

Polar Tone of Laarim, a Surmic Language of Sudan

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1. Introduction

Laarim (or Longarim [loh], Narim, Boya) is a Nilo-Saharan, Eastern Sudanic, Southwest Surmic language spoken in the Eastern Equatorial province of Sudan. Laarim is most closely related to Didinga, Tennen, and Murle, and shares many grammatical features with these languages. Much of the grammar of these languages has been documented (Arensen, 1982; De Jong, 2004; Randal, 1995), but little has been written on tone. This paper draws from a comprehensive write-up of Laarim tone based on 600 nouns, 400 verbs, and 50 adjectives (Stirtz 2011). The author collected these data during a six-week workshop in Nairobi, Kenya in November 2010 with one Laarim speaker.

There are five case suffixes in Laarim which have opposite tone from the stem-final tone. For example, the genitive suffix *-o* has Low surface tone when attached to stems with High tone (*ɲɛ́rɛ́r-ò* ‘fruit-GEN’, but High surface tone when attached to stems with Low tone (*bàlàŋ-ó* ‘salt-GEN’). These can be labeled Polar tones in that they have opposite tone from the stem-final tone. However, as will be shown in this paper, these suffixes can be analyzed as having underlying HL tone, where only one tone is allowed to surface on the suffix.

In Cahill’s analysis of Kɔ̀nni (2004), tone polarity is due to a surface constraint requiring specific suffixes to have the opposite tone from preceding stems. Yip (2002:159ff) compares other languages where tone polarity is a result of dissimilation involving underlying High or Low tone. Trommer gives an analysis of Kanuri (2005) where tone polarity results from dissimilation involving underlying contour tone. This paper analyzes tone polarity in Laarim as the result of a surface constraint on underlying HL contour tone.

Although Polar surface tone is contrastive with Low tone in suffixes, it is never contrastive with HL tone. Further, there are several suffixes in the language that are best analyzed as having HL tone. In addition, a constraint does not allow HL contour tone to surface on short vowels or affixes. Thus, underlying HL suffixes must surface either with High or Low tone. Which one is chosen is determined by the tonal OCP. This and other support will be given for analyzing Polar surface tone as underlying HL tone.

Polar tone in Laarim only occurs on noun case suffixes. To understand these morphemes, we first discuss tone in noun roots, then tone in noun plural formation, and then tone in case morphology. For reference, the consonant phonemes are presented in table 1 and the vowel phonemes in table 2.

Table 1: Consonant phonemes

	labial	dental	alveolar	palatal	velar	labial-velar	glottal
vl plosives	p	t̪		c	k	k ^w	h
vd plosives	b	d̪	d	j	g	g ^w	
vd fricatives	v	ð					
nasals	m		n	ɲ	ŋ		
approximants	w		l, r	y [j]			

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Table 2: Vowel phonemes

+	ATR	i		u
-	ATR	ɪ		ʊ
+	ATR	e		o
-	ATR	ɛ		ɔ
+/-	ATR		a	

2. Noun plural formation

2.1. Segmental noun plural formation

Noun plural formation is much like that of other Surmic languages. As shown in table 3, the noun root can be either the singular form, plural form, or neither. In other words, nouns can attach a suffix to mark the plural form as in *bàlàŋ-úá* ‘salt-PL’, the singular form as in *míníŋ-ìṭ* ‘spirit-SG’, or both as in *bórón-ìṭ* ‘gazelle-SG’, *bòròn-úá* ‘gazelle-PL’. The noun system has multiple singular and plural marker suffixes, most of which are beyond the scope of this paper and will not be presented. Nevertheless, there are nine suffixes marking singular forms of nouns, and twelve suffixes marking plural forms of nouns. Most of these are unpredictable by root-final segments or by the semantics of the root.

Table 3: Three-way noun plural formation

	Singular suffix	Root	Plural suffix	
/-ua		bàlàŋ	bàlàŋ-úá	‘salt’
/-eɛta		lògòr	lògòr-èètà	‘sport uniform’
-ìṭ/	míníŋ-ìṭ	míníŋ		‘spirit’
-oc/	yàyín-òc	yàyín		‘porcupine’
-ìṭ/-ua	bórón-ìṭ	boron-	bòròn-úá	‘gazelle’
-oc/-eɛta	gùrmál-òc	gurmál-	gùrmál-èètà	‘nail’

2.2. Tone of noun roots

The syllable is the tone bearing unit and usually only one tone is assigned per syllable. There are a few long-vowel syllables with HL contour tone such as in *kúòk* ‘eagle’. These are analyzed as two tones assigned to the same syllable. Contour tone is rare in roots. Although LH contour tone sometimes surfaces on short vowels (*mìdíl* ‘shin’), HL contour tone never occurs on short vowels. All word-final Low tone falls when the word is in isolation.

