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TONE PATTERNS IN RERE (KOALIB) INALIENABLE POSSESSIVES*

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This article is a description and analysis of tone patterns in Rere inalienable possessive constructions. Rere, an under-documented Kordofanian language spoken in the Nuba Mountains of Sudan, exhibits both alienable and inalienable personal possessives. Alienable possessives employ possessive pronouns followed by the noun. Inalienable possessives are marked by bound person suffixes. The suffixes bear different tone depending on the root they attach to, and the root can differ tonally depending on nominative or accusative case. We argue that the tone that expones case fits with Rere's general pattern of case marking via tone changes, but the suffixes differ tonally predictably depending on the underlying tone of the root. The findings of this study contribute to understanding Rere's complex tone patterns and enhancing knowledge of Kordofanian languages in general.

1. Introduction

Inalienable pronominal possession in Rere features a set of bound pronominal suffixes on kinship terms. Of particular interest are the tone patterns found in nominative and accusative case forms. The tone of the inalienable suffix can differ within the same case form depending on the noun root (Table 1, d vs. e). In addition, the tone of the root (Table 1, a) or the tone of both the root and suffix (Table 1, d) can differ between case forms.

The tonology of the Rere inalienable personal possessive system is described and analyzed in this article. We will show that the manner in which tone expones case is not fully predictable and is in line with the way tone expones case in nominals in general. However, we argue that the tone alternations on the inalienable suffixes follow from phonological processes, despite the apparent lexical specificity of the distribution.

Table 1: Preview of inalienable possessives tone patterns

	Nominative	Tone	Accusative	Tone	
a.	kígr-ɛ́lú	H-HH	kìgr-ɛ́lú	L-HH	'your maternal uncle/aunt'
b.	kú:n-ɛ̀lù	H-LL	kú:n-ɛ̀lù	H-LL	'your parent-in-law'
c.	kwɔ̀l-ɛ́lú	L-HH	kwɔ̀l-ɛ́lú	L-HH	'your spouse'
d.	kígr-ɛ́n	H-H	kìgr-ɛ̀n	L-L	'his/her maternal uncle/aunt'
e.	kú:n-ɛ̀n	H-L	kú:n-ɛ̀n	H-L	'his/her parent-in-law'
f.	kwɔ̀l-ɛ̀n	L-L	kwɔ̀l-ɛ̀n	L-L	'his/her spouse'

Rere, otherwise known as Koalib (ISO 639-3 kib), is an underdocumented language spoken in the Nuba Mountains of the Republic of Sudan. It belongs to the Heiban language family (Schadeberg 1981), which is generally considered to be part of the Kordofanian branch of the Niger-Congo phylum (Schadeberg 1981; Quint 2006; 2009; Hammarström et al. 2017), although recent research has questioned the genetic unity of Kordofanian (Hammarström 2013; Dimmendaal 2018). The number of speakers is unknown, although the estimates of people of Koalib ethnicity are between

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100,000-200,000 (Quint 2009; Eberhard et al. 2024). More precise figures of speakers are not known due to war, displacement, contact with Arabic, and the lack of reliable census. The data presented in this paper were provided by co-author Titus Kubri Kajo Kunda. Titus prefers the name Rere to refer to the language and Koalib to refer to the people, so his preference is followed. He was born and raised in Kwandaŋ in the Abri area of the Koalib region of the Nuba Mountains and speaks the Ngirere dialect ([ŋ̀ɾɛ́ːʈɛ̀]), which is the standard variety of the language, and the one also studied by Nicolas Quint and spoken by his main language consultant and co-author, Siddig Ali Karmal Kokko, as documented in a series of papers and a book (Quint 2006; 2009; 2010; 2013; 2022; Quint & Kokko 2018). This article adds to ongoing research on the language and makes both an analytical and a descriptive contribution.

The article is structured as follows. In §2, we present the basics of the tone system, vowels, noun classes and case marking in Rere. In §3, we present alienable personal possessive constructions. In §4, we present the inalienable system, which consists of kin terms, including an in-depth analysis of the tonal patterns. In §5, we discuss the vowel changes that appear in both roots and suffixes. Finally, we wrap up in §6.

2. Background

2.1. Tone and Vowels. Rere has two level tones, H, L, and a falling HL (Quint 2009).

(1)

a.	ŋwɔ́ŋ	H	‘saliva’
	ŋwɔ̀ŋ	L	‘eggs’
b.	ŋáò	HL	‘water’
	ŋàò	L	‘femininity, womanhood, beauty’

According to Quint (2009), the vowel system is comprised of /i e ɛ a ɐ o ɔ u/ and has a form of height harmony in which the vowels /i ɐ u/ raise the vowels /e ɛ/ to [i], /o ɔ/ to [u] and /a/ to [ɐ]. Research (Huang to appear) on the variety spoken by co-author Kunda has noted a higher vowel [ɪ] that is often used rather than [e], and has not revealed harmony to be as systematic as reported in Quint (2009) and Quint (2013). Nevertheless, some form of vowel raising does operate in the inalienable possessive system.

2.2. Noun classes and noun class agreement. Rere has a noun class system with at least eleven classes (Quint 2022). This is a general property of most Kordofanian languages (Stevenson 1956/57; Schadeberg 1981; Gibbard et al. 2009; Quint 2020), and other Niger-Congo language families such as Bantu. Nouns have an initial consonant prefix which is bound and the stem does not appear in isolation. Most of these noun classes are paired, such that singular nouns of a given noun class have their plural forms in another corresponding noun class with a different consonant. Each noun class is identified by its agreement consonant in the glossing, e.g., CLk or CLŋ instead of numbers (2). Note that the plural CLj can pair with either CLk or CLw, and the CLl noun class can be either singular (pairing with CLŋw in the plural) or plural (pairing with CLkw in the singular).

(2)

Class	Singular		Class	Plural	
kw	kwór	‘man’	l	lór	‘men’
ʈ̪	ɖ̪úl	‘giraffe’	r	rúl	‘giraffes’
k	kɛ́nì	‘leaf’	j	jɛ́nì	‘leaves’
l	lân	‘sorghum seed’	ŋw	ŋwân	‘sorghum seeds’
ʈ	ʈìːnì	‘rabbit’	ɲ	ɲìːnì	‘rabbits’
w	wól	‘African grass rat’	j	jól	‘African grass rats’
			ŋ	ŋín	‘blood’

Modifying words in noun phrases are prefixed with an agreement or concord prefix for the noun class of the head noun, as shown in (3). The CLkw noun class has an agreement marker ŋgw- rather than kw- in some modifiers.

(3)

a.	rúl	‘giraffes’	d.	r-úl r-álá	‘those giraffes’
b.	jɛ́nì	‘leaves’	e.	j-ɛ́nì j-álá	‘those leaves’
c.	kwór	‘man’	f.	kw-ór ŋgw-álá	‘that man’

The verb is also prefixed with an agreement marker for noun class, which indexes a verbal argument, either the subject or object depending on the discourse configuration. In the following examples, it indexes the subject.[1]

(4)

a. r-ɔ́ŋɔ́r r-álá rì-m-ɛ̀ːl-ɛ̀
CLr-elephant CLr-DEM CLr-PRF-go-REC.PRF
‘Those elephants had left.’

b. l-àw l-álá lì-m-ɛ̀ːl-ɛ̀
CLl-woman CLl-DEM CLl-PRF-go-REC.PRF
‘Those women had left.’

Some nouns do not have class prefixes and begin either with a vowel or with a consonant other than one of the noun class consonants. The noun class can nevertheless be determined by the agreement patterns (5), which is CLkw for the singulars. These words either lack a distinct plural form, or the plural has a CLl prefix lì- with low tone.

(5)

a.	ɕúkúlì	‘pumpkin(s)’	ɕúkúlì ŋgw-álá	‘that pumpkin/those pumpkins’
b.	ɕóndàŋ	‘lion’	ɕóndàŋ ŋgw-álá	‘that lion’
c.	lì-ɕóndàŋ	‘lions’	lì-ɕóndàŋ l-álá	‘those lions’
d.	ɖ̪ɛ̀bré	‘jewelry (sg.)’	ɖ̪ɛ̀bré ŋgw-álá	‘that jewelry’
e.	lì-ɖ̪ɛ̀bré	‘jewelry (pl.)’	lì-ɖ̪ɛ̀bré l-álá	‘those jewelry’

To summarize, most Rere nouns have an initial consonant which indicates their respective noun class. Adjectives, determiners, and other modifying elements also carry a concord affix that agrees with the noun for noun class. Verbs have a noun class agreement prefix which agrees with the noun class of the subject, or the object if it appears pre-verbally in topic/focus constructions, as will be discussed further in §2.3.

