The pre-Roman elements of the Sardinian lexicon

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III
Structural features

8 Phonology

8.1 Non-inherited phonemes

One indication that a word is non-inherited, is when it contains a phoneme that cannot regularly continue a sequence present in the ancestor language (cf. § 2.1.1). This includes phonemes that occur exclusively in loanwords (such as /g/ and /θ/ in English loans in Dutch), and also native phonemes in contexts that usually preclude them, e.g. non-rhotacized *-s-* in Lat. *rosa* 'rose'. The Sardinian evidence for non-inherited phonemes consists mainly of the second category. Forms containing phonological irregularities are unlikely to be inherited from Latin. If these forms cannot be shown to have entered Sardinian from one of its historically known contact languages (Greek, Catalan, Spanish, Italian etc.), they are suspect of being pre-Roman in origin.

8.1.1 Non-inherited *ϑ

One of the phonemes that often occur in words of presumed pre-Roman origin, and which is at times used by DES as an indicator of "pre-Roman-ness", is Proto-Sardinian *ϑ. Its main reflexes across the Sardinian dialects are *ϑ*(*ϑ*) in the Nuorese dialects and the northern part of the Ogliastra, *t*(*t*) in Logudorese, and *t*(*t*)*s* in Campidanese. Geographically more restricted reflexes are *č* in Desulo and the Sulcis region, and *s*(*s*) in the southern part of the Ogliastra (Wagner 1941a: 107–109, 295). It is attested in Old Sardinian sources mainly as <th> or <ç>, and as <τζ> in the records using the Greek alphabet (Wagner 1941a: 106–107). In the body of inherited lexical items, *ϑ is the regular outcome of the (vulgar) Latin sequences *$t\underset{\cdot}{\imath}$ and *$c\underset{\cdot}{\imath}$, in which $\underset{\cdot}{\imath}$ can be either from prevocalic *ĕ* or *ĭ*; cf. Srd. *fáϑϑo*, *fátto*, *fáttsu* 'I make' < Lat. *faciō*, Srd. *púϑϑu*, *púttu*, *púttsu* '(water) well' < Lat. *puteus* (Wagner 1941a: 109).

On the basis of Sardinian-internal evidence, it is difficult to establish with certainty what the original realization of *ϑ was. Wagner (1941a: 108) follows Meyer-Lübke (1903: 21) in positing either an interdental fricative [θ] or an interdental affricate [tθ], both of which are found in the Nuorese dialects, as the most likely original value of *-ϑ-. It is not clear to me how an original realization [θ] is preferable over [ts], as found in Campidanese. It is in any case plausible that its realizations were once more uniform across Sardinia (but cf. Paulis 1984a: lxxiv–lxxvii). Logudorese *t* and Ogliastran *s* are secondary developments from *ϑ* and *ts* respectively (Wagner 1941a: 107–108). The remaining question is whether the

attested variation is the result of a shift [θ]/[tθ] > [ts] in Campidanese, or of a shift [ts] > [θ] in Nuorese and Logudorese. Based on the geminate outcomes of *ϑ in all Sardinian dialects and its correspondence to [ts] and [tʃ] in other Romance varieties (cf. § 8.1.1.1), an original affricate value [tθ] or [ts] seems more plausible than [θ]. For the purpose of reconstructing the earliest stages of Sardinian and of representing the attested phonetic diversity of this phoneme, the notation *-ϑ- is best understood as a graphical device for capturing the various outcomes of this single phoneme, rather than a certain phonetic reconstruction.

8.1.1.1 Non-inherited sources of *ϑ

Besides being a reflex of inherited sequences, *ϑ has several other sources. It occurs in historical loans from Greek; e.g. Srd. *ϑíu* etc. 'uncle' < late Lat. *thius* < Gr. θεῖος. It also occurs in various formations that are attested in Latin with *-z-*, or that correspond to [ts] or [tʃ] in other Romance languages; e.g. Srd. *ϑirriáre* 'to scream' vs. Sic. *zirriari* 'to squeak' etc. (Wagner 1941a: 110–111). Additionally, *-ϑ- sometimes occurs secondarily in inherited words: cf. Nuor. *aϑϑéϑϑu* 'wormwood' << **asséϑϑu* < **absentiu* << Lat. *absinthium* (DES I: 152); Log. *tilíbba* (Osilo, Ploaghe) 'bean pod' < **ϑilíbba* << **silibba* < Lat. *siliqua* (DES II: 417); Bitti *ϑèrpes*, Log. *tèrpe* 'snake' < **ϑerpe*(*s*) << Lat. *serpes* (DES II: 408). These occurrences of *ϑ are most easily understood as the result of assimilatory or dissimilatory processes, or through analogy with phonetically or semantically similar words containing *ϑ (Wagner 1941a: 117–120).

More relevant for the present study is the fact that *ϑ occurs in a large number of Sardinian words that lack a clear etymology. According to Wagner (1941a: 112–116), this subset mainly contains plant and animal names, although he mentions some counter-examples. It is not remarkable per se that a native phoneme occurring in the inherited lexicon also occurs in words without an etymology. However, *ϑ in non-inherited words tends to occur in phonological contexts where we do not expect inherited *ϑ to exist. One of these contexts is in word-initial position. The only regular sources for Sardinian *ϑ are Lat. *cį* and *tį*, which are absent from Latin onsets.[245] This means that the substantial number of words starting in *ϑ-, discussed in § 3 – 7, cannot regularly continue a Latin form. The same is valid for the Sardinian sequence **ϑi*, as it would require Lat. **cį̄i* or **tį̄i*, which did not exist. As a consequence, any instance of **ϑi* is either secondary or hails from an external source.

[245] The only potential instance is Lat. *cieō* 'to stir up', which is replaced by *citāre* already in Classical Latin and is thus not continued in Sardinian (de Vaan 2008: 113–114). Other instances are loans or names of foreign entities.

As mentioned, the phoneme **ϑ* is present in many un-etymologized Sardinian lexical items referring to native flora and fauna. In addition, it is frequent in toponyms, e.g. *Orϑullè* (It. Urzulei). This suggests that part of the instances of Srd. **ϑ* represent non-native phonemes in words that Sardinian Latin borrowed from local languages. The following is an overview of non-inherited lexical items that contain **-ϑ-*. For every instance, the most relevant dialectal forms are selected, and it is indicated when **ϑ* occurs in a position that cannot regularly continue any Latin sequence, i.e. initial *ϑ-* or *ϑi*. The order adhered to is that of § 3 – 7.

