



Universiteit
Leiden
The Netherlands

A grammar of Gaahmg, a Nilo-Saharan language of Sudan

Stirtz, T.M.

Citation

Stirtz, T. M. (2012, February 7). *A grammar of Gaahmg, a Nilo-Saharan language of Sudan*. LOT dissertation series. LOT, Utrecht. Retrieved from <https://hdl.handle.net/1887/18452>

Version: Not Applicable (or Unknown)

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/18452>

Note: To cite this publication please use the final published version (if applicable).

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 *ʈɔ-gg* ‘cow-PL’, whereas the accompaniment clitic attaches to the surface long vowel of the singular form (*ʈɔɔ = nē*).

(2) **Roots and stems compared**

Underlying	Surface	Noun stem	Noun word	
root	root	suffix	clitic	
UR	N.SG	N-PL	N.SG=ACC	
/ʈɔ/	ʈɔɔ	ʈɔ-gg	ʈɔɔ = nē	‘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 *mɔggɔlèè* ‘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 *ʃlɔbb-əgg* ‘water.spring-PL’ in (b) begins with the tone assigned to the root in the singular

form *jílàbb* 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 **jílàbb-àgg* instead of *jílàbb-àgg*.

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

	N.SG	N-PL	N.PL=COP	
(a) HL root tone	móggólèè			‘maize’
(b) HL stem tone	jílàbb	jílàbb-àgg		‘water spring’
(c) HL word tone	íl	íl-àgg	íl-àgg=à	‘horn’

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

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	mōréé-ǵ	mōréé-gg	‘vegetable type’	5%
-/PL suffix	rīmóó	rīmóó-gg	‘star’	70%
Noun SG only	būil	---	‘moisture’	15%
Noun PL only	---	īigg	‘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 language²⁴ have singular suffixes. Although there are five attested singular suffixes, only -ǵ is not rare. All singular suffixes attach to root-final sonorants, and the suffix -ǵ 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
-ḍ	vowel	rúḡùú-ḍ	rúḡùú-gg	‘bird type’	36
	sonorant	bàr-ḍ	bàr-ḍḍgg	‘lion’	6
-gg	sonorant	àḥr-g	àḥr-ēēgg	‘priest, chief’	7
-Aḍ	sonorant	ḡíl-ḍḍ	ḡíl-g	‘intestine’	3
-AAḍ	sonorant	cāl-āāḍ	cāl-g	‘testicle’	1
-Eḍ	sonorant	ḡín-íḍ	ḡín-g	‘louse’	1

The most common singular suffix is *-ḍ*, 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 *-ḍ* attached to root-final long and short vowels**

UR-final	suffixes	N SG	N PL	
/aa/	-ḍ/-gg	wéráá-ḍ	wéráá-gg	‘tribe member’
/a/	-ḍ/-gg	bāsà-ḍ	bāsà-gg	‘large intestine’
/ə/	-ḍ/-gg	əḡḡḡ-ḍ	əḡḡḡ-gg	‘insect type’
/εε/	-ḍ/-gg	mḥréé-ḍ	mḥréé-gg	‘vegetable type’
/ε/	-ḍ/-gg	bórē-ḍ	bórē-gg	‘eye matter’
/ii/	-ḍ/-gg	mḥmíí-ḍ	mḥmíí-gg	‘root type’
/i/	-ḍ/-AAḍ	mḥí-ḍ	mḥy-ḥḥḍ	‘ancestor’
/ɔɔ/	-ḍ/- ⁺ gg	gḥḥ-ḍ	gḥḥ-gg	‘excrement’
/uu/	-ḍ/-gg	rúḡùú-ḍ	rúḡùú-gg	‘bird type’
/u/	-ḍ/-gg	gḥrmù-ḍ	gḥrmù-gg	‘insect type’

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

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

UR-final	suffixes	N SG	N PL	
/n/	-ḍ/-gg	nḥn-ḍ	nḥn-g	‘demon’
/r/	-ḍ/-EEgg	mḥggḥr-ḍ	mḥggḥr-ēēgg	‘cane’
/r/	-ḍ/-EEgg	bāār-ḍ	bāār-ēēgg	‘abdomen, waist’
/r/	-ḍ/-EEgg	gḥūr-ḍ	gḥūr-īīgg	‘stomach pouch’
/r/	-ḍ/-AAgg	bḥr-ḍ	bḥr-ḥḥgg	‘lion’
/r/	-ḍ/-AAgg	kḥr-ḍ	kḥr-ḥḥgg	‘bird type’

The singular noun suffix *-gg* is attached to the inherently possessed body part noun *āā-gg* ‘my mouth’, *ḥḥ-gg* ‘your mouth’, *ēē-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	àðr-g	àðr-ēēgg	‘priest, chief’
/n/	-gg/-EEgg	ún-g	ún-ígg	‘tear’
/ð/	-gg/-AAgg	gəðð-g [gəðg _o]	gəðð-əəgg	‘thief’
/l/	-gg/- ⁺ gg	ŋāl-g	ŋəl-g	‘neck’
/l/	-gg/- ⁺ gg	éél-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 *-gg*.

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

UR-final	Suffixes	N SG	N PL	
/ɲ/	-gg/-AAgg	bɛɲ-ɟ	bɛɲ-āāgg	‘side of something’
/y/	-gg/-Agg	māāy-ɟ	māāy-g	‘cucumber’

A handful of nouns have the singular suffixes *-Aɟ*, *-AAɟ* or *-Eɟ*, where *A* is a back vowel taking the [round] feature of the root {M4}, *A* 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 *-Aɟ*, *-AAɟ* and *-Eɟ* attached to root-final sonorants**