2.3. Case marking. Nouns in Rere are case-marked; the case system employs nominative-accusative alignment. The unmarked form of the noun occurs in the nominative, while accusative case is

[1] High tones are lowered in phrase-final position, so the final -ɛ́ on the verb is pronounced with low tone. See Quint (2009) and Chai et al. (2022) for details.

indexed via suffixes and/or tone change. Accusative case is used on both indirect and direct objects. The following example sentences show the direct object with an accusative suffix -à and a tone change: *ŋèmáw-à* ‘medicine ACC’ compared to nominative *ŋèmàw*. Nominative forms do not have suffixes, as seen with *kwór* ‘man’ and *ʈɔ́ːŋɔ̀r* ‘boy’.[2] When the same nouns are indirect objects and in accusative case, they both have suffixes and tone differences: *kwɔ̀ːr-ó* ‘man ACC’ and *ʈɔ̀ːŋɔ́r-à* ‘boy ACC’.[3]

(6) a. kw-ór kw-ìndə̀ð-ɐ̀ ʈ-ɔ̀ːŋɔ́r-à ŋèmáw-à
CLkw.man CLkw-give-PFV CLʈ.boy-ACC CLŋ.medicine-ACC
‘The man gave the boy medicine.’

b. ʈ-ɔ́ːŋɔ́r ʈ-ìndə̀ð-ɐ̀ kw-ɔ̀ːr-ó ŋèmáw-à
CLʈ.boy CLʈ-give-PFV CLk.man-ACC CLŋ.medicine-ACC
‘The boy gave the man medicine.’

Accusative case in Rere is indicated by a range of different allomorphic patterns like those shown in (6) (Quint & Allassonière-Tang 2022). Some nouns have a suffix with tone change (7a) and some have a suffix and no tone change (7b). Still others have no suffix, but the tone is different in the accusative (7c), while others have identical nominative and accusative forms (7d). There is no single accusative suffix and no single accusative tone pattern. The choice of accusative allomorph is not determined by noun class or semantics, though its segmental and tonal composition may contribute to partial predictability.

(7)

		NOM.	TONE	ACC.	TONE	
a.	suffix & tone	kámlá	HH	kàmlà-ŋè	LL-L	‘camel’
		ʈi̪ɲɛ́n	HH	ʈi̪ɲɛ́n-ù	LH-L	‘dog’
		kwólâw	HF	kwɔ̀làw-á	LL-H	‘cat’
		lɛ́ɻ̪mɛ̀n	HL	lɛ̀ɻ̪mɛ́n-à	LH-L	‘bean’
b.	suffix	kàɣró	LH	kàɣró-ŋé	LH-H	‘chicken’
		ɕóndàŋ	HL	ɕóndàŋ-á	HL-H	‘lion’
c.	tone	kɔ̀ːrɔ̀	LL	kɔ́ːrɔ̀	HL	‘plant’
		ʈáːrà	HL	ʈàːrà	LL	‘shepherd’
d.	no suffix/tone	ŋèɖa̰	LL	ŋèɖa̰	LL	‘cow’
		ŋwɔ́ŋ	H	ŋwɔ́ŋ	H	‘saliva’

The suffixes that mark accusative case are -ŋ, -ŋa, -ŋe, -ŋwo, -a, -e, -o and raised versions of these (-ŋɐ, -ŋi, -ŋwu, -ɐ, -i, -u). The forms beginning with [ŋ] occur after vowels, but those that lack the [ŋ] can appear after either vowels or consonants. Moreover, the suffixes can be either high-toned or low-toned, as seen by comparing *kàmlà-ŋè* ‘camel’ and *kàɣró-ŋé* ‘chicken’, although the tone does not always match the tone of the preceding tone bearing unit. The correlation between nominative and accusative tone is difficult to predict, even when there is no suffix. Consider the following bisyllabic forms without suffixes (8). A single nominative tone pattern can correspond to several accusative tone patterns, and vice versa. If the accusative is derived from the nominative, there is no set pattern.

[2] Some HL nouns such as ‘boy’ are pronounced with HH tone in sentence initial position

[3] The long vowel in ‘man’ is predictably shortened in a closed syllable to [kwór]. This analysis is based on alternations between long and short vowels in morphologically related forms and the observation that long vowels only occur in open syllables.

(8)

	NOM.	TONE	ACC.	TONE	
a.	ʈáːɽà	HL	ʈàːɽà	LL	‘shepherd’
b.	áŋnà	HL	àŋná	LH	‘body’
c.	kíɽàr	HL	kíɽàr	HL	‘edible root’
d.	ɵ́ːwɵ́	HH	ɵ̀ːwɵ̀	LL	‘moon’
e.	kwáːɽé	HH	kwáːɽɛ̀	HL	‘tree’
f.	káːré	HH	káːré	HH	‘belly’
g.	ŋ̀ɛ̀ɖà	LL	ŋ̀ɛ̀ɖà	LL	‘cow’
h.	kòːrò	LL	kóːrò	HL	‘plant’

It is not our goal in this paper to provide a comprehensive analysis of the tone patterns of accusative case marking in nouns. A recent paper (Quint & Allassonière-Tang 2022) with a large database provides a computational analysis and establishes pockets of regularity in the system, but it is only semi-predictable (Boychev 2013; Quint & Allassonière-Tang 2022). Our goal with this overview is to demonstrate how the system functions so that the possessive tone patterns we will present can be understood with respect to this system. There are several factors that point to the tone pattern being assigned to the whole word (noun stem and possessive suffix) rather than the suffix bearing its own tone and determining the tone pattern on the noun stem. First, tone can differ between nominative and accusative regardless of the presence of a suffix. Second, the same segmental suffix does not have consistent tone, although there are strong tendencies, such as -a more typically occurring with low tone (Quint & Allassonière-Tang 2022). If the suffixes were prespecified with a particular tone, then the number of listed suffixes would necessarily double. Third, there is no fixed, fully determinable correlation between the tone of the suffix and the tone pattern on the stem. A particular suffix such as H-toned -á can co-occur with LL, LH or HL on the stem. These factors suggest that the tone pattern is assigned to the whole word, including the suffix. The choice of analysis has ramifications for the analysis of inalienable possessives, as it raises the question of whether the possessive suffixes are also part of the domain for purposes of accusative tone assignment since they, too, can have different tone in NOM/ACC forms in some nouns.

3. Alienable Personal Possession

Rere personal possessive constructions are of two kinds, inalienable possessives and alienable possessives. Inalienable personal possessives consist of a small group of ten kinship terms. Other kinship terms and all other nouns are alienable. Personal possession for alienable possessives is indicated in Rere by a possessive pronoun that follows the noun and shows noun class concord by means of a prefix, as in (9). This illustrates the concord for the noun ‘cat’, whose singular is class *kw* and plural is class *l*, and the concord for the noun ‘foot’ whose singular is class *k* and plural is class *j*. The singular and plural form of the noun have the same tone pattern.

(9) *Noun class agreement on possessive pronouns*

a.	kw-ólâw kw-íːɲí	‘my cat’
b.	kw-ólâw kw-ùːŋún	‘his/her cat’
c.	l-élâw l-íːɲí	‘my cats’
d.	l-élâw l-ùːŋún	‘his/her cats’
e.	k-áɣà k-íːɲí	‘my foot’
f.	k-áɣà k-ùːŋún	‘his/her foot’
g.	j-áɣà j-íːɲí	‘my feet’
h.	j-áɣà j-ùːŋún	‘his/her feet’

The possessive pronouns distinguish six person/number combinations: 1st, 2nd and 3rd person, and singular and plural.[4] The possessive pronoun templates are provided below in Table 2. The 1st and 2nd person pronouns have HH tone, whereas the 3rd person pronouns have LH tone. This might just be lexical specification and a coincidence that the 1st and 2nd person forms group together tonally, or it could be a form of grammatical tone assignment.

Table 2: Possessive pronouns

Possessor	Possessive pronoun (PA)	Tone pattern
1SG	CL-íːɲí	HH
2SG	CL-óːŋá	HH
3SG	CL-ùːŋún	LH
1PL	CL-ɐ́ːɾí	HH
2PL	CL-áːló	HH
3PL	CL-ɛ̀ːŋɛ́n	LH

Possessive pronouns follow accusative case-marked nouns, but they are unmarked for case themselves. There is also no tonal interaction between the noun and the possessive pronoun. The tone of the possessive pronoun stays constant, regardless of whether it follows a nominative noun or an accusative noun, and regardless of the tone of the noun as can be seen in (10).

(10) a. ʈ-ór ʈ-íːɲí ʈ-ìjàw
CLʈ.child CLʈ-POSS.1SG CLʈ.good
'My child is good.'

b. ɲí-gwò-ʈ̪-ámʈí ʈ-òːr-ó ʈ-íːɲí pèðβèðʈ̪èn
1SG-CLgw-HAB-love CLʈ.child-ACC CLʈ.child-POSS.1SG very.much
'I love my child very much.'

c. l-ôm l-íːɲí l-ìjàw
CLl.fish CLl.POSS.1SG CLl.good
'My fish are good.'

d. ɲí-gwò-ʈ̪-ámʈí l-òm-è l-íːɲí pèðβèðʈ̪èn
1SG-CLgw-HAB-love CLl.fish-ACC CLl.fish-POSS.1SG very.much
'I love my fish very much.'

In conclusion, alienable pronominal possession is indicated by a possessive pronoun following the noun, which shows concord for noun class with the noun it modifies. 1st and 2nd person pronouns have HH tone, while 3rd person has LH. These pronouns do not interact tonally with the noun and show no accusative case marking.

