ā lɛ́ɟ-ɟā ṭ̈ú=í
1sN step PP-back.2sPs SBJV go out=SBO
'If I step on your back so that I get out, . . ' (Goat14-15)

[37] In the data collected, the prepositional prefix *ḍ-* did not replace the general preposition in genitive use *ɛ́* 'of' such as in 'of my house'.

11.5 Adverbs functioning as prepositions

Some adverbs of direction have the syntactic function of prepositions, introducing a noun phrase. In (7a), the adverb *ḍūmùùn* 'towards' introduces the noun phrase *wāālg* 'water.source in'. Sometimes adverbs of direction introduce other adverbs of direction as in (b), where the first adverb functions as a preposition, and the second functions as a noun phrase. In both example (a) and (b), the prepositional phrase functions as an adjunct, describing the location of the action.

(7) **Adverbs of direction functioning as prepositions**

(a)	ɛ̄	dɔ̄ɔ̀s	ɛ̄	wāɟɟ	**ḍūmùùn**	wāāl = g
	3sN	started	3sN	go	towards	water.source = in

'He set out for the well.' (Goat2)

(b)	ìīgg = ɔ́	ɛ̄	mɔ̄l = ínɔ̄		**fān**	ṭáḍ
	milk = DEF	3sN	gathered = 3sD		on	down

'Milk accumulated for him underneath.' (Nyee24)

12 Body part locatives

Locative phrases can consist of a noun of reference followed by a body part functioning as a locative, which in this thesis is called a 'body part locative'. Body part locatives are analyzed categorically as locatives in that the original body part noun has become a grammaticalized form which no longer refers to person. In 5.2.4, it was shown that the vowels of inherently possessed body part nouns correspond to the person possessing the nouns. Such body parts used as locatives may have generalized first or second person vowels when used for the location of third person nouns.

(1) ɛ̄ àn **ūfú** **ɔ́ɔ́l** ḍɛ̄ɛ̄nɛ̄.
3sN staying tree up only
' . . as he remained in the tree.' (Nyee35)

In (1), *ɔ́ɔ́l* 'up' is a body part locative with the same segmental form as *ɔ̄ɔ̄l* 'your head (2sPs)'. The noun *ɔ̄ɔ̄l* 'your head' is a second person singular inherently possessed singular body part requiring a person marker vowel. In contrast, the locative *ɔ́ɔ́l* 'up' is used with the third singular noun *ūfú* 'tree', and the vowel *ɔɔ* no longer refers to person. In this way, the body part has become grammaticalized as a locative rather than as a body part. The second person vowel of the locative form *ɔ́ɔ́l* 'up' is random in that other body part locatives use first person or third person vowels.

As will be discussed in 14.9.3, possession of body part nouns is different than for other nouns in that the possessor precedes the body part (*ɟɛ̄n lúḍ* 'person's leg') instead of following and in the genitive case (*gàḍááɛ̀ ɛ́ ɟɛ̂n* 'basket of person.GEN'). The construction of locative phrases with body part locatives resembles that of possessed body parts—the body part follows the possessor and the body part locative follows the noun of reference. However, since *ɔ́ɔ́l* 'up' and other singular body part locatives can describe the location of any singular person noun or pronoun, the locative is a grammaticalized form which no longer refers to any person.

In (2), body part nouns and the corresponding body part locatives are listed in both singular and plural forms along with their meanings. All body part locatives have the same segmental form as the corresponding body part noun; however, locatives (a-c) which are inherently possessed body parts have different tone than the corresponding body part nouns. Locatives which are inherently possessed body parts include a person marker vowel only because the body part cannot occur without one. The person marker vowel does not represent any person in its locative usage unless the prepositional prefix *ḍ-* is attached, as discussed shortly. As to which of the three vowel-person forms the grammticalized body part employs, appears random. The locative of (a) uses the third person vowel, the locative of (b)

uses the second person vowel, and the locative of (c) can use either the first or third person vowel in singular locative form, but only the first person vowel in plural form.

(2) **Body parts and corresponding body part locatives**

	Noun SG	Noun PL		LOC SG	LOC PL	
(a)	ɛ̄ɛ̄lg	ììl-g	'stomach.3P'	ɛ́ɛ́lg	îìlg	'in, inside of'
(b)	ɔ̄ɔ̄l	ùùl-g	'head.2P'	ɔ́ɔ́l	úùlg	'above, over, on'
(c)	āāɲ/ ɛ̄ɛ̄ɲ	ə̀ə̀ɲ-g/ ììɲ-g	'back.1P/ back.3P'	ááɲ/ ɛ́ɛ́ɲ	ə́ə̀ɲg	'behind, in back of'
(d)	bə̄l	bə̀l-g	'vagina'	bə̄l	bə̀lg	'under, beneath'
(e)	mūū	mùù-gg	'face'	mūū	mùùgg	'before, in front of'
(g)	bɛ̀ɲ-ɟ	bɛ̀ɲ-āāgg	'side'	bɛ̀ɲɟ	bɛ̀ɲāāgg	'next to, beside

In each example of (3), a body part locative follows the noun of reference. The body part locative agrees in number with the head noun—plural in (a) and singular in (b-d).

(3) **Body part locatives**

(a)

ú=ɲíl	gàr=ā	súùgg	**îìlg**	ɛ́ gārá	fɛ́ðắná	ɟɛ̀gg=ā
2pN=know	place=DEF	market	in	where	placed	things=DEF

'Do you know the place in the market where things . . ' (Fand27)

(b)

ɛ̄	máà	īīŋ	ɛ̄	àn	mɔ̄sɔ̀r	**ɔ̄ɔ̄l**
3sN	prides	3sR	3sN	stay	horse	up

' . . taking pride in himself as he sits up on the horse.' (Minj14)

(c)

fāā	ná	bɛ̄l	cɔ̀ɔ̀ɟɟɔ̀ɔ̀.-ɛ̀ɛ̀n,	ɛ̄	àn	gə̄ì	**bə̀l**
old	REL.SG	called	Joojo-3sO	3sN	staying	tree.type	beneath

'An old man named Joojo was sitting under a Gai tree.' (Jooj3)

(d)

ɛ̄	rāgg	fɔ́l	**mūū**
3sN	stop	hole	front

'He stopped in front of the hole.' (Goat17-18)

When body part locatives are used with pronouns of reference instead of nouns of reference, the object pronoun is attached to the verb and the prepositional prefix *d̪-* 'to' attaches to the body part locative, as will be discussed in 11.4. Body part locatives with pronominal reference are also called locative prepositional pronouns, as discussed in 5.7.

In (4), the third singular object pronoun *=ì* attaches to the verb. The prepositional prefix *d̪-* marks the body part locative as indicating a pronoun as well as a location,

and thus the vowel *ɛɛ* indicates the third person singular pronoun (*ḍ-ɛ́ɛ́ɲ* 'to behind him').

(4) ālḍ́ = á ɛ̄ pârṛḍ́ = ì ḍ́-**ɛ́ɛ́ɲ**
fox = DEF 3sN jump = 3sAM PP-behind.3sO
'Fox jumped behind him.' (Goat12)

If instead the meaning were 'Fox jumped behind (over) you', the construction *ḍ-ɔ́ɔ́ɲ* (PP-behind.2sO; locative prepositional pronoun) would have been used. If the meaning were 'Fox jumped on his back' the construction *ḍ-ɛ̄ɛ̄ɲ* (PP-back.3sPs; possessed body part) with Low tone would have been used [see also (6d) of 11.4]. If the meaning were 'Fox jumped behind the tree', the construction *pârḍ̀ɔ̄ ūfú ɛ́ɛ́ɲ* (jump tree behind; body part locative) would have been used.

Locative phrases are adjuncts of the verb and are equivalent in function to adverbs of place such as *ɻɛ* 'there, here' discussed in 13.3. However, since locative phrases have a different construction than adverbs of place, they are analyzed as separate lexical categories.

Although body part locatives are analyzed as separate morphemes, the initial vowels of some body part locatives are sometimes elided, undergo [ATR] changes, and undergo tone changes similar to those of clitics, depending on the nouns they follow. A summary of these changes is given here with reference to the list of (5), and examples follow in the next sections. Elision and [ATR] changes only occur in the singular body part locative of (5a) and to a lesser extent in the singular locatives of (b-c). The changes mostly depend on the speed of the utterance, but also on the final segments of the nouns the locatives follow. Tonal changes in body part locatives nearly always take place, regardless of the speed of utterance. However, there are no tonal changes for the singular locative of (g) and the plural locatives of (d-g) with underlying initial Low tone. The examples that follow represent fast speech and demonstrate the most possible changes.

(5) **Body part locatives**

	LOC SG	LOC PL	
(a)	ɛ́ɛ́lg	îlg	'in, inside of'
(b)	ɔ́ɔ́l	úùlg	'above, over, on'
(c)	ááɲ/ɛ́ɛ́ɲ	ə̀ŋg	'behind, in back of'
(d)	bɔ̄l	bɔ̀lg	'under, beneath'
(e)	mūū	mùùgg	'before, in front of'
(g)	bɛ̀ɲɟ	bɛ̀ɲāāgg	'next to, beside

12.1 Segmental formation of body part locatives

The body part locatives *ɛ́ɛ́lg* 'in' and *ɔ́ɔ́l* 'above' attach to singular nouns with

stem-final approximant *ð,* evidenced by the vowel quality change of the locative vowel in (6b) and (d). However, the body part locative *ááɲ/ééɲ* 'behind' is separate from singular nouns as vowel quality of the locative never changes.

(6) **Singular body part locatives *éélg* 'in', *ɔ́ɔ́l* 'above', *ááɲ/ééɲ* 'behind' on singular nouns with stem-final *ð***

	N SG	N SG 'in'	N SG 'above'	N SG 'behind'		
(a)	ɟááð	ɟááð = éélg	ɟááð = ɔ́ɔ́l	ɟááð ááɲ	ɟááð ééɲ	'old clothes'
(b)	məəð	məəð = íílg	məəð = úúl	məəð ááɲ	məəð ééɲ	'grandfather'
(c)	mɛɛð	mɛɛð = éélg	mɛɛð = ɔ́ɔ́l	mɛɛð ááɲ	mɛɛð ééɲ	'tree type'
(d)	kūūð	kūūð = íílg	kūūð = úúl	kūūð ááɲ	kūūð ééɲ	'shadow'
(e)	yààð	yààð = ɛɛlg	yààð = ɔɔl	yààð āāɲ	yààð ɛɛɲ	'sister'

Body part locatives attached to monosyllabic underlying approximant-final stems are shown in (7). In (a-e), the singular body part locatives either cause the underlying-final approximant to surface as such or elide the approximant. The vowel of the locatives *éélg* 'in' and *ɔ́ɔ́l* 'above' take the [ATR] quality of the noun to which they attach. However, the body part locative *ááɲ/ééɲ* 'behind' is separate from singular nouns as vowel quality of the locative does not change in (f-h).

(7) **Singular body part locatives *éélg* 'in', *ɔ́ɔ́l* 'above', *ááɲ/ééɲ* 'behind' on monosyllabic underlying approximant-final stems**

	Stem-final	N SG	N SG 'in'	N SG 'above'	N SG 'behind'	
(a)	aɔ /aw/	káɔ	kâw = ɛɛlg	kâ. = ɔɔl	kâw āāɲ	'hyena'
(b)	aaɔ /aaw/	bààɔ	bààw = ɛɛlg	bàà. = ɔɔl	bààw āāɲ	'father'
(c)	ɛɔ /ɛw/	bɛ̄ɔ	bɛ̂w = ɛɛlg	bɛ̂. = ɔɔl	bɛ̂w āāɲ	'tree type'
(d)	aɛ /ay/	ṯāè	ṯâ. = ɛɛlg	ṯâ = ɔɔl	ṯây āāɲ	'giraffe'
(e)	aaɛ /aay/	sāāɛ̄	sāā = éélg	sāā. = ɔ́ɔ́l	sāāy ááɲ	'coconut'
(f)	əəi /əəy/	màəì	màə.ī = īlg	màəì. = ūūl	màəì āāɲ	'farm fence'
(g)	ui /uy/	mūī	mū.í = ílg	mūī. = úúl	mūī ááɲ	'wildebeest'
(h)	uui /uuy/	ɲūūì	ɲūù. = īīlg	ɲūūì. = ūūl	ɲūūì āāɲ	'leopard'

Similarly, in monosyllabic long vowel-final stems, the vowel of the locatives *éélg* 'in' and *ɔ́ɔ́l* 'above' take the [ATR] quality of the noun to which they attach, but *ááɲ/ééɲ* 'behind' is separate.

(8) **Singular body part locatives *éélg* 'in', *ɔ́ɔ́l* 'above', *ááɲ/ééɲ* 'behind' on monosyllabic long vowel-final stems**

Stem-final	N SG	N SG 'in'	N SG 'above'	N SG 'behind'		
ɛ	rɛ̄ɛ̄	rɛ̄ɛ̄. = éélg	rɛ̄ɛ̄. = ɔ́ɔ́l	rɛ̄ɛ̄ ááɲ	rɛ̄ɛ̄ ééɲ	'cotton'
a	máà	máà. = ɛ̄ɛ̄lg	máà. = ɔɔl	máà āāɲ	máà ɛɛɲ	'house'
ɔ	ṯɔ́ɔ́	ṯɔ́ɔ́. = éélg	ṯɔ́ɔ́. = ɔ́ɔ́l	ṯɔ́ɔ́ ááɲ	ṯɔ́ɔ́ ééɲ	'cow'

Stem-final	N SG	N SG ‘in’	N SG ‘above’	N SG ‘behind’		
i	ɟíì	ɟíì. = íílg	ɟíì. = úúl	ɟíì ááɲ	ɟíì ɛ́ɛ́ɲ	‘turkey’
ə	wəə	wəə. = íílg	wəə. = úúl	wəə ááɲ	wəə ɛ́ɛ́ɲ	‘shade’
u	bùù	bùù. = íílg	bùù. = úúl	bùù ááɲ	bùù ɛ́ɛ́ɲ	‘chicken coop roof’

The body part locative *ɛ́ɛ́lg* ‘in’ can attach to polysyllabic singular nouns with stem-final vowel. Following some nouns with final long vowel such as in (9a,c), the initial long vowel of the locative is elided. With other nouns such as (b) there can be partial elision. There can also be elision of noun short-final vowels as in (g,i,j). In (d,f,h,k), the locative is separate, evidenced by the vowel quality of the locative not changing to [+ATR]. In (e), it is ambiguous whether the locative attaches or not. The locative *ɔ́ɔ́l* ‘above’ attaches to vowel-final stems to a lesser extent than *ɛ́ɛ́lg*— in these examples it is only attached in (j). The locative *ááɲ/ɛ́ɛ́ɲ* ‘behind’ is always separate.

(9) **Singular body part locatives *ɛ́ɛ́lg* ‘in’, *ɔ́ɔ́l* ‘above’, *ááɲ/ɛ́ɛ́ɲ* ‘behind’ on polysyllabic vowel-final stems**

	Stem-final	N SG	N SG ‘in’	N SG ‘above’	N SG ‘behind’	
(a)	ɛɛ	ābbɛ́ɛ́	ābbɛ́ɛ́ = lg	ābbɛ́ɛ́ ɔ́ɔ́l	ābbɛ́ɛ́ ááɲ	‘uncle’
(b)	ii	ūrīī	ūrī.í = ílg	ūrīī ɔ́ɔ́l	ūrīī ááɲ	‘ostrich’
(c)	aa	wááyáá	wááyáá = lg	wááyáá ɔ́ɔ́l	wááyáá ááɲ	‘bird type’
(d)	əə	gəūlḍəə	gəūlḍəə ɛ̄ɛ̄lg	gəūlḍəə ɔ̄ɔ̄l	gəūlḍəə āāɲ	‘fish’
(e)	ɔɔ	mélɔ̄ɔ̄	mélɔ̄ɔ̄ ɛ́ɛ́lg	mélɔ̄ɔ̄ ɔ́ɔ́l	mélɔ̄ɔ̄ ááɲ	‘sugar cane’
(f)	uu	əyúú	əyúú ɛ́ɛ́lg	əyúú ɔ́ɔ́l	əyúú ááɲ	‘tooth brush’
(g)	a	ṭááðà	ṭááð = ɛ̀ɛ̄lg	ṭááðà ɔ̄ɔ̄l	ṭááðà āāɲ	‘grandmother’
(h)	ə	əŋə̀	əŋə̀ ɛ̄ɛ̄lg	əŋə̀ ɔ̄ɔ̄l	əŋə̀ āāɲ	‘little girl’
(i)	ɔ	ɔ̀nsɔ̀	ɔ̀ns = ɛ̀ɛ̄lg	ɔ̀nsɔ̀ ɔ̄ɔ̄l	ɔ̀nsɔ̀ āāɲ	‘cooking plate’
(j)	u	kúúfú	kúúf = íílg	kúúf = úúl	kúúfú ááɲ	‘crushed beans’
(k)	uə	būə̀	būə̀ ɛ̄ɛ̄lg	būə̀ ɔ̄ɔ̄l	būə̀ āāɲ	‘tree type’

The body part locative *ɛ́ɛ́lg* ‘in’ can attach to singular nouns with stem-final consonants evidenced by [ATR] harmony, but the other vowel-initial singular locatives remain separate.

(10) **Singular body part locatives *éélg* 'in', *ɔ́ɔ́l* 'above', *ááɲ/ééɲ* 'behind' on singular nouns with stem-final consonants**

	Stem-final	N SG	N SG 'in'	N SG 'above'	N SG 'behind'	
(a)	bb	ɟílɔ̀bb	ɟílɔ̀bb = íílg	ɟílɔ̀bb ɔ̄ɔ̄l	ɟílɔ̀bb ā̀āɲ	'water spring'
(b)	ḍ	māāḍ	māāḍ = éélg	māāḍ ɔ́ɔ́l	māāḍ ááɲ	'snake type'
(c)	d	dɔ̋d	dɔ̋d = éélg	dɔ̋d ɔ́ɔ́l	dɔ̋d ááɲ	'bird type'
(d)	ɟɟ	bìmìríɟɟ	bìmìríɟɟ = íílg	bìmìríɟɟ ɔ́ɔ́l	bìmìríɟɟ ááɲ	'bird type'
(e)	gg	kàmàlɔ̀gg	kàmàlɔ̀gg = ɛ̄ɛ̄lg	kàmàlɔ̀gg ɔ̄ɔ̄l	kàmàlɔ̀gg ā̀āɲ	'woman'
(f)	s	márɔ̄ɔ̄s	márɔ̄ɔ̄s = éélg	márɔ̄ɔ̄s ɔ́ɔ́l	márɔ̄ɔ̄s ááɲ	'spider'
(g)	m	ḍɔ̄m	ḍɔ̄m = íílg	ḍɔ̄m ɔ́ɔ́l	ḍɔ̄m ááɲ	'Arab'
(h)	n	séɛ̀n	séɛ̀n = ɛ̄ɛ̄lg	séɛ̀n ɔ̄ɔ̄l	séɛ̀n ā̀āɲ	'ruler'
(i)	ɲ	ɲéɛ̀ŋ	ɲéɛ̀ŋ = ɛ̄ɛ̄lg	ɲéɛ̀ŋ ɔ̄ɔ̄l	ɲéɛ̀ŋ ā̀āɲ	'spear type'
(j)	r	púr	púr = íílg	púr ɔ́ɔ́l	púr ááɲ	'flower'
(k)	l	ḍɔ̀ŋɔ̀l	ḍɔ̀ŋɔ̀l = ɛ̄ɛ̄lg	ḍɔ̀ŋɔ̀l ɔ̄ɔ̄l	ḍɔ̀ŋɔ̀l ā̀āɲ	'millipede'

Regardless of the stem-final segments, the plural body part locatives *îílg* 'in', *úùlg* 'above', and *ɔ́ə̀ŋg* 'behind' of (6-10) do not undergo changes and are thus analyzed as separate words from the preceding plural nouns. Singular locatives are also presented for comparison.

(11) **Body part locative *éélg* 'in' and *îílg* 'in' on various segment-final singular and plural nouns**

Suffix	N SG	N PL	N SG 'in'	N PL 'in'	
-ḡg	wáár	wáār-g	wáár éélg	wáār-g îílg	'insect'
-gg	wááyáá	wááyáá-gg	wááyáá-lg	wááyáá-gg îílg	'bird'
-ḡg	kúúfú	kúúfú-gg	kúúf-íílg	kúúfú-gg îílg	'beans'
-Āgg	célḍ	célḍ-āgg	célḍ éélg	célḍ-āg îílg	'broom'
-ÉĒgg	púr	púr-íīgg	púr-íílg	púr-íīgg îílg	'flower'
-AAgg	îl	íl-ə̀ə̀gg	íl ɛ̀ɛ̄lg	íl-ə̀ə̀gg îílg	'horn'
-AAḍ	kàmàlɔ̀gg	kàmàlɔ̀gg-àà̤ḍ	kàmàlɔ̀gg ɛ̄ɛ̄lg	kàmàlɔ̀gg-àà̤ḍ îílg	'woman'
-ḡḍ	ābbéé	ābbéɛ̄-ḍ	ābbéé-lg	ābbéɛ̄-ḍ îílg	'uncle'
-ḍ/-gg	gə̀rmù-ḍ	gə̀rmù-gg	gə̀rmù-ḍ ɛ̄ɛ̄lg	gə̀rmù-gg îílg	'insect'
-Eḍ/-gg	ɟíŋ-íḍ	ɟíŋ-g	ɟíŋ-íḍ-íílg	ɟíŋ-g îílg	'louse'

(12) **Body part locative *ɔ́ɔ́l* 'above' and *úùlg* 'above' on various segment-final singular and plural nouns**

Suffix	N SG	N PL	N SG 'above'	N PL 'above'	
-̄gg	wáár	wáār-g	wáár ɔ́ɔ́l	wáār-g úùlg	'insect'
-g̲g	wááyáá	wááyáá-gg	wááyáá ɔ́ɔ́l	wááyáá-gg úùlg	'bird'
-̲gg	kúúfú	kúúfú-gg	kúúf = úúl	kúúfú-gg úùlg	'beans'
-Āgg	célḷ	célḷ-āgg	célḷ ɔ́ɔ́l	célḷ-āgg úùlg	'broom'
-ÉĒgg	púr	púr-íīgg	púr ɔ́ɔ́l	púr-íīgg úùlg	'flower'
-A̲Agg	îl	íl-ɔ̀ɔ̀gg	îl ɔ̄ɔ̄l	íl-ɔ̀ɔ̀gg ūùlg	'horn'
-A̲Aḷ	kàmàlɔ̀gg	kàmàlɔ̀gg-àaḷ	kàmàlɔ̀gg ɔ̄ɔ̄l	kàmàlɔ̀gg-àaḷ ūùlg	'woman'
-̄ḷ	ābbɛ́ɛ́	ābbɛ́ɛ̄-ḷ	ābbɛ́ɛ́ ɔ́ɔ́l	ābbɛ́ɛ̄-ḷ úùlg	'uncle'
-ḷ/-gg	gə̀rmù-ḷ	gə̀rmù-gg	gə̀rmù-ḷ ɔ̄ɔ̄l	gə̀rmù-gg ūùlg	'insect'
-Eḷ/-gg	ɟíŋ-íḷ	ɟíŋ-g	ɟíŋ-íḷ ɔ́ɔ́l	ɟíŋ-g úùlg	'louse'

(13) **Body part locative *ɛ́ɛ́ŋ/ɛ́ɛ́ɲ* 'behind' and *ɔ́ɔ̀ŋg* 'behind' on various final segments of singular and plural nouns**

Suffix	N SG	N PL	N SG 'behind'	N PL 'behind'	
-̄gg	wáár	wáār-g	wáár ɛ́ɛ́ŋ	wáār-g ɔ́ɔ̀ŋg	'insect'
-g̲g	wááyáá	wááyáá-gg	wááyáá ɛ́ɛ́ŋ	wááyáá-gg ɔ́ɔ̀ŋg	'bird'
-̲gg	kúúfú	kúúfú-gg	kúúfú ɛ́ɛ́ŋ	kúúfú-gg ɔ́ɔ̀ŋg	'beans'
-Āgg	célḷ	célḷ-āgg	célḷ ɛ́ɛ́ŋ	célḷ-āg ɔ́ɔ̀ŋg	'broom'
-ÉĒgg	púr	púr-íīgg	púr ɛ́ɛ́ŋ	púr-íīgg ɔ́ɔ̀ŋg	'flower'
-A̲Agg	îl	íl-ɔ̀ɔ̀gg	íl àāŋ	íl-ɔ̀ɔ̀gg ɔ̄ɔ̀ŋg	'horn'
-A̲Aḷ	kàmàlɔ̀gg	kàmàlɔ̀gg-àaḷ	kàmàlɔ̀gg āāŋ	kàmàlɔ̀gg-àaḷ ɔ̄ɔ̀ŋg	'woman'
-̄ḷ	ābbɛ́ɛ́	ābbɛ́ɛ̄-ḷ	ābbɛ́ɛ́ ɛ́ɛ́ŋ	ābbɛ́ɛ̄-ḷ ɔ́ɔ̀ŋg	'uncle'
-ḷ/-gg	gə̀rmù-ḷ	gə̀rmù-gg	gə̀rmù-ḷ āāŋ	gə̀rmù-gg ɔ̄ɔ̀ŋg	'insect'
-Eḷ/-gg	ɟíŋ-íḷ	ɟíŋ-g	ɟíŋ-íḷ ɛ́ɛ́ŋ	ɟíŋ-g ɔ́ɔ̀ŋg	'louse'

12.2 Tonal formation of body part locatives

The singular body part locatives *ɛ́ɛ́lg* 'in', *ɔ́ɔ́l* 'above', *ɛ́ɛ́ŋ/ɛ́ɛ́ɲ* 'behind' have underlying High tone and the plural body part locatives *íìlg* 'in', *úùlg* 'above', *ɔ́ɔ̀ŋg* 'behind' have underlying HL tone. Regardless of whether the locatives attach to nouns, initial High tone of the locative is lowered to Mid following noun-final Low tone, as shown by (14-19).