UR-final	Suffixes	N SG	N PL	
/l/	-Aɟ/-gg	ɲíl-ɟ	ɲìl-g	‘intestine’
/l/	-Aɟ/-gg	kól-ɟ	kól-g	‘egg’
/ŋ/	-Aɟ/-gg	túŋ-ɟ	túŋ-g	‘tribe member’
/l/	-AAɟ/-gg	cāl-āāɟ	càl-g	‘testicle’
/ŋ/	-Eɟ/-gg	ɟíŋ-íɟ	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 underlyingly 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	fṣēḍá	fṣēḍá-gg	‘seed’	
-Agg	obstruent	célḍ	célḍ-āgg	‘local broom’	17%
-EEgg	sonorant	póón	póón-ēegg	‘knife sheath’	17%
-AAgg	sonorant	bón	bón-āagg	‘heart’	9
-AAgg	sonorant	kōr-ḍ	kōr-ōgg	‘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* (*tḕr/tḕr-g*, *tḕr-ēegg* ‘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/	jḗm	jḗm-g	‘sorghum sieve’
/n/	gṓn	gṓn-g	‘metal worker’
/p/	wḗlɛ̃n	wḗlɛ̃n-g	‘sour/bitter taste’
/ŋ/	sāmán	sāmán-g	‘sorghum storehouse’
/r/	ḍáár	ḍáār-g	‘throne’
/l/	sḗwéél	sḗwéél-g	‘tree type’
/ð/	mḗēð	mḗēð-g [mḗēg,]	‘tree type’
/w/	káð	kāw-g	‘hyena’
/y/	ááé	ááy-g	‘honey’
/y/	nū̀ùì	nū̀ùì-g	‘leopard’

Nouns with root-final approximants *w* or *y* surface with a root-final vowel in the singular form (*káð* ‘hyena’, *nū̀ùì* ‘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 (*kāw-g* ‘hyena-PL’, *nū̀ùì-g* ‘leopard-PL’) or vowels (*káð-g*, *nū̀ùì-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 -*gg*, -*gg* on root-final vowels**

UR-final	N SG	N PL	
/aa/	wāā	wāā-gg	‘water, lake’
/əə/	wāḗ	wāḗ-gg	‘shade, help’
/oo/	póó	póó-gg	‘tree type’
/uu/	bùù	bùù-gg	‘chicken coop roof’
/εε/	rēē	rēē-gg	‘cotton, thread’
/ii/	mīí	mīí-gg	‘chicken’
/uə/	būḗ	būḗ-gg	‘tree type’
/a/	fōyḗ	fōyḗ-gg	‘planting seed’
/ə/	cííḗ	cííḗ-gg	‘Tabaldi leaf’
/ɔ/	mḗḗ	mḗḗ-gg	‘locust’
/u/	kúúḗ	kúúḗ-gg	‘ground sesame’
/aa/	wááyáá	wááyáá-gg	‘bird type’
/əə/	rīmáḗ	rīmáḗ-gg	‘star’
/εε/	káálḗḗ	káálḗḗ-gg	‘brother-in-law’
/ii/	kūsūmīí	kūsūmīí-gg	‘knee’
/oo/	páḗḗ	páḗḗ-gg	‘star’
/uu/	ḗyúú	ḗyúú-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 *s* 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)	/ṭó/	ṭóó	ṭó-gg	‘cow’
(c)	/gḗ/	gḗḗ	gḗ-gg	‘clothing type’
(d)	/wés/	wéé	wís-ḗgg	‘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/	ʃílàbb	ʃílàbb-àgg	‘water spring’
/ḍ/	mīḍ	mīḍ-ógg	‘stone’
/d/	dɔd	dɔd-ɔgg	‘bird type’
/ʃ/	síʃ	síʃ-ɔgg	‘tree type’
/s/	tēndás	tēndás-āgg	‘bird type’
/nd/	órónḍ	órónḍ-ɔgg	‘fermented milk’
/ŋḍ/	lèḅḍ	lèḅḍ-àgg	‘tree type’
/ld/	cúlḍ	cúlḍ-ūgg	‘birth sack’
/rd/	ṭírḍ	ṭírḍ-əgg	‘farm’
/ɲ/	bəɲ	bəɲ-əgg	‘sorghum pulp’
/l/	íl	íl-əgg	‘beeswax’
/ms/	nāms	nāms-āgg	‘food’
/rs/	bāgdàrs	bāgdàrs-àgg	‘lizard’

The suffix also attaches to two words with root-final approximant *ɔ*: *kūūɔ/kūūɔ-əgg* ‘shadow’ and *ēēɔ/ēēɔ-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	
ḍàḍ	ḍàḍ-əgg	‘scorpion’
káēḍ	káēḍ-āgg	‘cup, spoon’
lāāḍ	lāāḍ-āgg	‘gum mastic’
lúlíḍ	lúlíḍ-əgg	‘snake type’
māāḍ	māāḍ-āgg	‘snake type’
rúíḍ	rúíḍ-əgg	‘dirt’
ēēḍ	īḍ-ógg	‘his eye/his eyes’
yāāḍ	yāāḍ-āgg	‘broken plate’
mīḍ	mīḍ-ógg	‘stone’

However, in the eleven plural nouns of (15) with root-final *ḍ*, the segment *ḍ* is either weakened to the approximant *ɔ* 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 weakened to *ɔ*. 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 weakened to *ɔ* and one where it is elided.

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

	N SG	N PL with <i>ɖ</i>	N PL with <i>ð</i>	N PL with elision	
(a)	ɖāðɖ	ɖāðɖ-əgg	ɖāðð-əgg		‘fertile soil’
(b)	fiiɖ		fiið-əgg		‘feather’
(c)	lɔggɔɔɖ		lɔggɔɔð-əgg		‘locust’
(d)	əbbāɖ	əbbāɖ-əgg		əbbā-əgg	‘tree type’
(e)	áfáɖ		áfáð-əgg	áfá-əgg	‘blood’
(f)	ɔɖ		ɔð-əgg	ɔ-əgg	‘wife’
(g)	jiɖ		jið-əgg	ji-əgg	‘husband’
(h)	áfáɖ		áfáð-əgg	áfá-əgg	‘blood’
(i)	rēbbéɖ		rēbbéð-əgg	rēbbé-əgg	‘reed type’
(j)	lúɖ			lú-əgg	‘leg’
(k)	kólíɖ			kólí-əgg	‘bird type’

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

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

	N SG	N PL	
	síɲɲ	síɲɲ-əgg	‘tree type’
	ɬálɲèɲ	ɬálɲèɲ-əgg	‘tree type’
	sūrmùɲ	sūrmùɲ-əgg	‘tree type’
	pēbbēɲ	pēbbēɲ-əgg	‘tree type’

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

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

	N SG	N PL with <i>ɲ</i>	N PL with elision	
(a)	bìmiríɲ	bìmiríɲ-əgg	bìmirí-əgg	‘bird type’
(b)	búlíɲ		búlí-əgg	‘worm’
(c)	gàfāɲ		gàfē-əgg 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) *jiɖ/ji-əgg* ‘husband’, (15i) *rēbbéɖ/rēbbé-əgg* ‘reed type’, and (17a) *bìmiríɲ/bìmirí-əgg* ‘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 *ɖ* and *ɲ*

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 *ɕ* of the root verb /*cũɕ*/ ‘climb’ is not weakened in the intervocalic environment of the continuous form *cũɕ-ón*. Similarly, the *ʃ* of the root verb /*káʃ*/ ‘bring’ surfaces as a palatal plosive when the deictic completive suffix *-Cagga* is attached (*káʃ-ʃággā*).