4. Inalienable Possession

There is a small group of kinship nouns that have inalienable possession (Table 3). Body parts, which can be inalienable in other languages, do not show inalienable possession in Rere. The main distinction between inalienable and alienable possession morphologically is a suffix that expresses the person of the possessor (Manfredi 2022). The ten inalienable nouns we have identified are listed below with the 3rd person suffix -ɛn, which is raised to [in] in the words for 'mother' and 'father'. The tone patterns shown here are in the nominative, which we use as the citation form. Note that the

[4] Rere distinguishes eight grammatical persons (1SG, 2SG, 3SG, 1DU.INCL, 1PL.INCL, 1PL.EXCL, 2PL and 3PL). The 1PL possessive pronoun encompasses the other plural distinctions found in the pronouns: 1st dual inclusive, 1st plural inclusive and 1st plural exclusive.

kw- noun class marker is often pronounced [k] by Titus, especially before high round vowels. This does not affect the concord patterns, which are consistently with kw-. Three of the singular forms have no kw- noun class prefix but still control kw- concord; see (5) for other non-kinship examples like this.

Table 3: Inalienable kinship nouns

Noun class	Singular	Plural	
t̪/r	t̪-ɛ́ɾɲ-ín	r-ɛ́ɾɲ-ín	'his/her father'
kw/l	lɛ́ːɲ-ín	lɛ́ːɲ-ín-íŋɛ́	'his/her mother'
kw/l	k(w)-ígr-én	l-ígr-én	'his/her maternal uncle/aunt'
kw/l	méðéɣ-én	lí-mɛ̀ðéɣ-èn	'his/her close friend'
kw/l	éŋg-én	lí-èŋg-èn	'his/her sibling/cousin'
kw/l	kw-éːg-èn	l-éːg-èn	'his/her sibling-in-law'
kw/l	k-úːn-èn	l-úːn-èn	'his/her parent-in-law'
kw/l	k-ùrmúð-èn	l-ùrmúð-èn	'his/her co-wife'
kw/l	k-ùgúrn-èn	l-ùgúrn-èn	'his/her grandparent/grandchild'
kw/l	kw-ʊ̀l-èn	l-ìl-èn	'his/her spouse'

The meaning of some kinship terms is more inclusive than the translation in English indicates. For example, 'mother' can be used to refer to some female older relatives, such as a father's sister (one's paternal aunt). 'Grandparent' can be used to refer to elderly people in the community. These are referred to as 'improper' kin terms (Dahl & Koptjevskaja-Tamm 2001). See (Manfredi 2022) for a comparison of the use of some Rere (Koalib) kinship terms with other Nuba Mountain languages.[5] The word 'close friend' is neither a consanguineal nor affinal kinship term. It can be considered a 'social' kinship term.

The inalienable possessive suffix is obligatory on some of the inalienably possessed nouns. For example, *t̪ɛ́ɾɲ-ɛ́ɾí* '(my) father' in isolation has to host the 1st person possessive suffix [-ɛ́ɾí], and the stem *t̪ɛ́ɾɲ* cannot stand alone. Six nouns allow a stand-alone form. When used with no suffix, the word has a generic sense, ex. *kùgúrnɛ̀* 'grandparent' can refer to a nonspecific older person. The base forms which are permitted with no suffix are listed in Table 4. Note that three of these stems appear with a final vowel that does not appear when the suffixes are added (cf. *kùgúrn-èn* vs. *kùgúrnɛ̀*). The word for 'close friend' is unique in that the noun class prefix kw- is missing in the singular affixed forms, but is present in the base form.[6]

[5] Manfredi (2022) states that maternal uncle can also refer to maternal cross cousin - mother's brother's son or daughter. However, Titus uses the word for sibling/cousin for this relationship.

[6] The base form *kómát̪* is quite different than the affixed form *méðéɣ-*én. First, the stem *mɛðeɣ-* lacks the class marker. Second, the vowel is [a] in the base but [ɛ] in the affixed form. This is a predictable vowel change due to the -én suffix; the vowel is /a/ underlyingly (see section 5). Third, there is an additional [eɣ] sequence, which causes the /t̪/ to spirantize to [ð]. We analyze this as an additional /g/ that undergoes spirantization to [ɣ] intervocalically and appears with a preceding epenthetic vowel [e]. The /g/ may be a lexicalized concord marker that historically appeared with the inalienable suffixes; such vestigial concord markers appear in some inalienable kin terms in the related languages, Moro and Tira (Rose 2023).

Table 4: Inalienable kinship nouns - base forms[7]

Singular	Plural	
k(w)-ígír	l-ígír	‘maternal uncle/aunt’
k-úːnɛ̀	l-úːnɛ̀	‘parent-in-law’
kw-éːgà	l-éːgà	‘sibling-in-law’
k-ùrmúʈ	l-ùrmúʈ	‘co-wife’
k-ùgúrnɛ̀	l-ùgúrnɛ̀	‘grandparent/grandchild’
k-ómáɳ	l-ímáɳ	‘close friend’

There are no gender distinctions for ‘close friend’, ‘sibling/cousin’, ‘spouse’, ‘parent-in-law’, ‘sibling-in-law’, ‘maternal uncle/aunt’ and ‘grandparent/grandchild’. However, it is possible to specify kinship roles and gender if needed for disambiguation. For example, *lùgúrn-èlù* refers to ‘your grandparents’ or ‘your grandchildren’. When followed by other nouns such as ‘man’ (11a), ‘woman’ (11b) or ‘child’ (11c) and a copula, the meaning is more specific.[8]

(11) a. l-ùgúrn-èlù l-ír l-òr
CLl-grandrelative-2POSS CLl-COP CLl-man
‘your grandfathers’

b. k-ùgúrn-èlù kw-ír kw-ào
CLkw-grandrelative-2POSS CLkw-COP CLkw-woman
‘your grandmother’

c. l-ùgúrn-èlù l-ír ɲ-èlːɛ̀
CLl-grandrelative-2POSS CLl-COP CLɲ.child
‘your grandchildren’

Except for ‘mother’, ‘close friend’, and ‘sibling/cousin’, all kinship terms in Table 3 are noun-class marked words, where there is an initial consonant that is one of the noun class consonants in (2), and distinct in both singular and plural. While most belong to the kw/l noun class pairing that typically refers to humans, ‘father’ belongs to the class pairing ʈ/r. The word for ‘close friend’ begins with [m], which is not a noun-class consonant and the word for ‘sibling/cousin’ begins with a vowel. Nevertheless, they both have concord with kw- in the singular. Both nouns add a lí- prefix in the plural, and the concord consonant is l-. This is similar to alienable nouns such as *ɖ̂ɛ̀bré / lì-ɖ̂ɛ̀bré* ‘jewelry sg/pl’, with the difference that the prefix is low-toned with alienables, but high-toned with inalienables. The word for ‘mother’ begins with [l] in both singular and plural. We treat the [l] as part of the root. The consonant [l] can be a noun class consonant, so one might have expected its noun class concord to use l-. This is the case for the plural, but the singular triggers kw- concord. Instead of relying on the [l] to index plural on the noun, however, the word ‘mother’ has a suffix -ŋá (raised to [ŋɛ́] with vowel harmony) to indicate plural. This suffix is also used to indicate plural on pronouns, and it expresses associative plural when attached to proper nouns.

Other kinship terms do not show inalienable possessive suffixes. Other terms which could be kinship such as ‘wife’, ‘husband’, ‘son’, or ‘daughter’ are expressed by the nouns for ‘woman’, ‘man’, ‘girl’ or ‘child’, which are also alienable,[9] as indicated in Table 5. Like the inalienable nouns

[7] If the class marker is ŋ instead of kw or l, this indicates the abstract concept of the relationship between kinship terms, ex. *ŋùgúrnɛ̀* ‘relationship between a grandparent and his/her grandchild’.

[8] Nicolas Quint (p.c.) questions whether (11c) is used and not the result of elicitation, but Titus disagrees and does report using it.

[9] The related languages, Moro and Tira, also have a small group of inalienable kinship terms (Rose 2023). Unlike Rere, Moro and Tira have inalienable kinship terms for wife, husband, offspring and ‘folks’, a general term for people in one’s household/neighborhood.

whose initial consonant does not change, the terms for ‘sibling-in-law’ (alienable) and ‘friend’ (as opposed to ‘close friend’) are marked with the -ŋá plural suffix otherwise used for pronouns and the associative plural. Note that the term for ‘child’ is the diminutive form of ‘man’. There are also kinship address terms such as *ápà* ‘dad’ and *áj:à* ‘mom’, which use this suffix. The words in Table 5 use possessive pronouns to express possession, ex. *ɛ̀wrì kw-í:ɲí* ‘my friend’.[10]

Table 5: Alienable kinship nouns

Noun class	Singular	Plural	
kw/l	wàjèr	wàjèr-ŋá	‘sibling-in-law’
kw/l	ɛ̀wrì	ɛ̀wrì-ŋɛ́	‘friend’
kw/l	kw-ào	l-ào	‘woman, wife’
kw/l	kw-ór	l-ór	‘man, husband’
ʈ/ɲ	ʈ-ìʈà	ɲ-ìʈà	‘girl, daughter’
ʈ/ɲ	ʈ-ór	ɲ-ór	‘child’

4.1. Inalienable Possession Forms: Nominative case We now turn to the presentation of the inalienable possessive paradigms. We begin with nominative case forms. There are three inalienable possessive suffixes that indicate person distinctions: -ɐri (1st), -alo (2nd) and -ɛn (3rd). These suffixes resemble the plural possessive pronouns (1PL C-ɛ́:ɾí, 2PL C-á:ló and 3PL C-ɛ̀:ŋɛ́n). The 1st and 2nd person suffixes are identical to the pronouns except for vowel length, and the 3rd person uses only the final VC (ɛn) of the 3rd person pronoun. However, inalienable suffixes do not show number distinctions. Possessive pronouns are added after the noun with the inalienable suffix to express number. The possessive pronouns that express singular are optional, but those that express plural are not. Therefore, the absence of a pronoun indicates singular number, and its presence indicates either singular or plural number depending on the pronoun form.[11]

Inalienable possessives in the nominative are divided into three main groups based on their tone patterns. Some show consistent tone throughout all forms, whereas some show differences based on either number or person.

