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

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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 = nɛ*).

(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 = nɛ	‘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 *mɔggɔlɛɛ* ‘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-ɔgg* ‘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-ààgg	íl-ààgg=à	‘horn’

Similarly, tone assignment for noun words such as *íl-ààgg=à* ‘horn-PL=COP’ in (3c) begins with the tone assigned to the stem in the plural form *íl-ààgg* and continues by attaching the copular suffix *=À* with Low tone. The noun stem tone assignment *íl-ààgg* 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 *-ÀAgg* {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-ààgg=à* instead of *íl-ààgg=à*. Or, if the HL underlying tones of the copular word form were assigned right-to-left, the surface tone would be **íl-ààgg=à* instead of *íl-ààgg=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-ǰ	mōréē-gg	‘vegetable type’	5%
-/PL suffix	rīmóó	rīmóō-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 -ǰ is not rare. All singular suffixes attach to root-final sonorants, and the suffix -ǰ 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	rúnúú-ḍ	rúnúú-gg	‘bird type’	36
	sonorant	bàr-ḍ	bàr-ḍḍgg	‘lion’	6
-gg	sonorant	àr-g	àr-ēēgg	‘priest, chief’	7
-Aḍ	sonorant	níl-ḍ	nìl-g	‘intestine’	3
-AAḍ	sonorant	cāl-āāḍ	càl-g	‘testicle’	1
-Eḍ	sonorant	ḵín-íḍ	ḵín-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	bàsà-ḍ	bàsà-gg	‘large intestine’
/ə/	-ḍ/-gg	ə̀rḵə̀-ḍ	ə̀rḵə̀-gg	‘insect type’
/εε/	-ḍ/-gg	mōréé-ḍ	mōréé-gg	‘vegetable type’
/ε/	-ḍ/-gg	bórē-ḍ	bórē-gg	‘eye matter’
/ii/	-ḍ/-gg	mōmíí-ḍ	mōmíí-gg	‘root type’
/i/	-ḍ/-AAḍ	mōī-ḍ	mōy-ḍḍ	‘ancestor’
/ɔɔ/	-ḍ/- ⁺ gg	gòḍ-ḍ	gùù-gg	‘excrement’
/uu/	-ḍ/-gg	rúnúú-ḍ	rúnúú-gg	‘bird type’
/u/	-ḍ/-gg	gə̀rmù-ḍ	gə̀rmù-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	nān-ḍ	nān-g	‘demon’
/r/	-ḍ/-EEgg	mḍggḍr-ḍ	mḍggḍr-ēēgg	‘cane’
/r/	-ḍ/-EEgg	bāār-ḍ	bāār-ēēgg	‘abdomen, waist’
/r/	-ḍ/-EEgg	gə̀ūr-ḍ	gə̀ūr-īīgg	‘stomach pouch’
/r/	-ḍ/-AAgg	bàr-ḍ	bàr-ḍḍgg	‘lion’
/r/	-ḍ/-AAgg	kōr-ḍ	kōr-ḍḍgg	‘bird type’

The singular noun suffix *-gg* is attached to the inherently possessed body part noun *āā-gg* ‘my mouth’, *ḍḍ-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 [gəðəg.]	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/-Aagg	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-əɟ	ɲìl-g	‘intestine’
/l/	-Aɟ/-gg	kól-əɟ	kól-g	‘egg’
/ŋ/	-Aɟ/-gg	túŋ-əɟ	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	ḍáár-g	‘throne’	37%
	vowel	fṵēḍá	fṵēḍá-gg	‘seed’	
-Agg	obstruent	célḍ	célḍ-āgg	‘local broom’	17%
-EEgg	sonorant	póón	póón-ēēgg	‘knife sheath’	17%
-AAgg	sonorant	bón	bón-āāgg	‘heart’	9
-AAgg	sonorant	kōr-ḍ	kōr-ṵōgg	‘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* (*téér/téér-g*, *téér-ēēgg* ‘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/	jēém	jēém-g	‘sorghum sieve’
/n/	gḍēn	gḍēn-g	‘metal worker’
/ɲ/	wèlèɲ	wèlèɲ-g	‘sour/bitter taste’
/ŋ/	sāmán	sāmán-g	‘sorghum storehouse’
/r/	ḍáár	ḍáár-g	‘throne’
/l/	sēwéél	sēwéél-g	‘tree type’
/ð/	mēēð	mēēð-g [mēēg,]	‘tree type’
/w/	káð	kâw-g	‘hyena’
/y/	ááé	ááy-g	‘honey’
/y/	ɲūù	ɲūy-g	‘leopard’