In (1), five contrastive tone melodies of monomorphemic singular nouns are presented. In (2), five contrastive melodies of plural nouns are presented. The number of nouns in the data set with the specified tone melody and syllable pattern is shown in parentheses. Other attested syllable patterns with the specified tone are not presented. The lower case letter h is used to represent floating High tone and a final acute tone mark without vowel (´) represents the floating High tone in data. On consonant-final noun roots with Lh melodies in isolation, there is free variation between final rising tone and level Low tone. On vowel-final noun roots with Lh melody in isolation, there is free variation between final rising and Low-falling.

(1) Tone melodies of monomorphemic singular nouns; in isolation¹

	H	L	Lh	HL	LH
CVVC	[$\bar{\quad}$] lóók (13) 'grave, hole'	[\backslash] lòòc (13) 'land, earth'	[\swarrow], [$-$] yàáj, yààj' (1) 'mother'	[$\bar{\backslash}$] kóòk (2) 'eagle'	
CVCVC	[$\bar{\quad}$ $\bar{\quad}$] bánák (17) 'bag'	[$-$ \backslash] lògòr (23) 'snail'	[$-$ \swarrow], [$-$ $-$] mìdìl, mìdìl' (2) 'shin'	[$\bar{\quad}$ \backslash] dólòk (1) 'shrew'	[$-$ $\bar{\quad}$] dòwúc (1) 'bowl'
CVCVCV	[$\bar{\quad}$ $\bar{\quad}$ $\bar{\quad}$] nétíkó (4) 'zebra'	[$-$ $-$ \backslash] lòbèlè (7) 'bed'	[$-$ $-$ \swarrow], [$-$ $-$ \backslash] nàpùcá, nàpùcá' (1) 'butterfly'	[$\bar{\quad}$ $\bar{\quad}$ \backslash] népírà (4) 'hippo'	[$-$ $-$ $\bar{\quad}$] tèhèlé (4) 'parrot'

(2) Tone melodies of monomorphemic plural nouns²; in isolation

	H	L	Lh	HL	LH
CVVCV	[$\bar{\quad}$ $\bar{\quad}$] láábí (1) 'grains'	[$-$ \backslash] gààlà (4) 'officials'	[$-$ $\bar{\quad}$], [$-$ \backslash] bààró, bààrò' (4) 'ropes'	[$\bar{\quad}$ \backslash] búúrù (5) 'eggs'	[$-$ $\bar{\quad}$] mūūnì (3) 'fig trees'

To test the effect of neighboring tones, all nouns with each tone melody were placed in each of four frames: High before, Low tone before, High tone after, and Low tone after. From this it was determined that the tone of nouns is not affected by tone on either side of the word boundary, with the exception of floating High tone. As shown in the third frame of (3), floating High tone normally surfaces as level Low tone when followed by High tone. However, as shown in the fourth frame, it surfaces as Low-rising when followed by Low tone. Unless otherwise indicated, all nouns in this paper were elicited with Low tone after the noun such as in the fourth frame. As seen in the phrases of (3), automatic downstep is common in that each Low tone in a phrase following a High tone is lower than the previous Low tone.

(3) Singular accusative noun *mìdìl* 'shin' with Lh tone in four environments

	H before	L before	H after	L after
Lh	[$\bar{\quad}$ $\bar{\quad}$ $\bar{\quad}$ $\bar{\quad}$] [$\bar{\quad}$ $\bar{\quad}$ $\bar{\quad}$ $\bar{\quad}$]	[$\bar{\quad}$ $\bar{\quad}$ \backslash $\bar{\quad}$ $\bar{\quad}$] [$\bar{\quad}$ $\bar{\quad}$ \backslash $\bar{\quad}$ $\bar{\quad}$]	[$\bar{\quad}$ $\bar{\quad}$ $\bar{\quad}$ $\bar{\quad}$ $\bar{\quad}$ $\bar{\quad}$] [$\bar{\quad}$ $\bar{\quad}$ $\bar{\quad}$ $\bar{\quad}$ $\bar{\quad}$ $\bar{\quad}$]	[$\bar{\quad}$ $\bar{\quad}$ $\bar{\quad}$ $\bar{\quad}$ $\bar{\quad}$ $\bar{\quad}$] [$\bar{\quad}$ $\bar{\quad}$ $\bar{\quad}$ $\bar{\quad}$ $\bar{\quad}$ $\bar{\quad}$]
	Ícín nǎá <u>mìdìl'</u> H H Lh 'woman sees <u>shin</u> '	Ícín màà <u>mìdìl'</u> H L Lh 'lion sees <u>shin</u> '	<u>mìdìl'</u> tórór-à ícìt-ò Lh H-L HL-L ' <u>shin</u> in ditch'	<u>mìdìl'</u> ñilòm-á ícìt-ò Lh L-H HL-L ' <u>shin</u> in cave'

2.3. Tone of noun plural formation

As mentioned, plural noun roots add one of nine singular marker suffixes. Each of these suffixes has one or more of four underlying tone melodies: Lh replacement tone (Rpl), HL replacement tone, Low tone, or toneless. In (4), singular suffixes with the four different tone melodies are attached to