Pattern 1: H-H nominative. The first pattern consists of forms that are H-H, where both the root and suffixes are all H toned. The 1st and 2nd person suffixes are bisyllabic -HH and the 3rd person suffix is monosyllabic -H. Table 6 provides the forms for ‘father’ in nominative case. The plural possessive pronoun distinguishes singular from plural and is shown in the table. The optionality of the singular possessive pronouns is indicated with parentheses.[12] In the plural forms, there is an optional plural -ŋá suffix (shown in parentheses), a suffix usually used for associative plurals of alienable kinship terms and proper names. The vowel of the plural suffix is raised following a high vowel to (-ŋɛ́), and it realized as -íŋɛ́ when the stem ends in a consonant in the 3rd person forms; we assume the extra vowel is epenthetic. Note that the vowel of the noun root changes from /ɐ/ to [a] when preceding the 2nd person suffix -alo, and the vowel of the 3rd person suffix /-ɛn/ is raised from /ɛ/ to [i]. Vowel changes will be addressed in §5.

[10] The alienable term for ‘sibling-in-law’, *wàjèr,* is distinct from the inalienable ‘sibling-in-law’, *kwé:gà,* in usage. While they reference the same kin relationship, *wàjèr* is used as a direct term of address or as a title with a person’s name, while *kwé:gà* is used to talk about someone’s relative indirectly.

[11] Nicolas Quint notes that, based on his experience with the language, this not the case for all Rere speakers; nevertheless, Titus states that this is his usage and the usage of others.

[12] Nicolas Quint reports that the speakers he has worked with do not use the personal possessive pronouns in standard discourse except where disambiguation is necessary. However, Titus reports that for his idiolect/dialect, the plural possessive pronouns must be used.

Table 6: Inalienable possession for ‘father’

Possessor	Sg. noun		Pl. noun	
1SG	ʈɛ́ɾɲ-ɛ́ɾí	(ʈ-í:ɲí)	ɾɛ́ɾɲ-ɛ́ɾí(-ŋɛ́)	(r-í:ɲí)
2SG	ʈáɾɲ-áló	(ʈ-ó:ŋá)	ráɾɲ-áló(-ŋá)	(r-ó:ŋá)
3SG	ʈɛ́ɾɲ-ín	(ʈ-ù:ŋún)	ɾɛ́ɾɲ-ín(-íŋɛ́)	(r-ù:ŋún)
1PL	ʈɛ́ɾɲ-ɛ́ɾí	ʈ-ɛ́:ɾí	ɾɛ́ɾɲ-ɛ́ɾí(-ŋɛ́)	r-ɛ́:ɾí
2PL	ʈáɾɲ-áló	ʈ-á:ló	ráɾɲ-áló(-ŋá)	r-á:ló
3PL	ʈɛ́ɾɲ-ín	ʈ-è:ŋén	ɾɛ́ɾɲ-ín(-íŋɛ́)	r-è:ŋén

The nominative forms for ‘mother’ are shown in Table 7. The inflection of ‘mother’ is the same as that for ‘father’ with the exception that the plural of ‘mother’ requires the suffix -ŋá instead of noun class marking, added after the possessive suffix. In the 2nd person forms, the vowel of the root is [a], similar to the 2nd person forms of ‘father’; the 3rd person suffix /-ɛn/ is also raised to [in].

Table 7: Inalienable possession for ‘mother’

Possessor	Sg. noun		Pl. noun	
1SG	lɛ́:ɲ-ɛ́ɾí	(kw-í:ɲí)	lɛ́:ɲ-ɛ́ɾí-ŋɛ́	(l-í:ɲí)
2SG	lá:ɲ-áló	(kw-ó:ŋá)	lá:ɲ-áló-ŋá	(l-ó:ŋá)
3SG	lɛ:ɲ-ín	(kw-ù:ŋún)	lɛ́:ɲ-ín-íŋɛ́	(l-ù:ŋún)
1PL	lɛ:ɲ-ɛ́ɾí	kw-ɛ́:ɾí	lɛ́:ɲ-ɛ́ɾí-ŋɛ́	l-ɛ́:ɾí
2PL	lá:ɲ-áló	kw-á:ló	lá:ɲ-áló-ŋá	l-á:ló
3PL	lɛ́:ɲ-ín	kw-è:ŋén	lɛ́:ɲ-ín-íŋɛ́	l-è:ŋén

The form for ‘maternal uncle/aunt’ is also H-toned, as shown in Table 8. However, it lacks 1st person forms. Instead, there is a separate word *mém* meaning ‘my maternal uncle/aunt’. See Manfredi (2022) who also notes this pattern based on unpublished data provided by Nicolas Quint. For 1PL, however, one can use a bare form *k(w)ígír/lígír* with no suffixes and the possessive pronoun to indicate ‘our maternal uncle/aunt.’ With this noun root, the vowels of the 2nd person suffix are raised so that /-alo/ is realized as [ɐlu]. However, unlike mother and father, even though the root has a high vowel /i/, the suffix -ɛn does not raise to [in].

Table 8: Inalienable possession for ‘maternal uncle/aunt’

Possessor	Sg. noun		Pl. noun	
1SG	NA		NA	
2SG	k(w)ígr-ɛ́lú	(kw-ó:ŋá)	lígr-ɛ́lú	(l-ó:ŋá)
3SG	k(w)ígr-én	(kw-ù:ŋún)	lígr-én	(l-ù:ŋún)
1PL	k(w)ígír	kw-ɛ́:ɾí	lígír	l-ɛ́:ɾí
2PL	k(w)ígr-ɛ́lú	kw-á:ló	lígr-ɛ́lú	l-á:ló
3PL	k(w)ígr-én	kw-è:ŋén	lígr-én	l-è:ŋén

Pattern 2: (L)H-L nominative. In contrast to the all H forms just presented, the noun root for ‘parent-in-law’ is H, but the suffixes are L-toned (Table 9). As with ‘maternal uncle/aunt’, there are no 1st person forms for ‘parent-in-law’. Instead, if one wants to express this, the possessive pronoun can be used with a bare form *kú:nɛ̀*, with HL tone. The same goes for ‘sibling-in-law’ *kwé:g-à*, which has the same tone patterns as ‘parent-in-law’, except that there is no 1st person form, even with possessive pronouns.

Table 9: Inalienable possession for ‘parent-in-law’

Possessor	Sg. noun		Pl. noun	
1SG	kúːnɛ̀	kw-íːɲí	lúːnɛ̀	l-íːɲí
2SG	kúːn-ɛ̀lù	(kw-óːŋá)	lúːn-ɛ̀lù	(l-óːŋá)
3SG	kúːn-èn	(kw-ùːŋún)	lúːn-èn	(l-ùːŋún)
1PL	kúːnɛ̀	kw-ɛ́ːɾí	lúːnɛ̀	l-ɛ́ːɾí
2PL	kúːn-ɛ̀lù	kw-áːló	lúːn-ɛ̀lù	l-áːló
3PL	kúːn-èn	kw-ɛ̀ːŋɛ́n	lúːn-èn	l-ɛ̀ːŋɛ́n

The inalienable nouns ‘co-wife’ (Table 10) and ‘grandparent/grandchild’ (Table 11) have bases with LHL tone, but these are shortened to LH with suffixes. As with parent-in-law, the suffixes are L-toned. The word for co-wife is *kùrmúṯ* and the plural is *lùrmúṯ*, but when used in a phrase with a possessive pronoun, there is an additional vowel [u] with low tone, which causes spirantization of /ṯ/ to [ð].[13] Co-wife is used in the context of a polygamous marriage and is how one wife refers to the other wife. It can also express the relationship between women who are married to brothers. There is a separate term *kwéːgà* for more general sibling-in-law relationships such as brother’s wife, husband’s sister, wife’s brother, etc. The 1st person forms are again expressed with a bare form and the possessive pronoun. Note that the second vowel of the root is front [i] when preceding the suffix -ɛn.

Table 10: Inalienable possession for ‘co-wife’

Possessor	Sg. noun		Pl. noun	
1SG	kùrmúðù	kw-íːɲí	lùrmúðù	l-íːɲí
2SG	kùrmúð-ɛ̀lù	(kw-óːŋá)	lùrmúð-ɛ̀lù	(l-óːŋá)
3SG	kùrmíð-èn	(kw-ùːŋún)	lùrmíð-èn	(l-ùːŋún)
1PL	kùrmúðù	kw-ɛ́ːɾí	lùrmúðù	l-ɛ́ːɾí
2PL	kùrmúð-ɛ̀lù	kw-áːló	lùrmúð-ɛ̀lù	l-áːló
3PL	kùrmíð-èn	kw-ɛ̀ːŋɛ́n	lùrmíð-èn	l-ɛ̀ːŋɛ́n

The word for grandparent/child is sg. *kùgúrnɛ̀* pl. *lùgúrnɛ̀*. The paradigm is provided in Table 11. As with some of the other nouns, the base is used with a possessive pronoun to express 1SG rather than with suffixes. Both ‘co-wife’ and ‘grandparent/grandchild’ thus have a base with a LHL pattern.