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 *ɕāð-ɕ*/ *ɕāð-ðágg* ‘fertile soil’, *àbbā-ɕ*/ *àbbā-ágg* ‘tree type’, *bimiri-ʃ*/ *bimiri-igg* ‘bird type’, etc. However, this analysis requires an additional singular suffix *-ʃ* 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 (*bimiri-igg*), 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*, *-ɕ*, *-d*, and *-ʃ*. 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 incomplete and past continuous forms of (18) with suffix *-An*. The deictic completive form is given to make clear the root-final segment.

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

Root	3sN	3sN	3sN		
	INCP	CONT.P	D.COMP		
/bag/ L	bāā	bā-án	bàg-gāggā	[bàgāgā]	‘take’
/cig/ M	cīī	cī-ón	cīg-góggō	[cīgóggō]	‘wear’
/gug/ L	gūū	gū-ón	gùg-gōggō	[gùgōggō]	‘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 *ɕ* and *ʃ* 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/	ájé	ájé-ēgg	‘elephant’
/ag/	cáffá	cáffá-āgg	‘side of body’
/ɔg/	ɬálɔ	ɬálɔ-ògg	‘tax’
/ig/	būlɖí	būlɖí-īgg	‘finger’
/əg/	tílŋá	tílŋá-əgg	‘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 (*ájé*.-ēgg ‘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 -*Agg* (next section), which are all suffixed to final sonorants.

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

UR-final	N SG	N PL	
/m/	bààm	bààm-èègg	‘bird type’
/n/	kūn	kūn-īīgg	‘hunger’
/ɲ/	lúpɲ	lúpɲ-íīgg	‘boomerang’
/ŋ/	póóŋ	póóŋ-ēēgg	‘knife sheath’
/r/	ɬéèr	ɬéèr-èègg	‘carving tool’
/l/	ààl	ààl-ēēgg	‘brother’
/ð/	ǎǎð	ǎǎð-íīgg	‘tree type’
/w/	ɖāw	ɖāw-èègg	‘monkey’
/y/	rāāē	rāāy-éēgg	‘quarrel, war’

The suffix -*EEgg* also attaches to one noun with root-final velar geminate *gg*: *ógg/ógg-éēgg* ‘place’. All other nouns with root-final velar geminate take the suffix -*AAɖ* (5.6.3) which attaches to obstruents and sonorants. The suffix -*EEgg* also attaches to three words with root-final dental plosive *ɖ* in which *ɖ* is weakened to the approximate *ð* or elided: *rēbbéɖ/ rēbbéð-ēēgg* ‘reed type’, *ŋāāŋāāɖ/ŋāāŋāā-éēgg* ‘thigh’, *əbbùɖ/əbbù-īīgg*. In *ŋāāŋāā-éēgg* and *əbbù-īīgg*, 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 *-A_ugg*

The plural suffix *-A_ugg* attaches to root-final sonorants. Only the nine nouns of (21) 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 such as in *kùùl/ kùùl-ḡḡgg* ‘clan member’ and *bón/bón-āāgg* ‘heart’. Thus, the [round] rule {M4} does not apply to this suffix.

(21) Plural suffixes *-ĀĀgg*, *-ĀĀgg*, *-A_ugg*

UR-final	N SG	N PL	
/l/	íl	íl-ḡḡgg	‘horn’
	téèl	téél-ààgg	‘anchor’
	kùùl	kùùl-ḡḡgg	‘clan member’
	láál	láál-āāgg	‘pumpkin type’
/n/	kásán	kásán-āāgg	‘friend’
	bón	bón-āāgg	‘heart’
/m/	yāàm	yāàm-ààgg	‘bride’
/w/	cééḡ	cééw-āāgg	‘lame person’
/ð/	jááð	jááð-āāgg	‘old clothes’

There is no difference in phonological distribution between nouns with suffixes *-gg*, *-EEgg*, or *-A_ugg*, 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*, *-A_ugg*

UR-final	N SG	N PL	
/εel/	ḡḡèl	ḡḡèl-g	‘storage shelf’
	ḡḡèl	ḡḡèl-èègg	‘sea, town’
	téèl	téél-ààgg	‘anchor’
/aam/	kààm	kààm-g	‘nyala’
	fáàm	fáám-èègg	‘opinion’
	yāàm	yāàm-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 *-AAḑ* and *-ḑ* are commonly attached to kinship terms, and the suffixes *-əgg*, *-V⁺g* and *-⁺g*, are commonly attached to body parts. The suffix *-AAḑ* 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
<i>-AAḑ</i>	kinship nouns	mṣṣḑ	mṣṣḑ-ṣṣḑ	‘grandfather’	5
	root-final <i>-gg</i>	gàágg	gàágg-āāḑ	‘bird type’	5
<i>-ḑ</i>	kinship nouns	ābēé	ābēé-ḑ	‘maternal uncle’	5
<i>-əgg</i>	body part	fānd	fānd-əgg	‘cheek’	5
<i>-⁺g</i>	body part	āāl	āāl-g	‘my head/our heads’	8
<i>-V⁺g</i>	body part	ṣṣḑ	ṣṣḑ-ūgg	‘your eye/our eyes’	2

The suffix *-AAḑ* is partly conditioned by phonology and partly correlated to semantics. As for phonological conditioning, *-AAḑ* attaches to nouns whose stem ends in *gg*. The plural suffix *-Agg* in (13) which attaches to root-final *bb*, *ḑ*, *d*, *ʃ* and *g*, cannot be used with such nouns. In addition, there are five nouns not ending in *gg* which take *-AAḑ*, four of which are kinship terms. There are many other kinship terms which do not have the suffix *-AAḑ*. 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 *-ĀĀḑ*, *-ĀĀḑ*, *-AAḑ***