(14) **Singular body part locatives *ɛ́ɛ́lg* 'in', *ɔ́ɔ́l* 'above', *ɛ́ɛ́ŋ/ɛ́ɛ́ɲ* 'behind' on stem-final *ð* nouns with three tone melodies**

Tone	N SG	N SG 'in'	N SG 'above'	N SG 'behind'	
H	ɟááð	ɟááð = ɛ́ɛ́lg	ɟááð = ɔ́ɔ́l	ɟááð ɛ́ɛ́ŋ	'old clothes'
M	māāð	māāð = íílg	māāð = úúl	māāð ɛ́ɛ́ŋ	'grandfather'
L	yààð	yààð = ɛ̄ɛ̄lg	yààð = ɔ̄ɔ̄l	yààð āāŋ	'sister'

(15) **Singular body part locatives *éélg* 'in', *ɔ́ɔ́l* 'above', *ááɲ/ééɲ* 'behind' on monosyllabic approximant-final stems with various tone melodies**

Tone	N SG	N SG 'in'	N SG 'above'	N SG 'behind'	
H	ááɛ́	áá.ɛ́ = élg	áá. = ɔ́ɔ́lg	ááy = ááɲ	'honey'
M	mūī	mū.í = ílg	mūī. = úúl	mūī ááɲ	'wildebeest'
L	bààɔ̀	bààw = ɛ̄ɛ̄lg	bàà. = ɔ̄ɔ̄l	bààw = āāɲ	'father'
HL	káɔ̀	kâw = ɛ̄ɛ̄lg	kâ. = ɔ̄ɔ̄l	kâw = āāɲ	'hyena'
ML	ɲūūì	ɲūù. = īīlg	ɲūūì. = ūūl	ɲūūì āāɲ	'leopard'

(16) **Singular body part locatives *éélg* 'in', *ɔ́ɔ́l* 'above', *ááɲ/ééɲ* 'behind' on monosyllabic long vowel-final stems with various tone melodies**

Tone	N SG	N SG 'in'	N SG 'above'	N SG 'behind'	
H	cáá	cáá. = éélg	cáá. = ɔ́ɔ́l	cáá ááɲ	'wild cat'
M	mīī	mīī. = íílg	mīī. = úúl	mīī ááɲ	'goat'
L	ḍ̀ìì	ḍ̀ìì. = īīlg	ḍ̀ìì. = ūūl	ḍ̀ìì āāɲ	'rat'
HL	máà	máà. = ɛ̄ɛ̄lg	máà. = ɔ̄ɔ̄l	máà āāɲ	'house'
ML	ɟ̀ìì	ɟ̀ìì. = īīlg	ɟ̀ìì. = ūūl	ɟ̀ìì āāɲ	'turkey'

(17) **Singular body part locatives *éélg* 'in', *ɔ́ɔ́l* 'above', *ááɲ/ééɲ* 'behind' on polysyllabic vowel-final nouns with various tone melodies**

Tone	N SG	N SG 'in'	N SG 'above'	N SG 'behind'	
H	áðá	áð = éélg	áð = ɔ́ɔ́l	áðá ááɲ	'dog'
M	ūrīī	ūrī.í = ílg	ūrīī ɔ́ɔ́l	ūrīī ááɲ	'ostrich'
L	ɔ̀nsɔ̀	ɔ̀ns = ɛ̄ɛ̄lg	ɔ̀nsɔ̀ ɔ̄ɔ̄l	ɔ̀nsɔ̀ āāɲ	'cooking plate'
HL	báḍà	báḍ = èɛ̄lg	báḍà ɔ̄ɔ̄l	báḍà āāɲ	'gourd cup'
ML	gāfà	gāf = èɛ̄lg	gāfà ɔ̄ɔ̄l	gāfà āāɲ	'farm, field'
MH	mɔ̄ðɔ́	mɔ̄ð = éélg	mɔ̄ðɔ́ ɔ́ɔ́l	mɔ̄ðɔ́ ááɲ	'locust'

(18) **Singular body part locatives *éélg* 'in', *ɔ́ɔ́l* 'above', *ááɲ/ééɲ* 'behind' on consonant-final nouns with various tone melodies**

Tone	N SG	N SG 'in'	N SG 'above'	N SG 'behind'	
H	wáár	wáár = éélg	wáár ɔ́ɔ́l	wáár ááɲ	'insect type'
M	ḍ̄ɔ̄m	ḍ̄ɔ̄m = íílg	ḍ̄ɔ̄m ɔ́ɔ́l	ḍ̄ɔ̄m ááɲ	'Arab'
L	kààm	kààm = ɛ̄ɛ̄lg	kààm ɔ̄ɔ̄l	kààm āāɲ	'cow type'
HL	séèn	séèn = ɛ̄ɛ̄lg	séèn ɔ̄ɔ̄l	séèn āāɲ	'ruler'
HM	ɟ́ɔ́rgāāl	ɟ́ɔ́rgāāl = éélg	ɟ́ɔ́rgāāl ɔ́ɔ́l	ɟ́ɔ́rgāāl ááɲ	'bird type'
ML	kɔ̄ðɛ̀l	kɔ̄ðɛ̀l = ɛ̄ɛ̄lg	kɔ̄ðɛ̀l ɔ̄ɔ̄l	kɔ̄ðɛ̀l āāɲ	'baboon'
LH	àggáár	àggáár = éélg	àggáár ɔ́ɔ́l	àggáár ááɲ	'hunter, rider'
LM	gɔ̀ɛ̄n	gɔ̀ɛ̄n = éélg	gɔ̀ɛ̄n ɔ́ɔ́l	gɔ̀ɛ̄n ááɲ	'metal worker'
MH	bāár	bāár = éélg	bāár ɔ́ɔ́l	bāár ááɲ	'tribe member'

(19) **Plural body part locatives *ílg* 'in', *úùlg* 'above', *ə́ə̀ŋg* 'behind' on nouns with various tone melodies**

Tone	N PL	N PL 'in'	N PL 'above'	N PL 'behind'	
H	wáār-g	wáār-g ílg	wáār-g úùlg	wáār-g ə́ə̀ŋg	'insect type'
M	ḍəm-g	ḍəm-g ílg	ḍəm-g úùlg	ḍəm-g ə́ə̀ŋg	'Arab'
L	kààmg	kààmg ìlg	kààmg ūùlg	kààmg ə̄ə̀ŋg	'cow type'
HL	sə́ə̀n-g	sə́ə̀n-g ìlg	sə́ə̀n-g ūùlg	sə́ə̀n-g ə̄ə̀ŋg	'ruler'
HM	ɟórgāāl-g	ɟórgāāl-g ílg	ɟórgāāl-g úùlg	ɟórgāāl-g ə́ə̀ŋg	'bird type'
ML	kɔ̄ðə̀l-g	kɔ̄ðə̀l-g ìlg	kɔ̄ðə̀l-g ūùlg	kɔ̄ðə̀l-g ə̄ə̀ŋg	'baboon'
LH	àggáār-g	àggáār-g ílg	àggáār-g úùlg	àggáār-g ə́ə̀ŋg	'hunter, rider'
LM	gɔ̀ə̄n-g	gɔ̀ə̄n-g ílg	gɔ̀ə̄n-g úùlg	gɔ̀ə̄n-g ə́ə̀ŋg	'metal worker'
MH	bāár-g	bāár-g ílg	bāár-g úùlg	bāár-g ə́ə̀ŋg	'tribe member'

The singular body part locatives *bə̄l* 'under' and *mūū* 'in front of' have underlying Mid tone which assimilates to final Low tone of a preceding noun. The locative *bɛ̀ɲɟ* 'beside' has underlying Low tone which is not affected by any tone.

(20) **Singular body part locatives *bə̄l* 'under', *mūū* 'in front of', *bɛ̀ɲɟ* 'beside' on consonant-final nouns with various tone melodies**

Tone	N SG	N SG 'under'	N SG 'in front of'	N SG 'beside'	
H	wáár	wáár bə̄l	wáár mūū	wáár bɛ̀ɲɟ	'insect type'
M	ḍəm	ḍəm bə̄l	ḍəm mūū	ḍəm bɛ̀ɲɟ	'Arab'
L	kààm	kààm bə̀l	kààm mùù	kààm bɛ̀ɲɟ	'cow type'
HL	sə́ə̀n	sə́ə̀n bə̀l	sə́ə̀n mùù	sə́ə̀n bɛ̀ɲɟ	'ruler'
HM	ɟórgāāl	ɟórgāāl bə̄l	ɟórgāāl mūū	ɟórgāāl bɛ̀ɲɟ	'bird type'
ML	kɔ̄ðə̀l	kɔ̄ðə̀l bə̀l	kɔ̄ðə̀l mùù	kɔ̄ðə̀l bɛ̀ɲɟ	'baboon'
LH	àggáár	àggáár bə̄l	àggáár mūū	àggáár bɛ̀ɲɟ	'hunter, rider'
LM	gɔ̀ə̄n	gɔ̀ə̄n bə̄l	gɔ̀ə̄n mūū	gɔ̀ə̄n bɛ̀ɲɟ	'metal worker'
MH	bāár	bāár bə̄l	bāár mūū	bāár bɛ̀ɲɟ	'tribe member'

The plural body part locatives *bə̀lg* 'under', *mùùgg* 'in front of', *bɛ̀ɲāāgg* 'beside' also have initial Low tone which is not affected by any tone.

(21) **Plural body part locatives *bə̀lg* 'under', *mùùgg* 'in front of', *bɛ̀ɲāāgg* 'beside' on nouns with various tone melodies**

Tone	N PL	N PL 'under'	N PL 'in front of'	N PL 'beside'	
H	wáār-g	wáār-g bə̀lg	wáār-g mùùgg	wáār-g bɛɲāāgg	'insect'
M	ḍəm-g	ḍəm-g bə̀lg	ḍəm-g mùùgg	ḍəm-g bɛɲāāgg	'Arab'
L	kààmg	kààmg bə̀lg	kààmg mùùgg	kààmg bɛɲāāgg	'cow'
HL	sə́ə̀n-g	sə́ə̀n-g bə̀lg	sə́ə̀n-g mùùgg	sə́ə̀n-g bɛɲāāgg	'ruler'
HM	ɟórgāāl-g	ɟórgāāl-g bə̀lg	ɟórgāāl-g mùùgg	ɟórgāāl-g bɛɲāāgg	'bird'

Tone	N PL	N PL 'under'	N PL 'in front of'	N PL 'beside'	
ML	kɔ̄ðɛ̀l-g	kɔ̄ðɛ̀l-g bə̀lg	kɔ̄ðɛ̀l-g mùùgg	kɔ̄ðɛ̀l-g bɛŋ̀āāgg	'baboon'
LH	àggáār-g	àggáār-g bə̀lg	àggáār-g mùùgg	àggáār-g bɛŋ̀āāgg	'hunter'
LM	gɔ̀ɛ̄n-g	gɔ̀ɛ̄n-g bə̀lg	gɔ̀ɛ̄n-g mùùgg	gɔ̀ɛ̄n-g bɛŋ̀āāgg	'metal worker'
MH	bāár-g	bāár-g bə̀lg	bāár-g mùùgg	bāár-g bɛŋ̀āāgg	'tribe m.'

13 Adverbs

Another lexical category—adverbs, describes the action of the clause, the clause predicate or the entire clause. There is a strong case for both adjectives and adverbs; different modifiers are normally used to describe verbs than those used to describe nouns. The adjective *wɛ̄ḍán* 'good.SG' of (1a) cannot be used in (b) to describe the verb *fíŋə́-ḍə̄* 'hear', and the adverb *mâŋ* 'well' of (b) cannot be used to describe the noun *sālāām* 'peace' in (a). Furthermore, the adjective *wɛ̄ḍán* agrees in number with the noun it modifies, whereas the adverb *maŋ* is unchangeable, and therefore not a noun or any other word category with number distinction.

(1a) sālāām ɛ́ ṭél **wɛ̄ḍán**
peace GP God good.SG
'The peace of God is good.'

(b) bìì fíŋə́-ḍə̄ kɔ̄r=ɛ́ **mâŋ**
let.IMP hear-SBJV.3pN word=RDM well
'Let them hear this message well!' (Womn25)

In this chapter, all attested words are presented which have the function of describing the action of the clause, the clause predicate or the entire clause. These words which are lexically categorized as adverbs can be grouped semantically according to manner, direction, place, time, or none of these. Adverbs of manner, direction, and place always follow the verb, whereas other adverbs are moveable outside of the verb phrase and may occur before the verb. When more than one kind of adverb is present, it is most common for manner and directional adverbs to precede adverbs of place, time, and other adverbs. The negative particle can also be analysed as an adverb since it has the same function as adverbs and always occurs clause-finally.

13.1 Adverbs of manner

Adverbs of manner, which describe how the action takes place, immediately follow the verb or any verb complements.

(2a) ā bā káŋ wāɟ-ɟá **bír**
SBJV /bag/collect.SBJV multitude /waɟ/go-SBJV openly
' . . to gather the multitude (of people) scattered about.'

(b) ɔ̀ ɟɛ̄n=á . . . bə̄=ì **ḍùùl**
and person=DEF send=3sAM difficult
'The person . . . to send is difficult (to find).' (Assa9-10)

A few attested adverbs of manner are given in (3).

(3) **Adverbs of manner**

bír	'openly'	sù	'deeply'
rɛ̄ggāāḏ	'loudly'	ṭ̈ìfīī̱ɟ̈	'quickly'
mâŋ	'well'	ɟ́áám	'wrongly'
ḏ̈ùùl	'difficult'		

13.2 Adverbs of direction

Adverbs of direction, indicating the direction of the action, may describe the verb without any further verb modifiers as in (4a). However, it is common for adverbs of direction to occur along with adverbs of place, which normally follow adverbs of direction as in (b).

(4a) ɛ̄gg bɔ̄fɔ̄ ɛ̄gg lɛ́ɛ̄ **ṭ̈àɔ̀**
3pN sing 3pN going up
'They sang as they went up.' (Fand25)

(b) á wīr-ə̄n áfáḏ̈ mān **ṭ̈áḏ̈** ṭ̈ɛ̀
1sN slaughter-CONT blood certain down here
'I am making a sacrifice here (lit. slaughtering down a certain living creature here).' (Jooj9)

A list of some adverbs of direction is provided in (5).

(5) **Adverbs of direction**

ṭ̈áḏ̈	'down'	ṭ̈àɔ̀	'up'
sím	'in, down'	ṭ̈ú	'out, away, through'
cābb	'up'	fān	'on, to'
ḏ̈ūmùùn	'towards'		

13.3 Adverbs of place

Adverbs of place can reference physical or figurative locations of verbs. They can describe the verb by themselves or along with another adverb. Other adverbs, such

(6a) mə́sí nɛ́ɛ́ nə́r-r-ə̄n **ṭ̈ɛ̀**
insect this drools-CAUS-CONT.N here
'This insect drools here.' (Jooj10)

(b) ɔ̀ á ŋ̈ām ā ṭ̈āl kɔ̄r ɛ́ mūn **ṭ̈ɛ̀** ɟɔ̄
and 1sN want SBJV create speech GP time here only
'And now I will stop talking here.' (Tifa14)

(c) gùrūūs-úgg = ú ṭā **ṭù** wá
money-PL = DEF COP there not
'There is no money.' (Fand16)

as ɟɔ̄ 'only' in (6b), follow adverbs of place.

Attested adverbs of place are listed in (7). The same three-way distinction as in demonstratives in 8.1.3—near a speaker, near an addressee, and away from both speaker and addressee—also occur in adverbs, as well as a presentational adverb as in (6c).

(7) **Adverbs of place**

Long	Short		
ṭèèðé	ṭè	'here'	near speaker
ṭààðá	ṭà	'there'	near addressee
ṭìiðí	ṭì	'there'	away from both
	ṭù	'there'	presentational

13.4 Adverbs of time

Adverbs of time normally occur as part of the verb phrase as in (8a, b), but may precede the clause entirely as in (c).

(8a) ɔ́ ú = ɲɔ̄m ɲíí **bārè** ā
and 2sN = want what now QM
'And what do you want now?' (Jooj7)

(b) āgg wāɟ-ɟā wāā = lg **fɛ́ɛ́ḍɔ́ɔ́l** ɟɔ̄
1pN went-COMP water = in early.morning only
'We also went to the water valley early in the morning.' (Thng17)

(c) ɔ́ **bārè** ú = bûr ú-ə̀n = ī bà
and now 2sN=remain.INCP 2sN=/an/live.INCP=IPF oh
'And are you still living (with good health)?'

Attested adverbs of time are listed in (9).

(9) **Adverbs of time**

bārè	'now'
kāɛ̄n	'yesterday'
fɛ́ɛ́ḍɔ́ɔ́l	'early morning'

Prepositional phrases introduced with the general preposition *é, í* (GP) of 11.3 can be used as adjuncts indicating time. In (10a), the phrase *é nāānḍá mân* 'on a certain day' describes the time of the verb *wāɲɲā* 'went'. Such phrases are also common at the beginning of the clause as in (b).

(10a) á wāɲɲā **é nāānḍ=á mân** ḍūmùùn é ḍààl.
1sN went GP day=DEF certain towards GP (valley name)
'One day I went to Dal Valley.' (Thng1)

(b) **é nāānḍ=á yāàn,** ālḍ=á ē áḍággā ē fáàm
GP day=DEF other Fox=DEF 3sN came 3sN thought
'Another day, Fox brought another idea . . .' (Nyee30)

Attested prepositional phrases used as adjuncts indicating time are shown in (11).

(11) **Prepositional phrases used as adjuncts indicating time**

é fɔ̀gg	'tomorrow'
é yāāgg	'a while'
é kááy-ēēgg	'at night'
é nāānḍá yāàn	'another day'
é gāránḍá	'at that time'

13.5 Other adverbs

Other adverbs are found to modify verbs, verb predicates, or the entire clause. Although they most commonly occur following the verb, some precede the verb when emphasizing noun subjects or even introduce the clause. The adverbs in (12a, b) show the most typical position, following the verb. In (c), the adverb *ɟɔ̄* 'just',

(12a) mɔ̀rāā ə́ð=í **ṭáān**
government came=IPF again
'The government came again.' (Fand10)

(b) ə̄, wéé dàr **ɟɔ̄** ā gàɔ̀-dā īīggə́ ɲālg=ân
oh go hide only SBJV give-SBJV.1pN milk.DEF children=DAT
'Let's just go hide in order to give this milk to the children.' (Nyee26)

(c) ɟāfàrì=n é mánē **ɟɔ̄** ḍàɔ̀-sā càɔ̀r-ēēgg=á yə̄ə̄sə́.
Jafari=DEF alone just killed-COMP rabbits-PL=DEF four
'Jafari, by himself, killed four rabbits.' (Jafr7)

(d) bēl-án gìrʃéēn **ɟɔ̄**.
having-CONT.P two.piasters(Ar) only
'He had only two piasters.' (Fand1-2)

emphasizes the subject, whereas in (d), the adverb emphasizes the object.

The remaining attested adverbs are listed in (13).

(13) **Other adverbs**

ḍ́í	'also, in addition to'	páḍ́	'suddenly, always, forever'
ɟɔ̄	'only, no more, just'	rɛ̄	'very'
ḍ́ɛ̄ɛ̄nɛ̄	'only'	ānà	'like this'
ṭ́áān	'again, another time'	ánɛ̄ɛ́n	'like this'
màrɛ̀ɛ̀	'somehow'	gôl	'just, in that way'
mà	'even'		

13.6 Negation

The negative particle *wá* always occurs clause-finally and modifies or negates the preceding verb, verb predicate or clause. Since neither its position nor function differs from adverbs, the negative particle can also be analyzed as an adverb. As in (14a), the negative particle occurs as the last word of the verb phrase and may be separated from the verb by verb complements or adjuncts. The negative particle may also negate an adverb of manner as in (b) or a prepositional phrase functioning as an adverb as in (c).

(14) **Negative examples**

(a) mɔ̄ī́ḍ́ kūū́ḍ́=ū ḍ́àɔ̀-sā ɟɛ̀ɛ̀m ḍ́ɛ́ɛ́ **wá**
old.man person.name=DEF kill-COMP thing any not
'The old man Kuud didn't kill anything.' (Jafr8)

(b) mássɛ̄ɛ̄ ɟì̀s-ɔ̀n=ɔ̀ mâŋ **wá**
sickness treating-CONT.N=1sD carefully not
'The massee sickness is not treating me well.' (Assa2)

(c) ɟɛ̀ɛ̀m âr-s āān ánɛ̄ɛ́n ɛ́ nāānḍ́-á mān **wá**
something frightened-COMP 1sA like.this GP day-DEF certain not
'There has never been a day I was as frightened as this.' (Thng14)

14 Clause-level syntax

14.1 Introduction

In the previous chapters, various morphemes have been shown to be distinct in form. We now present many of the same morphemes in their syntactic context to show their function. Agentive passive, agentless passive, antipassive, and causative verb forms are shown to be syntactically distinct. In non-verbal clauses, copular clitics are shown to take the place of separate copula particles, which are functionally equivalent but different in form. Relative clauses are morphologically marked for definiteness and grammatical function, and they receive the marking instead of the head noun they modify.

In this chapter, we first discuss grammatical function of constituents in 14.2 and word order in 14.3, then verbal clauses in 14.4 and verbal valency in 14.5, followed by non-verbal clauses in 14.6, relative clauses in 14.7, evidentiality in 14.8, and finally noun phrases in 14.9.

14.2 Grammatical function of constituents

Nouns function as subjects, objects, indirect objects, or objects of prepositional phrases. In (1), *mɛ̀ɛ̄n* 'youth' has the role of agent and functions as the subject of the clause. The noun *nāmsá* 'food' has the role of a theme, functioning as an object, whereas *mɔ̄ɔ̄ðɔ́n* 'grandfather' is the recipient and indirect object.

(1) mɛ̀ɛ̄n māār-sá nāms-á mɔ̄ɔ̄ð=ɔ̄n
youth.leader /mar/buy-COMP food-DEF grandfather=DAT
'The youth leader bought the food for the grandfather.'

Case marking does not occur on subject or object nouns, but dative nouns take the clitic *=Ān* as shown in (1) and (2) and have the role of beneficiary or recipient. In (2), the noun *kááy-ɛ̄ɛ̄gg=ɛ́* 'night-PL=RDM' functions as the object of the general preposition *ɛ́* (GP).

(2) ɔ̀ ná bér-s=āná ŋ̀ālg=ān ɛ́ kááy-ɛ̄ɛ̄gg=ɛ́
and REL explain-COMP=PAS small.ones=DAT GP night-PL=RDM
' . . and that which is explained (fable) to children at night.'

Objects and indirect objects are verb complements, whereas prepositional phrases, locative phrases and adverbs are verb adjuncts. In (2), the prepositional phrase *ɛ́ kááyɛ̄ɛ̄ggɛ́* 'at night' is an adjunct to the verb *bérsānā́* 'explain' expressing time. In (3), the locative phrase *ūfú ɔ́ɔ́l* 'in the tree' and adverb *ḍɛ̄ɛ̄nɛ̄* 'only' are both adjuncts to the verb *àn* 'stay' expressing location.

(3) ɛ̄ àn ūfú ɔ́ɔ́l ḍɛ̄ɛ̄nɛ̄.
3sN staying tree up only
‘ . . as he remained in the tree.’ (Nyee35)

14.3 Word order

Gaahmg word order is SVO, as in (4).

(4) bāárg-á ŋáɔ́-ā̀n ɲā-lg nà ə̄n-g=ì
Baggara-DEF search-CONT.P girl-PL REL.PL young-PL=RDM
‘The Baggara (people group) were kidnapping young girls.’ (Minj2)

As shown in (5), verb complements—objects and indirect objects—immediately follow the verb, and adjuncts follow verb complements. Adverbs are least connected with the verb and the most moveable of the adjuncts, sometimes being fronted before the verb, although not usually before the subject. When more than one kind of adverb is present, manner and directional adverbs normally precede adverbs of place, time, and other adverbs. Negation markers can be analyzed as adverbs, since they follow the verb and its adjuncts and have the same function as adverbs. They are always sentence-final and cannot be fronted before the verb as some adverbs can.

(5) Word order of complements and adjuncts
$(\text{ADV}_{[\text{Adjunct}]})$ V $(\text{NP}_{[\text{O}]})$ $(\text{NP}_{[\text{IO}]})$ $(\{\text{LP, PP, ADV}\}_{[\text{Adjunct}]})$

The examples of (6) show the common word order of verb complements and adjuncts. In (a), the object *kɔ̄r* ‘speech’ is followed by a prepositional phrase *ɛ́ mūn* ‘by time’, which is followed by an adverb of place *ṭɛ̀* ‘here’, and then followed by the adverb *ɟɔ̄* ‘only’. In (b), the verb is followed by the locative phrase *mɔ̄sɔ̀r ɔ̄ɔ̄l* ‘on a horse’, by the prepositional phrase *ɛ̄ páréɛ́=n ɛ́ məŋ̀ɲìl=ə̀* ‘with animal skin of the devil’ which is a prepositional phrase within a phrase, and finally by the prefixed prepositional phrase *ḍ-ɛ́ɛ̀s* ‘in his hand’.