Table 11: Inalienable possession for ‘grandparent/grandchild’

Possessor	Sg. noun		Pl. noun	
1sg	kùgúrnɛ̀	kw-íːɲí	lùgúrnɛ̀	l-íːɲí
2sg	kùgúrn-ɛ̀lù	(kw-óːŋá)	lùgúrn-ɛ̀lù	(l-óːŋá)
3sg	kùgúrn-èn	(kw-ùːŋún)	lùgúrn-èn	(l-ùːŋún)
1pl	kùgúrnɛ̀	kw-ɛ́ːɾí	lùgúrnɛ̀	l-ɛ́ːɾí
2pl	kùgúrn-ɛ̀lù	kw-áːló	lùgúrn-ɛ̀lù	l-áːló
3pl	kùgúrn-èn	kw-ɛ̀ːŋɛ́n	lùgúrn-èn	l-ɛ̀ːŋɛ́n

These data demonstrate that the suffixes do not have fixed tone, as they can be either H-toned (Pattern 1) or L-toned (Pattern 2). Given that all the roots in this section are revealed to end in a low tone in their unsuffixed form, one might propose that the tone of the suffix is conditioned by the final tone of the root: H when the root ends in H tone and L when the root ends in L tone. But this analysis turns out not to be so clear cut when more data from Pattern 3 is examined.

[13] The base can also be pronounced *kùrmúðù* when there is no possessive pronoun, which has the sense of ‘my sister-in-law’ when a woman refers to her husband’s brother’s wife.

Pattern 3: L-H/L-L nominative. The next pattern occurs for the word ‘spouse’. It has L tone on the noun root, but the suffixes have two different kinds of tones according to person.[14] The 2nd person suffix has H tone, but the 3rd person suffix has L tone (Table 12). Again, there are no 1st person forms, but the word cannot appear in a base form with no suffixes. To express ‘my spouse’, one uses the words for woman or man: *kwào kw-íːɲí* ‘my wife’ and *kwór kw-íːɲí* ‘my husband’.

Table 12: Inalienable possession for ‘spouse’

Possessor	Sg. noun		Pl. noun	
1SG	NA		NA	
2SG	kwòl-ɛ́lú	(kw-óːŋá)	lìl-ɛ́lú	(l-óːŋá)
3SG	kwòl-èn	(kw-ùːŋún)	lìl-èn	(l-ùːŋún)
1PL	NA		NA	
2PL	kwòl-ɛ́lú	kw-áːló	lìl-ɛ́lú	l-áːló
3PL	kwòl-èn	kw-èːŋén	lìl-èn	l-èːŋén

The tone of the suffix is not phonologically predictable from the tone of the root in this case, as there is different root tone with different suffixes. This type of split in tone pattern based on person is also observed with the possessive pronouns, where 1st and 2nd person have HH tone whereas 3rd person has LH tone.

Mix of Pattern 1 H-H (singular) and Pattern 3 L-H/L-L (plural) nominative. The final two nouns exhibit a mix of two of the other patterns. This is found with the inalienable nouns ‘close friend’ (Table 13) and ‘sibling/cousin’ (Table 14). They show different tone patterns in singular and plural. The singular pattern is H-H, the same as Pattern 1 found for ‘mother’, ‘father’ and ‘maternal aunt/uncle’. However, they have a different tone pattern in the plural. These nouns lack noun class prefixes, and the plural is indicated by the addition of a high-toned prefix lí-. The rest of the plural stem resembles Pattern 3, as used for ‘spouse’. The root is L-toned, but there is a split for person. The 1st and 2nd persons are H-toned, but the suffix of the 3rd person forms is realized with L tone.

The first vowel in the noun root of ‘close friend’ and ‘sibling/cousin’ is distinct in each form. The noun root is [ɐ] for 1st person, [a] for 2nd person, like those of ‘mother’ and ‘father’, and [ɛ] for 3rd person forms. In each case, the first vowel in the noun root matches the first vowel of the possessive suffix. In addition, the second vowel, which is possibly epenthetic, is either [i] or [e] reflecting the height of the surrounding vowels. Vowel changes will be addressed in §5.

Table 13: Inalienable possession for ‘close friend’

Possessor	Sg. noun		Pl. noun	
1SG	mɐ́ðíɣ-ɐ́rí	(kw-íːɲí)	lí-mɐ̀ðìɣ-ɐ́rí	(l-íːɲí)
2SG	máðéɣ-áló	(kw-óːŋá)	lí-màðèɣ-áló	(l-óːŋá)
3SG	mɐ́ðéɣ-én	(kw-ùːŋún)	lí-mɐ̀ðèɣ-èn	(l-èːŋén)
1PL	mɐ́ðíɣ-ɐ́rí	kw-ɐ́ːrí	lí-mɐ̀ðíɣ-ɐ́rí	l-ɐ́ːrí
2PL	máðéɣ-áló	kw-áːló	lí-màðèɣ-áló	l-áːló
3PL	mɐ́ðéɣ-én	kw-èːŋén	lí-mɐ̀ðèɣ-èn	l-èːŋén

[14] Quint (2009) transcribes ‘spouse’ with a mid closed vowel [e], realized as [o] in the singular following [w]: [kwòlèn] and [lélèn] (p.42). We transcribe it with [ɪ] realized as [ʊ], reflecting its lower first formant value (F1) than [o]. In a recording of the phrase kw-ʊ̀l-ɛ́lú kw-áːló, for example, the [ʊ] has F1 around 324Hz, whereas [o] has F1 around 507Hz. This may reflect a difference between the speech of Titus and the speech of Siddig Ali Karmal Kokko, Quint’s primary consultant.

Table 14: Inalienable possession for ‘sibling/cousin’

Possessor	Sg. noun		Pl. noun	
1SG	ɛ́ŋg-ɛ́rí	(kw-í:ɲí)	lí-ɛ̀ŋg-ɛ́rí	(l-í:ɲí)
2SG	áŋg-áló	(kw-ó:ŋá)	lí-àŋg-áló	(l-ó:ŋá)
3SG	éŋg-én	(kw-ù:ŋún)	lí-èŋg-èn	(l-è:ŋén)
1PL	ɛ́ŋg-ɛ́rí	kw-ɛ́:ɾí	lí-ɛ̀ŋg-ɛ́rí	l-ɛ́:ɾí
2PL	áŋg-áló	kw-á:ló	lí-àŋg-áló	l-á:ló
3PL	éŋg-én	kw-è:ŋén	lí-èŋg-èn	l-è:ŋén

Table 15: Summary of inalienable noun tone - Nominative

	root-suffix	pronoun
Pattern 1: H-H		
father, mother, close friend (sg), sibling (sg)		
1st	H(H)-HH	HH
2nd	H(H)-HH	HH
3rd	H(H)-H	LH
maternal uncle/aunt		
1st	HH	HH
2nd	H-HH	HH
3rd	H-H	LH
Pattern 2: (L)H-L		
parent-in-law, sibling-in-law		
1st	HL	HH
2nd	H-LL	HH
3rd	H-L	LH
co-wife, grandparent/grandchild		
1st	LHL	HH
2nd	LH-LL	HH
3rd	LH-L	LH
Pattern 3: L-HH/L-L		
spouse		
1st	–	–
2nd	L-HH	HH
3rd	L-L	LH
close friend (pl), sibling (pl)		
1st	H-L(L)-HH	HH
2nd	H-L(L)-HH	HH
3rd	H-L(L)-L	LH

To summarize, inalienably possessed nominative forms employ three different tone patterns as shown in Table 15. The tone on the possessive suffix can vary, sometimes being high and sometimes low. In Pattern 1, it matches the tone of the root (H). In Pattern 2, it can be said to match the tone of the final vowel of the base (L) which is used in the 1st person forms with no suffixes. In Pattern 3, however, the tone of the suffixes differs based on person, and does not necessarily match the tone of the root. This split between 1st/2nd person versus 3rd person tone patterns is also found in the possessive pronouns.

We now turn to accusative case marking where some nouns adopt different tone patterns to mark accusative case.

4.2. Inalienable Possession: Accusative case. As discussed in Section 2.3, accusative case marking in Rere involves four allomorphic patterns: suffixation, tone change, suffixation along with tone change, or no overt case marking. With inalienable possessives, two of these accusative case marking patterns are attested: tone change and no overt case marking.

Pattern 1 → Pattern 3 tone change. Nouns with the nominative Pattern 1 H-H, namely 'father', 'mother', 'uncle/aunt', and the singular forms of 'close friend' and 'sibling/cousin' utilize tone change to mark case. For 1st/2nd person forms, the noun root, which is H in the nominative, is realized as L in the accusative, while the inalienable possessive suffixes remain H-toned. For 3rd person forms, both the noun root and possessive suffix change to L causing a distinction between 1st/2nd vs. 3rd person forms. This pattern is identical to Pattern 3 in nominative case.