	Meaning	**Section**	**Forms**	**Reconst.**	**Initial *ϑ-**	****ϑi***
1	Arum	§ 3.1.2	*ϑoϑoróyu, sattsarói̯*	**ϑaϑarói̯*	✓	
2	Bristly ox-tongue	§ 3.1.4	*ϑiòkkoro*	**ϑiókkor-*	✓	✓
3	Celery, watercress	§ 3.1.6	*ϑurgúsa, tseliɣúsa*	**ϑur-/ϑeli-gúsa*	✓	
4	False fennel	§ 3.1.7	*tsikkiría*	**ϑikkiría*	✓	✓
5	Poppy	§ 3.1.15	*aϑáɳɖa, tϑáɳɖa*	**ϑánda-*	✓	
6	Esparto grass	§ 3.2.2	*ϑinníɣa, tsónni*	**ϑinníga, *ϑónni*	✓	✓
7	Knotgrass, horsetail	§ 3.2.4	*síntsiri, sintsurru*	**ϑ/sínϑur-*	?	?
8	Holly/Butcher's broom	§ 3.3.6	*alaϑúli, latϑòri*	**alaϑúli, *laϑòre*		
9	Osier	§ 3.3.10	*ϑòa, ϑòɣa, ϑòβa*	**ϑó(C)a*	✓	
10	Rosemary	§ 3.3.14	*ϑíppiri, tsíppiri*	**ϑíppiri*	✓	✓
11	Strawberry tree flower	§ 3.3.17	*aíϑϑo*	**aíϑϑo*		
12	Traveller's joy	§ 3.3.19	*a(u)ttsára, luttsára*	**(a)uϑϑára*		
13	Resin	§ 3.4.5	*tsònkine*	**ϑónkine*	✓	
14	Sprout, bud	§ 3.4.6	*tséurra*	**ϑérula*	✓	
15	Backswimmer	§ 4.1.2	*tsirifrúči*	**ϑirifúrki*	✓	✓
16	Dragonfly, grasshopper	§ 4.1.9	*tsimpilíɣe*	**ϑimpilíke*	✓	✓
17	Earthworm	§ 4.1.10	*ϑilingròne, tsilíngu*	**ϑiling(ul)-one*	✓	✓
18	Grasshopper	§ 4.1.11	*piβiϑϑíu, piβintsíri*	**pipíϑϑ-*		✓
19	Grasshopper	§ 4.1.12	*ϑilipírke*	**ϑilipírke*	✓	✓
20	Slug, snail	§ 4.1.15	*sittsiɣórru, tiϑiɣórru*	**ϑiϑikórnu*	✓	✓
21	Worm	§ 4.1.17	*ϑorroíɣu*	**ϑVrro(C)íku/a*	✓	
22	Eel	§ 4.2.1	*tsingòrra*	**ϑingórra*	✓	✓
23	Gecko	§ 4.3.1	*tilíbbu*	**ϑilíkwu*	✓	✓
24	Lizard	§ 4.3.2	*ϑilikèrta*	**ϑilikérta*	✓	✓

	Meaning	Section	Forms	Reconst.	Initial *ϑ-	*ϑi
25	Lizard, snake	§ 4.3.3	*tsorómpis*	**ϑor(r)ómpi(s)*	✓	
26	Skink, slug	§ 4.3.4	*ϑilikúkku*, *ϑaϑϑalúkka*	**ϑilikúku*, **ϑaϑalúk(k)a*	✓	✓
27	Kestrel	§ 4.4.4	*tserpeḍḍéri*	**ϑerpelléri*	✓	
28	Kestrel	§ 4.4.5	*attiliβríu*, *tilibríkku*	**ϑiliprí(kk)u*	✓	✓
30	Kite	§ 4.4.6	*ϑurulía*, *sittsulía* etc.	**ϑurolía*, **ϑiϑϑolía*	✓	✓
31	Bat	§ 4.5.2	*ϑuϑuréḍḍu*, *ϑiϑirrịólu*, *tsirrịólu*	**(ϑi-)ϑurr-*	✓	✓
32	Rocky plain	§ 5.1.22	*tsèppara*	**ϑèppara*	✓	
33	Water basin, source, stream	§ 5.1.27	*ϑúrgalu*	**ϑúrgalu*	✓	
34	Bran	§ 6.1.1	*ϑálau*	**ϑála(C)u*	✓	
35	Stack of wheat	§ 6.1.7	*tsèrga*	**ϑérga*	✓	
36	Blind	§ 7.1.1	*ϑúrpu*, *túrpu*, *tsúrpu*	**ϑúrpu*	✓	
37	Bristle	§ 7.1.2	*ϑúḍḍa*, *túḍḍa*, *tsúḍḍa*	**ϑúlla*	✓	
38	Neck	§ 7.1.4	*ϑúkru*, *ϑúɣulu*, *tsúɣu*	**ϑúk(u)lu*	✓	
39	Film, layer	§ 7.2.2	*ϑídza*, *ϑòdza*	**ϑília*, *ϑòlia*	✓	✓

Table 8.1.1: Pre-Roman words containing **ϑ*

Thirty-four out of the thirty-nine potential pre-Roman words containing **-ϑ-* start in **ϑ-*, and fourteen contain the sequence **ϑi*. Neither of these can regularly continue any sequence conforming to Latin phonotactics. It is therefore likely that the pre-Roman languages of Sardinia contained a phoneme whose phonetic realization was close to the original phonetic realization of Sardinian **ϑ* < Vulg. Lat. **cị*, **tị*. Part of the evidence shown in Table 8.1.1 has been explained as loans from Punic or Berber, the latter likely in the same Punic colonial context (see § 10.2). The remainder of the etyma may have originated in some other, unidentified, pre-Roman language. These two groups of words will be discussed in § 8.1.2 and § 8.1.3 respectively.

8.1.2 **ϑ* in Punic and Berber loans

Among the words containing **ϑ*, several have been attributed with varying degrees of confidence to a Punic stratum, having potential cognates in Semitic or

Berber.[246] These words are *tsikkiría* 'false fennel (4), *tsónni* 'esparto grass' (6), *síntsiri* 'knotgrass, horsetail' (7), *ϑíppiri* 'rosemary' (10), and *tséurra* 'sprout, bud' (14). A Punic origin has also been considered for *tsingòrra* 'eel' (22), but this is less certain.[247] We can compare the Sardinian forms as well as their reconstructions to their proposed Phoenico-Punic, other Semitic, or Berber cognates:

Srd. form	**Section**	**Srd. reconst.**	**Pun./Sem./Bb. comparandum**
tsikkiría 'false fennel'	§ 3.1.7	**ϑikkiría*	Pun. σικκιριά 'dill' (Dioscorides)
tsónni 'esparto grass'	§ 3.2.2	**ϑónni*	PBb. **sănV̆y/*sūnV̆y/*sănī/*sūnī* 'basket (made of esparto grass)'
síntsiri, *sintsurru* 'knotgrass, horsetail'	§ 3.2.4	**ϑinϑur-/*sinϑur-*	Pun. *sensur*, *zenzur* 'knotgras'
ϑíppiri, *tsíppiri* 'rosemary'	§ 3.3.14	**ϑíbbir*	Pun. *zibbir* 'rosemary'
tséurra 'sprout, bud'	§ 3.4.6	**ϑérula*	Pun. ζερα, Hebr. *zéra'* 'seed'
tsingòrra 'eel'	§ 4.2.1	**ϑingórra*	Akk. *singurru* 'kind of fish'

Table 8.1.2: Punic loans containing **ϑ*

It follows from the forms in table 2 that "Punic" *-s-* and *-z-* were borrowed as **-ϑ-* in Sardinian. It is important to stress that the lines of evidence for Punic loans into Sardinian consist of different types. These include words attributed by Greek and Roman authors to Punic (σικκιριά, *zibbir*, *zenzur*), attested Punic words with Semitic cognates (ζερα), and words with Berber comparanda (**sănV̆y/*sūnV̆y/*sănī/*sūnī*). Regardless of the ultimate provenance of these words, the substitution of *-s-* and *-z-* with **-ϑ-* is striking: the local variety of Latin could have employed its native sibilant *-s-* to represent sibilants in borrowed words, but it clearly did not.