Nouns with root-final approximants *w* or *y* surface with a root-final vowel in the singular form (*káð* ‘hyena’, *ɲūù* ‘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’, *ɲūy-g* ‘leopard-PL’) or vowels (*káð-g*, *ɲūù-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/	būè	būè-gg	‘tree type’
/a/	fḡyḡá	fḡyḡá-gg	‘planting seed’
/ə/	cííḡ	cííḡ-gg	‘Tabaldi leaf’
/ɔ/	mḡḡó	mḡḡó-gg	‘locust’
/u/	kúúfú	kúúfú-gg	‘ground sesame’
/aa/	wááyáá	wááyáá-gg	‘bird type’
/əə/	rímḡó	rímḡó-gg	‘star’
/εε/	káálḡéé	káálḡéé-gg	‘brother-in-law’
/ii/	kūsūmíí	kūsūmíí-gg	‘knee’
/oo/	páḡḡó	páḡḡó-gg	‘star’
/uu/	ḡyúú	ḡyúú-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)	/ḡó/	ḡóó	ḡó-gg	‘cow’
(c)	/gḡ/	gḡḡ	gḡ-gg	‘clothing type’
(d)	/wés/	wéé	wís-ḡgg	‘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-əgg	‘water spring’
/ḍ/	mīḍ	mīḍ-əgg	‘stone’
/d/	dḥd	dḥd-əgg	‘bird type’
/ʃʃ/	síʃʃ	síʃʃ-əgg	‘tree type’
/s/	tēndás	tēndás-āgg	‘bird type’
/nd/	órónḍ	órónḍ-əgg	‘fermented milk’
/ŋḍ/	lèŋḍ	lèŋḍ-əgg	‘tree type’
/ḍ/	cúḍ	cúḍ-ūgg	‘birth sack’
/rd/	ṫīrd	ṫīrd-əgg	‘farm’
/ŋʃ/	bəŋʃ	bəŋʃ-əgg	‘sorghum pulp’
/lʃ/	ílʃ	ílʃ-əgg	‘beeswax’
/ms/	nāms	nāms-āgg	‘food’
/rs/	bāgdàrs	bāgdàrs-əgg	‘lizard’

The suffix also attaches to two words with root-final approximant δ : *kūūḍ/kūūḍ-əgg* ‘shadow’ and *ēēḍ/ēēḍ-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 δ as the final root segment. As shown in the nouns of (14) with root-final δ , the dental surfaces in the plural form.

(14) **Root-final δ 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’
rúḍ	rúḍ-əgg	‘dirt’
ēēḍ	īḍ-əgg	‘his eye/his eyes’
yāāḍ	yāāḍ-āgg	‘broken plate’
mīḍ	mīḍ-əgg	‘stone’

However, in the eleven plural nouns of (15) with root-final δ , the segment δ is either weakened to the approximant δ or elided. Several of these nouns have more than one plural form. The noun of (a) has one plural form where δ surfaces and one where it is weakened to δ . The noun of (15d) has one plural form where δ surfaces and one where it is elided. The nouns of (15e-i) have one plural form where δ is weakened to δ 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)	ɖā̀ð̀ɖ̀	ɖā̀ð̀ɖ̀-àgg	ɖā̀ð̀ð̀-àgg		‘fertile soil’
(b)	fī̀ìɖ̀		fī̀ìð̀-əgg		‘feather’
(c)	lōggɔ̀ɔ̀ɖ̀		lōggɔ̀ɔ̀ð̀-ēgg		‘locust’
(d)	àbbā̀ɖ̀	àbbā̀ɖ̀-āgg		àbbā̀-āgg	‘tree type’
(e)	á fá̀ɖ̀		á fá̀ð̀-āgg	á fá̀-āgg	‘blood’
(f)	ɔ̀ɖ̀		ɔ̀ð̀-əgg	ɔ̀-əgg	‘wife’
(g)	ɟ̀ìɖ̀		ɟ̀ìð̀-əgg	ɟ̀ì-igg	‘husband’
(h)	á fá̀ɖ̀		á fá̀ð̀-āgg	á fá̀-āgg	‘blood’
(i)	rēbbé̀ɖ̀		rēbbé̀ð̀-ēgg	rēbbé̀-ēgg	‘reed type’
(j)	lú̀ɖ̀			lú̀-ùgg	‘leg’
(k)	kó lí̀ɖ̀			kó lí̀-igg	‘bird type’

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

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

	N SG	N PL	
	sí̀ɟ̀ɟ̀	sí̀ɟ̀ɟ̀-əgg	‘tree type’
	ʔá l̥h̥è̀ɟ̀ɟ̀	ʔá l̥h̥è̀ɟ̀ɟ̀-àgg	‘tree type’
	sū̀r m̥ù̀ɟ̀ɟ̀	sū̀r m̥ù̀ɟ̀ɟ̀-ùgg	‘tree type’
	pḕbbḕɟ̀ɟ̀	pḕbbḕɟ̀ɟ̀-āgg	‘tree type’

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

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

	N SG	N PL with <i>ɟ</i>	N PL with elision	
(a)	bì m̥ì r̥í̀ɟ̀ɟ̀	bì m̥ì r̥í̀ɟ̀ɟ̀-əgg	bì m̥ì r̥í̀-igg	‘bird type’
(b)	bú lí̀ɟ̀ɟ̀		bú lí̀-igg	‘worm’
(c)	gà fā̀ɟ̀ɟ̀		gà fḕ-ēgg 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) *ɟ̀ìɖ̀/ɟ̀ì-igg* ‘husband’, (15i) *rēbbé̀ɖ̀/rēbbé̀-ēgg* ‘reed type’, and (17a) *bì m̥ì r̥í̀ɟ̀ɟ̀/bì m̥ì r̥í̀-igg* ‘bird type’, the vowel of the suffix *-Agg* becomes *i* or *ε* to match the last root vowel.