The grammatical roles that are differentiated by tone can be illustrated with sentences that reference 3rd person objects. In (12a), the class marker kw- on the verb references the object 'him' or 'her', depending on the referent. In such constructions, where the object has been previously mentioned, the subject must appear after the verb. This word order (VS) is indicated not only by nominative case marking on the subject (high tone), but by a H tone at the end of the verb. In contrast, in (12b), the class marker kw- references the subject 'he/she', which is previously mentioned, and the object is marked with accusative case (low tone). The word order is VO, and the verb is all low-toned, as is standard for perfective verb forms. Thus, there are two tone differences that identify the grammatical role of the post-verbal nominal: the tone on the nominal itself, and the tone on the verb.

(12) a. kw-èːɟ-á lɛ́ːɲ-ín kìlgìn
CLkw-see-PFV CLkw.mother-POSS.3 yesterday
'Her/his mother saw her/his yesterday.'

b. kw-èːɟ-à lɛ̀ːɲ-ìn kìlgìn
CLkw-see-PFV CLkw.mother.ACC-POSS.3ACC yesterday
'She/he saw her/his mother yesterday.'

It's important to emphasize that the tone that appears at the end of the verb is not responsible for the tone on the following nominal. It is a coincidence that they match. Subjects can be L-toned following a final H-toned verb, and objects can be H-toned following a L-toned verb.

The accusative paradigms of 'father' and 'close friend (sg)' are provided in Table 16.

Table 16: Inalienable possession - Accusative forms with no prefix

Possessor	'father'		'close friend (sg)'	
1SG	n̪ɛ̀ɾɲ-ɛ́ɾí	(n̪-íːɲí)	mɛ̀ðìɣ-ɛ́ɾí	(kw-íːɲí)
2SG	n̪àɾɲ-áló	(n̪-óːŋá)	màðèɣ-áló	(kw-óːŋá)
3SG	n̪ɛ̀ɾɲ-ìn	(n̪-ùːŋún)	mɛ̀ðèɣ-èn	(kw-ùːŋún)
1PL	n̪ɛ̀ɾɲ-ɛ́ɾí	n̪-ɛ́ːɾí	mɛ̀ðìɣ-ɛ́ɾí	kw-ɛ́ːɾí
2PL	n̪àɾɲ-áló	n̪-áːló	màðèɣ-áló	kw-áːló
3PL	n̪ɛ̀ɾɲ-ìn	n̪-ɛ̀ːŋén	mɛ̀ðèɣ-èn	kw-ɛ̀ːŋén

Recall that the plural form of 'mother' has a final suffix -ŋá, and this is optional for 'father' (Table 17). In the accusative, this suffix is followed by an additional marker -ɟe (raised to ɟi), which also alternates based on vowel harmony. The marker -ɟe occurs on accusative pronouns and in verb paradigms to indicate plural objects. Therefore, it appears to be a plural accusative case marker that is

used when plurality is indicated by something other than noun class marking. The suffix -ɟe always bears the tone of whatever precedes it.[15]

The word for ‘maternal uncle/aunt’ shows the same tone changes as ‘father’, ‘mother’ and singular ‘close friend’ where the root vowel changes from H to L in the accusative. When it is used alone with no possessive suffixes, it is marked with a case suffix -ɛ́, so the tone pattern is L-H (13). There is still a tone change on the root, as the nominative form with no case suffix, k(w)ígír, is HH.

Table 17: Inalienable possession - Accusative forms of fathers/mothers

Possessor	‘fathers’		‘mothers’	
1SG	r-ɛ̀ɾɲ-ɛ́ɾí(-ŋɛ́-ɟí)	(r-íːɲí)	lɛ̀ːɲ-ɛ́ɾí-ŋɛ́-ɟí	(l-íːɲí)
2SG	r-àɾɲ-áló(-ŋá-ɟé)	(r-óːŋá)	làɲ-áló-ŋá-ɟé	(l-óːŋá)
3SG	r-ɛ̀ɾɲ-ìn(-ìŋɛ́-ɟí)	(r-ùːŋún)	lɛ̀ɲ-ìn-ìŋɛ́-ɟí	(l-ùːŋún)
1PL	r-ɛ̀ɾɲ-ɛ́ɾí(-ŋɛ́-ɟí)	r-ɛ́ːɾí	lɛ̀ːɲ-ɛ́ɾí-ŋɛ́-ɟí	l-ɛ́ːɾí
2PL	r-àɾɲ-áló(-ŋá-ɟé)	r-áːló	làɲ-áló-ŋá-ɟé	l-áːló
3PL	r-ɛ̀ɾɲ-ìn(-ìŋɛ́-ɟí)	r-ɛ̀ːŋɛ́n	lɛ̀ɲ-ìn-ìŋɛ́-ɟí	l-ɛ̀ːŋɛ́n

(13) kw-ɛ̀ːɟ-á k(w)-ìgr-ɛ́ kìlgìn
CLkw-see-PFV CLkw-uncle-ACC yesterday
‘She/he saw an uncle yesterday.’

Patterns 2 and 3 – no tone change. The second accusative pattern in inalienable possessive phrases is no overt case marking. For the rest of the accusative forms (parent-in-law, co-wife, sibling-in-law, grandparent/grandchild, spouse, and the plurals of close friend and sibling/cousin), there is no difference between nominative and accusative, as long as they have possessive suffixes.

Again, we can compare the nominative and accusative forms in sentences to see this. The 3rd person form kwɔ̀l-ɛ̀n ‘his/her spouse’ is identical in both sentences. The only difference between the sentences is the H tone at the end of the verb in (14a) compared to the L tone at the end of the verb in (14b), which signals the Verb Subject vs. Verb Object word order.

(14) a. kw-ɛ̀ːɟ-á kw-ɔ̀l-ɛ̀n kìlgìn
CLkw-see-PFV CLkw-spouse-POSS.3 yesterday
‘Her/his spouse saw her/him yesterday.’
b. kw-ɛ̀ːɟ-à kw-ɔ̀l-ɛ̀n kìlgìn
CLkw-see-PFV CLkw-spouse.ACC-POSS.3 yesterday
‘She/he saw her/his spouse yesterday.’

Nevertheless, if the nouns occur with no suffixes, then there are differences between nominative and accusative, including tone changes. Sibling-in-law shows no tone change, but parent-in-law and grandparent/grandchild show a tone change to all L tone. Co-wife has an accusative case suffix -ɛ̀ and there is no tone change, as shown in Table 18. This shows that the presence of inalienable possessive suffixes can block accusative case suffixes from appearing, and can also block tone changes that expone accusative case in forms with a final vowel (cf. *kùgúrn-ɛ̀n* ‘his/her grandparent’ (NOM/ACC) vs. *kùgùrnɛ̀* ‘grandparent’ (ACC)), but not tone changes in forms that end in consonants.

[15] The suffix -ɟe is also found with other nouns that have -ŋá plurals. In the singular, such nouns use the accusative suffix -ŋwó, which is employed by proper names (ex. kwókò-ŋwó ‘Kuku-ACC’), pronouns (ex. ŋá-ŋwó ‘you(sg)-ACC’) and alienable kinship terms. The -ŋwó suffix is not used by Taitas for inalienable kinship terms.

Table 18: Case marking without possessive suffixes

	NOMINATIVE	ACCUSATIVE
sibling-in-law	kwé:gà	kwé:gà
	HL	HL
parent-in-law	kú:nɛ̀	kù:nɛ̀
	HL	LL
grandparent/grandchild	kùgúrnɛ̀	kùgùrnɛ̀
	LHL	LLL
co-wife	kùrmúð(ù)	kùrmúð-ɛ̀
	LH(L)	LH-L

The nominative and accusative forms of all inalienable possessive forms are summarized in Table 19. The gray shading indicates the tone differences between nominative and accusative. We leave out the possessive pronouns as they do not interact with the tone of the nominal. However, we do include unsuffixed forms that can occur alone or with 1st person possessive pronouns.

The tone that appears on these nominals can be considered grammatical tone since it differs based on inflectional features. First, there are nominative vs. accusative tone differences in Pattern 1 nominals. These tone differences apply to the root and one of the suffixes. Second, there are tone differences in the suffixes based on person. This occurs in Pattern 1 accusative forms and Pattern 3 nominals (nominative and accusative). The same suffix has different tone depending on case and number.

The next question to address is whether the tone patterns are due to 1) tone being assigned to the noun stem to mark case, with the suffixes having their own lexical tone, or 2) whether tone is assigned to the entire word including the suffixes.

Table 19: Summary of inalienable noun tone and case marking

	NOMINATIVE root-suffix	ACCUSATIVE root-suffix
	Pattern 1	Pattern 3
father, mother, close friend (sg), sibling (sg)		
1st	H(H)-HH	L(L)-HH
2nd	H(H)-HH	L(L)-HH
3rd	H(H)-H	L(L)-L
maternal uncle/aunt		
1st	HH	LL
2nd	H-HH	L-HH
3rd	H-H	L-L
	Pattern 2	Pattern 2
parent-in-law, sibling-in-law		
1st	HL	HL or LL
2nd	H-LL	H-LL
3rd	H-L	H-L
co-wife, grandparent/grandchild		
1st	LHL or LH(L)	LLL or LH-L
2nd	LH-LL	LH-LL
3rd	LH-L	LH-L

	Pattern 3	Pattern 3
spouse		
1st	-	-
2nd	L-HH	L-HH
3rd	L-L	L-L
close friend (pl), sibling/cousin (pl)		
1st	H-L(L)-HH	H-L(L)-HH
2nd	H-L(L)-HH	H-L(L)-HH
3rd	H-L(L)-L	H-L(L)-L

4.3. Tonal Analysis. Two possible analyses are considered for the tone patterns observed in the inalienable possessives. The first analysis, 'fixed suffix tone', proposes that tone is assigned to the root to convey nominative or accusative case, but the tone on the possessive suffixes is lexically specified as -HH for 1st and 2nd person suffixes and -L for 3rd person. Any tone changes to the suffixes are due to phonological context. The second analysis, 'tone melody', holds that the tone patterns are assigned to both the nominal stem and the inalienable suffixes as a unit, but excluding other suffixes. The distinction between nominative and accusative is achieved by changing the tone of the larger nominal stem, including the inalienable suffixes.