¹ ABL	ablative	STAT	stative	UT	underlying tone
ACC	accusative	P	polar tone	V	verb
ADJ	adjective	PL	plural	-	morpheme break
GEN	genitive	(Rpl)	replacement tone	→	change from UT to ST
h	floating High tone	SG	singular		
NOM	nominative	ST	surface tone		

² Not all monomorphemic plural nouns have CVVCV syllable structure. For example *míníj* 'spirit' and *yàýín* 'porcupine' of table 3 have CVCVC syllable structure.

roots with various tone melodies. Suffix tone is across the top, and root tone is down the left side. When the suffix *-it̚* with HL replacement tone attaches to the plural root *ràbàcò* ‘benches’, the Low root tone is replaced with the HL tone (*rábác-it̚*).

(4) Tone of singular suffixes added to roots with various tone melodies; in isolation

Root Tone	Lh(Rpl)		HL(Rpl)		-L		Toneless	
	SG	PL	SG	PL	SG	PL	SG	PL
H	vàllà-it̚ ‘claw’	vállák	míníŋ-it̚ ‘spirit’	míníŋ	múnún-òc ‘star type’	múnún		
L	kìròŋ-it̚ ‘fly’	kìròŋà	rábác-it̚ ‘bench’	ràbàcò	rùgùàŋ-òc ‘coconut’	rùgùàŋ	lèèv-òc ‘scab’	lèèvò
Lh					vàràŋ-it̚ ‘branch’	vàràŋ	cààv-it̚ ‘shoe’	cààvǎ
HL							rímà-c ‘firewood’	rímà
LH	mùùn-èèc̣ ‘fig tree’	mùùí			yàyán-òc ‘porcupine’	yàyán	jǝ̀̀rò-n ‘chick’	jǝ̀̀rò

The singular suffix *-it̚* has two underlying tone melodies or behaviors: Lh replacement (*kìròŋ-it̚* ‘fly-SG; *kìròŋà* ‘fly’) and HL replacement (*rábác-it̚* ‘bench-SG; *ràbàcò* ‘bench’). Other suffixes such as *-oc* and *-it̚* also have more than one underlying tone melody.

The singular surface tone in (4) is sometimes not contrastive in the nouns of one suffix melody to the next. For example, *míníŋ-it̚* ‘spirit’ and *múnún-òc* ‘star type’ do not have contrastive surface tone. Here, the suffix melodies are analyzed as such from nouns where the same segmental suffix has contrastive tone in various cases, as are shown in (Stirtz 2011).

When a singular suffix is attached, the stem tone of the noun can be one of the five melodies of (5): Low, Lh, HL, LH, or LHL.

(5) Stem tone melodies of nouns with singular suffixes; in isolation

L	Lh	HL	LH	LHL
rùgùàŋ-òc ‘coconut’	kìròŋ-it̚ ‘fly’	rímà-c ‘firewood’	jǝ̀̀rò-n ‘chick’	vàràŋ-it̚ ‘palm branch’

As mentioned, singular noun roots add one of twelve plural marker suffixes. Each of these suffixes also has one or more of four melodies. In (6), plural suffixes with the four different suffix melodies are attached to roots with various melodies.

(6) Tone of plural suffixes added to roots with various tone melodies; in isolation

Root Tone	H (Rpl)		L (Rpl)		Lh (Rpl)		LH (Rpl)	
	SG	PL	SG	PL	SG	PL	SG	PL
H			jǎ́tǎ́bá ‘leprosy’	jǎ́tǎ̀b-èètǎ	jé̀̀tíkó ‘zebra’	jé̀̀tikò-jǎ́	vǎ́tík ‘fishing stick’	vǎ̀̀tíw-úá
L	bìì ‘stone’	bíí-yéén	lòrùdò ‘fog, mist’	lòrùd-èètǎ	òllùà ‘sorrow’	òllùà-jǎ́	bòrròk ‘fish dam’	bòrròw-úá
Lh			ðìtǎ́án ‘demon’	ðìtǎ̀àn-ètǎ	nǎ̀̀pùcǎ ‘butterfly’	nǎ̀̀pùcà-jǎ́		
HL			lógòrò ‘rattle’	lògòr-èètǎ	jé̀̀pírà ‘hippo’	jé̀̀pìrà-jǎ́	dǎ̀̀lǎ̀k ‘shrew’	dǎ̀̀lòw-úá
LH			tǎ̀̀lǎ̀rǎ́ ‘porridge’	tǎ̀̀lǎ̀r-èètǎ	tè̀̀hèlé ‘parrot’	tè̀̀hèlè-jǎ́		

When a plural suffix is attached, the stem tone of the noun can be one of the four melodies of (7): High, Low, Lh, or LH.