(6a) ā ṭāl kɔ̄r ɛ́ mūn ṭɛ̀ ɟɔ̄.
SBJV create.SBJV.1sN speech by time here only
‘ . . and I will stop talking here.’ (Tifa14)

(b) ɛ̄ àn mɔ̄sɔ̀r ɔ̄ɔ̄l ɛ̄ páréɛ́=n ɛ́ məŋ̀ɲìl=ə̀ ḍ-ɛ́ɛ̀s.
3sN stay horse up with skin.bag=DEF GP devil.GEN=DEF PP-hand.3sPs
‘He rides on a horse with an animal-skin bag of the devil in his hand.’ (Minj14-15)

14.4 Verbal clauses

Verbal clauses with underived verbs can be transitive, intransitive or dative (three-argument). The intransitive clauses of (7) have the subjects as their only argument. Intransitive verbs are not uncommon in Gaahmg.

(7) **Intransitive (1 argument)**

(a) ālo̤ = á ɛ̄ wāɟ-ɟ ṭú.
fox = DEF 3sN /wāɟ/go-INF out
'The fox went out.' (Goat16-17)

(b) mɔ̀rāā ɔ́ð-ð-í ṭáān
government /áð/come.INF-IPF again
'The government came again.' (Fand10)

Transitive verbs have the arguments subject and object which in the clause of (8) have the semantic roles of agent and theme. In Gaahmg, there is no morphological distinction between transitive and intransitive verbs.

(8) **Transitive (2 arguments)**

AGENT		THEME			
ɟādo̤èèr = ā	wár-sá	kāŋ	îinī = n	ɛ̄	māḍā.
Jader = DEF	/wár/carry-COMP	group	3sPs = DEF	with	big.size

'Jader led his very large group.' (Fand24-25)

Dative verbs have the arguments subject, object, and indirect object which in the clause of (9) have the semantic roles of agent, theme, and recipient. The presence of a recipient or beneficiary in a clause requires the presence of an agent or experiencer and patient or theme. In other words, a dative cannot be present without a subject and object. The dative verbs attested are */gàf/* 'give', */bèè/* 'tell, say', */bàg/* 'bring'.

(9) **Dative (3 arguments)**

AGENT		THEME	RECIPIENT
ɟɛ̄n	gàð-sā	mīī = n	kàmàlɔ̀gg = **ān**
person	give-COMP	goat=DEF	woman=DAT

'The person gave the woman the goat.'

14.5 Verbal valency

Although there is no morphological distinction between transitive and intransitive verbs, there are four valency-decreasing morphemes and one valency-increasing morpheme attached to verbs. The functions of each are shown by the examples in following sections.

Table 56: Verb derivational markers

	SG	PL	
Agented passive	=Ɛ̄	=ƐƐ̄	valency-decreasing
Middle	[+ATR], tone change	[+ATR], tone change	
Passive	=ĀnÁ, =Á	=ĀnÁ, =Á	
Antipassive	-An	-An	
Causative	[+ATR], -ḍ̈⁺A	[+ATR], -ḍ̈⁺A	valency-increasing

14.5.1 Agented passive

The agented passive clitic decreases the valency of the clause by demoting the agent to non-argument status, although an explicit expression of the agent is still required. In clauses with agents encoded by post-verbal constructions, an agented passive clitic *=Ɛ̃/=ƐƐ̄*, which agrees with a genitive agent in number, is attached to the verb stem. The clauses of (10-11) have singular and plural agents in pre- and post-verbal positions.

(10) **Pre-verbal agents**

	AGENT		PATIENT		AGENT		PATIENT
(a)	ɟɛ̄n	ɲām-sá	gùlḍ̈ūn	(b)	ɟɔ̄gg	ɲām-sà	gùlḍ̈ūn
	person	break-COMP	branch.DEF		people	break-COMP	branch.DEF
	'The person broke the branch.'				'The people broke the branch.'		

(11) **Post-verbal agent, agented passive verb**

	PATIENT		AGENT		PATIENT		AGENT
(a)	gùlḍ̈ūn	ɲăm-s=ɛ̃[38]	ɟɛ̂n	(b)	gùlḍ̈ūn	ɲăm-s=ɛ́ɛ̄	ɟɔ́gg
	branch	break-COMP=PAS.A	person.GEN		branch	break-COMP=PAS.A	people.GEN
	'The branch was broken by the person.'				'The branch was broken by the people.'		

Third person encodings of agents or experiencers follow the verb when objects are in focus, being pre-verbal. In such clauses, nouns with the role of agent or experiencer can be introduced with the general preposition *ɛ́* (GP) as in (12a). Pronouns with such roles can be introduced with the prefix *ḍ̈-* 'by' as in (b). A noun with these roles following a verb without a preposition is in genitive case, marked by a tone change, as in (c). The noun *àggáár* 'hunter' of (c) has LH root tone melody which switches to ML tone melody in genitive case.

[38] As discussed in 10.2.2, root tone of Mid root tone melodies becomes MH in incompletive and completive verbs with agented passive clitic.

(12) **Clauses with agented passives**

(a) gààr cúɔ́ . . . nām-án=**ɛ̃** **ɛ́** káɛ́-gg=à
pork sweet /nam/eat-CONT.P=PAS.A GP witchdoctor-PL=DEF
'Sweet pork . . . was being eaten by witchdoctors.'

(b) ɟāām kɔ́ə̀m-s=**ī** **ḍ**-ɛ́ɛ̄n wá.
someone /káàm/bothered.CAUS-COMP=PAS.A PP-3sO not
'No one was bothered by it.' (Thng25)

(c) nāms ɲáɔ́-s=**ɛ̃** **āggāàr**
food /ɲaw/need-COMP=PAS.A hunter.GEN
'Food is needed by the hunter.'

14.5.2 Middle

The verb of (13) has a middle form where the speaker indicates that it is unknown whether there is an implied agent or not. The middle form is distinguished from the active form by the vowel specified as [+ATR] and by a tone change, which is the same tone change as in clauses with post-verbal agents such as (11). Because of lack of data collected, it cannot be determined if first or second person subjects are possible with middle verbs.

(13) **Middle (with or without an implied agent)**

(a) gùlḍūn ɲə̄m-sə́
branch.DEF break.MID-COMP
'The branch broke.'

(b) gùlḍūgg ɲə̄m-sə̀
branch.PL break.MID-COMP
'The branches broke.'

14.5.3 Passive

In agentless passive verbs, the speaker indicates an implied, unstated agent which could be known or unknown. The clitic *=ĀnÁ* attaches to stems with vowel-final suffixes and the clitic *=Á* attaches to stems with consonant-final suffixes or suffix-less stems. Passive clitics do not agree in number with the syntactic subject (semantic patient), and do not attach the agented passive clitic.

(14) **Passive (implied agent)**

(a) gùlḍūn ɲām-s=āná
branch break-COMP=PAS
'The branch was broken.'

(b) gùlḍūgg ɲām-s=āná
branch.PL break-COMP=PAS
'The branches were broken.'

In passive clauses, a noun with the role of theme or patient normally takes the place of the syntactic subject, occurring before the passive verb, as in (15a). However, when there is focus on the passive verb, the noun follows the verb, as in (b).

(15) **Passive clauses**
(a) kɔ́lɔ́ḍ-ɔ́ ḍùr-s=**ɜ̄nɔ́**
egg-DEF /ḍur/bury-COMP=PAS
'The egg was buried.' (Fand21)

(b) fɛ́ð-ăn=**á** ɟɛ̀gg=ā ṭáḍ
/fɛ/put-CONT.P-PAS things=DEF down
'Things were being laid down.' (Fand27-28)

14.5.4 Antipassive

In antipassive clauses, the speaker indicates an implied, unknown object (patient, theme, or experiencer). Such verb forms are marked by the antipassive suffix *-An* which attaches to the verb root before inflectional suffixes are added. As in active clauses, agents can also be post-verbal in antipassive clauses. In such clauses, verbs are marked with the agented passive clitic *=Ẽ/=ÉẼ* as shown in (17).

(16) **Antipassive (unknown patient)**
(a) ɟɛ̄n ɲām-**án**-sá
person break-ANTIP-COMP
'The person broke something.'

(b) ɟɔ̄gg ɲām-**án**-sà
people break-ANTIP-COMP
'The people broke something.'

(17) **Antipassive, agented passive verb (unknown patient)**
(a) ɲām-**án**-s=**ɛ̃** ɟɛ̂n
break-ANTIP-COMP=PAS.A person. GEN
'Something was broken by the person.'

(b) ɲām-**án**-s=**ɛ́ɛ̃** ɟɔ̂gg
break-ANTIP-COMP=PAS.A people. GEN
'Something was broken by the people.'

Further, passive antipassive clauses are used to indicate an implied agent and unknown patient, being marked by the antipassive suffix *-An* and passive clitic *=ĀnÁ*.

(18) **Passive antipassive (implied agent, unknown patient)**
ɲām-**án**-s=**ānā́**
break-ANTIP-COMP=PAS
'Something was broken.'

14.5.5 Causative

Causative clauses are used to indicate the reason or initiative of the action being a different argument than that which does the action. Causative verbs then add a second argument to intransitive clauses and a third argument to transitive clauses. They are marked by the vowel specified as [+ATR] and by the causative suffixes

-s⁺A, -ḍ⁺A.

In (19), the reason or initiative for breaking is from *àggáár* 'hunter', but the actual breaking is done by *ɟɛ̄n* 'person'. As shown in (20), causative clauses can also have post-verbal agents, being marked by the agented passive clitic *=Ɛ̂.*

(19) **Causative (3 arguments)**

AGENT		EXPERIENCER	PATIENT
àggáár	ɲɔ̀m-sɔ́	ɟɛ̄n	gùlḍ̈ū=n
hunter	break.CAUS-COMP	person	branch=DEF

'A hunter made the person break the branch.'

(20) **Causative, agented passive verb (3 arguments)**

gùlḍ̈ū=n	ɲɔ̀m-s-**ɪ̂**	āggāàr(-è)	ɟɛ̄n
branch=DEF	break.CAUS-COMP-PAS.A	hunter.GEN	person

'A branch was broken by a hunter making the person break it.'

When dative clauses become causative, a fourth argument is added as shown in (21).

(21) **Causative dative (4 arguments)**

AGENT		EXPERIENCER	THEME	RECIPIENT
àggáár	gɔ́ù-sɔ̄	ɟɛ̄n	mīī	kàmàlɔ̀gg=ān
hunter	give.CAUS-COMP	person	goat	woman=DAT

'A hunter made the person give a goat to the woman.'

Antipassive causative clauses indicate that one or more of the non-agent arguments are unknown. The same verb form is used regardless of which of the non-agent arguments or how many of them are unknown. Antipassive causative clauses with post-verbal agents also have the same form regardless of which non-agent argument or how many are unknown. In (22-23) the patient is unknown, in (24-25) the experiencer is unknown, and in (26-27) the patient and experiencer are unknown.

(22) **Antipassive causative (unknown patient)**

àggáár	ɲɔ́m-**ɔ̄n**-sɔ́	ɟɛ̄n
hunter	break.CAUS-ANTIP-COMP	person

'A hunter made the person break something.'

(23) **Antipassive causative, agented passive verb (unknown patient)**

ɟɛ̄n	ɲɔ́m-**ɔ̄n**-s=**ɪ̂**	āggāàr(-è)
person	break.CAUS-ANTIP-COMP=PAS.A	hunter.GEN

'The person was made to break something by a hunter.'

(24) **Antipassive causative (unknown experiencer)**
àggáár ɲɔ́m-**ə̄n**-sɔ́ gūlḍūn
hunter break.CAUS-ANTIP-COMP branch.DEF
'A hunter made someone break the branch.'

(25) **Antipassive causative, agented passive verb (unknown experiencer)**
gūlḍūn ɲɔ́m-**ə̄n**-s=**ī** āggāàr(-è)
branch.DEF break.CAUS-ANTIP-COMP=PAS.A hunter.GEN
'The branch was broken by a hunter making someone break it.'

(26) **Antipassive causative (unknown patient & experiencer)**
àggáár ɲɔ́m-**ə̄n**-sɔ́
hunter break.CAUS-ANTIP-COMP
'A hunter made someone break something.'

(27) **Antipassive causative, agented passive verb (unknown patient & experiencer)**
ɲɔ́m-**ə̄n**-s=**ī** āggāàr(-è)
break.CAUS-ANTIP-COMP=PAS.A hunter.GEN
'Something was broken by a hunter making someone break it.'

Passive causative clauses are used to indicate an implied, unstated agent of a causative verb. The patient such as *gùlḍūn* 'branch' in (28) is the syntactic subject. The noun *ɟɛ̄n* 'person' is an experiencer which does the action at the initiative of an unstated agent such as *àggáár* 'hunter'.

(28) **Passive causative (implied agent)**
gùlḍūn ɲɔ̄m-s=ə̄**nɔ́** ɟɛ̄n
branch.DEF break.CAUS-COMP-PAS person
'The person was made to break the branch.'

Finally, passive causative antipassive clauses indicate an implied agent and one or

(29) **Passive causative antipassive (implied agent, unknown patient)**
ɟɛ̄n ɲɔ́m-**ə̄n**-s=ə̄**nɔ́**
person break.CAUS-ANTIP-COMP=PAS
'The person was made to break something.'

(30) **Passive causative antipassive (implied agent, unknown experiencer & patient)**
ɲɔ́m-**ə̄n**-s=ə̄**nɔ́**
break.CAUS-ANTIP-COMP=PAS
'Someone was made to break something.'

more unknown non-agent arguments.

14.6 Non-verbal clauses

There are two sets of copulas with which all non-verbal clauses are formed. The most common set of copulas are shown in table 57 and are used for adjectival, possessive, and equative clauses. A second set is used for locative and presentational clauses, which will be presented shortly. With the limited data collected, it could not be determined how existential clauses, if possible, are constructed.

Table 57: Common copulas

	Non-past SG	Non-past PL	Past continuous
Copula	ṭā	ṭâ	ṭā-án
Copular clitic on consonant-final noun phrases	---	=À	
Copular clitic on vowel-final noun phrases	=n		

In non-verbal clauses, the copula *ṭā* can be used as in (31a) or the past continuous copula *ṭā-án* can be used. However, it is also common for a copular clitic *=À* to attach to the final word of a clause as in (c). Although the independent past continuous copula *ṭā-án* can be used for past reference, the copular clitic cannot.

(31) **Non-verbal clauses**

(a) gùrūūs-úgg-ú **ṭā** ṭù wá
money-PL-DEF COP there not
'There is no money.' (Fand16)

(b) Bɛ̄ɛ̀l mān **ṭā-án** ṭù
metal certain COP-CONT.P there
'There was a certain metal token' (Fand8)

(c) ṭɔ́-gg-ɔ́ ḍəmə-gg=**ə**
cow-PL-DEF blind-PL=COP
'The cows are blind.'

In answer to the question *ɲîn nɛ́ɛ́* 'What is this?' or *ɲíggì nɛ́ɛ́* 'What are these?', the copular clitic attached to a single noun is a clause in itself.

(32a) ṭɔ́ɔ̄=**n**
cow=COP
'(This) is a cow.'

(b) ṭɔ́-gg=**ɔ**
cow-PL=COP
'(these) are cows.'

As will be seen, there is no difference in the clausal construction between adjectival clauses and nominal non-verbal clauses. However, as mentioned in 8.3.1, there is a morphological difference in the copular clitic attached to consonant-final nouns ($=\bar{A}$) and the copular clitic attached to consonant-final adjectives (no marking).

14.6.1 Adjectival clauses

In (33), singular and plural adjectival clauses are shown—with the copula *ṭā* in (a-b) and with the copular clitic in (c-d). There is no copular clitic marking on singular consonant-final adjectives as in (c). The clitic on vowel-final singular adjectives is $=n$ as in (e). The clitic $=\grave{A}$ on plural adjectives takes the [ATR] quality of the adjective word.

(33) **Adjectival clauses**

(a) ṭɔ́ɔ́ ṭā sèggār
cow COP strong
'A cow is strong.'

(b) ṭɔ́-gg ṭâ sèggār-g
cow-PL COP strong-PL
'Cows are strong.'

(c) ṭɔ́ɔ́ sèggār
cow strong
'A cow is strong.'

(d) ṭɔ́-gg sèggār-g=**à**
cow-PL strong-PL=COP
'Cows are strong.'

(e) ṭɔ́ɔ́ ḍəmə=**n**
cow blind=COP
'A cow is blind.'

(f) ṭɔ́-gg ḍəmə-gg=**ə̀**
cow-PL blind-PL=COP
'Cows are blind.'

In the adjectival clauses of (34), the initial noun phrases are marked for definiteness.

(34) **Definite adjectival clauses**

(a) ṭɔ́ɔ́=**n** sèggār
cow=DEF strong
'The cow is strong.'

(b) ṭɔ́-gg-**ɔ́** sèggār-g=**à**
cow-PL-DEF strong-PL=COP
'The cows are strong.'

(c) cɔ̄ɔ̄l sèggār=**á** ḍəmə=**n**
donkey strong=DEF blind=COP
'The strong donkey is blind.'

(d) cɔ̄ɔ̄l-ɛ̄ɛ̄gg sèggār-g=**à** ḍəmə-gg=**ə̀**
donkey-PL strong-PL=DEF blind-PL=COP
'The strong donkeys are blind.'

Demonstratives are not used pronominally. Instead, the indefinite adjective *mān/ bíīgg* 'certain' can be used as in (35a-b). Otherwise, demonstratives can be used as in (c-f).

(35) **Demonstratives in copular clauses**

(a) ṭɔ́ɔ́ mān ḍə̀mə̄ = **n**
cow certain blind = COP
'A certain cow is blind.'
'This is a blind cow.'

(b) ṭɔ́-gg bíígg ḍə̀mə̄-gg = **ə̀**
cow-PL certain.PL blind-PL = COP
'Certain cows are blind.'
'These are blind cows.'

(c) ṭɔ́ɔ́ níí ḍə̀mə̄ = **n**
cow this blind = COP
'This cow is blind.'
'This is a blind cow.'

(d) ṭɔ́-gg nìì ḍə̀mə̄-gg = **ə̀**
cow-PL these blind-PL = COP
'These cows are blind.'
'These are blind cows.'

(e) ṭɔ́ɔ́ níí ə́ə̀n = **ə̀**
cow this 1sPs=COP
'This cow is mine.'
'This is my cow.'

(f) ṭɔ́-gg nìì ə́nə̀gg = **ə̀**
cow-PL these 1sPp = COP
'These cows are mine.'
'These are my cows.'

14.6.2 Possessive clauses

Clause-initial noun phrases of possessive copular clauses can be unmarked for definiteness as in (36a-b) or marked for definiteness as in (c-f).

(36) **Possessive copular clauses**

(a) ṭɔ́ɔ́ ə́ə̀n = **ə̀**
cow 1sPs=COP
'a cow is mine.'

(b) ṭɔ́-gg ə́nə̀gg = **ə̀**
cow-PL 1sPp = COP
'cows are mine.'

(c) ṭɔ́ɔ́ = **n** ə́ə̀n = **ə̀**
cow = DEF 1sPs=COP
'The cow is mine.'

(d) ṭɔ́-gg = **ɔ́** ə́nə̀gg = **ə̀**
cow-PL = DEF 1sPp = COP
'The cows are mine.'

(e) ṭɔ́ɔ́ = **n** sɛ̀ggār ə́ə̀n = **ə̀**
cow = DEF strong 1sPs= COP
'The strong cow is mine.'

(f) ṭɔ́-gg sɛ̀ggār-g = **à** ə́nə̀gg = **ə̀**
cow-PL strong-PL = DEF 1sPp = COP
'The strong cows are mine.'

It is also possible to have two copular clitics attached to two coordinate constituents

(37a) ṭɔ́ɔ́ níí ḍə̀mə̄ = **n** ə́ə̀n = **ə̀**
cow this blind = COP 1sPs=COP
'This cow is blind and mine.'

(b) ṭɔ́-gg nìì ḍə̀mə̄-g = **ə̀** ə́nə̀gg = **ə̀**
cow-PL these blind-PL-COP 1sPp = COP
'These cows are blind and mine.'

of the predicate.

With the limited data collected, it could not be determined if nominal predicates are possible in possessive clauses. However, they are possible in equative clauses as shown in (38a-b) below.

14.6.3 Equative clauses

The copular clitic is also used in equative clauses. As in other past tense non-verbal clauses, past tense equative clauses are formed with the past continuous copula *ṭā-án* as in (38b).

(38) **Equative copular clauses**

(a) ɟɛ̄n bàà.ɔ̄=**n**
person father=COP
'The person is a father.'

(b) ɟɛ̄n **ṭāán** bààɔ
person COP.CONT.P father
'The person was a father.'

(c) fɛ́ɛ̄ṭfā=n ɟɛn ḍù.ī=**n**
Feetfa=DEF person black=COP
'Feetfa is a black person.'

There is no difference in the clausal construction between adjectival clauses as in (33) of 14.6.1 and the nominal non-verbal clauses in (38).

14.6.4 Locative clauses

Non-past locative and presentational non-verbal clauses are formed with a different set of copulas. Past tense locative clauses are formed with the past continuous copula *ṭā-án.*

Table 58: Non-past locative and presentational copulas

	SG	PL
Locative copula	íīn, ɛ́ɛ̄n	ɛ̄ggàn
Locative copular clitic in noun phrase	=Án	=Án
Locative copular clitic in relative clause	=ÉĒn	=ÈÈ

The singular locative copula *íīn, ɛ́ɛ̄n* has free variation in vowel quality independent of the [ATR] quality of the words surrounding it. The noun phrase of locative clauses can be unmarked for definiteness as in (39a-b) or definite as in (c-d). In either, the copular clitic *=Án* can take the place of *íīn.*

(39) **Singular locative clauses**

(a) ɟāā bánḍāl **íīn** wéé bɛ̀ɲɟ
person weak LCM house beside
'A weak person is beside a house.'

(b) ɟāā bánḍāl=**ân** wéé bɛ̀ɲɟ
person weak=LCM house beside
'A weak person is beside a house.'

(c) ɟāā=n bánḍāl=(**á**) **íīn** wéé bɛ̀ɲɟ
person=DEF weak=(DEF) LCM house beside
'The weak person is beside a house.'

(d) ɟāā=n bánḍāl=**ân** wéé bɛ̀ɲɟ
person=DEF weak=LCM house beside
'The weak person is beside a house.'

The plural locative copula is *ēggàn*. The copular clitic *=Ân* can take the place of *ēggàn* when attached to noun phrases unmarked for definiteness as in (40a-b) or when attached to definite noun phrases as in (c-d).

(40) **Plural locative clauses**

(a) ɟɔ̄gg bánḍāl-g **ēggàn** wéé bɛ̀ɲɟ
people weak-PL LCM house beside
'Weak people are beside a house.'

(b) ɟɔ̄gg bánḍāl-g=**ân** wéé bɛ̀ɲɟ
people weak-PL=LCM house beside
'Weak people are beside a house.'

(c) ɟɔ̄gg bánḍāl-g=**à** **ēggàn** wéé bɛ̀ɲɟ
people weak-PL=DEF LCM house beside
'The weak people are beside a house.'

(d) ɟɔ̄gg bánḍāl-g=**ân** wéé bɛ̀ɲɟ
people weak-PL=LCM house beside
'The weak people are beside a house.'

14.6.5 Presentational clauses

Presentational clauses are formed with the same copulas as locative clauses, along with the adverb *ṵ̀* 'there'. The copular clitic *=Ân* can take the place of *íīn* when attached to an unmarked noun phrase as in (41b) or when attached to a definite noun phrase as in (d).

(41) **Singular presentational clauses**

(a) ṭɔ́ɔ́ sèggār **íīn** ṭù
cow strong LCM there
'There is a strong cow.'

(b) ṭɔ́ɔ́ sèggār=**ân** ṭù
cow strong=LCM there

(c) ṭɔ́ɔ́=n sèggār **íīn** ṭù
cow=DEF strong LCM there
'There is the strong cow.'

(d) ṭɔ́ɔ́=n sèggār=**ân** ṭù
cow=DEF strong=LCM there

Similarly, the copular clitic *=Án* can take the place of *ēggàn* when attached to an unmarked plural noun phrase as in (42b) or when attached to a definite plural noun phrase as in (d).

(42) **Plural presentational clauses**

(a) ṭɔ́-gg sèggār-g **ēggàn** ṭù
cow-PL strong-PL LCM there
'There are strong cows.'

(b) ṭɔ́-gg sèggār-g=**ân** ṭù
cow-PL strong-PL=LCM there

(c) ṭɔ́-gg sèggār-g=**à** **ēggàn** ṭù
cow-PL strong-PL=DEF LCM there
'There are the strong cows.'

(d) ṭɔ́-gg sèggār-g=**ân** ṭù
cow-PL strong-PL=LCM there

Past tense presentational clauses must use the copula *ṭā-án*.

(43) **Past tense presentational clauses**

(a) ṭɔ́ɔ́ **ṭāán** ṭù
cow COP.CONT.P there
'There was a cow.'

(b) ṭɔ́-gg **ṭāán** ṭù
cow-PL COP.CONT.P there
'There were cows.'

14.6.6 Non-verbal question clauses

The question marker *à* indicates a question with a yes/no response and can mark non-verbal or verbal question clauses. This section discusses how it is used in non-verbal questions and section 15.3 presents its use in verbal questions. Question clauses have the same construction as equivalent declarative clauses except for the question marker.

The question marker for non-verbal clauses is most commonly clause-final. The question marker *à* is independent from stems, evidenced by lack of [ATR] quality change in the question marker in (44b).

(44a) ṭɔ́ɔ́=n sègār **à** (b) ṭɔ́ɔ́=n ḍəmə=**n** **à**
cow=DEF strong **QM** cow=DEF blind=COP QM
'Is the cow strong?' 'Is the cow blind?'

When the copular clitic *=À* is at the same place in the clause as the question marker, it is joined to the question marker (45b) instead of to the word it follows as in declarative clauses such as (45a).