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

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 *ɖ* of the root verb /*cūɖ*/ ‘climb’ is not weakened in the intervocalic environment of the continuous form *cūɖ-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 *ɖā̀-ɖ/ ɖā̀-ɖágg* ‘fertile soil’, *àbbā-ɖ/ àbbā-ágg* ‘tree type’, *bimiri-ʃ/ bimiri-igg* ‘bird type’, etc. However, this analysis requires an additional singular suffix *-ʃ* and plural suffix *-ɖágg*, 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*, *-ɖ*, *-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	bàā	bà-án	bàg-gāggā	[bàgāgā]	‘take’
/cig/ M	cī	cī-ón	cīg-góggō	[cīgógō]	‘wear’
/gug/ L	gū	gū-ón	gùg-gōggō	[gùgōgō]	‘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 *ɖ* 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/	áŋɛ́	áŋɛ́-ēgg	‘elephant’
/ag/	cáffá	cáffá-āgg	‘side of body’
/ɔg/	tálɔ̀	tálɔ̀-ògg	‘tax’
/ig/	būlɔ́í	būlɔ́í-īgg	‘finger’
/əg/	tílŋɔ́	tílŋɔ́-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 (*áŋɛ́-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 *-A*Agg** (next section), which are all suffixed to final sonorants.

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

UR-final	N SG	N PL	
/m/	bààm	bààm-èègg	‘bird type’
/n/	kūn	kūn-īīgg	‘hunger’
/ɲ/	lúɲ	lúɲ-íígg	‘boomerang’
/ŋ/	póóŋ	póóŋ-ēēgg	‘knife sheath’
/r/	téèr	téèr-èègg	‘carving tool’
/l/	ààl	ààl-ēēgg	‘brother’
/ð/	āāð	āāð-íígg	‘tree type’
/w/	ɖāɖ	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 *-A*Ad** (5.6.3) which attaches to obstruents and sonorants. The suffix *-EEgg* also attaches to three words with root-final dental plosive *d* in which *d* is weakened to the approximate *ð* or elided: *rēbbéð/rēbbéð-ēēgg* ‘reed type’, *ŋāāŋāāð/ŋāāŋāā.-éēgg* ‘thigh’, *əbbùùð/əbbùù.-īīgg*. In *ŋāāŋāā.-éēgg* and *əbbùù.-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 *-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 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 *-ÁAgg*, *-ĀAgg*, *-AAgg*

UR-final	N SG	N PL	
/l/	íl	íl-ḡḡgg	‘horn’
	téèl	téél-ààgg	‘anchor’
	kùùl	kùùl-ḡḡgg	‘clan member’
	láál	láál-áāgg	‘pumpkin type’
/n/	kásán	kásán-áāgg	‘friend’
	bón	bón-āāgg	‘heart’
/m/	yāàm	yààm-ààgg	‘bride’
/w/	cééḡ	cééw-āāgg	‘lame person’
/ð/	jááḡ	jááḡ-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	
/εel/	ḡèèl	ḡèèl-g	‘storage shelf’
	ḡēèl	ḡèèl-èègg	‘sea, town’
	téèl	téél-ààgg	‘anchor’
/aam/	kààm	kààm-g	‘nyala’
	fáàm	fáám-èègg	‘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 *-AAɗ* and *-ɗ* are commonly attached to kinship terms, and the suffixes *-əgg*, *-V⁺g* and *-⁺g*, are commonly attached to body parts. The suffix *-AAɗ* 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>-AAɗ</i>	kinship nouns	mə̃ə̃ð	mə̃ə̃ð-ə̃ə̃ɗ	‘grandfather’	5
	root-final <i>-gg</i>	gàágg	gàágg-āāɗ	‘bird type’	5
<i>-ɗ</i>	kinship nouns	ābéé	ābéé-ɗ	‘maternal uncle’	5
<i>-əgg</i>	body part	fānd	fānd-ə̃gg	‘cheek’	5
<i>-⁺g</i>	body part	āāl	ə̃ə̃l-g	‘my head/our heads’	8
<i>-V⁺g</i>	body part	ə̃ə̃ɗ	ùɗ-ūgg	‘your eye/our eyes’	2

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

UR-final	N SG	N PL	
/g/	gàágg	gàágg-āāɗ	‘bird type’
	kàmàlògg	kàmàlògg-ààɗ	‘mature woman’
	kə̃ggə̃lìgg	kə̃ggə̃lìgg-ə̃ə̃ɗ	‘cock’
	kúūrìlúúgg	kúūrìlúúgg-ə̃ə̃ɗ	‘rodent type’
	ə̃ðə̃gg	ə̃ðə̃gg-ə̃ə̃ɗ	‘greed’
/m/	máám	máám-ààɗ	‘paternal aunt’
/n/	bèèn	bèèn-āāɗ	‘gossip’
/ð/	mə̃ə̃ð	mə̃ə̃ð-ə̃ə̃ɗ	‘grandfather’
	yààð	yààð-āāɗ	‘sister’
/w/	bààð	bààw-āāɗ	‘father’

The segmental suffix *-ɗ* 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 -ḍ, -ḍ̄**

UR-final	N SG	N PL	
/a/	ṭááðà	ṭááðà-ḍ	‘grandmother’
	bòðḡmà	bòðḡmà-ḍ	‘insect type’
/aa/	fùùlmàà	fùùlmàà-ḍ	‘insect type (compound noun)’
	wîilmāā	wîilmāā-ḍ	‘ant name (compound noun)’
/εε/	ābéé	ābéé-ḍ	‘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, -agḡ, -ágg**