Tone analysis: fixed suffix tone. The inalienable suffixes resemble the plural alienable possessive pronouns. The 1st and 2nd person possessive pronouns have HH tone whereas the 3rd person has LH tone. Let us assume that the 1st and 2nd person suffixes have underlying -HH tone like the possessive pronouns. The 3rd person is only a single syllable and has -L tone. When these suffixes attach to a stem with L tone, like the stem for 'spouse', they are realized with no changes, namely Pattern 3.

Figure 1: Pattern 3: L-toned root (nominative)

kw-ʊ̀l-ɐ́lú
CLkw-spouse-2POSS
'your spouse'

kw-ʊ̀l-ɛ̀n
CLkw-spouse-3POSS
'his/her spouse'

However, if they associate to a root that ends in a H tone, H tone spreading occurs, with delinking of the L tone, thereby changing the -L suffix to [-H]. This is Pattern 1, where both suffixes are H-toned.

Figure 2: Pattern 1: H-toned root (nominative)

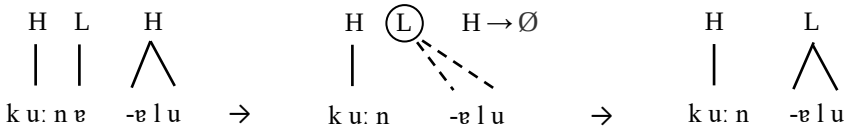
lá:ɲ-áló
CLkw.mother-2POSS
'your mother'

lɐ́:ɲ-ín
CLkw.mother-3POSS
'his/her mother'

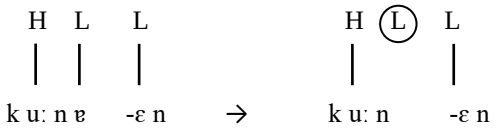
H-tone spreading is attested elsewhere in the language across morpheme boundaries. It is observed in verbs with certain prefixes, such as the habitual prefix t̪í- and pronominal markers, such as the 1st person subject marker ɲí-. For example, *kw-èːɟà* 'he saw' is all low-toned, but *ɲí-gw-éːɟá* 'I saw' is all high-toned due to tone spreading from the subject marker.

Pattern 2 is the forms with L suffixes. The roots end in a HL sequence when there are no suffixes, but the vowel that bears the L tone is absent with suffixes. We assume that the final vowel of the stem deletes preceding the vowel-initial suffixes due to vowel hiatus resolution. In Rere, it is typically the first vowel in a vowel sequence across morpheme boundaries which deletes. However, we propose that the L tone of the final vowel is recuperated on the suffix, replacing the autosegmental H tone on the suffix. This leads to L tone on both suffixes. The H on the stem does not spread to the L suffix. This is because spreading occurs prior to vowel deletion, and at that point, the H on the root is not stem-final.

Figure 3: Pattern 2: HL-toned root (nominative)



kú:n-ɐ̀lù
CLkw.parentinlaw-2POSS
'your parent-in-law'



kú:n-ɛ̀n
CLkw-parentinlaw-2POSS
'your parent-in-law'

This analysis can also account for why the plurals of 'sibling' and 'close friend' behave differently than the singulars. The addition of a H-toned prefix in the plural causes the tone of the root to lower from H to L, an OCP-triggered dissimilation effect. This lowering effect prevents the spreading of H tone from the root onto the suffix, and the suffixes are realized in their underlying form, as -HH and -L.

Figure 4: Pattern 3: Prefix H lowering (nominative)

lí-àŋg-áló
CLl-sibling-2POSS
'your siblings'

lí-ɛ̀ŋg-ɛ̀n
CLl-sibling-3POSS
'his/her siblings'

This analysis does not provide an explanation for why the plural noun class prefix lɪ- has H tone with inalienable possessives whereas it has L tone when appearing on alienable nouns.

Having presented the analysis of tone on the suffixes, the accusative patterns are straightforward. Accusative tone affects only the root tone. Those roots that have H tone change their tone to L in the accusative. This is a pattern attested in the wider corpus of nouns with alienable possession, ex. ɛ́ːwɛ́ (NOM) vs. ɛ̀ːwɛ̀ (ACC) 'moon'. As discussed in §2.3, the selection of accusative tone pattern is lexical, and the tone change from nominative to accusative is not fully predictable. So, HL nominative can show no tone change or be LH or LL in accusative or HH nominative can show no tone change, or correspond to HL or LL in accusative. Indeed, the other suffixed roots show no phonological changes, and the suffixes appear with the same tone as in the accusative. This analysis assumes that the nominative form is the base tone, and tone changes under accusative case assignment. Case assignment occurs prior to H tone spreading. This ensures that the root tone is L in 3rd person forms, so the output with a -L suffix is just L-L. We model this in the autosegmental diagram in Figure 5 with a floating L tone (in a circle) to mark accusative case that overwrites the nominative H tone (shown as association of L and delinking of H).

Figure 5: Pattern 1: H-toned root (accusative)

lɛ̀ːɲ-áló
CLkw.mother.ACC-POSS.2
'your mother'

lɛ̀ːɲ-ìn
CLkw.mother.ACC-POSS3
'his/her/their mother'

Tone analysis: nominal tone melodies. We contrast the fixed suffix tone analysis with an analysis that posits that the inalienable suffixes are included in the nominative/accusative tone patterns. Under this analysis, the inalienable suffixes lack underlying tone and are assigned tone based on the tone melody assigned to the whole noun form. Nominatives and accusatives select different tone melodies. There is a constraint that the inalienable suffix always has exactly one tone, either H (mapping as HH) or L (mapping as LL). The bisyllabic suffixes are never HL or LH. Therefore, the tone melodies for a trisyllabic form with a monosyllabic root must be limited to those that conform to this restriction: H-HH, L-HH, H-LL, L-LL, of which all but L-LL are attested. With this type of analysis, the size of the overall stem dictates the choice of tone pattern.

The attested tone patterns for monosyllabic roots are as follows. The tone patterns for 'mother', 'father', 'maternal uncle/aunt', 'sibling/cousin (sg)' and 'close friend (sg)' show a tone change. H-H (NOM) corresponds to L-L (ACC), and H-HH (NOM) corresponds to L-HH (ACC). Recall that the inalienable suffixes must be either HH or LL, so there are no tone patterns *H-HL H-LH, L-LH, or L-HL, where the second tones map to the suffix. LHL is attested as a possible accusative melody, but only with a bisyllabic root and a monosyllabic suffix: LH-L. Second, inalienable forms with the same tone pattern in the nominative all show the same nominative-accusative correspondence. The same is not true for the accusatives. For example, accusative LL can correspond to either LL or HH in the nominative. This suggests a derivation direction from nominative to accusative.

Table 20: Tone patterns with monosyllabic stems

Nom.		Acc.		
2 syll	3 syll	2 syll	3 syll	
H-H	H-HH	L-L	L-HH	mother, etc.
L-L	L-HH	L-L	L-HH	spouse
H-L	H-LL	H-L	H-LL	parent-in-law

As for bisyllabic roots and monosyllabic roots with a prefix, the following patterns are attested. No tone differences between nominative and accusative are observed. Note, however, that the HLL tone melody can be mapped to either H-LL (as in *kúːn-èlù* 'your parent-in-law') or H-L-L (as in *lí-èŋg-èn* 'his/her/their siblings/cousins'), and neither shows any tone difference between nominative and accusative.

Table 21: Tone patterns with bisyllabic roots and monosyllabic roots with prefix

NOM.		ACC.		
3 syll	4 syll	3 syll	4 syll	
LH-L	LH-LL	LH-L	LH-LL	co-wife, grandparent
H-L-L	H-L-HH	H-L-L	H-L-HH	close friend, sibling/cousin (pl)

This analysis has the advantage of not needing to posit any underlying tone for the affixes. The tones that suffixes exhibit (-HH, -LL, -H, -L) are due to the tone melody selected by the noun root and assigned to the whole noun stem. Nouns in nominative case select from a set of available tone melodies that other nouns also employ. Most nominative nouns are bisyllabic (HH, LL, HL), but accusative nouns with case suffixes can be trisyllabic, and the tone melodies found on inalienable accusatives are also attested with nouns with case suffixes. The hypothesis maintains that accusative tone is assigned to the whole noun stem, including the accusative suffix. In the case of inalienable possessives, the personal possessive suffixes are included within the case assignment domain, but other suffixes such as associative plurals are not included.

Concerning the nouns without suffixes, namely *kígír, kúnːè, kwéːgà, kùrmúðù, kùgúrnè*, these are assumed to show the same pattern as other HH, HL and LHL forms, namely a change from HH or HL to LL and LHL to LLL.