UR-final	N SG	N PL	
/gg/	gàágg	gàágg-āāḑ	‘bird type’
	kàmàlògg	kàmàlògg-àāḑ	‘mature woman’
	kṣggóligg	kṣggóligg-əḑḑ	‘cock’
	kúūrlúúgg	kúūrlúúgg-ṣṣḑ	‘rodent type’
	ṣṣḑgg	ṣṣḑgg-ṣṣḑ	‘greed’
/m/	máám	máám-àāḑ	‘paternal aunt’
/n/	bèèn	bèèn-āāḑ	‘gossip’
/ð/	mṣṣḑ	mṣṣḑ-ṣṣḑ	‘grandfather’
	yààḑ	yààḑ-āāḑ	‘sister’
/w/	bààḑ	bààḑ-āāḑ	‘father’

The segmental suffix *-ḑ* 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 -ḑ, -ḑ̄**

UR-final	N SG	N PL	
/a/	tááðà	tááðà-ḑ	‘grandmother’
	bððḡmà	bððḡmà-ḑ	‘insect type’
/aa/	fùùlmàà	fùùlmàà-ḑ	‘insect type (compound noun)’
	wîlmāā	wîlmāā-ḑ	‘ant name (compound noun)’
/εε/	ābéé	ābéé-ḑ	‘maternal uncle’

Although most plural suffixes are underlyingly unspecified for [ATR], the suffix *-agg* is underlyingly [+ATR] and spreads its [ATR] quality to the noun root {M3}. Similar to its unspecified equivalent *-Agg*, the suffix *-agg* 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 -agg, -ḡgg, -ḡgḡ**

Vowel of UR	N SG	N PL	
/ε/	tēēnd	tīīnd-ḡgg	‘riddle’
	wéé(s)	wís-ḡgg	‘house’
	bērd	bird-ḡgg	‘anus’
/a/	fānd	fōnd-ḡgḡ	‘cheek’
	sārānd	sārānd-ḡgḡ	‘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, -⁺gḡ**

Vowel of UR	UR-final	N SG	N PL	
/ɔ/	/l/	fɔl	fūl-g	‘hole’
/ɔ/	/l/	ḑɔl	ḑūl-g	‘penis’
/ɔ/	/ɔ/	gðà-ḑ ²⁸	gùù-gg	‘excrement’
/a/	/a/	kālāā-ḑ	kālāā-gg	‘tongue’
	/l/	āāl	àəl-g	‘my head/our heads’
	/ɲ/	āāɲ	àəɲ-g	‘my back/our backs’
	/ŋ/	āāŋ	àəŋ-g	‘my body/our bodies’
	/l/	āāl-g	àəl-g	‘my stomach/our stomachs’

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

the suffix *-ḑ* 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 *jɪŋɪl* / *jɪŋɪl-g* ‘bird type’, *lɔɔð* / *lɔɔð-g* ‘male singing voice’, and *lɪp* / *lɪp-g* ‘boomerang’, the [+ATR] quality could be underlyingly 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-ɖ 1sPs	ā-ɖ-əgg 1sPp	ā-ɖ-əgg 1pPp	‘eye’
	ōō-ɖ 2sPs	ū-ɖ-ūgg 2sPp	ū-ɖ-ūgg 2pPp	
	ēē-ɖ 3sPs	í-ɖ-īgg 3sPp	ì-ɖ-īgg 3pPp	
(b)	āā-s 1sPs	ā-s-əgg 1sPp	ā-s-əgg 1pPp	‘hand’
	ōō-s 2sPs	ū-s-ūgg 2sPp	ū-s-ūgg 2pPp	
	ēē-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)	cɪɪɪ	cɪɪ-əgg	‘diarrhea’
(b)	əŋə	əŋ-g	‘young girl’
(c)	gàfāɪɪ	gàfē-ēgg	‘lung’
(d)	wéé	wís-əgg	‘house’
(e)	kɔ̃r-ɖ	kɔ̃r-əgg	‘bird type’
(f)	nāā	nālg	‘girl’
(g)	jāā	jāālgé	‘son, boy, person’
(h)	gɔ̃à-ɖ	gùù-gg	‘excrement’
(i)	jɪn	jɔ̃gg	‘man, person’
(j)	jèèm	jègg	‘thing, something’
(k)	cél	cāāl-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	
kōrò	<i>hill name</i>	rúùm	‘fog’
mōggèr	<i>area name</i>	múū	‘mosquito’
múùm	<i>village name</i>	kàèŋ	‘a quantity of milk’
kàèmà	‘good luck stone’	lúúsúḍ	‘sweat’
púúfō	‘leprosy’	málōḥḥ	‘nose mucus’
sèn	‘skin disease’	ḵūḍ	‘yeasted sorghum’
cēdāŋ	‘disease type’	bāālāḍ	‘stripe’
nūḍi	‘poverty’	ùù	‘air’
rōḥḍ	‘mud’	íyóó	‘animal fat’
gārḥè	‘dung’	kāārō	‘bacteria’
ḍùfūrḍ	‘dust’	sóóm	‘hunting’
bùil	‘moisture’	fóyò	‘beneficiary’
gèmmāl	‘forest, woods’	sèèñēē	‘wealth, pride’
málò	‘bee wax’	lōfō	‘magic’
móónimō	‘leafy vegetable’	lóóḍ	‘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	
tēērg	‘comb’	īīgg	‘milk’
bàḥèrg	‘skin disease’	ḍùḍgg	‘ash’

Plural nouns (continued)

bildǎgg	‘worms (disease)’	fēgg	‘water’
íyǎǎgg	‘oil’	márǎsēēgg	‘disease type’
ǵūūgg	‘urin’	ǵùrsǎgg	‘bad smell’
cǎǎgg	‘holy place’	kāṇēēgg	‘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)	cēyám	cēyám-g	cēyám-ēēgg	‘aged tobacco’
(h)	fǎǎǎ	fǎǎǎ-g	fǎǎǎ-ēēgg	‘nose’
(i)	jííl	jííl-g	jííl-īigg	‘cricket’
(j)	kāāē	kāāē-gg	kāāy-ēēgg	‘witch doctor’
(k)	kābbàr	kābbàr-g	kābbàr-ēēgg ²⁹	‘wing, armpit’
(l)	kàǎǎǎ	kàǎǎǎ-g	kàǎǎǎ-éégg	‘leader’
(p)	lēēǎ	lēēǎ-g ³⁰ [lēēg, ˀ]	lēēǎ-éégg	‘drill for planting’
(q)	lúǎ	lúǎ-g	lúǎ-īigg	‘boomerang’
(r)	lúúǎ	lúúǎ-g	lúúǎ-īigg	‘water pot’
(s)	ǵǎǎm	ǵǎǎm-g	ǵǎǎm-īigg	‘chin’
(t)	ǵéēǎ	ǵéēǎ-g	ǵéēǎ-èègg	‘spear type’
(u)	rāāē	rāāē-gg	rāāy-éégg	‘quarrel, war’
(v)	téēr	téēr-g	téēr-èègg	‘carving tool’
(w)	mǎǎǎ	mǎǎǎ-g	mǎǎǎ-īigg	‘rainbow, spirit’
(x)	bǎǎǎ	bǎǎǎ-g [bǎǎg, ˀ]	bǎǎǎ-īigg	‘salt’
(y)	lǎǎr	lǎǎr-g	lǎǎr-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	láál-g	láál-áāgg	‘pumpkin type’
cééḑ	cééḑ-g	cééw-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	
ēēḑ	ēēḑ-g [ēēg.]	ēēḑ-āgg	‘net’