Vowel of UR	N SG	N PL	
/ε/	tēēḡ	tīīḡ-agḡ	‘riddle’
	wéé(s)	wís-agḡ	‘house’
	bēṛḍ	birḍ-agḡ	‘anus’
/a/	fāḡ	fōḡ-ágg	‘cheek’
	sārāḡ	sòrāḡ-agḡ	‘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/	ḍòl	ḍùl-g	‘penis’
/ɔ/	/ɔ/	gḍà-ḍ ²⁸	gù- ⁺ gg	‘excrement’
/a/	/a/	kālāā-ḍ	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 *-ḍ* 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 *ʃiŋʃil / ʃiŋʃil-g* ‘bird type’, *lɔ̀ɔ̀ð / lɔ̀ɔ̀ð-g* ‘male singing voice’, and *lɔ̀ŋ / lɔ̀ŋ-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 underlyingly [+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	á-ɖ-əgg	1sPp	à-ɖ-əgg	1pPp	‘eye’
	ōō-ɖ	2sPs	ú-ɖ-ūgg	2sPp	ù-ɖ-ūgg	2pPp	
	ēē-ɖ	3sPs	í-ɖ-īgg	3sPp	ì-ɖ-īgg	3pPp	
(b)	ââ-s	1sPs	á-s-əgg	1sPp	à-s-əgg	1pPp	‘hand’
	ôô-s	2sPs	ú-s-ūgg	2sPp	ù-s-ūgg	2pPp	
	êê-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)	cɪ̄j̄j̄í	cɪ̄j̄j̄-ɔ̀əgg	‘diarrhea’
(b)	əŋə	əŋ-g	‘young girl’
(c)	gàfāj̄j̄	gàfē-ēgg	‘lung’
(d)	wéé	wís-əgg	‘house’
(e)	kɔ̀r-ɖ	kɔ̀r-ɔ̀əgg	‘bird type’
(f)	nāā	nālg	‘girl’
(g)	ʃāā	ʃāālgé	‘son, boy, person’
(h)	gɔ̀à-ɖ	gùù-gg	‘excrement’
(i)	ʃīn	ʃōgg	‘man, person’
(j)	ʃèèm	ʃègg	‘thing, something’
(k)	cél	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	
k̄r̄ḁ	<i>hill name</i>	rúùm	‘fog’
m̄ḁggḁr	<i>area name</i>	múū	‘mosquito’
múùm	<i>village name</i>	k̄ḁḁḁ	‘a quantity of milk’
k̄ḁḁm̄	‘good luck stone’	lúúsúḁ	‘sweat’
púúf̄ḁ	‘leprosy’	m̄álḁḁḁ	‘nose mucus’
s̄ḁn	‘skin disease’	ḁḁḁḁ	‘yeasted sorghum’
c̄ḁḁḁḁ	‘disease type’	b̄āāl̄ḁḁ	‘stripe’
ḁḁḁḁ	‘poverty’	ùù	‘air’
r̄ḁḁḁ	‘mud’	íȳḁḁ	‘animal fat’
ḡḁḁḁḁ	‘dung’	k̄āār̄ḁ	‘bacteria’
ḁḁḁḁḁḁ	‘dust’	s̄ḁḁḁ	‘hunting’
b̄ùil	‘moisture’	f̄ḁȳḁḁ	‘beneficiary’
ḡḁḁm̄ḁl	‘forest, woods’	s̄ḁḁḁḁḁ	‘wealth, pride’
m̄ál̄ḁ	‘bee wax’	l̄ḁf̄ḁ	‘magic’
m̄ḁḁḁḁḁḁ	‘leafy vegetable’	l̄ḁḁḁḁ	‘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	
t̄ḁḁḁḁḁ	‘comb’	īḁḁḁḁ	‘milk’
b̄ḁḁḁḁḁḁ	‘skin disease’	ḁḁḁḁḁḁḁ	‘ash’

Plural nouns (continued)

bilḍḍgg	‘worms (disease)’	fēgg	‘water’
íyáágg	‘oil’	márḥsēēgg	‘disease type’
ḵūgg	‘urin’	ḍùrsìgg	‘bad smell’
cḥḥgg	‘holy place’	kāḵēēgg	‘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)	fḥḍḍr	fḥḍḍr-g	fḥḍḍr-ēēgg	‘nose’
(i)	jííl	jííl-g	jííl-īgg	‘cricket’
(j)	kāāē	kāāē-gg	kāāy-ēēgg	‘witch doctor’
(k)	kābbàr	kābbàr-g	kābbàr-ēēgg ²⁹	‘wing, armpit’
(l)	kàḍḍēl	kàḍḍēl-g	kàḍḍēl-éégg	‘leader’
(p)	lēēḍ	lēēḍ-g ³⁰ [lēēg,]	lēēḍ-éégg	‘drill for planting’
(q)	lúḵ	lúḵ-g	lúḵ-īgg	‘boomerang’
(r)	lúúḵ	lúúḵ-g	lúúḵ-īgg	‘water pot’
(s)	ḵḥḥm	ḵḥḥm-g	ḵḥḥm-īgg	‘chin’
(t)	ḵéēḵ	ḵéēḵ-g	ḵéēḵ-èègg	‘spear type’
(u)	rāāē	rāāē-gg	rāāy-éégg	‘quarrel, war’
(v)	ḵéér	ḵéér-g	ḵéér-èègg	‘carving tool’
(w)	màḵḵil	màḵḵil-g	màḵḵil-īgg	‘rainbow, spirit’
(x)	bḥḥḍ	bḥḥḍ-g [bḥḥg,]	bḥḥḍ-īgg	‘salt’
(y)	lḥḥr	lḥḥr-g	lḥḥr-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	
fùlmaà	fùlmaà-gg	fùlmaà-ḑ	‘insect type’
bḑḑma	bḑḑma-gg	bḑḑma-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 *nḑnḑ* ‘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	
nḑnḑ	nḑnḑ-ḑgg	nḑn-ḑ	nḑn-g	‘demon’
kāḑnāāḑ	kāḑnāāḑ-ḑgg	kāḑnāā-ḑ	kāḑnāā-gg	‘bowl’
bḑrḑ	bḑrḑ-ḑgg	bḑr-ḑ	bḑr-ḑḑgg	‘lion’
kḑrḑ	kḑrḑ-ḑgg	kḑr-ḑ	kḑr-ḑḑgg	‘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 *-ɔ̄* with Plural suffix *-gg***