(7) Stem tone melodies of nouns with plural suffixes; in isolation

H	L	Lh	LH
bíí-yéén	lòrùḍ-èèṭà	ṅèṭikò-ṅǎ́	vàṭiw-úá
‘stone’	‘fog, mist’	‘zebra’	‘fishing stick’

3. Noun case morphology

3.1. Segmental noun case morphology

There are four cases in Laarim. The nominative, ablative, and genitive cases are usually marked with suffixes, in addition to any singular or plural suffixes. However, the accusative case is unmarked. There is one set of case suffixes for singular nouns and a different set of case suffixes for plural nouns. In addition, there are subsets of case suffixes for vowel-final stems and consonant-final stems.

In (8), consonant-final and vowel-final singular and plural monomorphemic nouns (roots with no number inflection) are given in each case. The noun with number marking is given in parentheses for comparison.

(8) Singular and plural nouns with nominative, ablative, and genitive suffixes

	ACC SG	ACC PL	NOM	ABL	GEN SG ³	GEN PL	
SG Noun	béléḍ	(bèlèḍ-úá)	bèlèḍ-ì	béleḍ-à	béleḍ-ò	béleḍ-ák	‘window’
	ḍílá	(ḍilà-ṅá)	ḍilà	ḍílá-wà	ḍílá-wò	ḍílá-wák	‘spear’
PL Noun	(mìrò-ṭ) ⁴	mírók	mìròw-à	mìròw-éí	mìròw-ú		‘enemy’
	(kìṅó-c)	kíṅó	kìṅò-ná	kìṅò-néí	kìṅò-nú		‘pipe’

In (9), nouns with singular suffixes are given in each case.

(9) Singular noun suffixes with nominative, ablative, and genitive suffixes

	ACC SG	ACC PL	NOM	ABL	GEN SG	GEN PL	
-ṭ/	mìrò-ṭ	(mírók)	mìrò-ṭ-ì	mìròk-ṭ-á	mìròk-ṭ-ó	mìròk-ṭ-ák	‘enemy’
-c/	màḍóó-c	(máḍó)	màḍòò-c-ì	màḍòò-c-á	màḍòò-c-ó	màḍòò-c-ák	‘poison’

In (10), nouns with plural suffixes are given in each case.

(10) Plural noun suffixes with nominative, ablative, and genitive suffixes

	ACC SG	ACC PL	NOM	ABL	GEN SG	
/-eet	(ṅáí)	ṅàr-èèṭ	ṅàr-èèṭ-à	ṅàr-èèṭ-éí	ṅàr-èèṭ-ǔ	‘healer’
/-ṅa	(ḍílá)	ḍilà-ṅá	ḍilà-ṅ-à	ḍilà-ṅ-à-néí	ḍilà-ṅà-nú	‘spear’

3.2. Tone of noun case morphology

Table 4 lists the tone of case suffixes on singular and plural nouns. Again, the nominative, ablative, and genitive suffixes differ segmentally according to whether the noun stem is singular or plural and whether the noun stem is consonant-final (C) or vowel-final (V). However, there are even

³ The genitive suffix *-ò* marks a singular noun possessing a singular noun (such as ‘a child’s garden’), the genitive suffix *-ák* marks a singular noun possessing a plural noun (such as ‘a child’s gardens’), and the genitive suffixes *-u* and *-nu* mark a plural noun possessing a singular or plural noun (such as ‘children’s garden’ or ‘children’s gardens’).

⁴ As discussed in (Stirtz 2011:8-9), the [+ATR] quality of some suffixes spreads leftward to the root (*mìrò-ṭ* ‘enemy-SG’; *mírók* ‘enemies’), but the [+ATR] quality of case suffixes does not (*mìròw-éí* ‘enemies-ABL’).

further distinctions in these case suffixes by underlying tone. For example, the ablative suffix *-a* on consonant-final singular noun roots has Polar (P) tone (*ɣérér-à* ‘fruit-ABL’, *bàlàŋ-á* ‘salt-ABL’), but the ablative suffix *-a* on consonant-final nouns with singular suffixes has HL tone. The genitive suffix *-u* on plural noun roots has Lh replacement (Rpl) tone or Low tone, but the genitive suffix *-u* on nouns with plural suffixes has Polar tone. For the sake of completeness, the full paradigm is given below. Although in what follows, we focus only on the instances of P tone.