(45a) ṭɔ́-gg=ɔ́ ḍəmə-g=ə̀ (b) ṭɔ́-gg=ɔ́ ḍəmə-g **à=à**
cow-PL=DEF blind-PL=**COP** cow-PL=DEF strong-PL **COP=QM**
'The cows are blind.' 'Are the cows blind?'

The question marker is shown in demonstrative copular clauses (46a-b), adjectival clauses (c-f), equative clauses (g-h), and presentational clauses (i-j). In (e-f), the predicate is fronted for focus, and the copula and question marker are fronted along with it.

(46) **Non-verbal question clauses**
(a) ṭɔ́ɔ̄=**n** (nɛ́ɛ́) **à** (b) ṭɔ́-gg=**ɔ̀** (nɛ̀ɛ̀) **à**
cow=COP this QM cow-PL=COP these QM
'Is this a cow?' 'Are these cows?'

(c) ṭɔ́ɔ́=n ḍəmə=**n** **à** (d) ṭɔ́-gg=ɔ́ ḍəmə-g **à=à**
cow=DEF blind=COP QM cow-PL=DEF strong-PL COP=QM
'Is the cow blind?' 'Are the cows blind?'

(e) ḍəmə=**n** **à** ṭɔ́ɔ́-n (f) ḍəmə-g **à-à** ṭɔ́-gg=ɔ́
blind=COP QM cow-DEF strong-PL COP-QM cow-PL=DEF
'Is the cow blind?' 'Are the cows blind?'

(g) ɟɛ̀ɛ̀m nɛ́ɛ́ ṭɔ́ɔ̄=n **à** (h) ɟɛ̀gg nɛ̀ɛ̀ ṭɔ́gg **à-à**
thing this cow=COP QM things these cow-PL COP-QM
'Is this thing a cow?' 'Are these things cows?'

(i) ṭɔ́ɔ̄=**n** ṭù **à** (j) ṭɔ́-gg=**ɔ̄n** ṭù **à**
cow=LCM there QM cow-PL=LCM there QM
'Is there a cow?' 'Are there cows?'

14.6.7 Non-verbal negative clauses

The negative particle *wá* is clause final and does not attach to the word it follows. Non-verbal negative clauses have the same construction as equivalent affirmative clauses except for the negative marker. The negative marker is shown in

demonstrative copular clauses (47a-b), adjectival clauses (c-d), presentational clauses (e-f), and past presentational clauses (g-h).

(47) **Non-verbal negative clauses**

(a) ṭɔ́ɔ̄ = **n** **wá** (b) ṭɔ́-gg = **ɔ̀** **wá**
cow = COP not cow-PL = COP not
'(This) is not a cow.' '(These) are not cows.'

(c) ṭɔ́ɔ́ = n ḍə̀mə̄ = **n** **wá** (d) ṭɔ́-gg = ɔ́ ḍə̀mə̄-g = ə̀ **wá**
cow = DEF blind = COP not cow-PL = DEF strong-PL = COP not
'The cow is not blind.' 'The cows are not blind.'

(e) ṭɔ́ɔ̄ = **n** ṭù **wá** (f) ṭɔ́-gg = **ɔ̄n** ṭù **wá**
cow = LCM there not cow-PL = LCM there not
'There is no cow.' 'There are no cows.'

(g) ṭɔ́ɔ̄ = **n** ṭāán ṭù **wá** (h) ṭɔ́-gg = **ɔ̄n** ṭāán ṭù **wá**
cow = LCM COP. CONT.P there not cow- PL = LCM COP. CONT.P there not
'There was no cow.' 'There were no cows.'

14.7 Relative clauses

Relative clauses are introduced with the relativizer *ná/nà* 'who, which, that' which agrees in number with the head noun it follows. Relative clauses have been attested to modify noun subjects as in (48), objects as in (49), and copular complements as in (50).

(48) ɟɛ̄n **ná** ə́n = í ɛ̄ pə̀l-ì táḍ ḍ-îì-mùù-gg.
person REL.SG bad = RDM 3sN fall-it down PP-3pO-front-PL
'The person which was bad fell down in front of them.' (Thng7-8)

(49) kɔ́rá kɔ̄r **ná** ə́n = í.
speaks word REL.SG bad = RDM
'She speaks rudely (lit. the word which bad).' (Assa6)

(50a) cà̀ɔr nɛ́ɛ́ = n ɛ́ sālāḍ = à è âlḍ è ɟɛ̄gg
tale this = DEF of hyena.GEN = COP of fox.GEN of thing.PL.GEN
'This story is about a hyena, fox, and some

(b) ɛ́ lɛ̄ɛ̄l-ɛ̄ɛ̄gg = à bíīgg **nà** àn-n lɛ́ɛ́l-ɛ́è̀gg = è
of grass.GEN-PL = COP some REL.PL stay-INF grass-PL = RDM
wild forest animals (lit. some things that live in the grass).' (Nyee1-2)

The relativizer *ná/nà* can also be used pronominally as in (51).

(51) **nà** āgg bìɟɟə dáāgg é ɲəəgg=í
REL.PL 1pN left two in behind=SBO
'Those which we left behind . . ' (Thng7)

Relative clauses differ from subordinate clauses in the conjunctions introducing the clause, in the clause-final clitics, and in marking for definiteness. As will be discussed in 15.2, the subordinate conjunctions *é gārá* 'when, while', *é kɔ̄rá* 'because', *(ār)* 'if', *wàr* 'but' introduce subordinate clauses instead of the relativizer *ná/nà*. As shown in 7.7 and 8.3.8, the clause-final subordinate clitic is always *=É* with High tone, whereas the relative clause clitic agrees in number with the head noun *=É/=È*. Finally, subordinate clauses are not distinguished for definiteness, but many relative clauses are.

Relative clauses can take the place of noun modifiers which are either marked or unmarked for definiteness. Thus, relative clauses are also marked or unmarked for definiteness. In (48-50), the relative clauses are definite, whereas in (51) the relative clause is unmarked for definiteness. Most commonly the head noun is unmarked for definiteness if the relative clause has a definite clitic. Singular definite clitics on relative clauses have High tone and plural definite clitics have Low tone.

Table 59: Definite relative clause clitics

	SG	PL
Short	=É	=È

In noun phrases with dative, accompaniment, and subordinate clitics, there is no marking for definiteness and the noun phrases are ambiguous for definiteness. However, in relative clauses with such nouns, there is a definiteness distinction, except with dative relative clauses which cannot attach a dative clitic to semantically indefinite relative clauses. Some clitics such as the dative merge with the definite relative clause clitic (*=É=Án* becomes *=ÉÉn*), but other clitics such as the accompaniment and subordinate follow the definite relative clause clitic (*=É=nɛ̄* becomes *=ÉÉ=nɛ̄,* where *=nɛ̄* is the accompaniment clitic attaching to vowel-final stems). This definite marking is shown in (52) where the same definite relative clause clitics attach to clause-final nouns, adjectives and verbs—all consonant-final. Dashes indicate there are no clitics on the clause-final word, whereas an x indicates the word category cannot occur as definite.

(52) **Definite with dative, accompaniment, and subordinate markers on consonant-final words**

Final	SG	PL	SG DEF	PL DEF	SG REL	PL REL	SG RDM	PL RDM
N	---	-gg	=Á	=Á	---	---	=É	=È
ADJ	---	-gg	=Á	=À	---	---	=É	=È
V	H	L	x	x	---	---	=É	=È
N DAT	=Án	=Án	=Án	=Án	x	x	=ÉĒn	=ÈÈn
ADJ DAT	=Án	=Án	=Án	=Án	x	x	=ÉĒn	=ÈÈn
V DAT	x	x	x	x	---	---	=ÉĒn	=ÈÈn
N ACM	=Ế	=Ế	=Ế	=Ế	=Ế	=Ế	=ÉÉ=nĒ	=ÈÈ=nĒ
ADJ ACM	=Ế	=Ế	=Ế	=Ế	=Ế	=Ế	=ÉÉ=nĒ	=ÈÈ=nĒ
V ACM	x	x	x	x	---	---	=ÉÉ=nĒ	=ÈÈ=nĒ
N SBO	=É	=É	=É	=É	=É	=É	=ÉÉ=nÉ	=ÈÈ=nĒ
ADJ SBO	=É	=É	=É	=É	=É	=É	=ÉÉ=nÉ	=ÈÈ=nĒ
V SBO	x	x	x	x	---	---	=ÉÉ=nÉ	=ÈÈ=nĒ

In (53), nouns, adjectives and verbs are shown at the end of noun phrases and at the end of relative clauses. Each phrase is also shown unmarked and marked for definiteness. The singular definite relative clause marker is *=É* and the plural definite relative clause marker is =È.

(53) **Definite markers on consonant-final words**

Final	Unmarked	Definite	
N SG	àggáár	àggáár=**á**	'hunter'
	ɟāā ná àggáár	ɟāā ná àggáár=**é**	'person who is hunter'
ADJ SG	ɟāā bánḍāl	ɟāā=**n** bánḍāl=(**á**)	'weak person'
	ɟāā ná bánḍāl	ɟāā ná bánḍāl=**é**	'person who is weak'
V SG	ɟāā ŋāɲ	ɟāā=**n** ŋāɲ	'person files'
	ɟāā ná ŋāɲ	ɟāā ná ŋāɲ=**é**	'person who files'
N PL	àggáār-g	àggáār-g=**á**	'hunters'
	ɟɔ̄gg nà àggáār-g	ɟɔ̄gg nà àggáàr-g=**è**	'people who are hunters'
ADJ PL	ɟɔ̄gg bánḍāl-g	ɟɔ̄gg=(**ɔ̀**) bánḍāl-g=**à**	'weak people'
	ɟɔ̄gg nà bánḍāl-g	ɟɔ̄gg nà bánḍāl-g=**è**	'people who are weak'
V PL	ɟɔ̄gg ŋāɲ	ɟɔ̄gg=**ɔ́** ŋāɲ	'people file'
	ɟɔ̄gg nà ŋāɲ	ɟɔ̄gg nà ŋāɲ=**è**	'people who file'

In (54), nouns, adjectives and verbs are again shown at the end of noun phrases and at the end of relative clauses, this time with the dative clitic. In noun phrases with an attached dative clitic, the phrase is ambiguous for definiteness, as the dative clitic and no other is attached regardless of whether the phrase is semantically definite or indefinite. And, the distinction cannot be made by adding a definite marker to the head noun in noun phrases with adjectives, such as in **ɟāā-**n** bánḍāl-**án***. In relative clauses, unlike other clitics, semantically indefinite dative nouns modified by a

relative clause are impossible, such as **ɟāā ná bándāl=ân*. When the dative clitic attaches to definite relative clauses, it merges with the definite relative clause marker: *=É=Án* becomes *=ÉÊn* in singular clauses and *=È=Án* becomes *=ÈÈn* in plural clauses.

(54) **Dative markers on consonant-final words**

Final	Unmarked	Definite	
N SG	àggáár=**ân**	àggáár=**ân**	'to hunter'
	*ɟāā ná àggáár=**ân**	ɟāā ná àggáár=**éên**	'to person who is hunter'
ADJ SG	ɟāā bándāl=**ân**	ɟāā bándāl=**ân** *ɟāā=**n** bándāl=**ân**	'to weak person'
	*ɟāā ná bándāl=**ân**	ɟāā ná bándāl=**éên**	'to person who is weak'
v sg	ɟāā ná ŋāŋ	ɟāā ná ŋāŋ=**éên**	'to person who files'
N PL	àggáār-g=**ân**	àggáār-g=**ân**	'to hunters'
	*ɟɔ̄gg nà àggáār-g=**ân**	ɟɔ̄gg nà àggáàr-g=**èèn**	'to people who are hunters'
ADJ PL	ɟɔ̄gg bándāl-g=**ân**	ɟɔ̄gg bándāl-g=**ân** *ɟɔ̄gg=**ɔ́** bándāl-g=**ân**	'to weak people'
	*ɟɔ̄gg nà bándāl-g=**ân**	ɟɔ̄gg nà bándāl-g=**èèn**	'to people who are weak'
V PL	ɟɔ̄gg nà ŋāŋ	ɟɔ̄gg nà ŋāŋ=**èèn**	'to people who file'

As with dative clitics, in noun phrases with an attached accompaniment clitic *=Ê*, the phrase is ambiguous for definiteness, as the accompaniment clitic and no other is attached regardless of whether the phrase is semantically definite or indefinite. However unlike dative clitics in relative clauses, there is a definiteness distinction for accompaniment nouns modified by a relative clause, as unmarked relative clauses attach the accompaniment clitic alone and definite relative clauses attach the accompaniment clitic (for vowel-final stems *=nÊ*) following the definite relative clause clitic: *=ÉÉ=nÊ* in the singular clauses and *=ÈÈ=nÊ* in plural clauses.

(55) **Accompaniment markers on consonant-final words**

Final	Unmarked	Definite	
N SG	àggáár=**ɛ̂**	àggáár=**ɛ̂**	'with hunter'
	ɟāā ná àggáár=**ɛ̂**	ɟāā ná àggáár=**éé=nɛ̄**	'with person who is hunter'
ADJ SG	ɟāā bándāl=**ɛ̂**	ɟāā bándāl=**ɛ̂** *ɟāā=**n** bándāl=**ɛ̂**	'with weak person'
	ɟāā ná bándāl=**ɛ̂**	ɟāā ná bándāl=**éé=nɛ̄**	'with person who is weak'
V SG	ɟāā ná ŋāŋ	ɟāā ná ŋāŋ=**éé=nɛ̄**	'with person who files'

Final	Unmarked	Definite	
N PL	àggáār-g = **ɛ̄**	àggáār-g = **ɛ̄**	‘with hunters’
	ɟɔ̄gg nà àggáār-g = **ɛ̄**	ɟɔ̄gg nà àggáàr-g = **èè = nɛ̄**	‘with people who are hunters’
ADJ PL	ɟɔ̄gg bánḍāl-g = **ɛ̄**	ɟɔ̄gg bánḍāl-g = **ɛ̄** *ɟɔ̄gg = **ɔ́** bánḍāl-g = **ɛ̄**	‘with weak people’
	ɟɔ̄gg nà bánḍāl-g = **ɛ̄**	ɟɔ̄gg nà bánḍāl-g = **èè = nɛ̄**	‘with people who are weak’
V PL	ɟɔ̄gg nà ŋāɲ	ɟɔ̄gg nà ŋāɲ **= èè = nɛ̄**	‘with people who file’

Similarly, in noun phrases with an attached subordinate clause-final clitic, the phrase is ambiguous for definiteness, as the subordinate clitic and no other is attached regardless of whether the phrase is semantically definite or indefinite. However, in relative clauses, there is a definiteness distinction, as unmarked relative clauses attach the subordinate clitic alone and definite relative clauses attach the subordinate clitic (for vowel-final stems *=nÉ́*) following the definite relative clause clitic: *=ÉÉ=nÉ́* in singular clauses and *=ÈÈ=nɛ̄* in plural clauses where subordinate marker High tone is lowered following Low tone.

(56) **Subordinate *é gārá* markers on consonant-final words**

Final	Unmarked	Definite	
N SG	àggáár = **ɛ́**	àggáár = **ɛ́**	‘when . . . hunter’
	ɟāā ná àggáár = **ɛ́**	ɟāā ná àggáár = **ɛ́ɛ́ = nɛ́**	‘when . . . person who is hunter’
ADJ SG	ɟāā bánḍāl = **ɛ́**	ɟāā bánḍāl = **ɛ́** *ɟāā = **n** bánḍāl **= ɛ́**	‘when . . . weak person’
	ɟāā ná bánḍāl = **ɛ́**	ɟāā ná bánḍāl = **ɛ́ɛ́ = nɛ́**	‘when . . . person who is weak’
V SG	ɟāā ná ŋāɲ	ɟāā ná ŋāɲ = **ɛ́ɛ́ = nɛ́**	‘when . . . person who files’
N PL	àggáār-g = **ɛ́**	àggáār-g = **ɛ́**	‘when . . . hunters’
	ɟɔ̄gg nà àggáār-g = **ɛ́**	ɟɔ̄gg nà àggáàr-g = **èè = nɛ̄**	‘when . . . people who are hunters’
ADJ PL	ɟɔ̄gg bánḍāl-g = **ɛ́**	ɟɔ̄gg bánḍāl-g = **ɛ́** *ɟɔ̄gg = **ɔ́** bánḍāl-g = **èè = nɛ̄**	‘when . . . weak people’
	ɟɔ̄gg nà bánḍāl-g = **ɛ́**	ɟɔ̄gg nà bánḍāl-g = **èè = nɛ̄**	‘when . . . people who are weak’
V PL	ɟɔ̄gg nà ŋāɲ	ɟɔ̄gg nà ŋāɲ = **èè = nɛ̄**	‘when . . . people who file’

When one or more relative clauses are within another relative clause, the definite relative clause marker can only attach to the final word of the final clause.

(57) **Definite markers on relative clauses within relative clauses**

Unmarked	Definite	
ɟāā ná bánḍāl ná àggáár	ɟāā ná bánḍāl ná àggáár = **ɛ́**	'person who is weak who is hunter'
	*ɟāā ná bánḍāl = **ɛ́** ná àggáár	
	*ɟāā ná bánḍāl = **ɛ́** ná àggáár = **ɛ́**	
ɟɔ̄gg nà bánḍāl-g nà àggáār-g	ɟɔ̄gg nà bánḍāl-g nà àggáàr-g = **ɛ̀**	'people who are weak who are hunters'
	*ɟɔ̄gg nà bánḍāl-g nà àggáàr-g	
	*ɟɔ̄gg nà bánḍāl-g nà àggáàr-g = **ɛ̀**	

In genitive noun phrases or relative clauses, either marked or unmarked for definiteness, only the head noun undergoes a change in tone.

(58) **Genitive relative clauses**

Final	Unmarked	Definite	
ADJ SG	**ɟáà** bánḍāl	**ɟáà** = **n** bánḍāl = (**á**)	'of weak person'
	ɟáà ná bánḍāl	**ɟáà** ná bánḍāl = **ɛ́**	'of person who is weak'
ADJ PL	**ɟógg** bánḍāl-g	**ɟógg** = (**ɔ̀**) bánḍāl-g = **à**	'of weak people'
	ɟógg nà bánḍāl-g	**ɟógg** nà bánḍāl-g = **ɛ̀**	'of people who are weak'

14.8 Evidentiality

The certainty of an action taking place is marked in the clause rather than on the verb. There are two degrees of certainty or evidentiality for both completive and incompletive verbs.

The normal completive form by itself is a statement of certainty. It states that it is certain the action is completed. Uncertainty in the completive form is indicated by the particle *lā* and optionally by the clause-final subordinate clitic *=É*. Both degrees of certainty in the completive are shown in (59).

(59) **Degrees of certainty in the completive**

(a)	ɛ̄ kómsɔ́ māgàḍ	'He cut.'	certainty
(b)	**lā** ɛ̄ kómsɔ́ māgàḍ(= **ɛ̄**)	'He may have cut a stick.'	uncertainty

(60) **Completive uncertainty paradigms**

(a) 'may have bought'					(b) 'may have buried'			
lā	á	màr-sà	1sN		lā	á	ḍùr-sù	1sN
lā	ɔ́, ú	= mər-sə	2sN		lā	ɔ́, ú	= ḍùr-sù	2sN
lā	ɛ̄	màr-sā	3sN		lā	ɛ̄	ḍùr-sū	3sN
lā	āgg	màr-sà	1pN		lā	āgg	ḍùr-sù	1pN
lā	ɔ̄gg, ūg	= mər-sə	2pN		lā	ɔ̄gg, ūg	= ḍùr-sù	2sN
lā	ɛ̄ggà	mār-sà	3pN		lā	ɛ̄ggà	ḍūr-sù	3pN
	PRON	buy-COMP				PRON	bury-COMP	

In (60), completive uncertainty paradigms show that the uncertainty particle occurs before the subject pronoun.

Similarly, the incompletive verb by itself is also a statement of certainty. It states that it is certain the action is ongoing or for certain will be ongoing. Adding the uncertainty particle *lā̀* before the incompletive verb or attaching the clause-final subordinate clitic *=É́* indicates uncertainty in the future. With either marker, the other marker is optional.

(61) **Degrees of certainty in the incompletive**

(a)	kóm māgàḍ	'He will cut a stick.'	certainty
(b)	é **lā̀** kóm māgàḍ(**=ɛ̄́**)	'He may cut a stick.'	uncertainty
(c)	é **(lā̀)** kóm māgàḍ**=ɛ̄́**	'He may cut a stick.'	uncertainty

As mentioned in 9.6.2, tone is altered on subject pronouns of incompletive verbs to indicate future actions with certainty. The same future incompletive paradigms in 9.6.2 are given in (62) for ease of reference.

(62) **Future certainty incompletive paradigms**

(a) 'will run'

ā	gàl	1sN	
ū=gə̀l		2sN	
é	gằl	3sN	
āggā́	gàl	1pN	
ūggū́=gə̀l		2pN	
(ɛ̄ggà) é	gàl	3pN	
PRON	run.		
	INCP		

(b) 'will bury the egg'

ā	ḍ̈ùr	kólɔ́ḍ̈=ɔ́	1sN	
ū=ḍ̈ùr		kólɔ́ḍ̈=ɔ́	2sN	
é	ḍ̈ùr	kólɔ́ḍ̈=ɔ́	3sN	
āggā́	ḍ̈ùr	kólɔ́ḍ̈=ɔ́	1pN	
ūggū́=ḍ̈ùr		kólɔ́ḍ̈=ɔ́	2sN	
(ɛ̄ggà) é	ḍ̈ùr	kólɔ́ḍ̈=ɔ́	3pN	
PRON	bury.	egg=DEF		
	INCP			

Unlike in uncertain completive paradigms, in uncertain incompletive paradigms the uncertainty particle occurs after the subject pronoun. In second person forms, the particle attaches to the verb, thereby taking on [+ATR] quality. The same meaning

(63) **Future uncertainty incompletive paradigms**

(a) 'may run'

á, ā	lā	gàl	1sN	
ɔ́, ɔ̄, ú, ū=lə̄=gə̀l			2sN	
ɛ̄, ɛ́	lā	gằl	3sN	
āgg(á)	lā	gàl	1pN	
ɔ̄ggɔ́, ɔ̄ggɔ́,			2pN	
ūgg(ú), ūggū́=lə̄=gə̀l				
ɛ̄ggà	lā	gàl	3pN	
PRON		run.		
		INCP		

(b) 'may bury egg'

(b)	á, ā	lā	ḍ̈ùr	kólɔ́ḍ̈=ɔ́	1sN
	ɔ́, ɔ̄, ú, ū=lə̄=ḍ̈ùr				2sN
	ɛ̄, ɛ́	lā	ḍ̈ùr	kólɔ́ḍ̈=ɔ́	3sN
	āgg(á)	lā	ḍ̈ùr	kólɔ́ḍ̈=ɔ́	1pN
	ɔ̄ggɔ́, ɔ̄ggɔ́,				2pN
	ūgg(ú), ūggū́=lə̄=ḍ̈ùr				
	ɛ̄ggà	lā	ḍ̈ùr	kólɔ́ḍ̈=ɔ́	3pN
	PRON		bury.	egg=DEF	
			INCP		

is communicated regardless of whether the future or non-future subject pronouns precede the uncertainty marker. Second person subject pronouns are optionally [+/- ATR] regardless of the [ATR] quality of the root vowel.

Although uncommon, it is possible for the subject pronoun to be repeated following the certainty marker and before the verb, as in (64).

(64)

á	lā	á	gàr	fɔ́l
1sN	UNC	1sN	dig.INCP	hole

'I may dig a hole.'

14.9 Noun phrases

14.9.1 Word order in the noun phrase

The noun phrase can be diagrammed in the order of (65). The head noun is followed by an optional possessive pronoun (POS), and one or more optional adjectives. More than one adjective in the same noun phrase is rare and no prescribed order in the noun phrase can be determined. It is also possible for demonstratives (DEM) to precede alienable possessive pronouns. The possessors of inalienable nouns—kinship terms and body parts—precede the possessed noun, and the possessors of alienable nouns follow the noun.

(65) **Noun phrase word order**

NP -> ($POS_{Inalienable}$) N ($POS_{Alienable}$) ({DEM, NUM, ADJ_{Quan}, ADJ_{Qual}})

The adjectival clause of (66a) shows a noun phrase with three adjectives—a demonstrative, numeral, and adjective of quality. The possessive pronoun *ɔ́nə̀gg=ə̀* 'mine=COP' is a noun phrase complement of the non-verbal adjectival clause and the copula clitic is attached. In (b), the second singular possessive pronoun *ɔ́* 'your' precedes the kinship term *yáā ɲāā* 'aunt, younger mother (lit. mother girl)'—a compound noun phrase, which is followed by a demonstrative.

(66) **Noun phrase word order**

(a)

ʈɔ́-gg	nìì	ásámán	ɖ̈ùìgg=ə	ɔ́nə̀gg=ə
cow-PL	these	five	black=DEF	1sPp=COP

'These five black cows are mine.'

(b)

ɔ̀	ɔ́	yáā	ɲāā	néé	lèèn-án	ɖ̈ūmùùn	ɖ̈-ūūŋ	ʈà
and	2sPs	mother	girl	this	was.coming	towards	PP-2sO	there

'Your mother's sister was coming to you there.' (Assa3-4)

(c) bìì fɪŋ́-d̪ə̄ kɔ̄r ə́ən níí mā̀ mâŋ
let hear word 1sPs this very carefully
'Listen carefully to what I am saying (lit. this my word)!' (Womn3)

(d) bɛ̄-ɛ̄n ā wár-d̪ā bààl-g=ā nɛ̀è ə́nəgg kāɛ̄
/bɛg/say- CONT.P SBJV /war/bring- SBJV instrument- PL=DEF these 1sPp all
'They were saying to bring all my wood instruments.'