8.1.2.1 Sardinian **ϑ* and Semitic sibilants

This treatment of sibilants in borrowings from Punic can be accounted for by assuming that the proto-Semitic phoneme **-z-* had retained its original affricated value [dz] (or [zd]) in the variety of Phoenician spoken in Sardinia. An affricated realization of **-z-*, as well as of voiceless **-s-* and emphatic **-ṣ-*, is in any case reconstructed for Proto-Semitic, Northwest-Semitic and Canaanite, to which Phoenician belongs (Kogan 2012b: 65–68). For Phoenician and the earlier stages

[246] For a discussion of the corpus of proposed Punic loans in Sardinian, see § 10.1. For a discussion of the proposed Berber loans in Sardinian and the context in which they were borrowed, see § 10.2.

[247] The Punic proposed for Camp. *míttsa* 'source' is probably no longer necessary (cf. § 5.2.5).

of Punic, **-z-* is taken to represent [dz], whereas it was written as <s> in Neo-Punic and occasionally as <z, ζ> by non-native speakers (Krahmalkov 2001: 21–22, 24–25). Among the proposed Punic loans into Sardinian Latin, the only one with a certain Semitic etymology, i.e. Pun. ζερα 'seed', contains **z-*. The three words labeled "Punic" in classical sources are σικκιριά, *zibbir*, and *sensur*/*zenzur*. Whatever the ultimate origins of these words, it is possible that they contained the same phoneme **z-*.

If the presence of **ϑ* in Sardinian words of Punic origin is indeed taken as evidence for an affricated realization of Semitic **z*, this implies that the variety of Punic, that was the source of the Sardinian punicisms, did not exhibit the merger of Semitic **s, *z, *ṣ, *ś* into /s/.[248] This merger is observed in Neo-Punic (Krahmalkov 2001: 14), and thus post-dates the Roman conquest of Sardinia by almost a century. One possibility is that Punic loans entered Sardinian Latin in the earliest stages of the Roman presence in Sardinia. Alternatively, the Sardinian variety of Punic preserved some of the contrasts between affricates and sibilants, after these had been lost in other varieties of Punic. The likelihood of the first scenario depends on one's view of the speed with which Sardinia was linguistically romanized (see § 1.2).

On the basis of the Sardinian data, it is difficult to determine what the local treatment of Punic **s*, **ṣ*, and **ś* was.[249] It cannot be ruled out that the Sardinian punicisms without a Semitic etymology continue one of these other sibilants. Although the Sardinian evidence is slim, an independent development of Sardinian Punic cannot be excluded and would be unsurprising. The relative isolation of the Punic speech community in Sardinia from the rest of the Punic-speaking world is demonstrated by a monolingual Punic inscription from the late 2nd or early 3rd c. CE in Bitia, which still uses the Punic script rather than the Neo-Punic script that had emerged elsewhere (Adams 2003: 210).

8.1.2.2 **ϑ* and Berber sibilants

One aspect that remains to be explored within this context is whether the Sardinian outcome **-ϑ-* in Punic borrowings containing sibilants can also be elucidated from a Berber perspective. Given that various of the proposed punicisms

[248] That is, at least not in the same way with /s/ as the final outcome. It is still possible that two or more of these phonemes merged into an affricate /ts/ or /dz/.

[249] Emphatic **ṣ* does occur in the root **yṣ'*, proposed by Wagner (1997: 159; 1957: 105–106; DES II: 121) to be the origin of Srd. *míttsa* 'source' (§ 5.2.5). If Srd. *míttsa* is from **mītia* < Lat. *mītis* 'ripe, mellow' however (Guarnerio 1906: 245; Mensching 1997), we have no evidence of the treatment of Punic *ṣ* in Sardinian.

in Sardinian lack a Semitic etymology, but are potentially continued in Berber (e.g. Pun. σικκιριά 'dill', Tsh. *taskra* 'teasel' [§ 3.1.7]; Pun. *zibbir*, Rif., Tmz. *azir* 'rosemary' [§ 3.3.14]), there is a possibility that these Punic words are ultimately not of Phoenician (i.e. Semitic), but rather of indigenous North African origin.[250]

On the basis of comparison between the Berber languages, Kossmann (1999: 249; 2020a: 20; 2020b: 879) reconstructs three proto-Berber sibilants, **s*, **z*, **ẓ*, that could be either singleton or geminate. For the singleton series there is no evidence that they were ever affricates. Their geminate counterparts are generally distinguished by quantity only, although some varieties show an affricate realization of geminate **s*, **z*, **ẓ* (Kossmann 2020b: 884). Regardless of whether this affrication in geminates in certain Berber varieties is an archaism, none of the proposed Berber comparanda contain a geminate sibilant. It thus seems that the Proto-Berber phonological system, at least according to our current understanding, cannot easily account for the realization of Punic sibilants in Sardinian as **ϑ* rather than as **s*. Punic is therefore a more suitable candidate for being the direct donor of the words in Table 8.1.2 than Proto-Berber.

In Libyco-Berber inscriptions from Dougga however, there is evidence for seven graphemes representing seven phonemically distinct sibilants (Kossmann 2020b: 879–883). Whether this is to be interpreted in a similar way to the Proto-Berber system — e.g. four sibilants, three of which are differentiated for length — or whether the language recorded in these inscriptions knew more sibilant contrasts than those reconstructed for Proto-Berber, is hard to establish based on the available evidence (Kossmann 2020b: 885–886). Thus, whereas it is unlikely that the Sardinian punicisms containing **-ϑ-* were borrowed into Sardinian Latin directly from Proto-Berber or its descendants, the possibility of a North African language related to Proto-Berber being spoken in Sardinia by Punic settlers cannot be ruled out on the basis of the Sardinian treatment of borrowed sibilants. See § 10.2 for a discussion of the proposed Berber loans in Sardinian.

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[250] For such an early period, it is probably rather anachronistic to speak of "Berber". The ancestor of the modern Berber languages was undoubtedly present in the region at the time, but it cannot be excluded that any hypothetical North-African language in contact with Carthaginian Phoenician was a relative of Proto-Berber rather than descendent from it (cf. Louali & Philippson 2004: 111–114). The question whether the "Punic" population in Sardinia was predominantly Phoenician speaking or whether speakers of indigenous languages of North Africa were represented too, is addressed in § 10.1.

8.1.3 Pre-Roman *ϑ

The remainder of the non-inherited words containing *ϑ cannot be explained in terms of Punic loans. Their origin must be sought in the other language(s) that were spoken in Sardinia at least up until its romanization. The Sardinian dialectal developments of *ϑ in non-inherited, non-Punic words are identical to those of *-ϑ- in inherited and Punic words, where it may have represented an affricate (cf. § 8.1.2). It therefore stands to reason that pre-Roman *ϑ represents a phoneme of similar nature in the indigenous Sardinian pre-Roman language(s) that Latin was in contact with.

Words containing *ϑ occur across Sardinia. It occurs both word-initially (e.g. *ϑilipírke*, § 4.1.12) and word-medially (e.g. *aíϑϑo*, § 3.3.17), and can be followed by any vowel (e.g. *aϑáṇḍa*, § 3.1.15; *tsèppara*, 5.1.22; *ϑilipírke*, 4.1.12; *ϑòa*, 3.3.10; *ϑúkru* § 7.1.4). Whereas there is some evidence that pre-Roman Sardinian words could end in a consonant (§ 8.4.1), there is no evidence for *ϑ in word-final position. The only instance of pre-Roman *ϑ occurring in a cluster is *ϑráṇḍa* 'poppy', but its variants *tϑáṇḍa* and *aϑáṇḍa* suggest that *-r-* in this context is secondary. The distribution of *ϑ in the non-inherited lexicon gives the impression that the sound(s) it substituted was higher in frequency in its pre-Roman source language(s) than the clusters *-tį-*, *-cį-* were in Latin.