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

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

N SG	N PL	N PL	
fùlḡmàà	fùlḡmàà-gg	fùlḡmàà-ḑ	‘insect type’
bòḑḡmà	bòḑḡmà-gg	bòḑḡmà-ḑ	‘insect type’

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

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

N SG	N PL 1	N PL 2	
gèūr-ḑ	gèūr-g	gèūr-īgg	‘stomach, pouch’

In some nouns, the status of the final *ḑ* 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 *ḑ* of *nḡnḑ* ‘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 *-ḑ* with Plural suffixes *-gg***

N SG	N PL 1	N SG	N PL 2	
nḡnḑ	nḡnḑ-āgg	nḡn-ḑ	nḡn-g	‘demon’
kāḡnāāḑ	kāḡnāāḑ-āgg	kāḡnāā-ḑ	kāḡnāā-gg	‘bowl’
bḡrḑ	bḡrḑ-āgg	bḡr-ḑ	bḡr-āgg	‘lion’
kḡrḑ	kḡrḑ-āgg	kḡr-ḑ	kḡr-āgg	‘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 *-ɖ* with Plural suffix *-gg***

N SG	N PL 1	N SG	N PL 2	
lɔggɔ́ɔ́ɖ	lɔggɔ́ɔ́ɖ-ēēgg	lɔggɔ́ɔ́-ɖ	lɔggɔ́ɔ́-gg	‘locust’
àbbùùɖ	àbbùùɖ-ììgg	àbbùù-ɖ	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	
à̀r	à̀r-g	à̀r-ēēg		‘priest, chief’
jíŋ-ɖ	jíŋ-íɖ	jíŋ-g		‘louse’
gàfā-ɸ	gɔ́fɔ́	gàfē-ēgg		‘lung’
búlí-ɸ	búlí-ɖ	búlí-ìgg	búlí-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 *-Aɖ* may have no underlying tone as in *kɔ́l-ɔ́ɖ/ kɔ́l-g* ‘egg’ or Mid tone as in *níl-ɔ́ɖ/níl-g* ‘intestine’. Singular suffixes with vowels having no underlying tone (*-Aɖ*, *-AAɖ*, *-Eɖ*) are assigned the root-final tone {M5}.

(39) **Singular suffixes *-Aɖ*, *-AAɖ* and *-Eɖ* attached to root-final sonorants**

Suffixes	N SG	N PL	
-ɖ	wéráá-ɖ	wéráá-gg	‘tribe member’
-g	à̀r-g	à̀r-ēēg	‘priest, chief’
-ɸ	pēbbēē-ɸ	pēbbēē-gg	‘tree type’
-Aɖ	níl-ɔ́ɖ	níl-g	‘intestine’
-Aɖ	kɔ́l-ɔ́ɖ	kɔ́l-g	‘egg’
-AAɖ	cāl-āāɖ	cāl-g	‘testicle’
-Eɖ	jíŋ-íɖ	jíŋ-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	- <u>gg</u>	- <u>Ágg</u>
-Agg	- <u>Āgg</u>	- <u>ÉĒgg</u>
-EEgg	- <u>ĒĒgg</u>	- <u>ĀĀgg</u>
-AAgg	- <u>ĀĀgg</u>	- <u>ĒĒgg</u>
-AAd	- <u>ĀĀd</u>	- <u>ĒĒd</u>
-d	- <u>d</u>	
-əgg	- <u>əgg</u>	- <u>əgg</u>
- ⁺ g	- <u>⁺g</u>	
-OOgg	- <u>V⁺g</u>	

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)	- <u>gg</u>	léél	léél-g	‘grass’
(b)	- <u>gg</u>	káál	káál-g	‘house fence’
(c)	- <u>gg</u>	mōdō	mōdō-gg	‘locust’
(d)	- <u>gg</u>	fōēdā	fōēdā-gg	‘seed’
(e)	-Agg	lənɔ	lənɔ-əgg	‘tree type’
(f)	-Āgg	bànɔ	bànɔ-āgg	‘tree type’
(g)	-Āgg	mīīɔ	mīīɔ-āgg	‘stone’
(h)	-EEgg	ɔààr	ɔààr-ēēgg	‘eagle’
(i)	-ĒĒgg	cèèr	cèèr-ēēgg	‘singer’
(j)	-ÉĒgg	rāāē	rāāy-éēgg	‘quarrel, war’
(k)	-AAgg	téél	téél-ààgg	‘anchor’
(l)	-ĀĀgg	jááð	jááð-āāgg	‘old clothes’
(m)	-ĀĀgg	láál	láál-āāgg	‘pumpkin type’