In (c), the first singular possessive pronoun *ə́ən* 'my' follows the singular noun *kɔ̄r* 'word', being an alienable noun, and is followed by the demonstrative *níí* 'this'. In (d), the third plural possessive pronoun *ə́nəgg* 'my' follows the plural alienable noun *bààlgā* 'instrument'. A demonstrative, possessive pronoun, and quantitative adjective are all present in the same noun phrase, where the demonstrative precedes the pronoun, possibly being fronted for emphasis.

Constructions with relative clauses are preferred above long noun phrases with multiple adjectives. In (67), the relativisor *nà* begins three separate relative clauses.

(67) t̪ɔ́gg ə́nəgg **nà** ásámán **nà** wíəg **nà** d̪ùìgg=ɛ̀ ɛ̄ggàn kālg
cows 1sPp REL five REL good REL black=RDM L.COP field
'My five good black cows are in the field.'

14.9.2 Noun agreement

Adjectives, possessive pronouns, and demonstratives agree with nouns in number. Agreement is marked by the geminate velar segment *gg* or tone change. The plural adjective suffix *-gg* is shown in (68a-b) and the possessive pronouns *ə́nəgg* and *ə̄yəgg* are shown in (c-d). In (e-f), High tone in the demonstratives indicates a singular noun and Low a plural noun.

(68) **Noun agreement**

	Noun SG	Noun PL	
(a)	kɔ̀lɛ̀ɛ̀ð ɪ̂	kɔ̀lɛ̀ɛ̀ð-g ɪ̂-gg	'heavy sword'
(b)	t̪ɔ́ɔ́ kɔ́ɔ́fàr	t̪ɔ́gg kɔ́ɔ́fàr-g	'thin cow'
(c)	máà ə́ən	máà-gg ə́nəgg	'my house'
(d)	máà ə̄yən	máà-g ə̄yəgg	'our house'
(e)	t̪ɔ́ɔ́ nɛ́ɛ́	t̪ɔ́-gg nɛ̀è	'this cow/ these cows'
(f)	t̪ɔ́ɔ́ náá	t̪ɔ́-gg nàà	'that cow/ those cows '

14.9.3 Possessive phrases

Possession of most nouns is expressed by the general preposition *ɛ́* (GP) following the possessed noun and preceding the possessor. The possessor is in genitive case

which is marked only by a tone change. Examples (69b, d, f) are incorrect, but given for comparison with the examples of (70).

(69) **Noun possessive phrases**

(a) gàḍ́áàè ɛ́ ɟɛ̂n
basket GP person.GEN
'basket of person'

(b) *ɟɛ̄n gàḍ́áàè
person basket

(c) gàḍ́áàè-gg ɛ́ ɟɛ̂n
basket-PL GP person.GEN
'baskets of person'

(d) *ɟɛ̄n gàḍ́áàè-gg
person basket-PL

(e) gàḍ́áàè-gg ɛ́ ɟɔ̂gg
basket-PL GP person.GEN-PL
'baskets of people'

(f) *ɟɔ̄gg gàḍ́áàè-gg
people basket-PL

Although body part nouns can also be possessed by having the same construction as other nouns as shown in (70a, c, e), it is more common for the possessor of body part nouns to precede the body part without the general preposition and without being in genitive case as in (70b, d, f).

(70) **Body part noun possessive phrases**

(a) lúḍ́ ɛ́ ɟɛ̂n
leg GP person.GEN
'leg of person'

(b) ɟɛ̄n lúḍ́
person leg

(c) lú-ūgg ɛ́ ɟɛ̂n
leg-PL GP person.GEN
'legs of person'

(d) ɟɛ̄n lú-ūgg
person leg-PL

(e) lú-ūgg ɛ́ ɟɔ̂gg
leg-PL GP person.GEN-PL
'legs of people'

(f) ɟɔ̄gg lù-ùgg
people leg-PL

In (71a), the possessor *ūfú* 'tree' precedes the body part noun *ɔ̄ɔ̄ŋ* 'body' it possesses. As seen in (71b), kinship terms may also form possession by the possessor preceding the possessed noun. In this case, the kinship term possessor *yáā* 'mother' precedes the noun *ɲāā* 'girl' it possesses.

(71a) ɛ́ gārá kā̆hs-s=ǐ ūfú-n=í, ɛ̄ dɔ̄ɔ̀s-s
GP when struck-COMP=SBO1 hijliij.tree-DEF=SBO 3sN start-INF
'When she struck the tree,

lə̂ŋ	ɛ̄	wāɟ-ɟ	sím	**ūfú**	**ə̄ə̄ŋ.**
until	3sN	went-INF	down	tree	body

(her horns) went deep into the tree (lit. into tree's body).' (Nyee 14-15)

(b)

ɔ̀	ɔ́	**yáā**	**ɲāā**	nɛ́ɛ́	lɛ̀ɛ̀n-án	ḍ̱ūmùùn	ḍ̱-ūūŋ	ṭà
and	2sPs	mother	girl	this	was.coming	towards	PP-2sO	there

'Your mother's sister (lit. your girl mother) was coming to you there.' (Assa3-4)

15 Sentence-level syntax

There is morphological marking in subordinate and interrogative clauses, and a discussion of sentence-level syntax is needed to understand these morphemes. In this chapter, we discuss types of clauses in sentences (15.1), coordinating and subordinating conjunctions (15.2), interrogative structures (15.3), as well as focus (15.4).

15.1 Clause combinations

Clauses may be nuclear (main, independent), pre-nuclear (dependent clause preceding a nuclear clause), or post-nuclear (dependent clause following a nuclear clause).

As in (1a), foregrounded nuclear clauses of narrative texts most commonly use infinitive verbs. However, in non-fiction narratives, a completive verb is also common, as shown in (b).

(1a)	ālḍ̱=á	ɛ̄	**dɔ̄ɔ̀s-s**	ɛ̄	**bāḍ̱-ḍ̱**	bāɛ̀=n	ɛ́	sālāḍ̱=à
	fox=DEF	3sN	start-INF	3sN	break-INF	jug=DEF	GP	hyena. GEN=DEF
	'Fox punctured a hole in Hyena's jug.' (Nyee21)							

(b)	ɟāḍ̱ɛ̀ɛ̀r=ā	**wár-sá**	kāŋ	ínī=n	ɛ̄	māḍ̱ā
	Jader=DEF	carried-COMP	group	3sPs=DEF	with	big.size
	'Jadar led his very big group.' (Fand23-24)					

Pre-nuclear clauses are introduced with subordinate conjunctions, the most common of which is the conjunction *ɛ́ gārá* 'when' which often introduces tail-head linkage. In the second line of (2), the subordinate clause refers to 'an arrival at the well' implied by the previous nuclear clause, before continuing with the next nuclear clause in the third line. In this way, the subordinate clause links new information with old information contained in the subordinate clause. The verbs of tail-head linkage are most commonly completive verbs, but can also be incompletive or past-continuous.

(2)	ɛ̄	dɔ̄ɔs-s	ɛ̄	wāɟ-ɟ	ḍ̱ūmùùn	wāā=lg	ā
	3sN	start-INF	3sN	go-INF	towards	water.source=in	SBJV
	'He set out for the well in order to						

mā-ḍ = é	fɛ̄gg.	**é**	**gārá**	**líɟ-ɟ = ì**	**wāā = lg = é,**
drink-	water	GP	when	/léɟ/went-	water =
SBJV = IPF				COMP = SBO1	in = SBO

get a drink. When he arrived at the well,

ɛ̄	gəms-óggə	fɛ̄gg = á	ɛ̄	nāā	é	fɔ̄l	ṭə́ḍ-ì.
3sN	found-	water =	3sN	lay.	GP	hole.	down-
	D.COMP	DEF		INCP		GEN	3sO

he discovered that the water was very far down in the well.' (Goat2-4)

Post-nuclear clauses are introduced by a subordinate conjunction as in (3a) or by a subjunctive verb as in (b). In (b), three subjunctive verbs in three separate post-nuclear clauses are introduced by the subjunctive particle *ā* and give the purpose of the nuclear clause. A further subjunctive clause (*ā māḍé fɛ̄gg* 'to drink water') is found in the first two lines of (2). Clauses may also be embedded such as the clause *fɛ̄gg-á ɛ̄ nāā é fɔ̄l ṭə́ḍ-ì* 'water lay down in the hole' of the final line of (2) which is a complement of the verb *gəms-óggə* 'found'.

(3a)

á	wīr-ən	áfáḍ	mān	ṭáḍ	ṭɛ̀,
1sN	/wīr/slaughter-CONT.P	blood	certain	down	here

'I am making a sacrifice here because

é	**kɔ̄rá**	**é**	**məsí**	**néé**	**nər-r-ən**	**ṭɛ̀.**
GP	because	GP	insect	this	/nár/drool-CAUS-CONT.N	here

because this insect drools here.' (Jooj9-10)

(b)

ānɛ̄nḍá	ɛ̄	dɔ̄ɔs-	ɛ̄	bàg-g	áŋɛ́ = n
then	3pN	start-INF	3pN	grab-INF	elephant = DEF

'Then they elicited the help of an elephant

ā	**gəl-ḍ = îggən**	**é**	**ūfú = n**	**ṭáḍ**
SBJV	/gàl/ram-SBJV.3sN = 3pD	GP	Tabaldi.tree = DEF	down

in order to break down the Tabaldi tree for them

ā	**gâr-rā**	**ā**	**nám-ḍá**	**ŋālg**	**é**	**ŋɛ̄ɛ̄rɛ̄mà = n.**
SBJV	be.able-SBJV.3sN	SBJV	eat-SBJV.3sN	children	GP	devil.GEN = DEF

so as to eat the nyeerma offspring.' (Nyee8-10)

15.2 Conjunctions

Conjunctions are a further lexical category, introducing either nuclear or non-nuclear (subordinate) clauses. The coordinate conjunctions of (4) are found to introduce nuclear clauses. Some references in texts from chapter 17 are listed for the

conjunctions. In addition, it is also possible to juxtapose nuclear clauses without any conjunction.

Table 60: Coordinate conjunctions

ɔ	'and'	Nyee4, 27, Fand13, Assa1, 3, 9, 12
ḍɛ̀	'then, since'	Fand20, 22, Womn11
ṭāɛ́n	'then'	Fand28, Minj13
ānēnḍá	'then, therefore'	Minj12, Womn11, 17, 24
ɛ́nná	'therefore, thus'	Fand5
mìnṭààðɛ́ɛ́	'thereafter'	Thng4
gôl	'in that way'	Nyee28
lôŋ	'then, until'	Goat6, 12, 16, Nyee15, Thng10

The conjunctions *ḍɛ̀* 'then, since' and *lôŋ* 'then, until' are analyzed as coordinate conjunctions, since subordinate marking in the clause never occurs with them. The conjunctions *ānēnḍá* 'therefore' and *ḍɛ̀* 'then, since' are shown in (4c); the conjunction *lôŋ* 'then, until' is shown in (5e).

(4) **Coordinate conjunctions**

(a) ɟīnná wə-īn = îggə tú = í ɛ́ kɔ̄rá
that go-INCP = IPF out = SBO GP because
'They remarry because

(b) ɔ̄ðɔ̄ɔ̄gg = ɔ́ nà ɔ́ŋ tɛ̀ ɟīs-ən = îggə bɛ̀ɛ̀nāḍ = ɛ́ɛ́ = n.
women = DEF REL bad here /ɟìs/make-CONT.N = 3pA wrongdoing = SBO = DEF
bad women (their first wives) make them do wrong.

(c) **ānēnḍá,** bìì bìì-ḍə̀ bɛ̀ɛ̀nāḍ = á àwḍàmàlɔ̄ **ḍɛ̀**
therefore /bìɟ/let. IMP /bɛ̀ɛ̀/say- IMP.PL wrongdoing = DEF please since
So let us please stop the wrongdoing since

(d) bɛ̀ɛ̀nāḍ = á ṭɛ́l ná ṭál-ḍ áāgg = ɛ́ ɲɔ́m = ì wá.
wrongdoing = DEF God REL /ṭál/create-COMP 1pA = RDM /ɲám/want. INCP = 3sAM not
God who created us doesn't want us to do wrong.' (Womn9-12)

The subordinate conjunction *wàr* 'but' of table 61 has only been attested to introduce post-nuclear clauses, but the other conjunctions of table 61 introduce pre-nuclear and post-nuclear clauses.

Table 61: Subordinate conjunctions

é gārá	'when, while'	Goat3, 7, 17, Fand 1, 7, 8, 15
é kɔ̄rá	'because'	Jooj9, Assa5, Tifa6, Womn9
(ār)	'if'	Goat14, 15, Fand20, Thng21, Womn21
wàr	'but'	Nyee13

The subordinate marking in the clause occurs along with these conjunctions as a clitic on the verb, or clause finally, or both. It is more common for the conjunction *ār* 'if' to be absent from the clause than to be present, although there is subordinate marking regardless. As shown in 10.7, the verb-final subordinate clitic attached in 'if' clauses differs in tone from the clitic attached to verbs of other subordinate clauses.

In (5c), the conjunction *wàr* 'but' occurs along with the verb-final subordinate clitic *=ī* (SBO3). In (d), the conjunction *é gārá* 'when' occurs along with the verb-final subordinate clitic *=ɪ̄* (SBO1) and the clause-final subordinate clitic *=É* (SBO). In (4a), the conjunction *é kɔ̄rá* 'because' occurs along with the clause-final subordinate clitic *=É* on *bèènāḏ=éé=n* 'wrongdoing=SBO=DEF' where the definite clitic *=n* for vowel-final stems is also attached.

(5) **Subordinating conjunctions**

(a)

ɛ̄	dɔ̄ɔ̄s-s	ɛ̄	bàgg	kár=á	ḍ̱í
3pN	/ḍ̱ɔ̄ɔ̄s/start-INF	3pN	/bàg/grab.SBJV	wild.cow=DEF	also

'They also elicited the help of the buffalo

(b)

ɛ̄	gəl-ḍ̱=ɪ̂n	ḍ̱-éɛ̄n	ná	ṭ̱áḍ̱	ḍ̱í,
3sN	/gàl/ram-SBJV.3sN=3sD	PP-3sO	REL	down	also

in order to break it down for them,

(c)

wàr	ā	gâr-rā	ɛ̄	gəl-ḍ̱=**ɪ̄**	ḍ̱-éɛ̄n	ná	ṭ̱áḍ̱	wá.
but	SBJV	/gâr/able-SBJV.3sN	3sN	/gàl/ram-SBJV.3pN=SBO3	PP-3sO	REL	down	not

but she was not able to break it down.

(d)

é gārá	kăhs-s=**ɪ̄**	ūfú=n=**í**,	ɛ̄	ḍ̱ɔ̄ɔ̄s-s
GP when	/kɔ̄n/strike-COMP=SBO1	hijliij.tree=DEF=SBO	3sN	/ḍ̱ɔ̄ɔ̄s/start-INF

When she struck the tree,

(e)	lôŋ	ɛ̄	wāɟ-ɟ	sím	ūfú	ə̄ə̄ŋ.
	until	3sN	/wāɟ/go-INF	down	tree	body

(her horns) went deep into the tree.' (Nyee11-15)

15.3 Interrogatives

Questions are constructed using the question marker *à* or an interrogative pronoun. Only the interrogative pronouns of (6b-e) agree in number with the noun phrase which they replace. Some interrogative pronouns have a marked form when they replace words which occur in an uncommon position in the clause, but are otherwise unmarked. Other interrogative pronouns only have one form regardless of its position in the clause. When any of the interrogative pronouns are pre-verbal, the clause-final subordinate clitic =*É́* (SBO) of 7.7 and 8.3.8 attaches sentence-finally. When an interrogative pronoun replacing an adverb is pre-verbal, the verb-final subordinate clitic =*Ĭ* (SBO1) of 10.7 is attached to the verb.

(6) **Interrogatives**

	Unmarked		Marked		
	SG	PL	SG	PL	
(a)	à	à			QM
(b)	ŋān	ŋə̄nə́ə̀ḓə̀			'who'
(c)	ŋānān	ŋānáāḓān			'for whom'
(d)	ɛ́ ŋān	ɛ́ ŋānáāḓ		ɛ́ ŋə̄nə̀	'whose'
(e)	ɲíí	ɲíígg	ɲíīnā	ɲíígg ə̀	'what'
(f)	ná īsíīn	nà īsíīn			'which'
(g)	tā īsí	ṯā īsí			'which'
(h)	ḓə̀ì		ḓə̀yīn		'when'
(i)	(fān) ḓá		fān ḓáɛ̄n		'where'
(j)	(fān) īsí				'how'
(k)	ə̄rə́ŋ				'why'

In the example questions to follow, typical answers to the questions are in parentheses. The examples are all with singular interrogatives; plural interrogatives take similar constructions.

As discussed in 14.6.6, questions with yes/no responses have the question marker *à* sentence-finally.

(7)	ɟāā=n	bánḓāl	ṯīr-sə́	ṯɔ́ɔ́	ná	sɛ̀ggār=ɛ́ɛ́n	**à**
	person=DEF	weak	kill-COMP	cow	REL	strong=RDM	QM

'Did the weak person kill the strong cow?' (Yes./No.)

The interrogative pronoun *ŋān* 'who' takes the place of animate nouns in subject case.[39] It can be pre-verbal as in (8a) with the clause-final subordinate clitic *=É*, or post-verbal as in (b) with the agented passive clitic *=Ẽ* on the verb.

(8a)	**ŋān**	ţír-sə́	ţɔ́ɔ́=n=**ɛ́**	(b)	ţɔ́ɔ́=n	ţír-s=**ĩ**	**ŋān**
	who	kill-COMP	cow=DEF=SBO		cow=DEF	kill-COMP=PAS.A	who

'Who killed the cow?' (The person killed the cow.)

The interrogative pronoun *ŋānān* 'for/to whom' takes the place of animate indirect objects.

(9)	ɟāā=n	ţír-sə́	ţɔ́ɔ́=n	**ŋānān**
	person=DEF	kill-COMP	cow=DEF	for whom

'For whom did the person kill the cow?' (The person killed the cow for his uncle.)

When following the general preposition *ɛ́* (GP), the interrogative pronoun *ɛ́ ŋān* 'whose' takes the place of possessed animate nouns. It can be post-verbal as in (10a) or pre-verbal as in (b). In pre-verbal position as in (b), the agented passive clitic *=Ẽ* is attached to the verb, the post-verbal agent is in genitive case, and the clause-final subordinate clitic *=É* is attached to the agent.

(10a)	ɟāā=n	ţír-sə́	ţɔ́ɔ́	**ɛ́**	**ŋān**
	person=DEF	kill-COMP	cow	GP	whom

'Whose cow did the person kill?' (The person killed his uncle's cow.)

(b)	ţɔ́ɔ́	**ɛ́**	**ŋān**	ţír-s=**ĩ**	ɟáà=n=**ɛ̃**
	cow	GP	whom	kill-COMP=PAS.A	person.GEN=DEF=SBO

'Whose cow did the person kill?' (The person killed his uncle's cow.)

The interrogative pronoun *ɲíí* 'what' takes the place of non-human nouns. When taking the place of a noun object, it is unmarked post-verbally as in (11a), but has a marked form in (b) where the agented passive clitic *=Ẽ* is attached to the verb and the clause-final subordinate clitic is attached to the agent.

(11a)	ɟāā=n	ţír-sə́	**ɲíí**	(b)	**ɲíínā**	ţír-s=**ĩ**	ɟáà=n=**ɛ̃**
	person=DEF	kill-COMP	what		what	kill-COMP=PAS.A	person.GEN=DEF=SBO

'What did the person kill?' (The person killed a cow.)

[39] Because of limited data, the pronoun is not presented when taking the place of an animate noun object.

The relativizer *ná* along with the interrogative pronoun *ɪ̄síɪ̄n* 'which' takes the place of a relative clause. When taking the place of a relative clause modifying a subject, it can be pre-verbal as in (12a) or post-verbal as in (b). When taking the place of a relative clause modifying an object, it can be post-verbal as in (c) or pre-verbal in (d). Another way of replacing a relative clause is with the copula *ṭ̈ā* and the interrogative pronoun *ɪ̄sí* 'how' as in (e).

(12a) ɟāā **ná** **ɪ̄síɪ̄n** ṭ̈íɾ-sɔ́ ṭ̈ɔ̄ɔ̀=n=**ɛ̄**
person REL which kill-COMP cow.GEN=DEF=SBO
'Which person killed the cow?' (The weak person killed the cow.)

(b) ṭ̈ɔ́ɔ́=n ṭ̈íɾ-s=**ɪ̄** ɟāà **ná** **ɪ̄síɪ̄n**
cow=DEF kill-COMP=PAS.A person.GEN REL which
'Which person killed the cow?' (The weak person killed the cow.)

(c) ɟāā=n ṭ̈íɾ-sɔ́ ṭ̈ɔ́ɔ́ **ná** **ɪ̄síɪ̄n**
person=DEF kill-COMP cow REL which
'Which cow did the person kill?' (The person killed the strong cow.)

(d) ṭ̈ɔ́ɔ́ **ná** **ɪ̄síɪ̄n** ṭ̈íɾ-s=**ɪ̄** ɟáà=n=**ɛ̄**
cow REL which kill-COMP=PAS.A person.GEN=DEF=SBO
'Which cow did the person kill?' (The person killed the strong cow.)

(e) ṭ̈ɔ́ɔ́=n **ṭ̈ā** **ɪ̄sí** ṭ̈íɾ-s=**ɪ̄** ɟáà=n=**ɛ̄**
cow=DEF COP how kill-COMP=PAS.A person.GEN=DEF=SBO
'Which cow did the person kill?' (The person killed the strong cow.)

The interrogative pronoun *ḍ̈ɔ̀ì* 'when' takes the place of adverbs of time. It is unmarked post-verbally as in (13a), but has a marked form in (b). As in (13b), when an interrogative pronoun replacing an adverb is pre-verbal, the verb-final subordinate clitic *=ɪ̌* (SBO1) used on 'when' clauses in 10.7 is attached to the verb *ṭ̈íɾ-sɔ̄* 'kill-COMP'.

(13a) ɟāā=n ṭ̈íɾ-sɔ́ ṭ̈ɔ́ɔ́=n **ḍ̈ɔ̀ì**
person=DEF kill-COMP cow=DEF when
'When did the person kill the cow?'
(The person killed the cow yesterday.)

(b) **ḍ̈ɔ̀yīn** ɟāā=n ṭ̈íɾ-s=**ɪ̌** ṭ̈ɔ̄ɔ̀=n=**ɛ̄**
when person=DEF kill-COMP=SBO1 cow.GEN=DEF=SBO
'When did the person kill the cow?'
(The person killed the cow yesterday.)

Similarly, the interrogative pronoun *(fān) ḍá* 'where' is a substitute for adverbs of place. It is unmarked post-verbally as in (14a), but has a marked form in (b), again with the verb-final subordinate clitic *=ǐ* (SBO1) attached to the verb *ṭ́ír-sə̄* 'kill-COMP'.

(14a) ɟāā=n ṭ́ír-sə́ ṭ́ɔ́ɔ́=n **(fān)** **ḍ́á**
person=DEF kill-COMP cow=DEF towards where
'Where did the person kill the cow?'
(The person killed the cow near the house.)

(b) **fān** **ḍ́áēn** ɟāā=n ṭ́ír-s=**ì** ṭ́ɔ̄ɔ̀=n=**ē**
towards where person=DEF kill-COMP=SBO1 cow.GEN=DEF=SBO
'Where did the person kill the cow?'
(The person killed the cow near the house.)

The interrogative pronoun *(fān) īsí* 'how' is a substitute for adverbs of manner. The interrogative pronoun *ə̄rə́ŋ* 'why' is a substitute for other verbal adjuncts.

(15a) ɟāā=n ṭ́ír-sə́ ṭ́ɔ́ɔ́=n **(fān)** **īsí**
person=DEF kill-COMP cow=DEF towards how
'How did the person kill the cow?'
(The person killed the cow with force.)

(b) ɟāā=n ṭ́ír-sə́ ṭ́ɔ́ɔ́=n **ə̄rə́ŋ**
person=DEF kill-COMP cow=DEF why
'Why did the person kill the cow?'
(The person killed the cow because it was ill.)

15.4 Focus

Focus is constructed by fronting the constituent which the speaker deems as the most important bit of information for the clause. Both subjects and objects can be fronted in focus.

Normally, prepositional phrases used as adjunct conjunctions such as *ē mūn nāán* 'at that time' occur sentence-initially or following a conjunction.

(16a) ɔ̀ **ē** **mūn** **nāá=n,**
and with time that=DEF
'At that time,

(b) bāárg=á ŋ́áɔ́-ā̀n ɲā-lg nà ə̄n-g=ì
Baggara=DEF /ŋ́áw/search.for-CONT.P girl-PL REL young-PL=RDM
the Baggara (people group) were kidnapping young girls.' (Minj1-2)

However, subjects are brought into focus when placed before such phrases, as in (17). In this concluding sentence of a narrative where a fox and hyena try throughout to capture and eat him, the devil creature is fronted in order to emphasize him as being the victor.

(17) **ɲéérèmà=n** é gāránḍá ɛ̄ áḍ-ḍá gāɲà
devil=DEF GP that.time 3sN became-SBJV.3sN laughing
'The nyeerma, at that time, went on laughing.' (Nyee34)

In the first line of the *Fandi* text, the main participant is marked as being salient, or most important, by fronting it. The noun subject *Fɔ́nḍì-n* which normally follows the subordinate conjunction *é gārá* 'when' is sentence-initial.

(18) **fɔ́nḍì=n** é gārá ḍàɔ-s=ɔ mɔ̀rāā-gg=ɛ̄=né
Fandi=DEF GP when fight-COMP=IPF government-PL=ACM=SBO
'When Fandi fought with the government, . . ' (Fand1)

Objects are brought into focus by moving them to a pre-verbal position. The object *mii-n* 'chicken' in (19) is out of its normal post-verbal position to emphasize that it is the 'chicken' being thrown away and not the 'goat'.