N SG	N PL 1	N SG	N PL 2	
l̩ggɔ̄ɔ̄ɔ̄ɔ̄	l̩ggɔ̄ɔ̄ɔ̄-ēēgg	l̩ggɔ̄ɔ̄-ɔ̄	l̩ggɔ̄ɔ̄-gg	‘locust’
àbbùùɔ̄	àbbùùɔ̄-ìigg	àbbùù-ɔ̄	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-ēēgg		‘priest, chief’
jíŋ-ɔ̄	jíŋ-íɔ̄	jíŋ-g		‘louse’
gàfā-ɰ	gɔ̄fɔ̄	gàfē-ēgg		‘lung’
búli-ɰ	búli-ɔ̄	búli-ìgg	búli-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 *-Aɔ̄* may have no underlying tone as in *kɔ̄l-ɔ̄ɔ̄/ kɔ̄l-g* ‘egg’ or Mid tone as in *níl-ɔ̄ɔ̄/níl-g* ‘intestine’. Singular suffixes with vowels having no underlying tone (*-Aɔ̄*, *-AAɔ̄*, *-Eɔ̄*) are assigned the root-final tone {M5}.

(39) **Singular suffixes *-Aɔ̄*, *-AAɔ̄* and *-Eɔ̄* attached to root-final sonorants**

Suffixes	N SG	N PL	
-ɔ̄	wéráá-ɔ̄	wéráá-gg	‘tribe member’
-g	à̀r-g	à̀r-ēēgg	‘priest, chief’
-ɰ	pēbbēē-ɰ	pēbbēē-gg	‘tree type’
-Aɔ̄	níl-ɔ̄	níl-g	‘intestine’
-Aɔ̄	kɔ̄l-ɔ̄	kɔ̄l-g	‘egg’
-AAɔ̄	cāl-āāɔ̄	cāl-g	‘testicle’
-Eɔ̄	jíŋ-íɔ̄	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	- $\bar{g}g$	- $\acute{A}gg$
-Agg	- $\bar{A}gg$	- $\acute{E}\bar{E}gg$
-EEgg	- $\bar{E}\bar{E}gg$	- $\acute{A}\bar{A}gg$
-AAgg	- $\bar{A}\bar{A}gg$	- $\acute{A}\bar{A}d$
-AAD	- $\bar{A}\bar{A}d$	- $\acute{A}\bar{A}d$
-d	- \bar{d}	
-əgg	- $\bar{ə}gg$	- $\acute{ə}gg$
- ^+g	- ^+g	
-OOgg	- V^+g	

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	léél	léél-g	'grass'
(b)	- $\bar{g}g$	káál	káál-g	'house fence'
(c)	- $\bar{g}g$	mōdō	mōdō-gg	'locust'
(d)	- $\bar{g}g$	fōédá	fōédá-gg	'seed'
(e)	-Agg	lèṅḍ	lèṅḍ-əgg	'tree type'
(f)	- $\bar{A}gg$	bàṅḍ	bàṅḍ-āgg	'tree type'
(g)	- $\acute{A}gg$	mīīḍ	mīīḍ-ágg	'stone'
(h)	-EEgg	ḍààr	ḍààr-èègg	'eagle'
(i)	- $\bar{E}\bar{E}gg$	cèèr	cèèr-ēēgg	'singer'
(j)	- $\acute{E}\bar{E}gg$	rāāē	rāāy-éēgg	'quarrel, war'
(k)	- $\bar{A}\bar{A}gg$	téèl	téél-ààgg	'anchor'
(l)	- $\acute{A}\bar{A}gg$	jàád	jàád-āagg	'old clothes'
(m)	- $\acute{A}\bar{A}gg$	láál	láál-áagg	'pumpkin type'