On the basis of these data, we can tentatively posit the existence of an affricate phoneme in language varieties throughout Sardinia, including in those spoken in the Punic colonial context (i.e. Phoenician and potentially an indigenous North-African language). Whatever the exact phonetic realization, it eventually merged with the regular reflex of Latin *-tį-*, *-cį-*. Finally, multiple Sardinian words starting in *ϑ- have been hypothesized to contain a prefix *ϑ(*i*)-. This element would have been part of the morphology of the pre-Roman source language of the words in question (Guarnerio 1904a: 68; Wagner 1932: 223–225; Wagner 1941a: 113; Wagner 1997: 263). The evidence for this putative prefix is discussed in § 9.1.2.

8.1.4 Non-inherited *ts* and *č*

In addition to words exhibiting the Sardinian-internal regular triad *ϑ – t – ts*, i.e. the reflexes of Proto-Sardinian *ϑ, there is a smaller set of words exhibiting different non-inherited affricates. Specifically, we find various words containing *ts* and *č* in the Nuorese and Logudorese dialect areas, where *ϑ regularly yields *ϑ* and *t* respectively. Strikingly, all of these words refer to animals, thus falling into a sharply delimited semantic category. The following is an overview of words containing irregular *ts* or *č*:

	Meaning	Section	Forms	*ts*	*č*
1	Trout fry	§ 4.2.3	*tsúrra*	✓	
2	Viperine snake	§ 4.3.5	*lírčis, lúrtsi, sulurtsi*	✓	✓
3	Viperine snake	§ 4.3.6	*tártsa*	✓	
4	Robin, yellow wagtail; hare	§ 4.4.9	*príńčiri, bríńčis*(*i*), *bríši, brinkíḍḍi*		✓
5	Old sheep	§ 6.1.5	*tsúrra, čúrra*	✓	✓

Table 8.1.3: Irregular occurrences of *ts* and *č*.

Wagner (1941a: 111) notes that there are several forms with *ts* in the Logudorese and Nuorese dialects that are of sound-symbolic nature. This offers an explanation for the above set of forms as well, especially since sound-symbolism is frequent in animal names. A further indication is the variation between *ts* and *č* in clearly related forms; e.g. *lírčis* ~ *lúrtsi*; *príńčiri* ~ *brísi* ~ *brinkíḍḍi* etc. However, DES explicitly claims a pre-Roman origin for some of the words listed here, i.e. *tsúrra* 'trout fry', *bríńčis* etc. 'robin, yellow wagtail; hare', and *tsúrra*, *čúrra* 'old sheep'. For *lírčis*, *lúrtsi* too, a pre-Roman origin is plausible because of the presence of other non-inherited features, such as the apparent suffix *-is* (§ 9.2.8).

In any case, *ts* and *č* in the aforementioned Logudorese and Nuorese forms cannot be equated with the phoneme **ϑ* in pre-Roman Sardinian. If *ts* and *č* are of pre-Roman origin, they must therefore represent another pronunciation. In light of the attested forms, an affricate would be the most likely source. However, it is unclear in what way it was distinct from **ϑ*. The paucity of the evidence does not permit any conclusions to be drawn as to a pre-Roman origin of these sounds. Some instances are likely the result of sound-symbolism. Others, such as *tsúrra*, *čúrra* 'old sheep' may be more recent loans (cf. § 6.1.5).

8.1.5 Unexpected final vowels

As a Romance language, the endings of the various parts of speech in Sardinian are produced by their ancestral Latin forms. In the nominal domain, Sardinian generally continues the Latin accusative forms. The most common Latin sources for nominal endings are *-am* (sg.), *-ās* (pl.) for the first declension, *-um* (sg.), *-ōs* (pl.) for the second declension, and *-em* (sg.), *-ēs* (pl.) for the third declension. These are regularly reflected in Sardinian as *-a* (sg.), *-as* (pl.); *-u* (sg.), *-os* (pl.), and *-e* (sg.), *-es* (pl.). With singular *-a*, *-u* and *-e* being by far the most common nominal endings, Sardinian nouns ending in *-i* and *-o* deserve some special attention.

8.1.5.1 Final *-i*

The third nominal declension of Latin usually had accusative singular *-em*, but it contains a small number of original *i*-stems that have *-im* as their acc. sg. end-

ing.[251] This is occasionally continued into Sardinian; e.g. *síti* (Bitti) 'thirst' < Lat. *sitis* 'id.' (DES II: 421). In other cases, original *-im* has been replaced by more common *-em* > *-e*; e.g. *frèbe* (Nuoro) 'fever' << Lat. *febrim* 'id.' (DES I: 544). Thus, the only regular inherited source of word-final *-i* is a small, closed group of Latin *i*-stems. This means that any Sardinian word ending in *-i* is suspect of not being inherited from Latin.[252] Many of these are clearly recent loans; e.g. most nouns ending in *-éri* can be explained from the Catalan agentive suffix *-er* (Wagner 1997: 224).

Nevertheless, there are quite a few etymologically obscure nouns in the Sardinian lexicon that end in *-i*. Many of these have been argued to be of pre-Roman origin in previous scholarship. The following is an overview of the words discussed in § 3 – 7 that end in an unexplained *-i*. Any relevant word-final vowel alternations are mentioned too.

	Meaning	**Section**	**Forms**	**Reconst.**	**Alt.**
1	Hemlock	§ 3.1.11	*biḍḍúri, buḍḍúri, meḍḍure, muḍḍuru*	**vullúri*	*-e, -u*
2	Mullein	§ 3.1.14	*lókri*	**lókri*	
3	Wild teasel	§ 3.1.22	*billótti, billóttiri*	**biḷḷótti*	
4	Butcher's broom, holly	§ 3.2.1	*aláši, alášḭu, aláše*	**aláse/-i*	*-e, -i̯a, -i̯u*
5	Esparto grass	§ 3.2.2	*tsónni, tsónni̯a*	**ϑónni*	*-i̯a*
6	Ropegrass	§ 3.2.5	*karkúri, krukkúri, krukkúri̯u*	**kalkúri*	*-i̯u*
7	Dog rose	§ 3.3.3	*orrolári, orrolári̯u*	**rolári*	*-i̯u*
8	Holly	§ 3.3.6	*alaϑúli, latϑòri*	**alaϑúli*	*-e*
9	Holly	§ 3.3.7	*olósti, golóstḭu, golóstri, golóstru*	**golósti*	*-i̯u, -u*
10	Hop-hornbeam	§ 3.3.8	*aúrri, árrui*	**á(C)urri/ *áruli*	
11	Maple	§ 3.3.9	*kósti, kóstiu*	**kósti*	*-i̯u*
12	Rosemary	§ 3.3.14	*ϑíppiri, tsíppiri*	**ϑíbbir*	

[251] Some of these are already attested with *-em* in the Classical period (Weiss 2009: 244 fn. 15).

[252] Note that in Campidanese dialects, word-final *-e* and *-o* merge with *-i* and *-u* respectively. The original quality of the final vowel is revealed by any *-e-* or *-o-* in the preceding syllable. These are open *-è-* [ɛ], *-ò-* [ɔ] when originally followed by *-e* or *-o* (as well as *-a*), and closed *-é-* [e], *-ó-* [o] when originally followed by *-i* or *-u*; e.g. Srd. *bónu* 'good (sg.)' < Lat. *bonum*, Srd. *bònus* 'good (pl.)' < Lat. *bonōs* (Wagner 1941a: 11).