(19) **mìí=n** á gàn ṭú
chicken=DEF 1sN throw.INCP out
'The chicken I am throwing away.' (Jafr11)

In (20), the relative clause, describing a certain group of women, and functioning as the recipient of the transitive verb /gàf/ 'give', is brought to the beginning of the sentence. The meaning is 'It is those kinds of women and not others whom God blesses.'

(20) **nà àn tɔ̄-yɔ̀gg=ì** ṭél gəf=îggən ɟègg
REL stay.INCP doors-theirs=RDM God gives.INCP=3pD things
'To those who stay in their homes, God gives them things.' (Womn13)

Pre-verbal objects are emphasized when there is a post-verbal subject and agented passive clitic attached to the verb. The sentence of (21) is the concluding remark of a personal story where a creature repeatedly tries to attack the narrator and other participants. The construction emphasizes the outcome of the object *ɟāām* 'someone' ('no one' with negation).

(21) ɟāām kɔ́ɔ̀m-s=ī ḍ-ɛ́ɛ̄n wá.
someone /káàm/bothered.CAUS-COMP=PAS.A PP-3sO not
'No one was bothered by it.' (Thng25)

16 Conclusion

Gaahmg is a morphologically rich language, employing many suffixes and clitics on nouns, adjectives, and verbs. [ATR] quality and tone distinguish a significant number of lexemes and grammatical functions. Several specific processes of consonant weakening, vowel elision, [+ATR] spreading, [+round] spreading, and morphological tone rules, account for the vast majority of alternations when morphemes are combined.

Gaahmg suffixes differ in alternation and function from clitics, where the former are mostly inflectional morphemes which attach to underlying root segments, whereas the latter are mostly functional, derivational or clausal morphemes which attach to surface stem segments.

All pronouns except interrogatives use vowel features to represent the person referred to, the three persons coinciding with the language's three vowel harmony pairs. Nouns may attach singular and plural suffixes, although plural suffixes are by far more common, and have various segmental and tonal allomorphs which mostly have no semantic correlation with the nouns to which they attach. Nouns and adjectives attach one or more of seven clitics to the stem, each with segmental or tonal allomorphs which depend on the stem-final segment.

The verb has five morpheme slots in addition to the root. Antipassive and causative morphemes attach immediately following the root, followed by modal and aspect morphemes which are also included in the stem. Derivational, pronominal, and clausal clitics attach to the verb stem, many of which have various segmental or tonal allomorphs depending on the subject person or inflectional verb form to which they attach. Gaahmg has morphological marking for both perfect and imperfect aspect, which can both attach to completive and incompletive verbs. Tone is added to verb stems for subject person inflection, tone distinguishes past from non-past tense in the continuous form, and tone replacement is used in the formation of antipassives, causatives, and verbal nouns.

Prepositions, body part locatives, adverbs, and conjunctions are distinct lexical categories. Body part locatives are similar in form and meaning to inherently possessed body part nouns, but are a distinct lexical category in that they do not refer to person and have different tone than body part nouns. Although they are separate morphemes, some of these locatives undergo the same segmental and tonal alternations as clitics, depending on the final segments of the preceding noun of reference.

Agentive passive, agentless passive, antipassive, and causative verb forms are syntactically and morphologically distinct and combine in nearly all possible ways.

In non-verbal clauses, copular clitics may take the place of separate copula particles, which are functionally equivalent but differ in form. Relative clauses are morphologically marked for definiteness and grammatical function in place of the marking on the head noun they modify. Subordinate clauses are morphologically marked clause-finally, and the verbs of subordinate clauses can also be marked according to the type of subordinate clause. Interrogative clauses attach the agented passive when an agent is post-verbal, the clause-final subordinate when any of the interrogative pronouns are pre-verbal, and the verb-final subordinate when an interrogative pronoun replacing an adverb is pre-verbal.

17 Texts

Ten texts of various genres are presented to show Gaahmg morphology and syntax in the context of natural language. There are two folk narratives, two historical narratives, two personal narratives, a conversation, an expository text, and two persuasive texts. The texts were originally recorded on cassette, transcribed, and glossed by speakers of the language, the recordings made from a variety of individuals in the home area. Later, the texts were extensively checked by the present author with speakers of the language and revised accordingly.

17.1 (Goat)

Folk Narrative: "The Goat and the Fox"
Author unknown; 2003; Transcribed by Hashim Orta

1.	Mīī	mân	nām-án = ɛ̄	ɛ́	ūlg-ì		mâŋ	wá.
	goat	certain	beaten	GP	thirst.GEN-3sO		well	not
			/nām/-CONT = PAS.A		/ūlg/			

There was once a very thirsty goat.

2.	Ɛ̄	dɔ̄ɔ̀s-s	ɛ̄	wāɟ-ɟ	ḍ̰ūmùùn	wāā = lg	
	3sN	started	3sN	go	towards	water.source = in	
		/ḍ̰ɔ̄ɔ̀s/-INF		/wāɟ/-INF			

He set out for the well

3.	ā	mā-ḍ̰ = ɛ́	fɛ̄gg.	Ɛ́	gārá	líɟ-ɟ = ɪ̀	wāā-lg = ɛ́	
	SBJV	drink	water	GP	when	went	water-in = SBO	
		/mā-d/-SBJV = IPF.3SN				/lɛ́ɟ/-COMP = SBO1		

to get a drink. When he arrived at the well,

4.	ɛ̄	gəms-ə́ggə	fɛ̄gg = á	ɛ̄	nāā	ɛ́	fɔ̄l	ṭə́ḍ̰-ì.
	3sN	found	water = DEF	3sN	laying	GP	hole.GEN	down-3sO
		/gə̆ms/-COMP.D			/nāg/INCP		/fɔ́l/	/táḍ̰/

he discovered that the water was very far down in the well.

5.	Ɛ̄	pə̄r-ḍ̰	ɛ̄	wál-l	wāā = lg.
	3sN	jump	3sN	fall	well = in
		/pə̄r/-CAUS.INF		/wál/-INF	

He jumped into the well

6. Ɛ̄ dɔ̄ɔ̀s-s ɛ̄ mā-ḍ̈ fɛ̄gg = á lôŋ ɛ̄ bɛ̄ðér-r.
3sN started 3sN drink water = DEF until 3sN satisfied
/ḍ̈ɔ̄ɔ̀s/-INF /mā-d/-INF /bɛ̄ðér/-INF
and drank water until he was satisfied.

7. Ɛ́ gārá wīr-s = ì ɔ́gg ḍ̈ūmùùn ṭ̈àw = ɛ̄ɛ̄ = n[40],
GP when noticed place towards up = SBO = DEF
/wɛ̄r/-COMP = SBO1
When he looked up,

8. ɛ̄ dūgg sərmâh-gg. Ālḍ̈ = á ɛ́ yāāgg
3sN lost wonderment-PL fox = DEF GP awhile
/dūg/INF
he was bewildered (at how far down he was). After a while, Fox

9. ɛ̄ bā-ḍ̈-ággā ɲám-m ā má-ḍ̈á fɛ̄gg ḍ̈í.
3sN appear want SBJV drink water also.
/bā-ḍ̈/-COMP.D /ɲám/-INF /mā-ḍ̈/-SBJV.3sN
appeared and also wanted a drink.

10. Ɛ̄ gəms-ɔ́ggə mīī = n ɛ̄ nāā ɛ́ fɔ̄l.
3sN found Goat = DEF 3sN laying GP hole.GEN
/gə̆m/-COMP.D /nāg/INCP /fɔ́l/
He discovered the goat down in the well.

11. Ɛ̄ ṭ̈ərb[41] = ì “Mīí [42], mīí, ṭ̈ā īsí?”
3sN called goat goat COP how
/ṭ̈ār/INCP = 3sAM /mīī/
He called out to him, “Goat, goat, how are you?”

12. Ālḍ̈ = á ɛ̄ pər-ḍ̈ = ì ḍ̈-ɛ́ɛ́ɲ, lôŋ ɛ̄ mā-ḍ̈ággā
Fox = DEF 3sN jump PP-behind.3sO until 3sN drank
/pər/-CAUS.INF = 3sAM /mā-ḍ̈/-COMP.D
Fox jumped over him (into the well), and drank until

[40] The definite clitic attaches to adverbs such as *ṭ̈àw* ‘up’ when they function as the object of a preposition as in (Goat7), where *ḍ̈ūmùùn* ‘towards’ is an adverb functioning as a preposition. The definite clitic *=n* on vowel-final stems is attached after the subordinate clitic *=ɛ̄ɛ̄*. If the definite marker is taken off, the subordinate clitic is short.
[41] Irregular INCP inflection; */ṭ̈ār/* becomes *ṭ̈ār-bá* in INCP.3sN
[42] *Mīī* is ‘goat’ in isolation but the tone changes to *mīí* in the vocative.

13. fɛ̄gg = á bɛ̄ðér-r. Ālo̱ = á ɛ̄ bɛ̀ɛ̀
water = DEF satisfied fox = DEF 3sN said
/bɛ̄ðér/-INF /bɛ̀/INF
he was satisfied. Fox said,

14. "Míī = n, bôn ān! Ā răg-sâ o̱-ɔ̄ɔ̄ŋ
goat = DEF wait 1sN step PP-back.2sPs
/bôn/IMP 1sA /rāg/-COMP.SBO2
"Wait for me! If I step on your back

15. ā lɛ́ɟ-ɟā ṭú = í , ā mɔ́r-ɔ̄ ū = răhg-g-āh
SBJV go out = SBO SBJV return 2sN = step
/lɛ́ɟ/-COMP /mɔ́r/-SBJV.2sN /rāg/-INF-SBO2
so that I can get out, (then) I will come back (into the well) so that

16. o̱-āāŋ o̱í." Mīī = n ɛ̄ gùɲ-ɲ lôŋ ālo̱ = á ɛ̄
PP-back.1sPs also goat = DEF 3sN agree then fox = DEF 3sN
/gùɲ/-INF
you can also step on my back (and get out)."
The goat agreed and then the fox

17. wāɟ-ɟ ṭú. Ɛ́ gārá líɟ-ɟ = ɪ̄ ṭú = í, ɛ̄ rāg-g
go out GP when arrived out = SBO 3sN stop
/wāɟ/-INF /lɛ́ɟ/-COMP = SBO1 /rāg/-INF
got out. When he was out, he looked back from

18. fɔ́l mūū ɛ̄ gàɲ-ɲ rɛ̄ rɛ̄ggāāo̱
hole front 3sN laughed very loudly
/gàɲ/-INF
the top of the hole and laughed hysterically as he left,

19. ɛ̄ wāɟ-ɟ lôŋ páo̱.
3sN went until[43] forever
/wāɟ/-INF
never to return.

[43] Although *lôŋ* primarily functions as a conjunction as in (Goat12), in (Goat19) it functions as an adverb of *wāɟɟ* 'went'.

17.2 (Nyee)

Folk Narrative: "The Nyeerma and the Fox"
Author: Babakir Suliman; Oct 2003; Recorded and transcribed by Hashim Orta

1. Càɔr nɛ́ɛ́=n ɛ́ sālāḏ=à ɛ̀ âlḏ ɛ̀ ɟɛ̄gg
   tale this=DEF GP hyena.GEN=COP with fox.GEN with thing.PL.GEN
   /sàlàd-à/ /ālḏ/ /jɛ̀g/
   This story is about a hyena, fox, and some

2. ɛ́ lɛ̄ɛ̄l-ɛ̄ɛ̄gg=à bíīgg nà àn-n lɛ́ɛ́l-ɛ́ɛ̀gg=ɛ̀.
   GP grass.GEN-PL=COP some REL.PL stay forest-PL=RDM
   /lɛ́ɛ́l-ɛ́ɛ̄g/ /àn/-INF
   wild forest animals (lit. some things of grass
   which were staying in grass)

3. Sàlàḏ ɛ̀ ālḏ=ɛ̄ dɔ̄ɔ̀s-sɔ̀ ɛ̄ wāɟ-ɟ ā
   hyena with fox=ACM starts 3pN go SBJV
   /ḏɔ̄ɔ̀s/-COMP 3sN /wāɟ/-INF
   Hyena and Fox set out to

4. ɲáɔ̀-ḏà rís-əgg mān ɔ̀ kár ṭāð-án ɛ̀ ḏ-ɛ̂gg=ɛ̄.
   look.for gift-PL (Ar) certain and wild- was with PP-3pO=ACM
   /ɲáɔ́/-SBJV.3pN cow COP-CONT.P
   look for food and a wild buffalo was with them.

5. Ɛ̄ dɔ̄ɔ̀s-s ɛ̄ gəms-ə́ggə ɲɛ́ɛ́rɛ̀mà=n
   3sN[44] get.up 3sN found devil.name=DEF
   /ḏɔ̄ɔ̀s/-INF /gəms/-D.COMP
   On their way they found (offspring of) a nyeerma devil

6. ɛ̄ kɔ́s-sɔ́ ɛ̄ àn-n ūfú=úl.
   3sN crying 3sN stayed Tabaldi.tree=up
   /kɔ́n/-COMP /àn/-INF
   crying and resting in the Tabaldi (Ar. Hijliij) tree.

7. Ɛ̄ bɛ̀ɛ̀ "Lɛ́ɛ̄ ā nám-ḏā ɲɛ́ɛ́rɛ̀mà=n!"
   3pN said come SBJV eat devil.name=DEF
   /bɛ̀ɛ̀/INF /lɛ́ɟ/IMP /nám/-SBJV.1pN
   They said, "Let's eat the nyeerma!"

[44] The third singular subject pronoun is used twice in (Nyee5) as a third plural pronoun.

8. Ānēnḍá ɛ̄ dɔ̄ɔ̀s-s ɛ̄ bàg-g áŋɛ́ = n
then 3pN start 3pN grab elephant = DEF
/ḍɔ̄ɔ̀s/-INF /bàg/-INF
Then they elicited the help of an elephant

9. ā gə̀l-ḍ = îggə̀n ɛ́ ūfú = n ṭáḍ
SBJV ram-for.them GP Tabaldi.tree = DEF down
/gàl/-SBJV.3sN = 3pD
to break down the Tabaldi tree for them

10. ā gâr-rā ā nám-ḍá ŋālg ɛ́ ŋēērēmà = n.
SBJV be.able SBJV eat children GP devil.GEN = DEF
/gâr/-SBJV.3sN /nám/-SBJV.3sN /ŋéérèmàn/
so as to eat the nyeerma offspring.

11. Ɛ̄ dɔ̄ɔ̀s-s ɛ̄ bàg-g kár = á ḍí
3pN starts 3pN grab wild.cow = DEF also
/ḍɔ̄ɔ̀s/-INF /bàg/-INF
They also elicited the help of the buffalo

12. ɛ̄ gə̀l-ḍ = ǐn ḍ-éɛ̄n ná ṭáḍ ḍí,
3sN ram-for.them PP-3sO REL.SG down also
/gàl/-SBJV.3sN = 3sD[45]
in order to break it down for them,

13. wàr ā gâr-rā ɛ̄ gə̀l-ḍ = ī ḍ-éɛ̄n ná ṭáḍ wá.
but SBJV able 3sN ram PP-3sO REL.SG down not
/gâr/-SBJV.3sN /gàl/-SBJV.3pN = SBO3
but she was not able to break it down.

14. Ɛ́ gārá kă̄hs-s = ǐ ūfú = n = í, ɛ̄ ɖɔ̄ɔ̀s-s
GP when struck hijliij.tree = DEF = SBO 3sN start
/kɔ̄n/COMP = SBO1 /ḍɔ̄ɔ̀s/-INF
When she struck the tree,

15. lə̂ŋ ɛ̄ wā̄ɟ-ɟ sím ūfú ə̄ə̄ŋ.
until 3sN went down tree body
/wā̄ɟ/-INF
(her horns) went deep into the tree.

[45] As with subject pronouns, third singular dative pronouns are sometimes used for third plural referents.

16. Sàlàḏ = ā è ālḏ = ē̄ ɛ̄ bɛ̀ɛ̀
hyena = DEF with fox = ACM 3pN said
/bɛ̀ɛ̀/INF
Hyena and Fox said,

17. "lɛ́ɛ̄, ā ḏə̂ḏ-ḏə̀ kár = á!"
come SBJV milk wild.cow = DEF
/lɛ́ɟ/IMP /ḏə̂n/-SBJV.1pN
"Let's milk this buffalo!"

18. Ālḏ = á ɛ̄ cúg-g ṭààgg mâ ə́ə̀l ɛ̄ bɛ̀ɛ̀
Fox = DEF 3sN went door belonging.to hyena. GEN 3sN said
/cúg/-INF /ə̀ə̀l/ /bɛ̀ɛ̀/INF
Fox went to hyena's (larger type of hyena than *salad*) house who said,

19. "Ágg cúr = ə̄ ṭɔ́ɔ́ mān ṭáḏ
1pN tie cow certain down
/cúr/INCP = IPF.1pN
"We tied down a buffalo over there;

20. ágg ɲām ū = gə̀ù-ḏə̀ bāɛ̀ mān ā ḏə̂-ḏ = ì."
1pN want 2sN = give jug certain SBJV milk
/ɲám/INCP /gàf/-SBJV.2pN /ḏə̂n/SBJV.3pN = 3sAM
Please, will you give us a container for milking."

21. Ālḏ = á ɛ̄ dɔ̄ɔ̀s-s ɛ̄ bāḏ-ḏ bāɛ̀ = n ɛ́ sālāḏ = à
fox = DEF 3sN start 3sN break jug = DEF GP hyena.GEN = DEF
/ḏɔ̄ɔ̀s/-INF /bāḏ/-INF
Fox punctured a hole in the bottom

22. ɛ̄ bə̄l ɛ́ fɔ́l. Ɛ́ gārá ālḏ = á ḏə̂n = ǐ īīgg = í = n,
3sP bottom GP hole GP when Fox = DEF milking milk = SBO = DEF
/ḏə̂n/INCP = SBO1
of the hyena's container. While Fox was milking,

23. kúə̄ = n ɛ̄ māl-l fān tàɔ̀,
froth = DEF 3sN accumulate on top
/māl/-INF
froth formed in the pan and

24. īīgg = ɔ́ ɛ̄ məl-l = ínə[46] fān ṭáḍ.
milk = DEF 3sN gathered = to.him on down
/māl/-INF = 3sD
milk accumulated for him underneath (he drank it as it ran out the bottom).

25. Ɛ́ gārá ḍə́ə-s = ì īīgg = ɔ́ = r kāy = ɛ́, ɛ̄ bèɛ̀
GP when milked milk = DEF = PF all = SBO 3sN said
/ḍə̰n/-COMP = SBO1 /bèɛ̀/INF
When all the milk was completely milked, he (hyena) said,

26. "Ah, wéé dàr ɟɔ̄ ā gàɔ̀-dā īīgg = ɔ́ ɲālg = ān."
oh go hide only SBJV give.to milk = DEF children = DAT
/wāɟ/IMP /ḍàr/IMP /gàf/-SBJV.1pN
"Let's go hide in order to give this milk to the children (his own)."

27. Ɔ̀ kúə́ ánɛ̄ɛ́n ɛ́ fə́ī mān wá ánɛ̄ɛ́n,
and froth like.this GP strength certain not like.this
Since froth does not have any substance,

28. gôl ɛ̄ wár-r = ɛ̂ ɛ́ ūù = nì wár-r,
in.that.way 3sN carried GP air.GEN = DEF carry
/wár/-INF = PAS.A /ùùnī/ /wár/-INF
therefore it was blown away,

29. ɲālg ɛ́ sālāḍ = à ā mə́ḍ-ḍ = îggə̀ wá.
children GP hyena.GEN = DEF SBJV drink = they not
/sàlàḍ-ā/ /māḍ/-SBJV = IPF.3pN
and Hyena's children never drank it.

30. Ɛ́ nāānḍ = á yāàn, ālḍ = á ɛ̄ áḍ-ággā ɛ̄ fáàm
GP day = DEF other Fox = DEF 3sN came 3sN thought
/áḍ/-D.COMP
Another day, Fox brought another idea to

31. mān dáān sàlàḍ = ān. Ɛ̄ bèɛ̀ ínə
certain different hyena = DAT 3sN said 3sD
/bèɛ̀/INF
Hyena. He said to him,

[46] This is the long form of DAT which is usually separate, but here analyzed as attached because of [+ATR] quality spread to the verb root.

32. “Sàlàḍ = ā”, ɛ̄ bɛ̀ɛ̀, “Ū = wɔ́r ūūŋ cābb ánɛ̄én
Hyena = DEF 3sN say 2sN = carry 2sR up like.this
/bɛ̀ɛ̀/INF /wár/IMP
“Hyena", he said, "Make yourself upright and go

33. ū = bə̀g = gɔ́n[47] mɔ̄ɔ̄ mān ā nám-ḍā kár níí.
2sN = grab.for.us fire certain SBJV eat cow this
/bàg/IMP = 1pD /nám/-SBJV1pN
bring us some fire (so that) we may eat this buffalo.

34. ɲéérɛ̀mà = n é gāránḍá ɛ̄ áḍ-ḍá gāŋà
devil = DEF GP that.time 3sN became laughing
/ád/-SBJV.3sN /gàŋ/NOM.SG
The nyeerma went on laughing

35. ɛ̄ àn-n ūfú = úl ḍɛ̄ɛ̄nɛ̄.
3sN stay tree = up only
/àn/-INF
as he remained in the tree.

17.3 (Fand)

Historical Narrative: “Fandi”
Author: Tugul Maktab; Oct 2003 in Khartoum;
Recorded and transcribed by Hashim Orta

1. Fɔ́nḍì = n é gārá ḍàɔ̀-s = ɔ̀ mɔ̀rāā-gg = ɛ̂ = né, bɛ̄l-án
Fandi = DEF GP when fought government- having
PL = ACM = SBO
/ḍàf/-COMP = IPF.3sN /bɛ̄l/-CONT.P
When Fandi fought the government, he had

2. gìrʃéɛ̄n ɟɔ̄. Más-sá ɟɔ̄gg = ɔ́ gâl bɛ̀ɛ̀
two.piasters(Ar) only refused people = DEF just said
/máð/-COMP /bɛ̀ɛ̀/INF
only two piasters. He denied the people (local officials), saying

3. ɛ̄ lā gɜ̀f = ì wá, ɛ̄ gə̀ù-s = î = r.
3sN UNC give = it not 3sN gave
/gàf/INCP = 3sAM /gàf/-COMP = IPF.3sN = PF
he would not give it (money), since he had already given.

[47] The verb *ū = bə̀g = gɔ́n* is shortened from *ū = bə̀ə̀. = ɔ̂ggɔ́n* ‘/bàg/IMP=1pD’.

4. Ɛ̄ máð-ð ɛ́ ɟɔ̄gg ììŋg ɛ́ ḍāfà,
3sN refused 3sN people 3pR GP fighting
/máð/-INF /ḍàf/.NOM.SG
He refused (to give money to) the officials by fighting,

5. ɛ̄ wár-r kɔ̀lɛ̀ɛ̀ð ā kɔ́m-ḍá ɟɔ̄g=ɔ́=r. Ɛ́nná
3sN took (sword) SBJV cut people=DEF=EV that.is.why
/wár/-INF /kɔ́m/-SBJV.3sN
taking a koleez sword to kill (hack up completely) the people. So,

6. gâl Fɔ́nḍì bàg-s=**ān**=ɛn[48] líɟ-ɟ=ì ɛ́ kɔ̄rṭūūm ṭɛ̀.
just Fandi caught-him arrived to Khartoum here
/bàg/-COMP=PAS=3sA /léɟ/-COMP=IPF.3sN
Fandi was captured and brought here to Khartoum.

7. Gɔ̀f-ɔ̄n=ìiggɔ̀n wárā mān ɛ́ gārá ḍàf-ān=á ṭálɔ̀=nɛ̄.
given=them paper(Ar) certain GP when collect tax=SBO
/gàf/-PAS=3pD /dàf/-CONT.N=PAS
They (citizens) were given a receipt when the tax money was collected.

8. Bɛ̄ɛ̀l mān ṭā-án ṭù ɔ̀ gàɔ̀-sā gùrūs=í,
metal certain was there and give money=SBO (Ar)
COP-CONT.P /gàf/-COMP.3sN
There was a certain metal token, and when (a person) gave money,

9. ɛ̄ gɔ̀f-f-ûn=ì ḍ-ɔ́ɔ̀s.
3sN give-to.you=it in-hand.2sPs
/gàf/-INF-2sD-3sAM
he gave it to you (as certificate of payment).

10. Mɔ̀rāā ɔ́ð-ð=í ṭáān bɛ̀ɛ̀n fɔ́ndì=n ɛ̄ gàɔ̀-ḍā
govern-ment came again saying Fandi=DAT 3sN give
/áð/-INF=IPF.3pN /bɛ̀/INCP /gàf/-SBJV.3sN
The government came again, again requesting Fandi to pay

[48] The third singular object pronoun *=ɛ́n* differs from the expected pronoun by an added *n*, which may be present here to help distinguish the pronoun from the passive clitic alone *=ānā* which also has a final vowel.

11. gùrūs ṭáān. Fɔ́nḍì máá-sá ɛ̄ bɛ̀ɛ̀ ɛ̄ lā
money(Ar) again Fandi refused 3sN said 3sN UN
/máð/-COMP /bɛ̀ɛ̀/INF
the money. Fandi refused, saying he would

12. gə̀f = ì wá. ɲíīnɔ́ wɔ́r-r = ɪ̂ māān-g = á nààn = ɛ̄?
give = it not what brought refusing.GEN those = SBO
/gàf/INCP-3sAM /wár/-INF = SBO /máð/-NOM.PL = DEF
not pay it. What brought on this refusal?