	Suffix Tone	N SG	N PL	
(n)	-AĀd	máám	máám-ààd	'paternal aunt'
(o)	-AĀd	yààð	yààð-āād	'sister'
(p)	-ĀĀ̄d	mǝǝð	mǝǝð-ǝǝd	'grandfather'
(q)	-d̄	ṽááðà	ṽááðà-d̄	'grandmother'
(r)	-d̄	ābéé	ābéé-d̄	'maternal uncle'
(s)	-əgg	tēēnd	tīīnd-əgg	'riddle'
(t)	-əgg	wéé(s)	wís-əgg	'house'
(u)	-əgg	fānd	fōnd-əgg	'cheek'
(v)	- ⁺ g	āāl	ǝǝl-g	'my head/our heads'
(w)	- ⁺ g	fǝl	fūl-g	'hole'
(x)	-V ⁺ g	ǝǝd	ùd-ūgg	'your eye/your eyes'
(y)	-OOgg	kǝr-d̄	kǝr-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 vowelless 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 *ǝèèrs/ǝèèrs-əgg* 'hippopotamus', *ǝlǝbb/ǝlǝbb-əgg* 'water spring', and *bāgdārs/bāgdārs-əgg* '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 **ǝlǝbb-əgg* instead of *ǝlǝbb-əgg*. 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-əgg	‘riddle’
(h)		-ḍ/-OOgg	kōr-ḍ	kōr-ōōgg	‘bird type’
(i)	L	-Agg	jèèrs	jèèrs-əgg	‘hippopotamus’
(j)		-EEgg	bàām	bàām-ēēgg	‘bird type’
(k)		-ḍ/-AAgg	bàr-ḍ	bàr-ààgg	‘lion’
(l)		-AAḍ	kàmàlògg	kàmàlògg-ààḍ	‘mature woman’
(m)	HL	-Agg	jílèbb	jílèbb-əgg	‘water spring’
(n)	HM	-Agg	búlūūrs	búlūūrs-əgg	‘bird type’
(o)	ML	-Agg	bāgdàrs	bāgdàrs-əgg	‘lizard’
(p)	LM	-Agg	àbbāḍ	àbbāḍ-āgg	‘tree type’
(q)	MHL	-AAḍ	kəggóliigg	kəggóliigg-ààḍ	‘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	ílʃ	ílʃ-əgg	‘beeswax’
		-EEgg	fáām	fáám-èègg	‘opinion’
		-AAgg	téél	téél-ààgg	‘anchor’
		-AAḍ	máām	máám-ààḍ	‘paternal aunt’
	HM	-Agg	sííʃ	sííʃ-əgg	‘tree type’
		-AAgg	cééʃ	cééʃw-āāgg	‘lame person’
	ML	-Agg	kāpnāāḍ	kāpnāāḍ-əgg	‘bowel for hot foot’
		-EEgg	gəməūūr	gəməūūr-ììgg	‘dove’
		-EEgg	lōōr	lōōr-èègg	‘cervix’
	LM	-Agg	gōōn	gōōn-əgg	‘responsibility’
		-ḍ/-EEgg	gəūr-ḍ	gəūr-īīgg	‘stomach pouch’
	LHL	-EEgg	bàsáār	bàsáár-èègg	‘lie’
		-EEgg	ʃòʃòr	ʃòʃòr-èègg	‘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-àgg* ‘fertile soil’ and *ṭáḍr/ṭáḍr-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 *káēḍ/káēḍ-āgg*, *káéḍ-āgg* ‘cup, spoon’ and *gḍmūūr/gḍmūūr-ìgg*, *gḍmūūr-ìgg* ‘dove’ have two plural forms with differing tone. The plural form *káēḍ-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-àgg*, *ṭáḍr-èègg*, and *gḍmūūr-ìgg* 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-àgg* ‘hippopotamus’, *ḵílàbb/ḵílàbb-àgg* ‘water spring’, and *bāgdàrs/bāgdàrs-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	órónḍ	órónḍ-ōgg	‘fermented milk’
	-ĒĒgg	póóḵ	póóḵ-ēēgg	‘knife sheath’
	-ĀĀgg	jááḍ	jááḍ-āāgg	‘old clothes’
	-ōgg	wéé(s)	wís-ōgg	‘house’
	-Āḍ/-gg	ḵíl-ḍ	ḵíl-g	‘intestine’
M	-Āgg	māāḍ	māāḍ-āgg	‘snake type’
	-ĒĒgg	kūn	kūn-īgg	‘hunger’
	-ĀĀḍ	ḍḍōgg	ḍḍōgg-ḍḍ	‘greed’
	-ōgg	tēēnḍ	tīīnḍ-ōgg	‘riddle’
	-ĀĀḍ/-gg	cāl-āāḍ	cāl-g	‘testicle’
L	-Agg	jèèrs	jèèrs-àgg	‘hippopotamus’
	-EEgg	bààm	bààm-èègg	‘bird type’
	-ḍ/-ĀAgg	bàr-ḍ	bàr-ḍḍgg	‘lion’
	-ĀĀḍ	kàmàlògg	kàmàlògg-àḍ	‘mature woman’
HM	-Agg	káēḍ	káēḍ-āgg	‘cup, spoon’
HL	-ĒĒgg	ṭáḍr	ṭáḍr-èègg	‘lizard’
	-Agg	ḵílàbb	ḵílàbb-àgg	‘water spring’

Root tone	Suffix	N SG	N PL	
MH	- <u>Ā</u> gg	dɔd	dɔd-ɔgg	'bird type'
ML	- <u>Agg</u>	ɖā̀ɖ	ɖā̀ɖ-àgg	'fertile soil'
	- <u>Agg</u>	bā̀gɖā̀rs	bā̀gɖā̀rs-àgg	'lizard'
LH	- <u>EE</u> gg	gɔ̄mū̀r	gɔ̄mū̀r-ìgg	'dove'
	- <u>Ā</u> gg	bìmiríj	bìmiríj-ɔgg	'bird type'
HMH	- <u>Ā</u> Ā̀ɖ	gàágg	gàágg-āā̀ɖ	'bird type'
	- <u>Ā</u> gg	lúliíɖ	lúliíɖ-ɔgg	'snake type'
HLH	- <u>Ā</u> Ā̀ɖ	kúūrúúgg	kúūrúúgg-āā̀ɖ	'rodent type'
	-ɖ/-gg	rúnjùú-ɖ	rúnjùú-gg	'bird type'