Table 4: Tone of case suffixes on singular and plural nouns

Noun type	Stem final	NOM	Tone	ABL	Tone	GEN SG	Tone	GEN PL	Tone
SG noun roots	C	-i	L	-a	P	-o	P	-ak	P
	V	---	---	-wa	P	-wo	P	-wak	P
PL noun roots	C	-a	L	-ei	Lh(Rpl) or L	-u	Lh(Rpl) or L		
	V	-na	Lh (Rpl)	-nei	Lh(Rpl) or L	-nu	Lh(Rpl) or L		
Nouns with SG markers	C	-i	L	-a	HL	-o	HL	-ak	HL
Nouns with PL markers	C	-a	L	-ei	P	-u	P		
	V	-na	L	-nei	P	-nu	P		

For now, we note the five pairs of suffixes with Polar tone attached to consonant-final and vowel-final nouns (*-a*, *-wa* ABL; *-o*, *-wo* GEN SG; *-ak*, *-wak* GEN PL; *-ei*, *-nei* ABL; *-u*, *-nu* GEN SG). Polar tone does not occur anywhere else in the language. As seen from table 4, Polar tone suffixes attach to noun stems (*ɣérér-à* ‘fruit-ABL’, *bàlàŋ-á* ‘salt-ABL’) which also attach Low tone nominative suffixes (*ɣérér-i* ‘fruit-NOM’, *bàlàŋ-i* ‘salt-NOM’), but never to stems which attach HL suffixes. Thus, Polar tone is contrastive with Low tone, in that suffixes with these tones attach to the same stems, but Polar tone is never contrastive with HL tone. This is why one might suspect that Polar tone is HL tone underlyingly, where only one tone is allowed to surface.

In the examples to follow, we will see that the Polar tone suffixes of table 4 always have opposite tone from the stem-final tone. And, we will see that the HL tone suffixes have similar but different tone realizations. The surface tone of HL suffixes is not opposite stem-final tone of every stem melody. Thus, it cannot be labeled Polar tone, at least not by a strict definition of the term. We will also see that the HL suffixes cannot be analyzed as underlying H tone, since HL and H tone suffixes are contrastive on the same adjective stems.

4. Case suffixes with Polar tone

We now present five pairs of case suffixes with Polar tone, that is, suffixes that surface with opposite tone from the stem-final tone. In (11), various case suffixes are attached to noun singular roots. The accusative form, with no suffix, is given for comparison. The nominative suffix has Low tone, whereas the ablative, genitive singular, and genitive plural suffixes all have Polar tone. So, Low tone on the nominative suffix is contrastive with the Polar tone on the other case suffixes, in that the suffixes attach to the same stems.

- (11) Low tone on nominative *-i* suffix, Polar (P) tone on ablative *-a*, genitive SG *-o*, and genitive PL *-ak* suffixes attached to noun singular roots

Root tone	ACC SG	NOM SG <i>-i</i> with L	ABL SG <i>-a</i> with P	GEN SG <i>-o</i> with P	GEN PL <i>-ak</i> with P	
(a) H ⁵	ɲégér	ɲérér-ì	ɲérér-à	ɲérér-ò	ɲérér-àk	‘fruit’
(b)	béléð	bèlèð-ì	béléð-à	béléð-ò	béléð-àk	‘window’
(c) L	bàlàŋ	bàlàŋ-ì	bàlàŋ-á	bàlàŋ-ó	bàlàŋ-ák	‘salt’
(d) Lh	mìḍḍil	mìḍḍil-ì	mìḍḍil-à	mìḍḍil-ò	mìḍḍil-àk	‘shin’
(e) HL	ḍǎlǎk	ḍǎlǎw-ì	ḍǎlǎw-á ⁶	ḍǎlǎw-ó	ḍǎlǎw-ák	‘shrew’
(f) LH	dùwúc	dùwúc-ì	dùwúc-à	dùwúc-ò	dùwúc-àk	‘bowl’

In (7), we saw that the stem tone of nouns with plural suffixes can be one of four melodies: High, Low, Lh, or LH. In (12), various case suffixes are attached to nouns having these stem melodies. The nominative suffixes have Low tone, whereas the ablative and genitive suffixes have Polar tone. Again, Low tone on the nominative suffixes is contrastive with the Polar tone on the other case suffixes. Polar tone is not completely as expected in that for (e, f) the floating high tone is deleted before the suffix with polar tone is added. Or as later analyzed, the floating high tone is combined with initial High tone of the suffix with underlying HL tone.

- (12) Low tone on nominative suffixes *-a*, *-na*; Polar (P) tone on ablative *-ei*, *-nei*, *-ni* and genitive *-u*, *-nu* suffixes attached to nouns with plural suffixes

Stem tone	ACC PL	NOM PL <i>-a</i> , <i>-na</i> with L	ABL PL <i>-ei</i> , <i>-nei</i> , <i>-ni</i> with P	GEN PL <i>-u</i> , <i>-nu</i> with P	
(a) H	bíí-yéén	bíí-yéén-à	bíí-yéén-èì	bíí-yéén-ù	‘stone’
(b) L	lààj-èèn	lààj-èèn-à	lààj-èèn-éí	lààj-èèn-ú	‘hail’
(c) Lh	mèrṭ-èén	mèrṭ-èén-à	mèrṭ-èén-èì	mèrṭ-èén-ù	‘beer’
(d)	bànáw-úá	bànáw-úá-nà	bànáw-úá-nì	bànáw-úá-nù	‘bag’
(e)	nèṭṭikò-ḡá	nèṭṭikò-ḡà	nèṭṭikò-ḡà-néí	nèṭṭikò-ḡà-nú	‘zebra’
(f)	ìbàà-ṭí	ìbàà-ṭì-nà	ìbàà-ṭì-néí	ìbàà-ṭì-nú	‘upper arm’
(g) LH	vàṭṭiw-úá	vàṭṭiw-úá-nà	vàṭṭiw-úá-nì	vàṭṭiw-úá-nù	‘fishing stick’
(h)	ḍḍòŋ-ṭí	ḍḍòŋ-ṭì-à	ḍḍòŋ-ṭì-èì	ḍḍòŋ-ṭì-ù	‘arrow’