This analysis also does not explain why the plural prefix li- has H tone with inalienable suffixes. However, this is perhaps less of a problem than it is for the other analysis. If the prefix is included in case assignment, then these two words just happen to select a tone melody that begins with a H tone.

Both of these analyses are viable, but the fixed suffix tone analysis is preferable for several reasons. First, the underlying -HH and -L tone on the suffixes correlates with a similar division in tone patterns on possessive pronouns that shows the same person-based distinction. In possessive pronouns, all the pronouns are bisyllabic, so this is not about the size of the form dictating the tone pattern. Second, the fixed suffix tone analysis employs standard autosegmental phonological rules of H tone spreading, OCP-triggered dissimilation, and floating tone stability to explain the tone differences in the suffixes. This has the advantage of explaining why the presence of a H-toned prefix affects the tone of the root, and by extension, the tone of the suffix, and why there is a correlation between low tone on the final vowel of some stand-alone noun roots and low tone on the suffix that follows. This is not explained, or is viewed as random tone melody selection under the tone melody approach. Fourth, there is no need to invoke a constraint on suffix tone in tone melody selection. This analysis does not alter the analysis of case assignment that includes case suffixes in tonal melody assignment. However, suffixes which do not expone case are outside the domain of tonal case changes.

In conclusion, the domain for tonal case realization is the noun root and the accusative suffix, if one is present. All other suffixes are outside the domain of accusative tone, but their tone can be affected by the tone of the root. The tone of inalienable suffixes can be altered by tone spreading or by vowel deletion.

5. Vowel patterns

The final discussion point concerns the interaction between the vowels of the root and the suffixes. The nouns fall into three groups in terms of their behavior: (i) Peripheral high vowel roots; (ii) central high vowel roots; and (iii) low vowel roots.

The five nouns with peripheral high vowels /i/, /u/ or /ʊ/ in the root (*k(w)igr-, kuːn-, kurmuð-, kugurn-, kwʊl-*) do not show a vowel change to the root vowel. However, the 2nd person suffix -alo is raised to [-ʉlu] with these roots. We take the form of the suffix to be raised for two reasons. First, this is the form in the corresponding possessive pronoun C-áːló. Second, Rere has height harmony, in which lower vowels /ɛ e a ɔ o/ raise in the environment of higher vowels /i u ʉ/. For example, the 2nd person pronominal suffix -ŋa is realized as [-ŋʉ] if it attaches to a verb with a high vowel: ex. *kw-èːɟá-ŋá* ‘s/he saw you’ vs. *kw-ùrʈé-ŋé* ‘s/he chased you’. Nevertheless, these nouns do not condition raising of the 3rd person suffix with a low vowel, -ɛn, where one might have expected raising to [in]. So the raising rule applies specifically to the 2nd person suffix, or specifically to back vowels.

Table 22: Peripheral high vowel roots

Poss.	Sg. noun		Sg. noun	
2	kúːn-èlù	‘your parent-in-law’	k(w)ígr-élú	‘your m. uncle/aunt’
3	kúːn-èn	‘his/her/their parent-in-law’	k(w)ígr-én	‘his/her/their m. uncle/aunt’

The words for ‘mother’ and ‘father’ (ʈʉrɲ-, lʉɲ-) have /ʉ/ in the root. This vowel is analyzed as a central high vowel in Quint (2009) as it raises vowels as part of the harmony system, ex. *kwò-mètɛ́-ŋé* ‘s/he helped you’. Unlike the nouns with /i/ or /u/ in the root, this vowel does condition raising of 3rd person /-ɛn/ to [in]: ʈ́ɾ́ɾɲ-ín ‘his/her father’. But it does not cause raising of 2nd person -alo like the peripheral high vowels do. Instead, -alo conditions lowering of the root vowel to [a]: *ɟáɾɲ-áló* not *ʈ́ɾ́ɾɲ-élú. We assume that the root vowel itself cannot be underlyingly /a/ due to the raising effect on 3rd person -ɛn. As far as we know, this lowering rule is not attested elsewhere in Rere.

Table 23: Central high vowel roots

Poss.	Sg. noun		Sg. noun	
1	ʈ́ɾ́ɾɲ-é́ɾí	‘my/our father’	lé́ːɲ-é́ɾí	‘my/our mother’
2	ʈ́áɾɲ-áló	‘your father’	láːɲ-áló	‘your mother’
3	ʈ́ɾ́ɾɲ-ín	‘his/her/their father’	lé́ːɲ-ín	‘his/her/their mother’

These observations present two puzzles. First, why do roots with /u i ʊ/ not cause raising of /ɛn/, but roots with /ʉ/ do? Second, why does /-alo/ condition lowering of root /ʉ/ to [a], but roots with /u i/ raise the suffix to [ʉlu]? There is clearly a split in behavior between the peripheral high vowels and the central mid vowel /ʉ/ that functions as a high vowel in terms of vowel harmony.

The third pattern is found with the words for ‘sibling/cousin’ and ‘close friend’, which have three different root vowels [ʉ a ɛ] in the first position, each of which matches the first vowel of the suffix. The second vowel in *mʉðiɣ/maðeɣ* ‘close friend’ is epenthetic and alternates between [e] with the lower vowels and [i] with the higher ones in accordance with vowel harmony.

Table 24: Low vowel roots

Poss.	Sg. noun		Sg. noun	
1	ɛ́ŋg-ɛ́rí	'my/our sibling/cousin'	mɛ́ðíɣ-ɛ́rí	'my/our close friend'
2	áŋg-áló	'your sibling/cousin'	máðéɣ-áló	'your close friend'
3	éŋg-én	'his/her/their sibling/cousin'	mɛ́ðéɣ-én	'his/her/their close friend'

We analyze the underling vowel in these two roots as /a/, due to its appearance in the unsuffixed form *kómáɻ* 'close friend'. It cannot be /ɐ/ or we would expect it to behave like the words 'mother' and 'father'. The root /a/ raises to [ɐ] via the already attested raising harmony, and is fronted to [ɛ] in the other environment. Quint (2009) notes that combinations of the vowels /ɛ ɔ/ and /a/ are underattested in noun and verb roots, so the change from /a/ to [ɛ] could be construed as a result of this avoidance effect. Nevertheless, this type of interaction is not attested elsewhere in the language.

The distinction between the three patterns is summarized below, with the changes bolded and the direction indicated with arrows:

Table 25: Vowel patterns

	Root vowels		
poss	Peripheral high i u ʊ	Central high ɐ	Low a
1	u -ɐri	ɐ -ɐri	**ɐ** -ɐri ←
2	u -**ɐlu** →	**a** -alo ←	a -alo
3	u -ɛn	ɐ -**in** →	**ɛ** -ɛn ←

These vowel effects operate bidirectionally, where the root targets the suffix or vice-versa. While some alternations resemble the vowel height harmony pattern as described in Quint (2009), others do not, and some suffixes fail to raise where vowel harmony would predict they should (-ɛn when the root has either /u/ or /i/). It seems as if vowel lowering or fronting conditioned by the suffix takes precedence over vowel raising conditioned by the root. Root /a/ is susceptible to fronting to [ɛ] and root /ɐ/ is susceptible to lowering to [a]. Once these patterns apply, raising applies in a split fashion. The high vowels /i u/ raise the non-high /alo/ to [ɐlu] and the high vowel /ɐ/ raises /ɛ/ to [i].

We do not attempt to develop general phonological rules for these alternations, as they are specific to inalienable possessives. We do note that regressive vowel assimilation operates only within the stems where the roots are bound - there is no stand-alone base form. This may reflect a tighter bond between root and suffix in these forms compared to the others, where there is only raising of the 2nd person suffix. The related language, Moro, also shows a mix of progressive and regressive height harmony with inalienable suffixes (Ritchart & Rose 2017, Rose 2023).

6. Conclusion

This paper describes the tone patterns of Rere possessive phrases. We show that the language makes a distinction between alienable possession and inalienable possession. Alienable possession is indicated with a separate possessive pronoun that agrees in noun class with the noun it follows. Inalienable possession occurs with a small set of kinship terms, which have suffixes that express the person of the possessor. They may also use the plural possessive pronouns for disambiguation, as the suffixes do not show number distinctions, but the pronouns do. The tone patterns of these inalienably possessed nouns vary depending on the tone pattern of the root they attach to. The patterns at first

seem unpredictable, but we argue that they can be explained by a set of general autosegmental tone rules. Such an analysis relies on the fact that some noun stems can appear without the suffixes and end in an extra vowel; the tone of this vowel appears on the suffixes when the vowel is deleted before suffixes. In addition to this system, which appears in the nominative case, accusative case can be marked by tone changes to the root, part of a general system of complex accusative allomorphy in the language. Accusative case assignment changes the tone on the root in inalienably possessed nouns, which affects the application of the phonological tone rules, leading to variation in the tone of the suffixes. This study contributes to the description and analysis of a Kordofanian language, and explicates an intricate system of tone alternations.

Abbreviations

POSS	possessive	EXCL	exclusive
1	first person	HAB	habitual
2	second person	INCL	inclusive
3	third person	INST	instrumental
ACC	accusative	PFV	perfective
CL	noun class	PL	plural
COP	copula	PRF	perfect
DEM	demonstrative	REM	remote
DU	dual	SG	singular

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