	Meaning	Section	Forms	Reconst.	Alt.
13	Smilax	§ 3.3.15	*tétti, téttị̊u, tèttu*	**tétti*	*-ị̊u, -u*
14	Yew	§ 3.3.22	*éni*	**éni*	
15	Grasshopper	§ 4.1.11	*piβittsíri, piβiϑϑíu*	**pipiϑϑ-*	*-ị̊a, -ị̊u*
16	Trout fry	§ 4.2.2	*grórі, gróli*	**grórі*	
17	Lizard, snake	§ 4.3.3	*zorrómpi, tsorómpis*	**ϑor(r)ómpi(s)*	
18	Viperine snake	§ 4.3.5	*lúrtsi*	**lúrtsi*	
19	Robin, yellow wagtail; hare	§ 4.4.9	*príncčiri, brínčiši, brínči, brinkíḍḍi* etc.	**brink/či-*	
20	Robin, wren	§ 4.4.10	*gríši, kiríši, kiríu, kríḍḍi, kérri*	**kir-/kr-*	*-u*
21	Wren	§ 4.4.12	*ḍḍóḍḍi, dóḍḍi*	**loll-*	*-o*
22	Bat	§ 4.5.1	*čížini*	**kikin-*	
23	Fawn	§ 4.5.5	*bítti, bíta, bètte, bétu*	**bitt-*	*-a, -e, -u*
24	Hare	§ 4.5.8	*léppuri, lèpparu, lèppere, lèporo*	**léppVr-*	*-e, -o, -u*
25	Rock outcropping	§ 5.1.21	*tónneri*	**tónneri*	
26	Acorn bread	§ 6.2.1	[*pan'*] *ispéli*	**ispéli*	
27	Forked juniper trunk	§ 7.2.3	*dúri*	**dúri*	

Table 8.1.4: Sardinian words ending in **-i*

8.1.5.1.1 Paragogic *-i*

All of the forms listed above are attested with non-inherited final *-i*, although many exhibit an alternation in the final vowel. The connection between Srd. *ϑíppiri* 'rosemary' and Pun. *zibbir* 'id.', as well as the existence of *brínčis* 'hare' next to *brínčiši* 'robin',[253] shows that one possible source of final *-i* is paragoge after an originally word-final consonant. This is a well-known feature of Sardinian; e.g. *béssiði* < *béssit* < Lat. *exīt* '((s)he/it) exits' (cf. Wagner 1952: 57–62). If a word-final *-i* occurs with *-i-* in the preceding syllable, we may therefore consider a paragogic origin. Based on this criterion, other candidates for paragoge are:[254]

- *billóttiri* 'wild teasel'
- *piβittsíri* 'grasshopper'
- *príncčiri, brínči* 'robin, yellow wagtail; hare'
- *gríši, kiríši, kríḍḍi* 'robin, wren'

[253] For the issue of the words for 'hare' and 'robin' being homonyms, cf. § 4.4.9.

[254] One potential further candidate is *éni* 'yew' (14), but only if one accepts its reconstruction as **ágini* and its comparison to Bq. (*h*)*agin* 'id.' (Bertoldi apud Wagner 1941a: 45). As discussed in § 3.3.22, this connection is rather tenuous.

- *čížini* 'bat'
- *bítti* 'fawn'

Of these, *billóttiri* (3), *piβittsíri* (15) and *príńčiri* (19) occur next to forms without final -(*i*)*ri*; *billótti*, *piβiʒʒíu*. Possibly, this is the same element as the "collective" suffix *-́Vr* (§ 9.2.6.2) first identified by Terracini (1927: 139, 142). For *gríśi*, *kiríśi* (20) and *bítti* (23) we find the variants *gríśu*, *kiríśu* and *bíta*, *bètte*, *bètta*. This alternation could be due to replacement of original *-i* with the more common endings *-a*, *-e*, *-u*; or perhaps they represent independent strategies to resolve a word-final consonant (cf. § 8.4.1). If the abovementioned words did indeed receive their final *-i* paragogically, we would have to posit the following original forms:

- **brínč* > *brínči* 'robin; hare'
- **grís* > *gríśi/u* 'robin, wren'
- **kirís* > *kiríśi/u* 'id.'
- **kríll* > *kríḍḍi* 'id.'
- **kíkin* > *čížini* 'bat'
- **bítt* > *bítti* 'fawn'

It goes without saying that some of these (viz. **brínč*, **kríll*, **bítt*) grossly violate the constraints on Sardinian syllable structure, and for *brínči* and *kríḍḍi* there is no evidence that favors positing **brínč*, *krill* over **brínči*, *krílli* with word-final *-i*. For *bítti* 'fawn', on the other hand, we find the variants *bítta*, *bètte*, *bètta*, *bétu* (§ 4.5.5). Neither the alternation of the stressed vowel, nor that of the final vowel is easily explained by means of Sardinian internal developments. The existence of *bítti* and *bètte*, but not ***bítte* or ***bétti*, suggests that *-i* and *-e* are both paragogic vowels, regardless of the origin of the *e*/*i*-alternation in the stem. The *-a* and *-u* in *bítta*, *bètta*, *bétu* may be secondary additions due to their relative frequency in the nominal lexicon.

8.1.5.1.2 Replacement of *-i*

For none of the other words ending in *-i* is there any reason to assume that it is not original. This indicates that the pre-Roman source language(s) allowed word-final *-i*. Many of these words have variants ending in *-i̯a*/*-i̯u*; e.g.:

- *aláśi* ~ *aláśi̯u* ~ *aláśe* 'butcher's broom, holly'
- *tsónni* ~ *tsónni̯a* 'esparto grass'
- *krukkúri* ~ *krukkúri̯u* 'ropegrass'
- *orrolári* ~ *orrolári̯u* 'dog rose'

- *olósti ~ golóstɟu ~ golóstru* 'holly'
- *tétti ~ téttɟu, tittɟòne ~ tèttu* 'smilax'

Interestingly, most of these endings in *-ɟa/-ɟu* cannot be particularly old, as inherited consonants followed by *-ɟ-* undergo various sound changes. For the forms listed above containing *-ɟa/-ɟu*, we would, according to the develoments specific to their places of attestation, rather expect: ***alášu* < *alásɟu*; ***tsònğa* < *tsónnɟa*; ***krukkúrğu* < *krukkúrɟu*; ***orrolárğu* < *orrolárɟu* (cf. Wagner 1941a: 107–109, 140–152). This means that the addition of *-a*, *-u* to these nouns originally ending in *-i* is secondary and of relatively recent date.[255] Similarly, the cases in which we find *-a*, *-e* or *-u* instead of *-i* (e.g. *alášu*, *golóstru*), are probably the result of the same tendency to provide words ending in "unusual" *-i* with more common endings, but with complete replacement of *-i* rather than adding the new vowel after it.

Other words ending in *-i* have variants with productive Sardinian suffixes that obscure the original final vowel; e.g. *čížini ~ čižinéḍḍu* 'bat'.[256] Finally, *ḍḍóḍḍi* 'wren' occurs next to *gròḍḍo* 'id.'. This may be due to contamination with the Sardinian personal name *Lòḍḍo*, which is also invoked by Wagner (1933: 503–508; DES I: 593) to explain *gròḍḍo*, *gròḍḍe* 'fox' (§ 4.5.6, § 8.1.5.2).