In (12), notice that in nouns with Lh tone melody, there is rising tone on a long vowel or vowel sequence of the plural suffix, as in *mèrṭ-èén-èì* ‘beer’ and *bànáw-úá-nì* ‘bag’. However, the tone remains Low on short vowels of the plural suffix, as in *nèṭṭikò-ḡà-néí* ‘zebra’ and *ìbàà-ṭì-néí* ‘upper arm’, when a case suffix is attached. Therefore, the Polar tone surfaces as Low on nouns where the tone rises, that is, following long plural suffix vowels or vowel sequences. But the Polar tone surfaces as High on nouns where the tone remains Low, that is, with short plural suffix vowels. Similarly in LH stems, when the plural suffix vowel is a vowel sequence as in *vàṭṭiw-úá-nì* ‘fishing stick’, the tone on the vowel sequence rises. But when the plural suffix vowel is short as in *ḍḍòŋ-ṭì-èì* ‘arrow’, the tone on the vowel is level High. Thus, at least in these examples, contour tone is not common on short vowels.

The ablative and genitive suffixes of (11) and (12) could be said to have Polar tone, since they have opposite tone from the stem-final tone. However, we will now argue that these suffixes can be analyzed as having underlying HL tone, where only one tone is allowed to surface.

⁵ The resulting surface tone for some nominative forms with H root tone melody is H-L as in (11a) and for other nominative forms is L-L as in (b). This difference in word tone for two nouns with the same root tone is not predictable, either morphophonologically or semantically.

⁶ When a Polar tone suffix is attached to root nouns with HL tone melody, the initial High tone of the root does not surface and the resulting tone is L-H. Further investigation is needed to determine other processes and constraints that may be at work.

5. Case suffixes with HL tone

There are several suffixes in the language that are best analyzed as having HL tone. For these suffixes, the tone is not opposite stem-final tone in each noun to which it is attached, although the tone is opposite in nouns with most stem melodies.

In (5), we saw that the stem tone of nouns with singular suffixes can be one of five melodies: Low, Lh, HL, LH, or LHL. In (13), the ablative suffix with HL tone is attached to such nouns having these stem melodies. The tonal changes are shown when the ablative suffix is attached. The underlying tone and surface tone are given for each, separated by an arrow. A dash represents a morpheme break.

Note that the nouns of (13c, d, h) surface with adjacent Low tone across the final morpheme boundary. These surface forms would make it difficult to label the ablative suffix on these nouns with Polar tone. Since in these examples, the suffix is not surfacing with opposite tone from the stem-final tone, it is better to analyze the suffix as having underlying HL tone, where only one tone is allowed to surface.

(13) Underlying (UT) to surface (ST) tone changes when
the ablative *-a* suffix with HL tone is attached to nouns with singular suffixes

Stem tone	ABL SG tone changes		ACC SG	ABL SG	
	UT	ST		<i>-a</i> with HL	
(a) L	L – HL	→ L – H	rùgùàṅ-òc	rùgùàṅ-òc-á	‘coconut meat’
(b) Lh	Lh – HL	→ L – H	kìròṅ-íṭ	kìròṅ-(ì)ṭ-á ⁷	‘fly’
(c) HL ⁸	H-L – HL	→ H-L – L	rúcéé-nìṭ	rúcéé-n(ì)ṭ-à	‘skin’
(d)	HL – HL	→ HL – L	míníṅ-ìṭ	míníṅ-(ì)ṭ-à	‘spirit’
(e)	HL-L – HL	→ L – H	cúúḍè-nìṭ	cùùḍè-n(ì)ṭ-á	‘twin’
(f)	HL – HL	→ L – H	rímà-c	rìmà-c-á	‘firewood’
(g) LH	LH – HL	→ LH – L	jòḍrò-n	jòḍrò-n-à	‘chick’
(h) LHL ⁹	LHL – HL	→ LHL – L	vàràṅ-ìṭ	vàràṅ-(ì)ṭ-à	‘palm branch’
(i)	LHL – HL	→ LHL – H	yàyán-òc	yàyán-òc-á	‘porcupine’

In (13b) and (g), two High tones are adjacent through morphology. When this happens, as in these examples, one tone is usually elided by the OCP or the tones combine. As we look through the data, we see that only one tone of the HL ablative suffix is ever allowed to surface. If the initial High tone of the suffix is not elided by the OCP or by some other reason, the final Low tone does not surface.