	Suffix Tone	N SG	N PL	
(n)	- <u>AA</u> d	máâm	máám-ààd	‘paternal aunt’
(o)	- <u>AA</u> d	yààð	yààð-āāđ	‘sister’
(p)	- <u>Á</u> Āđ	mǝǝð	mǝǝð-ǝǝđ	‘grandfather’
(q)	- <u>đ</u>	tááðà	tááðà-đ	‘grandmother’
(r)	- <u>đ</u>	ābēé	ābēé-đ	‘maternal uncle’
(s)	-ǝgg	tēēnd	tīīnd-ǝgg	‘riddle’
(t)	-ǝgg	wéé(s)	wís-ǝgg	‘house’
(u)	-ǝgg	fānd	fōnd-ǝgg	‘cheek’
(v)	- ⁺ g	āāl	ǝəl-g	‘my head/our heads’
(w)	- ⁺ g	fōl	fūl-g	‘hole’
(x)	-V ⁺ g	ǝǝđ	ùđ-ūgg	‘your eye/your eyes’
(y)	-OOgg	kōr-đ	kōr-ǝǝgg	‘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 *jèèrs/jèèrs-ǝgg* ‘hippopotamus’, *jílǝbb/jílǝbb-ǝgg* ‘water spring’, and *bāgdārs/bāgdārs-ǝgg* ‘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 **jílǝbb-ǝgg* instead of *jílǝbb-ǝgg*. 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	kás	kás-ógg	‘sorghum type’
(b)		-gg/-EEgg	ún-g	ún-ígg	‘tear’
(c)	M	-Agg	māāḍ	māāḍ-āgg	‘snake type’
(d)		-EEgg	kōr	kōr-ēēgg	‘word, speech’
(e)		-ḍ/-EEgg	bāār-ḍ	bāār-ēēgg	‘abdomen, waist’
(f)		-aaḍ/-gg	cāl-āāḍ	cāl-g	‘testicle’
(g)		-əgg	tēēnḍ	tīīnḍ-ōgg	‘riddle’
(h)		-ḍ/-OOgg	kōr-ḍ	kōr-ōōgg	‘bird type’
(i)	L	-Agg	jèèrs	jèèrs-āgg	‘hippopotamus’
(j)		-EEgg	bāām	bāām-ēēgg	‘bird type’
(k)		-ḍ/-AAgg	bār-ḍ	bār-āāgg	‘lion’
(l)		-AAḍ	kāmàlōgg	kāmàlōgg-āāḍ	‘mature woman’
(m)	HL	-Agg	jílèbb	jílèbb-āgg	‘water spring’
(n)	HM	-Agg	búlūūrs	búlūūrs-ōgg	‘bird type’
(o)	ML	-Agg	bāgdàrs	bāgdàrs-āgg	‘lizard’
(p)	LM	-Agg	ābbāḍ	ābbāḍ-āgg	‘tree type’
(q)	MHL	-AAḍ	kōggólìgg	kōggólìgg-āāḍ	‘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	ílḥ	ílḥ-āgg	‘beeswax’
		-EEgg	fāām	fāām-ēēgg	‘opinion’
		-AAgg	téél	téél-āāgg	‘anchor’
		-AAḍ	māām	māām-āāḍ	‘paternal aunt’
	HM	-Agg	sííḥ	sííḥ-ōgg	‘tree type’
		-AAgg	cééṣ	cééw-āāgg	‘lame person’
	ML	-Agg	kāṇāāḍ	kāṇāāḍ-āgg	‘bowel for hot foot’
		-EEgg	gōmūūr	gōmūūr-ììgg	‘dove’
		-EEgg	lōōr	lōōr-ēēg	‘cervix’
	LM	-Agg	gōn	gōn-ōgg	‘responsibility’
		-ḍ/-EEgg	gōūr-ḍ	gōūr-īīgg	‘stomach pouch’
	LHL	-EEgg	bāsāār	bāsāār-ēēgg	‘lie’
		-EEgg	jōfōōr	jōfōōr-ēēgg	‘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 *ḍāḍḍ/ḍāḍḍ-āgg* ‘fertile soil’ and *ṭāḍr/ṭāḍr-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 *kāēḍ/kāēḍ-āgg*, *kāēḍ-āgg* ‘cup, spoon’ and *gēmūūr/gēmūūr-īgg*, *gēmūūr-īgg* ‘dove’ have two plural forms with differing tone. The plural form *kāēḍ-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 *ḍāḍḍ-āgg*, *ṭāḍr-èègg*, and *gēmūūr-īgg* 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 *māāḍ/māāḍ-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 *jèèrs/jèèrs-āgg* ‘hippopotamus’, *jílàbb/jílàbb-āgg* ‘water spring’, and *bāgdārs/bāgdārs-āgg* ‘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	órónḍ	órónḍ-ōgg	‘fermented milk’
	-ĒĒgg	póóḡ	póóḡ-ēēgg	‘knife sheath’
	-ĀĀgg	jááḍ	jááḍ-āāgg	‘old clothes’
	-ōgg	wéé(s)	wís-ōgg	‘house’
	-Āḍ/-gg	jíl-ḍḍ	jíl-g	‘intestine’
M	-Āgg	māāḍ	māāḍ-āgg	‘snake type’
	-ĒĒgg	kūn	kūn-īgg	‘hunger’
	-ĀĀḍ	āḍōgg	āḍōgg-āḍḍ	‘greed’
	-ōgg	tēēnḍ	tīīnḍ-ōgg	‘riddle’
	-ĀĀḍ/-gg	cāl-āāḍ	cāl-g	‘testicle’
L	-Agg	jèèrs	jèèrs-āgg	‘hippopotamus’
	-EEgg	bààm	bààm-èègg	‘bird type’
	-ḍ/-ĀAgg	bèr-ḍ	bèr-ḍḍgg	‘lion’
	-ĀĀḍ	kàmàlōgg	kàmàlōgg-āāḍ	‘mature woman’
HM	-Agg	kāēḍ	kāēḍ-āgg	‘cup, spoon’
HL	-ĒĒgg	ṭāḍr	ṭāḍr-èègg	‘lizard’
	-Agg	jílàbb	jílàbb-āgg	‘water spring’

Root tone	Suffix	N SG	N PL	
MH	-Āgg	dɔd	dɔd-ɔgg	‘bird type’
ML	-Agg	ḍāḍḍ	ḍāḍḍ-agg	‘fertile soil’
	-Agg	bāgdārs	bāgdārs-agg	‘lizard’
	-EEgg	gōmūūr	gōmūūr-ìgg	‘dove’
LH	-Āgg	bìmiríj	bìmiríj-ɔgg	‘bird type’
	-ĀĀḍ	gàágg	gàágg-āāḍ	‘bird type’
HMH	-Agg	lúliíḍ	lúliíḍ-ɔgg	‘snake type’
	-ĀĀḍ	kúūr-lúúgg	kúūr-lúúgg-āāḍ	‘rodent type’
HLH	-ḍ/-gg	rúnjùú-ḍ	rúnjùú-gg	‘bird type’