13. Mɔ̀rāā ə́ð-ð = í dúūr-g = ɔ́ fɔ̃rɔ́ɟɟ wá, ɔ̀ Fɔ́nḍì
government came time-PL = DEF few not and Fandi
/áð/-INF = IPF.3sN
The government came many times, and Fandi

14. más-sá = r = é, énná más = á lə̄ = ì ṭú = í gôl.
refused-it that.is.why refusal came out = SBO just
/máð/-COMP = PF = 3sA /máð/NOM = DEF /lā-d/INCP = 3sAM
refused it, and that is why the refusal (from the government)
came out to him (with brutality).

15. É gārá mɔ̃ɔ̀gg = ɛ̄, mɔ̀rāā ə́ð-ð = í bɛ̀ɛ̀
GP when first = SBO government came said
/áð/-INF = IPF.3sN /bɛ̀ɛ̀/INF
At first, the government came and said there is

16. gùrūūs-úgg = ú ṭā ṭù wá. Tāén mɔ̀rā = n líín
money-PL = DEF is there not then government = DEF arriving
(Ar) COP /lé/INCP
no money. Then the government (forces) arrived and became

17. àw-sā = r fááð = āŋ. ɟɛ̄n kùðùùl bɛ́l-ăn = ɛ́ ɟāḍɛ̀ɛ̀r ɛ̄ɛ̄n
sat Faath = body person Kulug is.named Jader 3sN
/àb/-COMP = PF /bɛ̋l/-CONT.N = IPF.3sN
established in Faath area. A Kulug (clan name) person called Jader was
going

18. ɛ́ Ṭâw. Wə́r = í gààm = ā ṭú, ɟɔ̄gg = ɔ́ ɛ̄ ḍūr-ḍù
GP Taw bring-he hill.name = DEF out people = DEF 3pN bury
/wár/INCP = IPF.3sN /ḍùr/-SBJV.3pN
to Taw. He (Jader) brought the people of the Gaam hill in order to hide

19. kɔ́lɔ́ḍ = ɔ́ ṭáḍ. Ɛ̄ bɛ̀ɛ̀ “kɔ́lɔ́ḍ = ɔ́ nɛ́ɛ́ = n ɛ̄ bɛ̀l-ḍā
egg = DEF down 3sN said egg = DEF this = DEF 3sN burst
/bɛ̀ɛ̀/INF /bɛ̀l/-COMP
an egg in the ground. He said, “If this egg doesn’t burst,

20. wá = í bà, ḍɛ̀ mɔ̀rāā lā ɟ̄ɪs ɟɛ̀ɛ̀m wá.”
not = SBO oh then government will do something not
/ɟ̀ɪs/INCP
then (it is a sign that) the government will not do anything.”

21. Ɔ̀ kɔ́lɔ́ḍ = ɔ́ ḍùr-s = ɔ̄nɔ́ ɛ̄ɛ̄l ṭáḍ-ɛ̄ bà bɛ̀l-ḍā wá.
and egg = DEF bury head.3sPs down-3sO oh burst not
/ḍùr/-COMP = PAS /bɛ̀l/-COMP
And the egg put in the ground with its top side down did not burst.

22. ɟɔ̄gg ɛ̄ bɛ̀ɛ̀ “Wɔ́í-ḍɔ̄ ḍɛ̀ kɔ̄r
people 3pN said go then word
/bɛ̀ɛ̀/INF /wā̀ɟ/-IMP.PL
The people said, “Let us go since

23. mān ná ɔ́n = í ɛ̄ɛ̄n ṭù wá.” ɟāḍɛ̀ɛ̀r = ā
certain which bad = RDM it.is there not Jader = DEF
nothing bad will happen (lit. the one thing which is bad is not there).” Jader

24. wár-sá kāŋ îinī = n ɛ̄ māḍā. Ɛ̄gg lɛ̄ɛ̄n-g
carried group 3sPs = DEF with big.size 3pN going
/wár/-COMP /lɛ́ɟ/-NOM.PL
led his very big group. They traveled and sang

25. ɛ̄gg bɔ̄fɔ̄ ɛ̄gg lɛ́ɛ̄ ṭàɔ̀. Líɟ-ɟ = ì wāā ḍàl = ɔ̄ = mɔ̄ɔ̄ = n
3pN sing 3pN going up went pond Dal = DEF = fire = DEF
/bɔf/NOM.SG /lɛ́ɟ/INCP /lɛ́ɟ/-COMP = IPF.3pN
as they went along. They had arrived at the entrance of the Dal water valley

26. mū-ín ɛ̄ rāg-g ṭù. Ɛ̄gg lɛ̄ɛ̄n = g ɛ̄gg lɛ̄ɛ̄n = g,
front-3sO 3sN stopped there 3pN going 3pN going
/rāg/-INF /lɛ́ɟ/ = NOM.PL /lɛ́ɟ/ = NOM.PL
and stopped there. They were going to . . . well,

27. ú=ɲíl gàr=ā súùgg îlg é gārá fɛ́ð-ăn=á ɟègg=ā
2pN= place= market in where placed things=
know DEF DEF
/ɲɛ́l/INCP /fɛ́ð/-CONT.P=PAS
do you know the place in the market in Faaz area where things

28. ṭ̈áḍ̈ fáað=āŋ ṭ̈āɛ́n à? Mɔ̄fátīshā ɛ̄ bèɛ̄
down Faaz=body then QM policeman(Ar) 3sN said
/bɛ̀/INCP
are sold (lit being placed down)? The soldier said,

29. "ɲɛ́ɛ́s-ān-á ɟɛ̄n ná lɛ̄ɛ̄n=g é gɔ̄lg=ɔ́ ṭ̈ì.
focus person which going GP others=DEF there
/ɲɛ́ɛ́s/-CONT.N-IMP /lɛ́ɟ/=NOM.PL
"Aim at the man who is leading the others;

29. Ār ú=bìl-ī ɟɔ̄gg kāɛ̄ wá, bèl ɟɛ̄n ṭ̈āmán."
Hey 2pN=hit people all not hit person one
/bèl/IMP=IPF.2pN /bèl/IMP
Don't kill all the people; just kill the one man."

30. ɟɛ̄n ɛ̄ bìl-l=ì ḍ̈-ɛ̄ kúnḍ̈,
person 3sN shot=him PP-3sP chest
/bèl/-INF=3sAM
A person shot him in his chest

31. mɔ̄ɔ̄=n ɛ̄ bāḍ̈-ḍ̈ gəəl=ɔ̄ lâŋ ṭ̈ú ɛ̄ ṭ̈īr-r.
fire=DEF 3sN penetrated shield=DEF until out 3sN die
/bāḍ̈/-INF /ṭ̈īr/-INF
through the shield (armor) so that he died.

17.4 (Jafr)

Third-person True Narrative: Jafariin Waɟa i Wiləŋ "Jafari Went on a Hunt"
Author: Safadin Hamid; Oct 2004; Recorded and transcribed by Safadin Hamid

1. Jāfârì=n è mɔ̄īḍ̈ kūūḍ̈=ī wāɟ-ɟà é wīləns.
Jafari=DEF with old.man clan.name=ACM went GP hunting.GEN
/wāɟ/-COMP
Jafari and an older man of the Kuud clan went on a hunt.

2.	ɟāfàrì = n	kūn-sú	cîl	ɛ́	wīlə̄n-g = ə̀.
	Jafari = DEF	blew	horn	GP	hunting.GEN-PL = DEF
		/kɔ́n/CAUS-COMP			/wīlə̀ŋ/

Jafari blew the hunting horn.

3.	Ɛ́	gārá	ɟɔ̄gg = ɔ́	fīŋə́-s = îggə̀	ɛ́	cîl = ī,
	GP	when	people = DEF	heard = them	GP	horn = SBO
				/fīŋə́n/-COMP = 3pA		

When the people heard them (blow) the horn,

4.	ɛ̄gg	dɔ̄ɔ̀s-s	ɛ̄gg	lāḏ-ággā	ṯú.
	3pN	started	3pN	went	out
		/ḏɔ̄ɔ̀s/-INF		/lā-ḏ/-D.COMP	

they ran out (to participate in the hunt).

5.	Būŋūr-g = ú	lə̄-ì	ṯú	ḏí.	Ɛ́ gārá		fīŋə́-s = îggǐ
	youth-PL = DEF	run	out	also	GP when		heard
		/lā-ḏ/INCP-3sAM					/fīŋə́n/-COMP = SBO1

The young people ran out. When they heard,

6.	ɟɔ̄gg	fàŋ	bíīgg	nà	būr	sɛ̀ggɛ̄rg = ɛ̀	lə̄ = ì	ṯú	ḏí.
	people	old	some	REL	remain	young = RDM	ran	out	also
					/būr/INCP		/lā-ḏ/INCP = 3sAM		

some older people who were still agile also ran out.

7.	ɟāfàrì = n	ɛ́	mánɛ̄	ɟɔ̄	ḏàɔ̀-sā	càɔ̀r-ɛ̄ɛ̄gg = á	yə̄ə̄sə́.
	Jafari = DEF	alone		just	killed	rabbits-PL = DEF	four
					/ḏàf/-COMP		

Jafari, by himself, killed four rabbits.

8.	Mɔ̄īḏ	kūūḏ = ū	ḏàɔ̀-sā	ɟɛ̀ɛ̀m	ḏɛ́ɛ́	wá.	Būŋúr
	old.man	person.name = DEF	kill	thing	any	not	youth
			/ḏàf/-COMP				

The old man Kuud didn't kill anything.

9.	mān	bɛ̄l	Fɛ́ɛ̄ṯfā,	ḏàɔ̄-sā	ṯày-ɛ̀ɛ̀gg	dáāgg.	Fɛ́ɛ̄ṯfā = n
	certain	call	Feetfa(Ar)	killed	giraffe-PL	two	Feetfa = DEF
		/bɛ̄l/INCP		/ḏàf/-COMP			

One youth called Feetfa killed two giraffes. Feetfa

10.	ɛ̄	bɛ̀ɛ̀	"Lí-ḏū	ā	gàɔ̀-ḏà	ɟɛ̀ɛ̀m	mɔ̄īḏ = ɔ̄n."
	3sN	said	let	SBJV	give	something	old.man = DAT
		/bɛ̀ɛ̀/INF	/líð/-IMP.PL		/gàf/-SBJV.1pN		

said, "Let's give something to the older man."

11. ɟāfàrì = n è Fɛ́ɛ̄ṭfā = nē ɛ̄gg ɟɔ̄gg è dáāgg = ɛ̄
Jafari = DEF with Feetfa = ACM 3sN people with two = ACM
Jafari and Feetfa, they and everyone,

12. ɛ̄gg bɛ̀ɛ̀ "Àɔ̀, àɔ̀!"
3sN said yes yes
/bɛ̀ɛ̀/INF
said, "Yes, indeed!"

17.5 (Jooj)

Personal Narrative: Jen Faa na bel Cooɟooeen "An old man called Joojo"
Author: Hashim Orta; Oct 2003; Recorded and transcribed by Hashim Orta
(Hashim tells the beginning of a conversation he had with a man named Joojo that he met in the home area. Although not a complete narrative, this portion is presented for its syntax constructions, some of which are not found in other texts.)

1. Á wāɟ-ɟā ɛ́ nāānḍá mān ḍūmùùn ɛ́ Ḍààl.
1sN went GP day certain towards GP (valley name)
/wāɟ/-COMP
One day I went to Dal Valley.

2. Ɛ́ gārá á lɛ̄ɟ-ɟ = ɛ̄ ɛ́ Ḍààl = ɛ̄, á gəms-ɔ́ggə ɟɛ̄n
GP when 1sN arrived GP Daal = SBO 1sN found man
/lɛ̄ɟ/-COMP = SBO1 /gəms/-D.COMP
When I arrived to Dal Valley, I found an old

3. fāā ná bɛ̄l-l Cɔ̀ɔ̀ɟɟɔ̀ɔ̀.-ɛ̀ɛ̀n, ɛ̄ àn-n gāì bàl.
old REL called Joojo-3sO 3sN stay tree.type beneath
/bɛ̄l/-INF /àn/-INF
man named Joojo, sitting under a Gai tree.

4. á ṭís-s = ĩn á bì = īn, "ɟɛ̄n fāā = n, ṭā īsí, bə = ì?"
1sN asked = him 1sN said man old = DEF COP how oh = 3sP
/ṭís/-INF = 3sD /bɛ̀ɛ̀/INF = 3sD
I asked him, "How are you old man (respectful greeting)?"

5. Ɛ̄ bɛ̀ɛ̀ "ɲíĩn ùùŋg ŋāl = ɛ̄ ūŋúūr-g, ūŋúūr-g?"
3sN said what bodies.2pPp smell Arab-PL Arab-PL
/bɛ̀/INF /ŋāl/INCP = PAS.A
He asked, "Why does your body smell like that of Arabs?"

6. Á bèè “Wá, āān ūŋúūr = ú wá.
1sN said no 1sN Arab = DEF not
/bèè/INF
I replied, “No, I am not an Arab.

7. Ɔ̀ ú = ɲɔ́m ɲíí bārè ā?”
and 2sN = want what now QM
/ɲám/INCP
What can I do for you?”

8. Āān á bì = īn ḍ̈í, “Ɔ̀ ɔ̄ɔ̄n ú = ɟ̀ìs-sə ɲíí ḍ̈í ṭ̈è ā?”
1sN 1sN said = 3sD also and 2sN 2sN = did what also here QM
/bèè/INF /ɟ̀ìs/-COMP
I myself also asked him, “And you, what are you doing here?”

9. Ɛ̄ bèè, “Á wīr-ɔn áfáḍ̈ mān ṭ́áḍ̈ ṭ̈è, é kɔ̄rá é
3sN said 1sN slaughter blood certain down here GP GP
/bèè/INF /wīr/-CONT.P because
1sN
He said, “I was making a sacrifice here because

10. mɔ́sí néé nɔ́r-r-ɔn ṭ̈è.
insect this drools here
/nár/-CAUS-CONT.N
this insect drools here.

11. Mīí = n á gàn ṭ́ú,
chicken = DEF 1sN throw out
/gàn/.INCP
The chicken I am throwing away,

12. mīī = n á gàf-àn ɟ̀ɔ̄gg fāŋ = ân ā nɔ́m-ḍ̈ = îggə̀.”
goat = DEF 1sN give people old = DAT SBJV eat-it
/gàf/-CONT.N /nām/-SBJV = IPF.3pN
(but) the goat I am giving to the old men to eat.”

17.6 (Thng)

Personal Narrative: Jen e Arsagga "Something that frightened us"
Author: Hashim Orta; Oct 2003; Recorded and transcribed by Hashim Orta

1. Gārá āgg àn ṭàà-gg ḍ-āggá máà-gg = é, ɔ̄ð-ɔ̄ɔ̄gg = ɔ́
   when 1pN live door-PL PP-1pO house-PL = SBO woman-PL = DEF
   /àn/INCP
   While we were living in our houses, women

2. ṭār-s àn[49]. Āgg dɔ̄ɔ̀s-s āgg wāɟ-ɟ wāā = lg fɛ́ɛ́ḍɔ́ɔ́l.
   called me 1pN start 1pN go water = in early.morning
   /ṭār/-COMP 1sA /ḍɔ̄ɔ̀s/-INF /wāɟ/-INF
   called me. In the early morning we set out for the water valley.

3. Ɛ́ gārá āgg lɛ́ɟ-ɟ = ā = é, ɟɛ̀ɛ̀m ɛ̄ âr-s āāggá.
   GP when 1pN arrived something 3sN frightened-us
   /lɛ́ɟ/-COMP = SBO1 = SBO /âr/-COMP 1pA
   When we arrived, something frightened us.

4. ɛ̄ cúḍ-ḍ ṭàɔ̀ gùlḍū = ūl. Mìnṭààðɛ́ɛ́
   3sN climbed up tree = up thereafter
   /cúḍ/-INF
   and climbed up a tree. After that,

5. āgg kɔ̄ɛ́ɟ-ɟ āgg ṭál-l dáāg āgg bìɟ-ɟ āgg gɔ̀l-g = ɔ̄
   1pN enter 1pN make two 1pN left 1pP friend-PL = DEF
   /kɔ̄ɛ́ɟ/-INF /ṭál/-INF /bìɟ/-INF
   two of us passed (it) and left our other

6. nà dáāgg ɛ̀ɛ̀n é ɲɔ̄ɔ̄gg.
   REL two 3sN GP behind
   two companions behind.

7. Nà āgg bìɟ-ɟə́ dáāgg é ɲɔ̄ɔ̄gg = í, ɟɛ̄n
   REL.PL 1pN left two GP behind = SBO person
   /bìɟ/-COMP
   Those we left behind, the bad thing

[49]The segement *n* in the first singular object pronoun *an* makes a distinction with *a* in the completive suffix of *tār-sà* which has no object pronoun.

8. ná ɔ́n = í ɛ̄ pə̀l-l-ì táḍ ḍ-îì-mùù-gg.
REL.SG bad = RDM 3sN fall down PP-3pO-front-PL
/pàl/-INF-3sAM
fell down in front of them.

9. Āgg ṭāð-án āgg Mà̀gsàà̀ḍ āgg ṭāð-án yəəsɔ́.
1pN were 1pN Magsad 1pN were four
COP-CONT.P COP-CONT.P
We were four in all, including Magsad.

10. Lə̂ŋ mà́ ɛ́ gārá ɟɛ̄n ə̂r-s = ìì̀gg = ǐ,
Then even GP when person frightened = them
/âr/-COMP = 3pA = SBO1
Then, even though the thing frightened us,

11. āgg kɔ̄ɛ́ɟ-ɟ màrɛ̀ɛ̀. Āgg bìɟ-ɟ = ì fà̀gg màrɛ̀ɛ̀.
1pN enter somehow 1pN left = it then somehow
/kɔ̄ɛ́ɟ/-INF /bìɟ/-INF = 3sAM
we were able to go past somehow. We left it somehow,

12. ɟāām kɔ́ə̀m = ī [50] wá.
someone dealt.with = it not
/káàm/CAUS = PAS.A.3sP
and no one was bothered.

13. Kɔ̄ɟɟ = ɔ́ bàg-s ān[51] mâŋ ḍ-áán wá.
fear = DEF grabbed me well PP-1sO not
/bàg/-COMP 1sA
I have never been as scared as on this occasion!

14. ɟɛ̀ɛ̀m âr-s ān ánɛ̄ɛ́n ɛ́ nāānḍ = á mân wá.
something frightened me like.this GP day = DEF certain not
/âr/-COMP-1sA
There has never been a day I was as frightened as this.

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[50] *ɟāām kɔ́ə̀m-ì* is a shortened version of *ɟāām kɔ́ə̀m-ì ḍ-ɛ́ɛ̄n* 'someone is bothered by it (CAUS=PAS.A PP-3sP) (Thng25)'; For comparison, *ɟɛ̄n káàm ɟāām* 'person bothers someone'; *ɟɛ̄n kɔ́ə̀m ɟāām* 'person bothers.CAUS someone'; *ɟāām kɔ́ə̀m = ī ɟɛ̂n* 'someone is bothered by the person (CAUS=PAS.A)'; *ɟāām kɔ́ə̀m-ɔ̄* 'someone is bothered (CAUS-PAS)'.

[51] Final *–n* is used here to make the pronoun obvious.

15. Nāānḏ=á náán ɟɔ̄ á ṭúr-s=ì , ɟɛ̀gg=ā
day=DEF that only 1sN saw=it things=DEF
/ṭúr/-COMP=3sAM
It was only that day in which I saw it that they were
so frightened of the thing

16. ə̂r-s=ìiggì ɔ́gg=ɛ́. É nāānḏ=á yāàn,
fightened=them place=SBO GP day=DEF other
/âr/-COMP=3pAM
in that place. On another day,

17. āgg wāɟ-ɟā wāā=lg fɛ́ɛ́ḏɔ́ɔ́l ɟɔ̄, āggá kāf-ân.
1pN went water-in early.morning only 1pN draw.water
/wāɟ/-COMP /kāf/-CONT.P
we also went to the water valley early in the morning and drew water.

18. É gārá āgg lɛ́ɟ-ɟ=ā=ɛ́ , ɟɛ̄n mân
GP when 1pN arrived person certain
/lɛ́ɟ/-COMP=SBO1=SBO
When we arrived, something

19. ná ɔ́n=í ɛ̄ dɔ̄ɔ̀s-s ɛ̄ ḏɔ̀ɟ-ɟ āāggá ɛ́ mīīḏógg.
REL.SG bad=RDM 3sN started 3sN stone us GP stones
/ḏɔ̄ɔ̀s/-INF /ḏɔ̀ɟ/-INF 1pA
bad began pelting us with stones.

20. É dɔ̀ɟ-ɟ āāggá ɛ́ mīīḏ-ɔ́g fɔ̄rɔ́ɟɟ wá bə̀=ī,
3sN stoned us GP stone-PL few not oh=SBO
/ḏɔ̀ɟ/-INF 1pA
When it pelted us with a lot of stones,

21. á gɔ̀l-g=ɔ̄ ɲâm-m ā gāl-ḏà, á bì=īggɔ̀n[52]
1sP friend-PL=DEF want SBJV run 1sN told=them
/ɲám/-INF /gàl/-SBJV.3pN /bɛ̀ɛ̀/INF=3pD
my companions wanted to run, (but) I told them

22. “Wá! Ūgg=gɔ̀l wá, ār ɟɛ̀gg=ā nà
no 2pN=run not if things=DEF REL.PL
/gàl/IMP
“No, don’t run if the things which frighten you don’t run, (otherwise)

[52] The long third plural dative pronoun is used.

23. âr-s = ɔ̀ɔ̀gg = ɛ̄ kár-á wá, ɲə̂m ūgg ŋə̀lg.”
frightened = you run not break 2pPp necks
/âr/-COMP = 2pA = SBO2 /kár/-INCP /ɲə̄m/INCP.3p
they will break your necks (If you do run, it will harm you).”

24. Āgg gàl-n̤à wá āgg sábbàr-sà ɟɔ̄ màrɛ̀ɛ̀. Āgg wāɟ-ɟ
1pN ran not 1pN patient(Ar) only somehow 1pN go
/gàl/-COMP /sábàr/-COMP /wāɟ/-INF
We did not run; somehow we were patient. We went and

25. āgg bìɟ-ɟ-ì, ɟāām kɔ́ə̀m-s = ī n̤-ɛ́ɛ̄n[53] wá.
1pN left-it someone bothered PP-3sO not
/bìɟ/-INF-3sAM /káàm/CAUS-COMP = PAS.A
left it there (and) no one was bothered by it.

17.7 (Assa)

Conversation: Koraag e yo Assamma “Discussion with Grandmother Assamma” Oct 2003; Recorded and transcribed by Hashim Orta

1. Hashim: T̤ā īsí? Ú = bə̄ = ì n̤ə̀ì ɔ ɔ́ lə̄ wə̄ī n̤ə̀ì ?
is how 2sN = appear when and 2sN UN go when
COP /bā-n̤/INCP = 3sAM /wāɟ/INCP
How are you? When did you arrive, and when will you go?

2. Assamma Mássɛ̄ɛ̄ ɟìs-ə̄n-ə̄ mâŋ wá,
(and following): sickness treating = me carefully not
ɟìs/-CONT.N = 1sD
The Massee sickness is not treating me well,

3. nām-án á sù, sù, sù. ɔ̀ ɔ́ yáā ɲāā nɛ́ɛ́
eating-me deep deep deep and 2sPs mother girl this
/nām/CONT.N 1sA
giving me a great amount of pain. Your mother’s sister (lit. your girl mother)

4. lɛ̀ɛ̀n-án n̤ūmùùn n̤-ūūŋ t̤à bɛ̀ɛ̄n ɲām gɔ̄ɔ̀.
was.coming towards PP-2sO there said want clothing
/lɛ́ɟ/-CONT.P /bɛ̀/INCP /ɲám/INCP
was coming to you there, saying she wanted clothing.

[53] The prepositional pronoun *n̤-ɛ́ɛ̄n* ‘by-it’ expresses the agent of the agented passive clause.

5. Kɔ́r-ằn kɔ̄r ná lūsú ɛ́ kɔ̄rá kɔ̄r ná
was.saying speech REL.SG hot GP because speech REL.SG
/kɔ́r/-CONT.P
(She) was saying harsh words instead of kind

6. cúú = í wá. Kɔ́r á kɔ̄r ná ə̀n = í.
sweet = RDM not speaks word REL.SG bad = RDM
/kɔ́r/INCP 1sA
words. She speaks to me rudely.

7. Bĕl gɔ̄ɔ̀-gg wá, ɟɛ̀gg bíĭgg
has cothing-PL not thing some
/bɛ̄l/INCP
(This is because) she doesn't have clothing—just some

8. nà ə́ŋ ṭā ɟùùn á mə̀ə̀r-ə̄n = în = ìn ɟɔ̄.
REL bad COP long.ago 1sN was.buy.for.her just
/māār/-CONT.P = 3sD = 3sAM
old clothes from long ago (that) I was buying for her.

9. Ɔ̀ ɟɛ̄n = á á kúr = ì ín = í,
and person = DEF 1sN tell = it 3sD = SBO
/kɔ́r/INCP = 3sAM
(Furthermore), the person (who travels with a message) to tell it (her needs) to

10. bə̄ = ì ḍùùl. Cāɛ̀ = n ɛ̄ kɔ́r
send = him difficult Jae = DEF 3sN say
/bà-ḍ/INCP = 3sAM /kɔ́r/INCP
is difficult to find. Jae (son of Assamma) said,

11. 'Á bàà ā wáɟ-ɟā. Á ɲām Háshīm = á
1sN grab SBJV go 1sN want Hashim = DEF
/bàg/INCP /wāɟ/-SBJV.1sN /ɲám/INCP
'I want to go. I want Hashim

12. ā ɟì̤d-ḍə̄ ɔ̀ ā wár-ḍ = ɛ́ ɔ̄nə̄ ráḍɛ̀.'
SBJV make and SBJV bring 1sD radio
/ɟìs/-SBJV.3sN /wár/-SBJV-IPF.3sN
to get me a radio.'