8.1.5.2 Final *-o*

A similar case are words ending in *-o*. In the Sardinian nominal domain, the known sources for word-final *-o* are few (Wagner 1941a: 37–38). They are largely restricted to:

- loans from Catalan, Spanish or Italian; e.g. Log. *òro*, Camp. *òru* 'gold' << It. *oro* 'id.', Log. *tesòro*, Camp. *tesòru* 'treasure' << It. *tesoro* 'id.' (Wagner 1941a: 37).[257]
- words going back to Latin ablatives or adverbs in *-ō*; e.g. Log. *dòmo*, Camp. *dòmu* 'house' < Lat. *domō* (abl.) 'id.' (DES I: 476-77), Log. *sèro* 'evening', Camp. [*eri*]*sèru* < Lat. *sērō* 'late (adv.)' (DES II: 408).
- words with a paragogic *-o*; e.g. Log. *kòro* 'heart' < Lat. *cor* 'id.' (DES I: 381).

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[255] The realizations *-rɟ-* and *-nɟ-* are continued to this day in some limited areas (Wagner 1941a: 144). These can however not account for the irregular *-ɟa/-ɟu* endings found in other dialects.

[256] Since *čížini* is regular from **kíkin* with paragogic *-i*, the diminutive ending *-éḍḍu* may have been added directly to the base.

[257] In Campidanese, word-final *-o* and *-u* merge into *-u*, with the original quality preserved in the degree of aperture of any *-e-* or *-o-* in the preceding syllable.

Like in the case of *-i*, this means that any Sardinian noun ending in *-o* is suspect of not being inherited. The following is a list of etymologically obscure words ending in *-o*:

	Meaning	Section	Forms	Reconst.	Alt.
1	Bristly ox-tongue	§ 3.1.4	*ʤiòkkoro, sóčči̱ri*	**ʤiokkoro*	*-i*
2	Strawberry-tree flower	§ 3.3.17	*aíʤʤo, aíʤʤu*	**a(C)íʤʤo*	*-u*
3	Tree heather	§ 3.3.20	*iḍḍòstro, giḍḍóstru, ʔiḍḍòstra, giḍḍòstre*	**gillostr-*	*-a, -e, -u*
4	Juniper berry	§ 3.4.3	*bòḍḍoro, bòḍḍero*	**bòllVro*	
5	Walnut	§ 3.4.8	*kòkkoro, kòkkolo*	**kòkkoro*	
6	Wren	§ 4.4.12	*gròḍḍo, ḍḍóḍḍi*	**loll-*	*-i*
7	Fox	§ 4.5.6	*gròḍḍo, gròḍḍe, lòḍḍe, gróḍḍu*	**loll-*	*-e, -u*
8	Hare	§ 4.5.8	*lèporo, lèpparu, lèppore, léppuri* etc.	**leppVr-*	*-e, -i, -u*
9	Hillock	§ 5.1.6	*mòɣoro, mòɣora*	**mòkor-*	*-a*
10	Clay used to make acorn bread	§ 6.2.2	*tòrko, tròkko, trókku*	**tòrko*	*-u*
11	Evil spirit	§ 7.2.1	*trullío, turrío*	**turlío*	

Table 8.1.5: Words ending in **-o*

Most of these words exhibit alternations in their final vowel. In several cases, final *-o* has been replaced with *-u* (*aíʤʤu, giḍḍóstru, gróḍḍu, móɣuru, trókku*), which is the most common ending of masculine words.[258] The other alternations need to be accounted for individually. The word for 'fox' (*gròḍḍo, gròḍḍe, lòḍḍe* etc.) is explained by Wagner (1933: 503–508; DES I: 593) from the Sardinian personal name *Lòḍḍo* < *Lollo*. The *-e* in *gròḍḍe* 'fox' is probably from the vocative case of this name. One of the words for 'wren' (*gròḍḍo*) is identical to that for 'fox'. It is possible that *gròḍḍo* 'wren' somehow arose due to influence from either *gròḍḍo* 'fox', or directly from the personal name *Lòḍḍo*.

8.1.5.2.1 Paragogic *-o*

As discussed for final *-i*, some of the instances of word-final *-o* may be due to the addition of a paragogic vowel to an originally consonant-final word (cf. § 8.1.5.1.1). Candidates for this are *ʤiòkkoro*, *iḍḍòstro*, *bòḍḍoro*, *kòkkoro*, *lèporo*, *mòɣoro*, and *tòrko*, since their penultimate vowels are also *-o-*. In the case of

[258] This can perhaps also explain Fonni [*sa*] *ʔiḍḍòstra* 'tree heather' (4), with secondary introduction of feminine *-a*.

ϑiòkkoro and *lèporo*, assuming a paragogic origin for word-final *-o* is in line with the fact that the final vowel seems to follow the attested vowel alternations in the preceding syllable. We find *ϑiòkkoro* next to *sóčči* (§ 3.1.4), and *lèporo* next to *lèppere* (§ 4.5.8).[259] This suggests that we need to posit **ϑi̯okkVr* 'bristly ox-tongue', **leppVr* 'hare'. For the other forms, the evidence for final *-o* being paragogic is more sparse. However, Wagner (1932: 227 fn. 3) does propose a reconstruction **mókor* for *mòɣoro* 'hillock'.

For *iḍḍòstro* 'tree heather', forms ending in all vowels except *-i* are attested.[26o] This could indicate that it originally ended in a consonant, and that various different strategies were applied to resolve this — i.e. *-o* due to paragoge, *-e* by analogy to inherited consonant stems, and *-a* and *-u* due to their general frequency in the nominal domain. The resulting reconstruction **gillostr* would phonotactically be aberrant from a modern Sardinian viewpoint. The same is true for a reconstruction **tòrk* > *tòrko*. While it cannot *a priori* be assumed that the presumed pre-Roman source language of these words disallowed such heavy codas, the evidence for *-o* being paragogic origin in *iḍḍòstro* and *tòrko* is circumstantial at best (cf. § 8.4.1).

In the forms *aíϑϑo* and *trullío*, *turrío*, *-o* cannot be of paragogic origin, and is thus likely original. From the discussed evidence, we can conclude that some pre-Roman contact language had a phoneme *-o-* that could occur in final position. No words of suspected Punic origin end in *-o*, but this may be due to chance, given their small number.

8.2 Consonant alternations

8.2.1 Quantity alternations

One of the types of consonantal alternations found in the presumed pre-Roman Sardinian lexicon, are quantitative alternations. Variants involving Sardinian voiceless and voiced plosives are included here too, since the Latin opposition between geminate and singleton stops is continued as a voicing opposition in most Sardinian varieties; e.g. intervocalic Lat. *-cc-*, *-c-*, *-g-* > Camp., Log. *-k-*, *-ɣ-*, *-Ø-* (cf. Wagner 1941a). Quantitative alternation is demonstrated by forms whose respective reconstructions show a discrepancy with regard to the voicing or

[259] There is also *lèppore*, *lèppuri* 'hare', which adhere more closely to the Latin vocalism in *lepus*, *leporem* 'hare', though still not corresponding regularly to it.

[26o] This is all the more interesting since this word is one of two that contain the supposed pre-Roman suffix *-òst(r)-* (§ 9.2.9), the other being *olósti*, *golóstri* 'holly' (§ 3.3.7), which is predominantly attested with *-i*.

length of a consonant. Thus, one form of a certain word might require an original voiced stop (e.g. **g*), while another needs a voiceless stop (**k*), or a voiceless geminate stop (**kk*). The following is an overview of the material from § 3 – 7 whose consonantism exhibits an alternation in voicing, length, or both. The collection includes Sardinian words whose forms require conflicting reconstructions, as well as words whose reconstructions diverge from ostensible cognate forms in Latin. Cases in which the attested alternation can be explained by folk etymology or interdialectal borrowings, have been left out.