However, in nouns with two tones on the root-final syllable such as *táḍr/táḍr-èègg* ‘lizard’, *káēḍ/káēḍ-āgg* ‘cup, spoon’, *ḍāḍḍ/ḍāḍḍ-agg* ‘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 *íl/íl-agg* ‘bees-wax’, *síj/síj-agg* ‘tree type’, and *kāpāāḍ/kāpāāḍ-agg* ‘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 *táḍr/táḍr-èègg* ‘lizard’ and *ḍāḍḍ/ḍāḍḍ-agg* ‘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 *bənj/bənj-agg* ‘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	-Āgg	kás	kás-ɔgg	‘sorghum type’
	-ÉĒgg	lún	lún-ígg	‘boomerang’
	-ĀĀgg	láál	láál-āāgg	‘pumpkin type’
M	-Āgg	fānd	fānd-ɔgg	‘cheek’
	-ÉĒgg	múfúr	múfúr-ígg	‘gazelle type’
	-ĀĀḍ	māāḍ	māāḍ-āāḍ	‘grandfather’
L	-Agg	bənj	bənj-agg	‘pulp’
	-ḍ/-ÉĒgg	mōggōr-ḍ	mōggōr-ēēgg	‘stirring stick’
	-ĀĀgg	kùùl	kùùl-āāgg	‘clan member’
	-ĀĀḍ	bēēn	bēēn-āāḍ	‘gossip’
LM	-Āgg	ḍiwīnd	ḍiwīnd-ɔgg	‘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 *bàŋŋ/bàŋŋ-àgg* ‘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 *dīwīnd/dīwīnd-àgg* ‘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 *kás/kás-àgg* ‘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 *māāḍ/māāḍ-àgg* ‘snake type’ of (e) and (f) could have Mid tone or no underlying tone in the suffix. The noun *jàèrs/jàèrs-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	kás	kás-àgg	‘sorghum type’
(b)		M	órónḍ	órónḍ-àgg	‘fermented milk’
(c)		none	kás	kás-àgg	‘sorghum type’
(d)	M	H	mīīḍ	mīīḍ-àgg	‘stone’
(e)		M	māāḍ	māāḍ-àgg	‘snake type’
(f)		none	māāḍ	māāḍ-àgg	‘snake type’
(g)	L	H	bàŋŋ	bàŋŋ-àgg	‘pulp’
(h)		M	jàèrs	jàèrs-àgg	‘hippopotamus’
(i)		none	jàèrs	jàèrs-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	ám	ám-g	‘bone’
	-gg	ṭééfá	ṭééfá-gg	‘leaf, illness type’
	-gg	sáá	sáá-gg	‘wine’

Root tone	Suffix	N SG	N PL	
M	-gg	bāāl	bāāl-g	‘cave’
	-gg	wāā	wāā-gg	‘shade, help’
	-ɰ/-gg	pēbbēē-ɰ	pēbbēē-gg	‘tree type’
L	-gg	wèlèɲ	wèlèɲ-g	‘sour/bitter taste’
	-gg	bùù	bùù-gg	‘chicken coop roof’
	-ɖ	bòòɲmà	bòòɲmà-ɖ	‘insect type’
HL	-gg	séèn	séèn-g	‘ruler’
	-gg	óɖàà	óɖàà-gg	‘army leader’
	-ɖ	ṭááðà	ṭááðà-ɖ	‘grandmother’
HM	-gg	ǰórgāāl	ǰórgāāl-g	‘bird type’
	-gg	páɰṭṭ	páɰṭṭ-gg	‘star’
	-ɖ/-gg	bóré-ɖ	bóré-gg	‘eye matter’
ML	-gg	bāāl	bāāl-g	‘instrument type’
	-gg	būù	būù-gg	‘tree type’
	-ɖ/-gg	bāsà-ɖ	bāsà-gg	‘large intestine’
LM	-gg	gòèn	gòèn-g	‘metal worker’
	-gg	gùldū	gùldū-gg	‘tree trunk, wood’
MH	-gg	bāár	bāár-g	‘tribe member’
	-gg	lēṭṭá	lēṭṭá-gg	‘animal’
	-ɰ/-gg	mááy-ɰ [mááj.ʔ]	máāē-g	‘cucumber’
HLM	-gg	áàrēē	áàrēē-gg	‘grass type’
	-ɖ	wíl̥māā	wíl̥māā-ɖ	‘ant name (comp)’
MHM	-gg	cēggélūū	cēggélūū-gg	‘root type’
MHL	-gg	ūɲúràð	ūɲúràð-gg	‘pumpkin’
LHL	-gg	ḍùùl	ḍùùl-g	‘instrument type’
	-gg	gàḍáàè	gàḍáàè-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	ḍáár	ḍáār-g	‘throne’
	-gg	kúúfú	kúúfú-gg	‘ground sesame’
	-gg	wááyáá	wááyáā-gg	‘bird type’
	- ⁺ gg	fól	fūl-g	‘hole’
	-ɖ/-gg	wéráá-ɖ	wéráā-gg	‘tribe member’

Root tone	Suffix	N SG	N PL	
MH	-gg	sāmán	sāmán-g	‘sorghum storehouse’
	-gg	fōyḍá	fōyḍá-gg	‘planting seed’
	-ḍ	ābéé	ābéé-ḍ	‘maternal uncle’
	-ḍ/-gg	mōréé-ḍ	mōréé-gg	‘vegetable type’
LH	-gg	àggáár	àggáár-g	‘rider, hunter’
HLH	-ḍ/-gg	rúnùú-ḍ	rúnùú-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 *wèlèṇ/ wèlèṇ-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	ḍáár-g	‘throne’
(b)		none	áám	áám-g	‘bone’
(c)	M	M	bāāl	bāāl-g	‘cave’
(d)		none	bāāl	bāāl-g	‘cave’
(e)	L	M	wèlèṇ	wèlèṇ-g	‘sour/bitter taste’
(f)		none	wèlèṇ	wèlèṇ-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	ḍāḍ	ḍāw-èègg	‘monkey’
	ḍēēl	ḍēēl-èègg	‘lake’
	ḍṣḍr	ḍḍḍr-ìigg	‘snake type’
	gāàl	gāàl-èègg	‘falcon’
	gāàr	gāàr-èègg	‘hog’
	māàr	māàr-èègg	‘unmarried woman’
	māàw	māàw-èègg	‘gazelle’
	mḍl	mḍl-ìigg	‘bamboo drinking straw’
	nāṇ	nāṇ-èègg	‘crocodile’
	mṣṣḍr	mṣṣḍr-èègg	‘horse’
	āṇār	āṇār-èègg	‘rope bed’
	sīindḍ	sīind-ḍgg	‘guest’
	kāāndḍ	kāānd-ḍgg	‘water-carrying stick’
-AAgg	yāām	yāām-āagg	‘bride’