However, in nouns with two tones on the root-final syllable such as *táɖr/táɖr-èègg* 'lizard', *káēɖ/káēɖ-āgg* 'cup, spoon', *ɖā̀ɖ/ɖā̀ɖ-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 *ilj/ilj-àgg* 'beeswax', *síj/síj-ɔgg* 'tree type', and *kā̀nā̀ɖ/kā̀nā̀ɖ-āgg* '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 *táɖr/táɖr-èègg* 'lizard' and *ɖā̀ɖ/ɖā̀ɖ-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 *bə̀nj/bə̀nj-ɔgg* '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	- <u>Ā</u> gg	kás	kás-ɔgg	'sorghum type'
	- <u>É</u> Ēgg	lún	lún-ígg	'boomerang'
	- <u>Ā</u> Ā̀gg	lál	lál-āā̀gg	'pumpkin type'
M	- <u>Ā</u> gg	fā̀nɖ	fā̀nɖ-ɔgg	'cheek'
	- <u>É</u> Ēgg	múfúr	múfúr-ígg	'gazelle type'
	- <u>Ā</u> Ā̀ɖ	mā̀ɔ̄ɔ̄	mā̀ɔ̄ɔ̄-ɔ̄ɔ̄ɖ	'grandfather'
L	- <u>Ā</u> gg	bə̀nj	bə̀nj-ɔgg	'pulp'
	-ɖ/- <u>É</u> Ēgg	mòggòr-ɖ	mòggòr-ēēgg	'stirring stick'
	- <u>Ā</u> Ā̀gg	kùùl	kùùl-āā̀gg	'clan member'
LM	- <u>Ā</u> Ā̀ɖ	bèèn	bèèn-āā̀ɖ	'gossip'
	- <u>Ā</u> gg	ɖiwínd	ɖiwínd-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 *dìwīnd/dìwīnd-ógg* ‘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 *kós/kós-ógg* ‘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-āgg* ‘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	kós	kós-ógg	‘sorghum type’
(b)		M	órónḍ	órónḍ-ògg	‘fermented milk’
(c)		none	kós	kós-ógg	‘sorghum type’
(d)	M	H	mīīḍ	mīīḍ-ógg	‘stone’
(e)		M	māāḍ	māāḍ-āgg	‘snake type’
(f)		none	māāḍ	māāḍ-āgg	‘snake type’
(g)	L	H	bàŋŋ	bàŋŋ-ògg	‘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	wāō	wāō-gg	‘shade, help’
	-ʃ/-gg	pēbbēē-ʃ	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	órɖàà	órɖàà-gg	‘army leader’
	-ɖ	ʃááðà	ʃááðà-ɖ	‘grandmother’
HM	-gg	ʃórgāāl	ʃórgāāl-g	‘bird type’
	-gg	páʃʃōō	páʃʃōō-gg	‘star’
	-ɖ/-gg	bórē-ɖ	bórē-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	gùlɖū	gùlɖū-gg	‘tree trunk, wood’
MH	-gg	bāár	bāár-g	‘tribe member’
	-gg	lēōɖá	lēōɖá-gg	‘animal’
	-ʃ/-gg	māāy-ʃ [māāʃ.]	māāē-g	‘cucumber’
HLM	-gg	áàrēē	áàrēē-gg	‘grass type’
	-ɖ	wîlmāā	wîlmāā-ɖ	‘ant name (comp)’
MHM	-gg	cēggélūū	cēggélūū-gg	‘root type’
MHL	-gg	ūɲúràð	ūɲúràð-gg	‘pumpkin’
LHL	-gg	ɖùùl	ɖùùl-g	‘instrument type’
	-gg	gàðáàè	gàðáàè-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	ɖáár	ɖáár-g	‘throne’
	-gg	kúúfú	kúúfú-gg	‘ground sesame’
	-gg	wááyáá	wááyáá-gg	‘bird type’
	- ⁺ gg	fól	fūl-g	‘hole’
	-ɖ/-gg	wéráá-ɖ	wéráá-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	rúḥùú-ḍ	rúḥùú-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 *wèlèḥ/ wèlèḥ-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	ám	ám-g	‘bone’
(c)	M	M	bāāl	bāāl-g	‘cave’
(d)		none	bāāl	bāāl-g	‘cave’
(e)	L	M	wèlèḥ	wèlèḥ-g	‘sour/bitter taste’
(f)		none	wèlèḥ	wèlèḥ-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’	
	ḍḍḍr	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’	
	nāḅ	nāḅ-èègg	‘crocodile’	
	mḍsḍr	mḍsḍr-èègg	‘horse’	
	āḅàr	āḅàr-èègg	‘rope bed’	
	-Agg	sīindḍ	sīind-ḍgg	‘guest’
		kāàndḍ	kāànd-ḍgg	‘water-carrying stick’
-AAgg	yāàm	yāàm-ààgg	‘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 *lḍḍr/lḍḍr-èèg* ‘cervix’ and *kāḅnāḍḍ/kāḅnāḍḍ-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 *gḍmūḍr/gḍmūḍr-ìigg* ‘dove’ and *ḍāḍḍḍ/ḍāḍḍḍ-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)	ṭāēḍá(g)	ṭāēḍā-āgg	‘wine strainer’
(e)	lúḍ	lú-ùgg	‘leg’
(f)	búlí-ḥ	búlí-ìgg	‘worm’
(g)	ḵìḍ	ḵìḍ-àgg, ḵìgg	‘husband’
(h)	gṵṵḍḍg [gṵṵḍḍg, ḵ]	gṵṵḍḍ-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 *bṵṵrà/bṵṵrà-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 *bṵṵrà / bṵṵrà-gg* ‘shoulder’