	Meaning	**Section**	**Form**	**Reconst.**	**Alt.**
1	Celery, fool's watercress	§ 3.1.6	*ϑurgúṡa, kuɣúṡa, tseliɣúṡa*	**-gúsa, *-kúsa*	*k* ~ *g*
2	Bermuda grass	§ 3.2.1	*alášu, olláṡu, (n)oroḍḍáṡile*	**ol(l)ás-*	*ll* ~ *l*
3	Esparto grass	§ 3.2.2	*tsinníɣa, tinnía*	**ϑinník/ga*	*k* ~ *g*
4	Spider	§ 4.1.14	*solóiɣa, soloíɣa*	**solo(b)ika* (vs. Lat. *solifūga, solipūga*)	*p* ~ *(b/v)* *k* ~ *g*
5	Kestrel	§ 4.4.5	*tilibríkku, tilibríu* etc.	**ϑilipríkk/(g)u*	*kk* ~ *(g)*
6	Kite	§ 4.4.6	*tirolía, tsurulía, tsioḍḍía* etc.	**ϑi/urol(l)ía*	*ll* ~ *l*
7	Hare	§ 4.5.8	*lèpparu, lèporo, lèppore, léppuri*	**léppVr-* (vs. Lat. *lepor-*)	*pp* ~ *p*

Table 8.2.1: Words with voicing/length alternations in consonants

8.2.1.1 Quantity alternation between Sardinian and Latin

Of the words listed above, two agree in consonant voicing and length within Sardinian, but show discrepancy with regard to forms attested in Latin.

Sardinian	**Latin**	**Alternation**
Srd. *solóiɣa, soloíɣa* etc. < **solo(C)ika* 'spider'	Lat. *solifūga, solipūga, sālpūga* 'some venomous animal'	Srd. **(b/v)* ~ Lat. *f/p* Srd. **k* ~ Lat. *g*
Srd. lèppere, *lèporo, lèppore, léppuri* < **léppVr-* 'hare'	Lat. *lepus, leporis* 'hare'	Srd. **pp* ~ Lat. *p*

Table 8.2.2: Quantity alternations between Sardinian and Latin

Srd. *soloíɣa* is likely cognate to Lat. *solifūga, solipūga, sālpūga*, which are evident loans from a foreign language (cf. § 4.1.14). The modern Sardinian manifestations, as well as the identification of the Latin word as referring to a Sardinian animal by Isidore and Solinus (cf. Walde & Hofmann 1954: 470; DES II: 424-425),

suggest that a native Sardinian language was the source of the Latin forms. The modern Sardinian representatives require a reconstruction **solo(C)ika*, in which *-C-* could be any voiced stop (**b*, **d*, **g*) or **v*. Since the Latin forms show a labial consonant, it is reasonable to reconstruct either **solobika* or **solovika*. Although the Sardinian reconstruction is close to the Latin attestations, the latter clearly cannot be the direct source of the Sardinian forms. For the labial consonant we find *f* and *p* in Latin vs. **b* or **v* in Sardinian. For the velar consonant, we find Lat. *g* vs. Srd. **k*. At least two explanations can be offered for this. One is that there was confusion on the Roman side as to how to represent the phonology of the borrowed word (cf. Wigman 2023: 300). Another is that the pre-Roman word in question was impacted by sound change between the borrowing into continental Latin and the borrowing into local Sardinian Latin.

The case of the Sardinian word for 'hare' is complex (§ 4.5.8). The attested forms show variation in the unstressed vowels (Srd. *lèppere*, *lèporo*, *lèppore*, *léppuri* etc.) but agree on the labial geminate. We can thus reconstruct **leppVr-*. The word is undoubtedly related to Lat. *lepus*, *leporis* 'hare', but the irregular correspondence makes direct inheritance problematic.[261] In addition, several irregular correspondences are found in Massiliot Gr. λεβηρίς 'rabbit' < **leber-*, Siculian λέποριν 'hare' < **lepor-*, Pg. *láparo*, Fr. *lapéreau* 'young rabbit' < **lappar-* (Bertoldi 1937a: 146; Hubschmid 1943). These forms have been explained by Bertoldi (1937a: 146) and Wagner (DES II: 22) as independent borrowings of a pre-Roman form **lappar-* into the languages of the Mediterranean region, including Latin and its Romance daughter languages: the mentioned Romance forms require original geminate **pp*, while Latin has singleton *p*.[262] This suggests that a word **le/appVr* existed in some language(s) of the Mediterranean region. It must have entered the Romance languages substantially later than it did Latin and colonial Greek.

[261] Lat. *lepus* 'hare' itself is of uncertain provenance as well (De Vaan 2008: 335).

[262] Lat. *lepus* was inherited regularly in Sp. *liebre*, Fr. *lièvre*, It. *lepre* etc. (FEW V: 261).

8.2.1.2 Quantity alternation within Sardinian

The remaining words listed in Table 8.2.1 also show variation in consonant quantity within Sardinian, but they lack cognates in Latin.

8.2.1.2.1 **kk* ~ **k* ~ **g*

Of the five remaining cases, three show voicing/length alternation in plosive consonants. These are:

Variant 1	**Variant 2**	**Alternation**
Nuor. *ϑurgúśa*, *kuɣúśa*, Log. *turguśòne* < **-gúśa* 'celery; fool's watercress'	South Log. *tseliɣúśa* < **-kúśa* 'celery, fool's watercress'	Nuor., Log. **k* ~ Arborense **g*
Nuor. *ϑinníɣa*, Log. *tinnía* 'esparto grass'	Camp. *tsinníɣa* < **ϑinníka* 'esparto grass'	Camp. **k* ~ Nuor., Log. **g*
Log. *tilibríkku* < **ϑilipríkku* 'kestrel'	Log. *tilibríu* < **ϑilibrí(g)u* 'kestrel'	Log. **kk* ~ Log. **g*/Ø

Table 8.2.3: Plosive quantity alternations within Sardinian

There is no discernable pattern in the irregular alternations observed in the words listed above, apart from the fact that they all involve velars. The words for 'celery, fool's watercress' and 'esparto grass' show variation between **k* ~ **g*. The word for kestrel exhibits **kk* ~ **g*/Ø. Furthermore, the geographic distribution of the forms does not aid our understanding of this alternation. For instance, the variants of the word for 'kestrel' cooccur in the same dialect area. The evidence is insufficient to attribute this alternation to a pre-Roman substrate language.

8.2.1.2.2 **ll* ~ **l*

The last two instances of possible consonantal quantity alternation concern variants alternating between *l* and *ḍḍ*, the latter of which goes back to **ll*:

Variant 1	**Variant 2**	**Alternation**
Ogl. *alášu*, Camp. *olláśu* < **olás-* 'Bermuda grass'	Barb. *(n)oroḍḍáśile*, *oroḍḍáśu* < **ollás-* 'Bermuda grass'	Barb. **ll* ~ Ogl. **l*
Nuor. *ϑurulía*, Log. *tirolía*, *turulía*, Camp. *tsurulía* etc. < **ϑirolía* 'kite'	Camp. *tsioḍḍía*, *tsueḍḍía* etc. < **ϑi(r)ollía* 'kite'	Camp. **ll* ~ Nuor., Log., Camp. **l*

Table 8.2.4: Quantity alternation involving *l*

As in the case of the alternating stops discussed in § 8.2.1.2.1, there is no obvious pattern in the geographical distribution of this alternation. In the word for 'Bermuda grass', geminate **ll* is found in the Barbaricine dialects of Olzai, Gavoi and

Ovodda, while **l* is found farther to the south in the Ogliastra and the Sarrabus. Conversely, in the word for 'kite', geminate **ll* is restricted to some Campidanese dialects in the south, while **l* is found across the island.