In previous sections, we have seen several nouns with ML root tone melody that contrast with the nouns of (49). The noun *bāgdārs/bāgdārs-agg* ‘lizard’ of (41) and the nouns *lṣḍr/lṣṣr-èèg* ‘cervix’ and *kāpnāād/kāpnāād-agg* ‘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 *gēmūūr/gēmūūr-ìigg* ‘dove’ and *ḍāḍḍ/ḍāḍḍ-agg* ‘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)	cēldá	cēldā-gg	‘charcoal’
(c)	kāsá	kāsā-gg	‘boy’

	N SG	N PL	
(d)	tāēdā(g)	tāēdā-āgg	‘wine strainer’
(e)	lúḍ	lú-ùgg	‘leg’
(f)	búlí-ḥ	búlí-igg	‘worm’
(g)	jìḍ	jìḍ-àgg, jìgg	‘husband’
(h)	gāèḍg [gāèg, ʔ]	gāèḍ-āgg	‘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 *bṣṣrà/bṣṣrà-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 *bṣṣrà / bṣṣrà-gg* ‘shoulder’**

	Singular person pronouns			Plural person pronouns		
Noun SG	ā	bṣṣràà	1sPs	---		1pPs
	ṣ	bṣṣràà	2sPs	---		2pPs
	ē	bṣṣràà	3sPs	---		3pPs
Noun PL	ā	bṣṣràà-gg	1sPp	āgg	bḍṛāā-gg	1pPp
	ṣ	bṣṣràà-gg	2sPp	ūgg	bḍṛāā-gg	2pPp
	ē	bṣṣràà-gg	3sPp	ēgg	bḍṛāā-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 cīl	āgg cīl-g	āgg cīl-g	‘spine’
	ā sísín	ā sísín-ēgg	āgg sísín-ēgg	‘gum’
	ā cáffá(g)	ā cáffá-āgg	āgg cáffá-āgg	‘side’

Root tone	N SG, SG person	N PL, SG person	N PL, PL person	
M	ā fīi-ɖ	ā fīi-gg	āgg fīi-gg	‘feather’
	ā kālāā-ɖ		āgg kəlāā-gg	‘tongue’
	ā pēbbār	ā pēbbār-g	āgg pēbbār-ēēgg	‘rib’
L	ā ɖəl		āgg ɖəl-g	‘penis’
	ā fɔɖɔr		āgg fɔɖɔr-ēēgg	‘nose’
	ā bààlèèməà	ā bààlèèməà-gg	āgg bààlèèməà-gg	‘knee cap’
HL	ā il	ā il-àəgg	āgg il-əəgg	‘horn’
	ā lááðà(g)		āgg lààðā-gg	‘brain’
	ā túnɖúli(g)	ā túnɖúli-igg	āgg túnɖúli-igg	‘elbow’
HM	ā ɲíi-ɖ	ā ɲíi-gg	āgg ɲíi-gg	‘tooth’
ML	ā sūù-ɖ		āgg sūù-gg	‘hair’
	ā bāssà-ɖ	ā bāssà-gg	āgg bāssā-gg	‘intestine’
MH	ā búlɖí(g)	ā búlɖí-igg	āgg búlɖí-igg	‘finger’
	ā kūsūmíi	ā kūsūmíi-gg	āgg kūsūmíi-gg	‘knee’
LM	ā əəməð		āgg əəməð-gg	‘liver’
	ā càɲàldā	ā càɲàldā-gg	āgg càɲàldā-gg	‘triceps’
HLM	ā kəlɬə		āgg kəlɬə-gg	‘jaw’
	ā ɖəggəɖlǎ	ā ɖəggəɖlǎ-gg	āgg ɖəggəɖlǎ-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 *əggáár* ‘hunter’ with LH root tone melody has ML tone melody when used as an experiencer following the verb *ɲáɔ-s=é* ‘need-COMP=PAS.A’. In (55), the noun *ɬəɔ=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* *ɲáɔ-s=é* **əggáár**
 food /ɲaw/need-COMP=PAS.A /əggáár/hunter.GEN
 ‘Food is needed by the hunter.’

- (55) *ɔɲ* *é* **ɬəɔ=n** *wēɖán*
 meat of /ɬəɔ/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 *kūḍūūrī-gg* ‘bird’. If there is a clitic following the stem such as the definite clitic =*Á* in *ténḍás=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	t̥ṣṣ	t̥ṣṣ	t̥ṣṣ = n	‘cow’
M	HL	mīī	mīī	mīī = n	‘goat’
L	ML	ḍīī	ḍīī	ḍīī = n	‘rat’
HL	ML	wīrī	wīrī	wīrī = n	‘bird’
HM	ML	sūlā	sūlā	sūlā = n	‘clan member’
ML	ML	ṇūūī	ṇūūī	ṇūūī = n	‘leopard’
LH	ML	àggáár	àggāār	àggāār = à	‘hunter’
LM	ML	mōrāā	mōrāā	mōrāā = n	‘governor’
MH	HL	ténḍás	ténḍás	ténḍás = à	‘bird type’
MHM	ML	kūḍúúrīī	kūḍūūrīī	kūḍūūrīī = 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	t̥ṣ-gg	t̥ṣ-gg	t̥ṣ-gg = ò	‘cow’
M	HL	mīī-gg	mīī-gg	mīī-gg = ò	‘goat’
L	ML	ḍīī-gg	ḍīī-gg	ḍīī-gg = ò	‘rat’
HL	ML	wīrī-ìgg	wīrī-ìgg	wīrī-ìgg = ò	‘bird’
HM	ML	sūlā-āgg	sūlā-āgg	sūlā-āgg = ò	‘clan member’
ML	ML	ṇūūy-g	ṇūūy-g	ṇūūy-g = ò	‘leopard’
LH	ML	àggáár-g	àggāār-g	àggāār-g = à	‘hunter’
LM	ML	mōrāā-gg	mōrāā-gg	mōrāā-gg = à	‘governor’
MH	HL	ténḍás-āgg	ténḍás-āgg	ténḍás-āgg = à	‘bird type’
MHM	ML	kūḍúúrīī-gg	kūḍūūrīī-gg	kūḍūūrīī-gg = ò	‘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 (*mî-gg=ə* ‘goat.GEN = DEF’, *āggââr-g=à* ‘hunter.GEN = DEF’). Sometimes genitive nouns have Low tone melody instead of ML tone melody (*kùḍùùrîî* ‘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.