13. Á bì = îggə̀n 'Jə̀-ḍə̀ ùùŋg = ū ɔ̄gg kāɛ̄ ɟɔ̄.'
1sN tell = them finish 2pR = DEF 2pN all only
/bɛ̀ɛ̀/INF = 3pD /ɟə̀ḍ/-IMP.PL
I told them, '(Alright, all of you), you all just (go without me).'

14. Mássɛ̄ɛ̄ = n ɛ̄ ḍùs-ə̄n = í ɛ̄ nām á
sickness = DEF 3sN comes.out 3sN eats me
/ḍùs/-CONT.P = IPF.3SN /nām/-INCP 1sA
The Masseen sickness came, bringing me

15. sù, sù, ɟɔ̄.
deep deep only
a great deal of pain (lit. eats me).

17.8 (Minj)

Historical Expository: Jen Faa Miŋɟib o Baarg "Old Man Miŋjib and the Baggara"
Author: Tuguul Maktab; Oct 2003; Recorded and transcribed by Hashim Orta

1. Jɛ̄n fāā mān bɛ́l-ăn Mīŋɟìbb. ɔ̀ ɛ̄ mūn náá = n
man old certain named Minjib and with time that
/bɛ́l/-CONT.P
There was an old man named Minyjib. At that time

2. Bāárg = á ŋáɔ́-ā̀n ɲā-lg nà ə̄n-g = ì,
Baggara = DEF search.for girl-PL[54] REL young-PL = RDM
/ŋáw/-CONT.P
the Baggara (people group) were kidnapping young girls

3. ɛ̄ mɔ́r-ə̄n = îggə̀ ḍūmùùn ɛ́ Gɔ̄ɔ̄r.
3pN sold = them towards GP clan.name
/mār/CAUS-CONT.P = 3pA
to sell to them (non-Gaahmg people) far away past the Goor clan.

4. Bāárg = á áð-ā̀n àn-ân ɛ̀ ɟɔ̄gg Gɔ̄ɔ̄r = ɛ̂.
Baggara = DEF coming staying with people Goor = ACM
/áð/-CONT.P /àn/-CONT.P
The Baggara were coming with the people of Goor.

5. Bāárg = á áð-ā̀n fān ɛ́ Ṭāw = ā wá.
Baggara = DEF coming towards GP village.name = DEF not
/áð/-CONT.P
The Baggara were not coming to the people of Taw (Gaahmg village).

[54] The plural suffix *–lg* is irregular.

6. Jɔ̄gg Gɔ̄ɔ̄r = ɔ́ bà ə́s-s = ðggə̄n ɟɛ̀gg ə́n-g = ì.
people Goor = DEF oh became = for.us things bad-PL = RDM[55]
/áð/-COMP = 1pD
The Goor tribe became our enemies (lit. to us bad things).

7. Jɔ̄gg ɛ̄gg ə́ð = ǐ bà, ɛ̄gg wár-r ɟɛ̀gg = ā ḍ-âggá kāɛ̄.
people 3pN come oh 3pN take things = DEF PP-1pO all
/áð/INCP = SBO1 /wár/-INF
When these people come, they take all (our) things from us.

8. Bāárg = á ṭɛ̀ɛ̀ðá bɛ̄l-án = ɛ̀ɛ̀ggà mɔ̀sɔ̀r-ɛ̀ɛ̀g = ɛ̄ bà,
Baggara = DEF here having horse-PL = IPF.3pN oh
/bɛ̄l-CONT.P = IPF.3pN
The Baggara had horses;

9. ɟɛ̄n fāā ná bɛ̂l-l Mīŋɟìbb bɛ̄l-án mɔ̀sɔ̀r ɟɔ̄ ḍí.
person old REL named Minjib has horse only also
/bɛ̂l/-INF /bɛ̄l/-CONT.P
the old man called Minyjib also had a horse.

10. Mɔ̄sɔ̀r îinī bɛ̂l-l Ə̀súùr. Mɔ̄sɔ̀r îinī = n ɛ̄ fír-sə́
horse 3sPs named Asuur horse 3sPs = DEF 3sN smells
/bɛ̂l/-INF /fír/-COMP
His horse was called Asuur. When his horse smelled

11. gə̀lg ìiŋg = ə̄ ḍī = ní, ɛ̄ cîl-ḍ ɛ̄ kɔ́n-n wíl,
others bodies = DEF also = SBO 3sN whistles 3sN cries (sound)
/cîl/-CAUS.INF /kɔ́n/-INF
the presence of others, he whistled, cried (sound)

12. wíl ɛ̄ gə̀ɲ-ɲ ɔ́gg. Ānēnḍá ɟɛ̄n fāā ná
(sound) 3sN digs place therefore person old REL
/gàɲ/-INF
(sound), and pawed the ground (to alert others). So, that old man

13. bɛ̂l-l Mīŋɟìbb ṭāɛ́n ɛ̄ dɔ̄ɔ̀s-s ɛ̄ ə̀b-b = ì ḍ-ɛ́ɛ́l
named Minjib then 3sN starts 3sN rides = it PP-on.3sO
/bɛ̂l/-INF /dɔ̄ɔ̀s/-INF /àb/-INF = 3sAM
called Minyjib rode his horse proudly,

[55] The relative clause definite clitic attaches even without the relativizer *na* in some contexts.

14.	ɛ̄	máà	īīŋ	ɛ̄	àn-n	mɔ̄sɔ̀r	ɔ̄ɔ̄l
	3sN	prides	3sR	3sN	stay	horse	up
		/mân/INCP			/àn/-INF		

taking pride in himself as he sits up on the horse

15.	ɛ̄	párɛ́ = n	ɛ́	mə̄ɲìl = ə̀	d̪-ɛ́ɛ̀s.
	with	skin.bag = DEF	GP	devil.GEN = DEF	PP-hand.3sPs
				/mə̀ɲìl/	

with an animal-skin bag having demonic power in his hand.

17.9 (Tifa)

Persuasive Text: Tifa E Kassag (Tying of the youth)
Author unknown; 2004; Recorded and transcribed by Hashim Orta

1.	Kāssā-gg = á	ɛ̄	bū̃r	ɛ̄	t̪īū-s-ə̄n = îiggə̀[56]	wá = ɛ́ɛ́n = ɛ́,
	boy-PL = DEF	3pN	remain	3pN	were.tied = they	not = RDM = SBO,
			/búr/		/t̪īf/-COMP = PAS = 3pA	

When boys remain not tied up (with Gaahmg rules),

2.	ɔ̄r	kɔ̄r-ɛ̄ɛ̄gg = á	ɔ́gg	ə̀ə̀gg	t̪ìfīīɟɟ	t̪ìfīīɟɟ.
	mix.up	word-PL = DEF	place	mouth.1pP	quickly	quickly
	/ɔ̄r/INCP					

they very quickly get mixed-up
(lit. they mix up the words in the place of mouths).

3.	T̪īf-ə̄n	ɛ́	Gə̄ə̄m-g = ə̀	ə̄ù-d̪-ə̄n	būŋūr-g = ə́	t̪ád̪
	tying	GP	Gaam.GEN-PL = DEF	make.sit	youth-PL = DEF	down
	/t̪īf/-CONT.N.NOM.SG		/gə̀ə̀m-g/	/àb/-CAUS-CONT.N		

The tying of the Gaahmg youth enables them to sit down

4.	ɛ́	mɛ̄ɛ̄d̪	ɛ́	būŋùr-g	ānēnd̪á	bà!
	GP	rope	GP	youth.GEN-PL	like.this	oh
				/būŋūr-g/		

in the rope of youth[57] like this!

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[56] A third plural object pronoun is used here for the semantic role of patient in the passive contruction. Compare *ɟɔ̄gg t̪īū-sə̀ kāssāggá* ‘people tied the boys’; *kāssāggá t̪īū-s-ə̄nə́* ‘the boys were tied’; *t̪īū-s-ə̄n-îiggə̀* ‘they were tied’.
[57] The figurative meaning is ‘The youth become respected members of the community by obeying the Gaahmg rules.’

5. Á bɛ̀ɛ̀ t̪īf-ə̄n wɛ̄d̪án, ə́n wá. Kāssā-g = á
1sN say tying beautiful bad not boy-PL = DEF
/bɛ̀ɛ̀/INF /t̪īf/-CONT.N.NOM.SG
I say, (youth) tying is beneficial and not detrimental. Let boys

6. bìì t̪íú-d̪ = ə̄n = îggə̀ ɛ́ kɔ̄rá lā ə̄w = ììggì
let be.tied = them GP because UNC make.sit = them
/bìɟ/IMP /t̪īf/-SBJV = PAS = 3pA /àb/CAUS.INCP = 3pAM
be tied because it will help them sit down

7. ɛ́ t̪ɛ̄ɛ̄d̪ t̪āmán ɔ̀ mɛ̄ɛ̄d̪ ɛ́ bùŋùr-g = ìì = n.
GP road one and rope GP youth.GEN-PL = SBO = DEF
/būŋūr/
in one rope of youthful unity.

8. ɟɔ̄gg = ɔ́ nà t̪īū-s = ə̄n = î[58] t̪âl ɛ́ fáá-gg ɛ́ fáá-gg.
people = DEF REL have.been.tied create GP line-PL GP line-PL
/t̪īf/-COMP = PAS = RDM /t̪ál/INCP.3pN
Those who have been tied, sit in rows of lines.

9. Āw-ān ɛ́ bùggɔ̄ŋ. ɟɛ̄n ná bɛ̄l-l ɔ́gg íīn = íín = í
sitting GP group.PL person REL.SG has place 3sO = RDM = SBO
/àb/-CONT.N.3p /bɛ̄l/-INF
They usually sit in groups. When a person has a place (in society),

10. ɲíl = ì ɔ̀ ná bīl-l = ì wá = ɛ́ɛ́ = nɛ́ ɲíl = ì ɟɔ̄ d̪í.
knows = it and REL.SG has = it not = RDM = SBO knows = it only also
/ɲɛ́l/INCP = 3sAM /bɛ̄l/-INF = 3sAM /ɲɛ́l/INCP = 3sAM
he knows it, and when he doesn't have a place, he knows that as well.

11. Kə́sə́n-gí[59] ná àɔ̀ ná ɛ́ fáá-gg ɛ́ fáá-gg = ɛ́
friend-N.SG REL sits REL GP line-PL GP line-PL = RDM
/kásán, kásánáāg/ 'friend' /àb/INCP
The friendship of sitting in lines is full of

[58] Word-final HL tone on *t̪īū-s = ə̄n = î* is from the passive clitic = *ə̄nə́* final vowel elision and High tone reassignment to the relative clause definite clitic (*ə̄nə́ = ì* 'PAS=RDM' becomes *ə̄n = î*).
[59] *Kə́sə́n-g-í* 'friendship' is a derived singular noun.

12. ṭá ṯīns, ɔ ɲél ànḍās = á ná wáɛ̄ḏ = ɛ́.
is teaching and knows living = DEF REL beauty = RDM
COP /ɲél/INCP.3s
good teaching and results in a wonderful life.

13. Bìì kāsā-gg ṭíú-ḏ = ən = îggə̀ lə̂ŋ páḍ,
let boy-PL to.be.tied = they until always
/bìɟ/IMP /ṯīf/-SBJV = PAS = 3pA
(So), let boys forever and always be tied

14. ɔ á ɲā̂m ā ṭâl kɔ̄r ɛ́ mūn ṭɛ̀ ɟɔ̄.
and 1sN want SBJV create speech GP time here only
/ɲám/INCP /ṭál/SBJV.1sN /kɔ̄r/NOM.SG
and I will stop talking here.

17.10 (Womn)

Persuasive Text: "Women"
Author unknown; 2003; Transcribed from cassette recording by Annaim Karaka

1. ɔ̄ð-ɔ̄ɔ̄gg = ɔ́ nà bɛ̄l-l ɟīð-ə̀gg = ì bà
woman-PL = DEF REL have husband-PL = DEF oh
/bɛ̄l/-INF
Those women who have husbands,

2. ɔ wāɛ̄ ɟāām = ɛ́ máà-gg īīlg = ì bà!
and go wrongly = SBO house-PL in = 3sP oh
/wāɟ/INCP
and do bad things in their houses,

3. Bìì fīŋɔ́ḏ-ḏɔ̄ kɔ̄r ɔ́ə̀n níí mā̀ mâŋ.
let hear word 1sPs this very carefully
/bìɟ/IMP /fīŋɔ́n/-IMP.PL
please hear what I have to say!

4. Ār á bɛ̄l kɔ̄r mā̂n ɛ́ ḏ-ê̂ggɛ̀.
hey 1sN have word certain GP PP-3pO
/bɛ̄l/INCP
I have something important to say to them.

5. ɟɔ̄gg ɲā-lg = é nà ū = bīl,
people young.one-PL = RDM REL 2sN = have
/bēl/INCP
The young people you have,

6. Ṭél gəū-s = ì ūggúūn gāfà ɛ̄ ɟɔ̄ màrèè.
God gave = them 2pD given with only somehow
/gàf/-COMP = 3sAM /gàf/NOM.SG
God has given them to you for good reason.

7. Tà ā ɟìḍ-ḍ = ənə́ ɟāām ɟāām wá.
be SBJV be.done wrong wrong not
COP.3pN /ɟìs/-SBJV.3pN = PAS
They are not to be abused.

8. ɟīnná ɟɔ̄gg fūūì-gg = ə wəīn = îggə tú wər = îggə
that people male-PL = DEF go out marry
/wāɟ/-INCP = IPF.3pN /wár/INCP = IPF.3pN
Why do men go out to marry

9. ɔ́ɔ́gg = é ɲíīnə̄? ɟīnná wəīn = îggə tú = í é kɔ̄rá
women = SBO what that going out = SBO GP because
/wāɟ/-INCP = IPF.3pN
a second wife? They remarry because

10. ɔ̄ðɔ̄ɔ̄gg = ɔ́ nà ə́ŋ tɛ̀ ɟīs-ən = īiggə bɛ̀ɛ̀nāḍ = één.
women = DEF REL bad here making = them wrongdoing = SBO
/ɟìs/-CONT.N = 3pA
bad women (their first wives) make them do wrong.

11. Ānɛ̄nḍá, bìì bìì-ḍə̀ bɛ̀ɛ̀nāḍ = á àwḍàmàlɔ̄ ḍɛ̀
In.this.way let say wrongdoing = DEF please since
/bìɟ/IMP /bɛ̀/-IMP.PL
So let us please stop the wrongdoing since

12. bɛ̀ɛ̀nāḍ = á Ṭél ná ṭál-ḍ áāgg = é ɲə́m = ì wá.
wrongdoing = DEF God REL created us want = it not
/ṭál/-COMP 1pA = RDM /ɲám/INCP = 3sAM
God who created us doesn't want us to do wrong.

13.

Nà	ān	tə̄-yə̀gg = ì	T̪ɛ́l	gə̀f = îggə̀n	ɟɛ̀gg
those.which	stay	doors-theirs	God	gives = them	things
	/àn/INCP	/t̪ààð-g/	/īyə̀gīīn = ì/	/gàf/INCP = 3pD	
		door-PL	3pPp = RDM		

To those who stay in their homes, God gives them things and situations

14.

ɔ̀	kɔ̄r-ɛ̄ɛ̄gg = á	nà	wɪ́ə̀gg.	ɟɛ̄n	fūūìn	ɛ̄
and	word-PL = DEF	REL	good	person	male.SG	3sN

which are good. When a husband

15.

wāɟ-ɟá	t̪ú	gàr	ɛ́	kāðāàm = ɛ̄,	ɲâm[60]	ā
went	out	place	GP	work.GEN = SBO	wants	SBJV
/wāɟ/-COMP				/kàðáàm/	/ɲám/INCP	

goes out to work, he tries hard to

16.

gə̄m-d̪ = í	ɟɛ̀ɛ̀m	ɛ́	nâms	ɛ̄	nə̂m-d̪ = ì	ɲālg	ínìggīīn.
find	some-thing	GP	food.GEN	3sN	eat = it	children	3sPp
/gə̆ms/SBJV = IPF.3sN			/nāms/		/nām/-SBJV = 3sAM		

provide an income for his family (lit. in want to find some food in order for his children to eat.).

17.

Ānēnd̪á	T̪ɛ́l	ɛ̄	kúnd̪ = ú	ɛ̄	ád̪	ɛ̄	wáɛ̄d̪á,
then	God	3sPs	heart = DEF	3sN	becomes	with	joy
					/áð/SBJV		

Therefore (if wives are faithful) God will be pleased (lit. God's heart becomes with joy),

18.

ɔ̀	ɛ̄	t̪ə́bb = u	ɟɛ̀g	ɛ́	t̪âlg.
and	3sN	adds = you	things	GP	many.GEN
		/t̪ab/SBJV = 2sD			/t̪ālg/

and he will give to you (wives) many blessings.

19.

ɟɔ̄gg	nà	àn-n	ɛ́	kɔ̄r	înī	wə́ = ììn,
people	REL	live	GP	word	3sPs	not = RDM
		/àn/-INF				

Those people who do not obey his word,

20.

ànd̪ās	īyə̀nī	ə́n	ɟɔ̄	d̪í.
cohabitation	3pPs	bad	only	also

live unhappy lives.

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[60] Irregular 3sN tone; INCP 3sN verbs with underlying High tone would normally have High tone.

21. Ɔ̄ðɔ̄ɔ̄gg, ə̤d̤-d̤ə́ é kɔ̄r d̤-ɔ̄ggɔ́ ɟīð-ə̀gg = ə̄
women live GP word PP-2pPp husband-PL = DEF
/àn/-IMP.PL
Women, if you live only by your husbands'

22. é kɔ̄r é T̤èl é mā̂n = é,
GP word GP God.GEN GP certain = SBO
/Tél/
orders and by God's commands,

23. ū = gə̂r-d̤ə́ ū ə̤d̤-d̤ə́ mā̂ mâŋ.
2sN = be.able 2sN live very well
/gâr/-IMP.PL /àn/-IMP.PL
you will be able to live very well.

24. Ānɛ̄nd̤á bà bìì ɔ̄ð-ɔ̄ɔ̄gg = ɔ́ á̤d̤-d̤à wìnd̤-ə̀g,
then oh let woman-PL = DEF become ear-PL
/bìɟ/IMP /áð/-SBJV.3pN
So, let women hear these words (lit. women become ears)

25. bìì fīŋə́-d̤ə̄ kɔ̄r = é mâŋ.
let hear word = RDM well
/bìɟ/IMP /fīŋə́n/-SBJV.3pN
Let them hear these words well!

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Samenvatting

The following is a summary of the thesis in Dutch. See section 1.4 for an overview in English.

Gaahmg (Gaam, [tbi]) is een Nilo-Saharaanse taal behorende tot de Eastern Sudanic subgroep. Het wordt gesproken door ongeveer 67.000 mensen in de Ingessana Heuvels in de provincie Blauwe Nijl in Noord-Soedan. Ondanks dat het Gaahmg aanzienlijk meer sprekers heeft dan andere talen in het gebied is er slechts weinig onderzoek naar gedaan.

Gaahmg heeft een rijke vormleer, vooral wat betreft de zelfstandige naamwoorden, de bijvoeglijke naamwoorden en de werkwoorden. Om tot een correcte analyse van de morfemen en hun alternanties te komen wordt eerst de fonologische basis gelegd en worden later de syntactische omgevingen beschreven.

Na het inleidende hoofdstuk 1 worden in hoofdstuk 2 de distributie en de contrastiviteit van fonemen behandeld, evenals fonologische regels, syllabestructuur en toon in wortels. Medeklinkers worden vaak verzwakt aan het einde van een woord en tussen twee klinkers; dit gebeurt zowel binnen de wortel als over morfeemgrenzen heen. [ATR]-harmonie en toon spelen een belangrijke rol in de uitdrukking van lexicale en grammaticale verschillen. Daarom is de fonologische analyse van deze kenmerken van groot belang als basis voor de morfologische analyse.

In hoofdstuk 3 worden de segmentele en tonale morfofonologische regels uiteengezet. Met behulp van deze regels kan het grootste deel van de veranderingen die plaatsvinden als morfemen worden gecombineerd worden verklaard. Hoofdstuk 4 laat zien dat clitica, die andere alternanties en functies hebben dan suffixen, aan meer dan één woordsoort kunnen worden gehecht. Paragraaf 4.2 bevat een discussie van vier criteria waarmee suffixen en clitica van elkaar kunnen worden onderscheiden, onder andere dat suffixen aan de onderliggende vorm van de wortel worden gehecht, terwijl clitica de oppervlaktevorm als basis nemen. In 4.3 wordt aangetoond dat bijvoeglijke naamwoorden een andere woordsoort vormen dan zelfstandige naamwoorden en werkwoorden. Zij treden niet op in een aantal typisch nominale of verbale constructies, en waar ze hun context delen met substantieven of verba zijn er verschillen in de morfologie.

De hoofdstukken 5 tot 13 behandelen de verschillende woordsoorten. Het centrale deel van dit proefschrift betreft de vormleer van zelfstandige naamwoorden (hoofdstuk 6-7), van bijvoeglijke naamwoorden (hoofdstuk 8) en van werkwoorden (hoofdstuk 9-10). De kleinere woordsoorten: voornaamwoorden (hoofdstuk 5), voorzetsels (hoofdstuk 11), lichaamsdeelgerelateerde locatieven (hoofdstuk 12) en bijwoorden hebben weinig tot geen morfologie.

In hoofdstuk 6 zien we dat zelfstandige naamwoorden enkelvouds- en meervoudssuffixen kunnen hebben. Het grootste deel van de enkelvoudige zelfstandige naamwoorden krijgt geen suffix, terwijl een suffix verplicht is als er naar een meervoud wordt gerefereerd. Er zijn verschillende meervoudssuffixen, ieder met meerdere tonale allomorfen. De meesten bevatten het element *gg*. Er lijkt over het algemeen geen samenhang te bestaan tussen de semantiek van het zelfstandige naamwoord en de keuze van het suffix; in sommige gevallen is er wel sprake van een fonologische conditionering.

Hoofdstuk 7 laat zien dat één of meer clitica aan de stam van het zelfstandige naamwoord kunnen worden gehecht. Er zijn zeven sets clitica: copulacliticum, bepaaldheidscliticum, locatief copulacliticum, datiefcliticum, comitatiefcliticum, onderschikkingscliticum en relatiefcliticum. De clitica hebben ieder hun eigen segmentele en/of tonale allomorfen al naar gelang de vorm van het laatste segment van de stam. In hoofdstuk 8 wordt aangetoond dat bijvoeglijke naamwoorden in hun stam- en woordmorfologie op zelfstandige naamwoorden lijken. Het meervoudssuffix bij adjectieven is *-gg*. Dezelfde zeven clitica die met zelfstandige naamwoorden kunnen worden gebruikt treden ook op bij bijvoeglijke naamwoorden.

In hoofdstuk 9 komt de werkwoordelijke stam aan bod, die bestaat uit een wortel en kan worden uitgebreid met morfemen die antipassief, causatief en modaal-aspectuele categorieën uitdrukken. Aspect kan segmenteel in het verbale woord worden uitgedrukt door middel van completieve en continuatieve suffixen. Tijd wordt door de toon op de werkwoordsstam gemarkeerd – hoge toon voor het niet-verleden continuatieve suffix en midden-hoge stijgende toon voor het verleden continuatieve suffix. De infinitief, de subjunctief en de imperatief hebben ook hun eigen suffixen die aan de wortel worden gehecht. Finiete werkwoorden worden vervoegd naar de persoon van het onderwerp door middel van een toon op de laatste lettergreep van de stam: hoge toon voor 3^{e} persoon enkelvoud, lage toon voor 3^{e} persoon meervoud en middentoon voor 1^{e} en 2^{e} persoon. Hoofdstuk 10 bespreekt de clitica die aan het verbale woord worden gehecht: agentieve passief, passief, gebonden voornaamwoorden van lijdend en meewerkend voorwerp, imperfectum, perfectum, onderschikkend, en markeerders van een definiete relatieve zin.

In hoofdstuk 14 wordt de zinsbouw besproken, met als doel de functies van de morfemen te verduidelijken. Het deel over werkwoordelijk valentie behandelt de agentieve passief, de passief, de antipassief en de causatief. Bij de niet-werkwoordelijke zin worden twee groepen copula's besproken. Bovendien worden onder meer betrekkelijke bijzinnen, possessieve constructies en congruentie in nominale constituenten behandeld. In hoofdstuk 15 komen dan nevenschikkende en onderschikkende voegwoorden aan bod, evenals vraagzinnen en focus op het subject of het object. Na een aantal slotoverwegingen in hoofdstuk 16 biedt hoofdstuk 17 tien (orale) teksten behorende tot verschillende tekstgenres.

Curriculum vitae

Timothy Mark Stirtz was born in 1971 in Abilene, Kansas of the United States. He received a B.S. in Secondary Mathematics Education from Kansas State University in 1995 and a M.S. in Applied Linguistics from the Graduate Institute of Applied Linguistics in Dallas, TX in 2001. He taught secondary mathematics at Quisqueya Christian School in Port-au-Prince, Haiti 1995-1997, where he met is wife, Toni Kidachi, and they were married in 1996. He studied Arabic 1997-1999 in Amman, Jordan, joined SIL International in 1999, and studied field linguistics 1999-2001 in Dallas, Texas. In 2007, he gained admission to the Leiden University Centre of Linguistics to undertake doctoral research in Gaahmg, and concentrated on this research from April 2007-September 2011. He and his wife with two children, Jonathan and Joshua, have lived in East Africa since 2001.