As seen in the list of nouns in (1) and (2), contour tone is rare in roots. And as seen from the nouns with singular suffixes in (12), contour tone is not common on short vowels. In fact, HL contour tone is not attested on short vowels anywhere in the language and it never surfaces on suffixes. It can

⁷ The vowel of singular suffixes *-nìṭ*, *-ìṭ*, *-ìṭ* is optionally elided when the vowel follows the nasals *n*, *ŋ*, or *ɲ* and the singular suffix is followed by a case suffix.

⁸ The ablative suffix tone on nouns with HL stem melody is not predictable other than by which singular suffix is attached in the stem. Roots with High tone adding a Low tone singular suffix such as *rúcéé-nìṭ* ‘skin’ (13c) and nouns with HL(Rpl) tone such as *míníṅ-ìṭ* ‘spirit’ (d) surface with HL – L tone in ablative case, whereas roots with HL tone adding a Low tone singular suffix such as *cúúḍè-nìṭ* ‘twin’ (e) and HL nouns attaching a suffix with no underlying tone such as *rímà-c* ‘firewood’ (f) surface with L – H tone in ablative case. Although these alternations are predictable for all such stem constructions with HL tone, it is not understood why the initial High tone of the HL suffix *-a* is elided in *rúcéé-n(ì)ṭ-à* (c) and *míníṅ-(ì)ṭ-à* (d). Usually the case suffix has the same tone as the final stem tone if and only if the final stem tone is Low and only associated to a single (the final) syllable—otherwise it has polar tone. However, this is not true for (13i) where there is polar tone following a Low tone only associated to a single syllable (*yàyán-òc-á* ‘porcupine-SG-ABL’).

⁹ The ablative suffix tone on nouns with LHL stem melody is not predictable other than by which singular suffix is attached in the stem.

then be assumed there is a constraint which prevents more than one tone of the HL ablative suffix from surfacing. This is in line with the claim that the ablative suffix has underlying HL tone.

We now compare the surface tone of the nouns in (11) and the nouns in (13). In the nouns of (11), the ablative suffix with Polar tone was attached to noun singular roots, and in (13), the ablative suffix with HL tone was attached to nouns with singular suffixes. In (14), we list the pairs of nouns from both lists with the same stem tone. The stem High tone melody of (12) and the LHL stem melody of (14) are not comparable, but all other stem tone melodies are comparable. Among the five pairs of stems compared, two pairs have different word surface tone, namely (14b) and (c), but the others have the same surface tone.

(14) Comparison of nouns with the same stem tone
attaching the ablative suffix *-a* with Polar tone or *-a* with HL tone

	Stem tone	ACC	ABL SG	Word	ACC	ABL SG	Word	
		SG	<i>-a</i> with P	ST	SG	<i>-a</i> with P	ST	
				roots				
(a)	L	bàlàŋ	bàlàŋ-á	L – H ‘salt’	rùgùàŋ-òc	rùgùàŋ-òc-á	L – H ‘coconut’	
(b)	Lh	mìdĩl	mìdĩl-à	Lr – H ‘shin’	kìròŋ-ít	kìròŋ-(ì)ít-á	L – H ‘fly’	
(c)	HL	d̥ɔ̀lòk	d̥ɔ̀lòw-á	L – H ‘shrew’	rúcéé-nìt	rúcéé-n(ì)t-à	H – L ‘skin’	
(d)		d̥ɔ̀lòk	d̥ɔ̀lòw-á	L – H ‘shrew’	cùúq̄è-nìt	cùúq̄è-n(ì)t-á	L – H ‘twin’	
(e)	LH	d̀wòc	d̀wòc-à	LH – L ‘bowl’	ɟ̀d̀ròs-n	ɟ̀d̀ròs-n-à	LH – L ‘chick’	

The two ablative suffixes of (14) are not attached to the same stems. So, the two suffixes cannot be compared in the same way that the ablative and nominative suffixes were compared in (11) and (12). We cannot consider the two ablative suffixes of (14) to be separate morphemes based on the different surface forms of (b) and (c). Rather, since the surface forms in (14) are remarkably close, it is plausible that the two ablative suffixes are the same morpheme, especially given the fact that the language has some variance when tones combine through morphology.

An example of variance was seen in (11a,b). Here, Low nominative suffix tone is added to High root tone for both nouns (*ŋéǵér* ‘fruit.ACC’, *béléð* ‘window.ACC’). The resulting surface tone for some nominative forms is H-L as in *ŋéǵér-ì* ‘fruit-NOM’ of (11a) and for other nominative forms is L-L as in *béléð-ì* ‘window-NOM’ of (b). This difference in word tone for two nouns with the same root tone is not predictable, either morphophonologically or semantically. In (13), there are other nouns with the same stem tone which result in different word tone. With tone variance in the language such as this, the tone differences in the ablative suffixes of (14b) and (c) should not keep us from analyzing the two suffixes as the same morpheme. However, not all alternations are explainable, and these are among them.