		Singular person pronouns		Plural person pronouns		
Noun SG	ā	bṵṵràà	1sPs	---		1pPs
	ṵ	bṵṵràà	2sPs	---		2pPs
	ē	bṵṵràà	3sPs	---		3pPs
Noun PL	ā	bṵṵràà-gg	1sPp	āgg	bḍḍràā-gg	1pPp
	ṵ	bṵṵràà-gg	2sPp	ūgg	bḍḍràā-gg	2pPp
	ē	bṵṵràà-gg	3sPp	ēgg	bḍḍràā-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	ā cíl	āgg cíl-g	‘spine’
	ā sísíḵ	ā sísíḵ-éēgg	āgg sísíḵ-ēēgg	‘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 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 bə̀lè̀màà	ā bə̀lè̀màà-gg	āgg bə̀lè̀màà-gg	‘knee cap’
HL	ā il	ā il-ə̀ə̀gg	āgg il-ə̀ə̀gg	‘horn’
	ā lááɖà(g)		āgg láàɖà-gg	‘brain’
	ā tɔ̀ndɔ̀li(g)	ā tɔ̀ndɔ̀li-igg	āgg tɔ̀ndɔ̀li-igg	‘elbow’
HM	ā ɲíi-ɖ	ā ɲíi-gg	āgg ɲíi-gg	‘tooth’
ML	ā sùù-ɖ		āgg sùù-gg	‘hair’
	ā bāssà-ɖ	ā bāssà-gg	āgg bāssà-gg	‘intestine’
MH	ā búlɖí(g)	ā búlɖí-igg	āgg búlɖí-igg	‘finger’
	ā kūsūmíí	ā kūsūmíí-gg	āgg kūsūmíí-gg	‘knee’
LM	ā ə̀mə̀		āgg ə̀mə̀-gg	‘liver’
	ā cə̀ŋə̀lɖā	ā cə̀ŋə̀lɖā-gg	āgg cə̀ŋə̀lɖā-gg	‘triceps’
HLM	ā kəlɖə̀		āgg kəlɖə̀-gg	‘jaw’
	ā ɖə̀ggə̀lɖā	ā ɖə̀ggə̀lɖā-gg	āgg ɖə̀ggə̀lɖā-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 *ə̀ggáár* ‘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 *tɔ̀s = 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 **ə̀ggáár**
 food /ɲaw/need-COMP=PAS.A /ə̀ggáár/hunter.GEN
 ‘Food is needed by the hunter.’

- (55) ɔ̀ɲ é **tɔ̀s = n** wēɖán
 meat of /tɔ̀s/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 *téṅḍás = 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	ṭṣ́	ṭṣ̀	ṭṣ̀ = n	‘cow’
M	HL	mīī	mîî	mîî = n	‘goat’
L	ML	ḍìì	ḍîî	ḍîî = n	‘rat’
HL	ML	wírî	wîrî	wîrî = n	‘bird’
HM	ML	súlṣ	sūlṣ	sūlṣ = n	‘clan member’
ML	ML	ṅūūī	ṅūūî	ṅūūî = n	‘leopard’
LH	ML	àggáár	àggāār	àggāār = à	‘hunter’
LM	ML	mṣrāā	mṣrāā	mṣrāā = n	‘governor’
MH	HL	téṅḍás	téṅḍàs	téṅḍàs = à	‘bird type’
MHM	ML	kūḍúúrī	kūḍūūrî	kūḍūūrî = 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	ṭṣ́-gg	ṭṣ̀-gg	ṭṣ̀- <i>gg</i> = ṣ̀	‘cow’
M	HL	mīī-gg	mîî-gg	mîî- <i>gg</i> = ṣ̀	‘goat’
L	ML	ḍìì-gg	ḍîî-gg	ḍîî- <i>gg</i> = ṣ̀	‘rat’
HL	ML	wírî-ìgg	wîrî-ìgg	wîrî-ì <i>gg</i> = ṣ̀	‘bird’
HM	ML	súlṣ-àgg	sūlṣ-àgg	sūlṣ-à <i>gg</i> = ṣ̀	‘clan member’
ML	ML	ṅūūy-g	ṅūūy-g	ṅūūy- <i>g</i> = ṣ̀	‘leopard’
LH	ML	àggáár-g	àggāār-g	àggāār- <i>g</i> = à	‘hunter’
LM	ML	mṣrāā-gg	mṣrāā-gg	mṣrāā- <i>gg</i> = à	‘governor’
MH	HL	téṅḍás-àgg	téṅḍàs-àgg	téṅḍàs-à <i>gg</i> = à	‘bird type’
MHM	ML	kūḍúúrī-gg	kūḍūūrî-gg	kūḍūūrî- <i>gg</i> = ṣ̀	‘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 = ǝ* ‘goat.GEN = DEF’, *āggāâr-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.