6. Contrastive HL and H suffix tone

Although Polar tone is never contrastive with HL or H tone, HL tone is contrastive with H tone in adjective suffixes attached to the same stems. In (15), the plural stative verb suffixes *-ti*, *-e* with High tone and the adjective singular suffix *-i* with HL tone are attached to CVVC and CVCVC roots. The singular stative verbs given for comparison are representative of the tonal contrasts attested in adjective roots. The High tone of the plural stative suffix *-e*, which always surfaces as High, is contrastive with the underlying HL tone of the adjective singular suffix *-i*, which alternates in surface tone between High and Low. The tonal changes from underlying to surface tone are shown for adjective singular forms. It would be difficult to label the HL suffix as polar tone, since High tone

surfaces on both sides of the morpheme boundary in *múúr-í* ‘straight’¹⁰. Because of the surface tone contrast between these H and HL suffixes attached to the same stems, HL suffixes cannot be analyzed as having underlying H tone.

(15) Plural stative verb suffix *-tí, -e* with H; Singular adjective suffix *-í* with HL

Stem tone	Syllable	V STAT SG	V STAT PL	ADJ SG	ADJ SG tone changes			
			<i>-tí, -e</i> with H	<i>-í</i> with HL	UT	ST		
H	CVVC CVCVC	máán gídán	máán-tí ¹¹ gídán-é	máán-ì gídán-ì	H – HL	→	H – L	‘yellow’ ‘brown’
L	CVVC CVCVC	tùùr lèhèḍ	tùùr-é lèhèḍ-é	tùùr-í lèhèḍ-í	L – HL	→	L – H	‘short’ ‘sharp’
Lh	CVVC	mùùr-à	mùùr-é	múúr-í	Lh – HL	→	H – H	‘straight’

7. Polar tone reanalyzed as HL tone

The nouns with plural suffixes and ablative suffixes in (12) are relisted in (16) as examples of how the polar suffix tone can be analyzed as underlying HL tone. As in the examples of (13), only one tone of the HL ablative suffix is ever allowed to surface. If the initial High tone of the suffix is not elided by the OCP, the final Low tone does not surface as in (b, e, f).

(16) Relisting of ablative suffixes *-ei, -nei, -ni* with (P) HL attached to nouns with plural suffixes

Stem tone	Ablative tone changes			ACC PL	ABL PL	
	UT		ST		<i>-ei, -nei, -ni</i> with HL	
(a) H	H – HL	→	H – L	bíí-yéén	bíí-yéén-èì	‘stone’
(b) L	L – HL	→	L – H	lààj-èèn	lààj-èèn-éí	‘hail’
(c) Lh	Lh – HL	→	Lh – L	mèrt-èén	mèrt-èén-èì	‘beer’
(d)	Lh – HL	→	Lh – L	bànàw-ùá	bànàw-ùá-nì	‘bag’
(e)	Lh – HL	→	L – H	nèṭìkò-ṅá	ṅèṭìkò-ṅà-néí	‘zebra’
(f)	Lh – HL	→	L – H	ìbàà-tí	ìbàà-tì-néí	‘upper arm’
(g) LH	LH – HL	→	LH – L	vàṭiw-úá	vàṭiw-ùá-nì	‘fishing stick’
(h)	LH – HL	→	LH – L	ḍòḍḍ-ít	ḍòḍḍ-ít-èì	‘arrow’

8. Conclusion

There are five case suffixes in Laarim with opposite tone from the stem-final tone, and these can be labeled Polar tones. However, although Polar tone is contrastive with Low tone, it is never contrastive with HL tone. Further, there are several suffixes in the language that are best analyzed as having underlying HL tone, which only surface with one tone. Since HL contour tone never surfaces on short vowels or suffixes, we assume there is a constraint which does not allow HL contour tone to surface on these suffixes. If adjacent High tones across the final morpheme boundary are not combined by the OCP, the final Low of the HL suffix does not surface. Since HL tone is contrastive with H tone in adjective suffixes, it cannot be analyzed as underlying H tone. Admittedly, some alternations in the language are yet to be fully explained, and we have not shown why the forms of (14b, c) do not surface with the same tone since the suffixes are now analyzed to have the same underlying HL tone.

¹⁰ Further investigation is needed to determine what processes and constraints cause initial underlying Low tone not to surface in ‘straight’ of (15).

¹¹ The plural stative verb suffix *-tí* is an allomorph of *-e*, predictably attaching to monosyllabic High tone roots.

Nevertheless, since HL suffixes are never contrastive with Polar suffixes, and are even similar in their realization to Polar suffixes, the Polar suffixes can be analyzed as having underlying HL tone.

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