On the basis of such scant and disparate evidence, we cannot draw any conclusions on the specificities of consonant quantity and voicing in the hypothetical pre-Roman source language of these words. It is possible speculate that the observed alternations result from incidental inconsistencies in the phonological adaptation to Sardinian Latin during the borrowing process. It is nevertheless interesting that consonantal voice/length alternation seems to play a much smaller role in the Sardinian pre-Roman lexicon than it does in other proposed linguistic substrate contexts, such as the pre-Greek lexicon (Furnée 1972: 115–200). This might suggest that the phonological system of the local pre-Roman language(s) was somewhat comparable to that of Latin in this specific regard, causing only minor phonological problems when pre-Roman loans were incorporated into the Sardinian Latin lexicon.

8.2.2 Quality alternations

The other parameter in terms of consonant alternations is that of consonant quality. When evident cognates of suspected pre-Roman origin cannot be derived from a single proto-form, at least according to the known diachronic developments of Sardinian, this potentially offers clues on the source language. For instance, when the reconstructed consonantism exhibits variants, this could be indicative of a phoneme that was alien to Latin, reflecting different strategies to adapt it to Latin phonology.

The following is an overview of the Sardinian etyma exhibiting a consonantal alternation involving other aspects than voicing or length. Alternations that can be explained as a folk etymology, or by common tendencies of Sardinian phonology, such as irregular nasal or *-r-*insertion (Wagner 1941a: 219–227), have been left out of consideration.

	Meaning	Section	Form	Reconst.	Alt.
1	Bristly ox-tongue	§ 3.1.4	*ϑiòkkoro, kòkkoro, čòkkoro, čóčči̯ri* etc.	**ϑi̯òkkor-/*kòkkor-/*ϑòkkir-*	**ϑ(i̯) ~ *k*
2	Heather	§ 3.3.5	*túvera, úv(v)ara* etc.	**(t)úfVr-*	**t ~ Ø*

	Meaning	Section	Form	Reconst.	Alt.
3	Traveller's joy	§ 3.3.19	*auttsára*, *alússara*, *luttsára*, etc.	**a(l)uϑara*	**l* ~ *Ø*
4	Lizard	§ 4.3.2	*aliɣèrta*, *(a)liǧèstra* etc.	**(a)lVkèrta*/ **(a)lVkèstra*	**rt* ~ **str*
5	Viperine snake	§ 4.3.2	*lírčis*, *lúrtsi*, *sulur-zi*	**lírčis*/**lúrϑ/tsi*	**č* ~ **ϑ/ts*
6	Kite	§ 4.4.6	*tirolía*, *sittsulía*	**ϑirolía*/**ϑiϑϑulía*	**r* ~ **ϑ*
7	Robin, yellow wagtail; hare	§ 4.4.9	*brínčis*, *brinkíḍḍi*, *bríši* etc.	**brínč-*/**brink-*/**bris-*	**č* ~ **k* ~ **s*
8	Scops owl	§ 4.4.11	*ϑònka*, *ϑòǧǧe*, *ϑòrža* etc.	**ϑónka*/**ϑóli̯e*/**ϑóri̯a*	**nk* ~ **li̯* ~ **ri̯*
9	Wren	§ 4.4.12	*ḍḍóḍḍi*, *gròḍḍo*	**llólli*/**glóllo*	**ll* ~ **gl*
10	Fox	§ 4.5.6	*lòḍḍe*, *gròḍḍe*, etc.	**(g)loll-*	**l* ~ **gl*
11	Mouflon	§ 4.5.10	*mufròne*, *muɣròne* etc.	**mufròne*/**mugròne*	**f* ~ **g*
12	Old skinny sheep	§ 6.1.5	*čúrra*, *giurrítta*, *tsúrra*	**čúrra*/**ǧúrra*/ **tsúrra*	**č* ~ **ǧ* ~ **ts*
13	Tilled land	§ 6.1.8	*tèle*, *tevèle*	**te(b/v)éle*	**b/v* ~ *Ø*
14	Forked juniper trunk	§ 7.2.3	*dúle*, *dúri*	**dúle*, **dúri*	**l* ~ **r*

Table 8.2.5: Words showing consonant quality alternations

As with the quantity alternations discussed in § 8.2.1, it is challenging to discern patterns common to the quality alternations. No alternation occurs more than once in the examined data, with the possible exception of *č* ~ *ts* in the words for 'viperine snake' (5) and 'old sheep' (12), which are discussed in § 8.1.4. Nevertheless, a few observations can be made.

One observation is that *č* often occurs in alternation with other phonemes (cf. 1: *čòkkoro*, 6: *lírčis*, 7: *brínčis*, 13: *čúrra*). As discussed in § 8.1.4, the alternation between non-inherited *ts* and *č* is most easily explained as the result of sound-symbolism. The alternation of *-č-* with other consonants (e.g. 1: *čòkkoro* ~ *ϑiòkkoro*, 7: *brínčis* ~ *brinkíḍḍi*) is perhaps of sound-symbolic nature too, but the semantic motivations for this need to be evaluated for each case.

Another observation is that in some words a consonant alternates with the absence of a consonant (2: *túvera* ~ *úvara*, 3: *alússara* ~ *auttsára*, 13: *tevèle* ~ *tèle*). However, as the relevant consonants are of divergent nature (respectively *-t-*, *-l-* and *-v-*), this can hardly constitute a single phenomenon.

The same can in fact be said for the entire set of alternations in Table 8.2.5. Since none of the alternations can be shown to recur in multiple lexical items, it is impossible to make inferences about the phonological dynamics of pre-Roman words entering Sardinian Latin. Some alternations could theoretically reflect dialectal differences in the pre-Roman language varieties of Sardinia, or reflect other variables related to language contact, such as difference in the time of borrowing. Other alternations may be of more recent origin, and due to sound-symbolic or folk-etymological nature within Sardinian. On the basis of the current data it is at any rate not possible to identify any originally pre-Roman alternations.

8.3 Vowel alternations

Taken at face value, the vowel alternations attested in the material discussed in § 3 – 7 do not show a clearer pattern than the qualitative consonant alternations discussed in § 8.2.2. Besides the plethora of forms showing vowel alternations that can be explained by internal Sardinian developments, there are a number of words whose vowel alternations are less transparent:

	Meaning	**Section**	**Form**	**Reconst.**	**Alt.**
1	Esparto grass	§ 3.2.2	*ϑinníya, tsónni*	**ϑinníga/*ϑónni*	*i-í ~ ó-i*
2	Bed bug	§ 4.1.3	*koròsta, kurústa*	**koròsta/*kurústa*	*o-ò ~ u-ú*
3	Cockroach, darkling beetle	§ 4.1.7	*siśáya, saśáya, sèśè, seiśèi* etc.	**sisái̯a/*sei̯sèi̯*	*á ~ è*
4	Grasshopper	§ 4.1.12	*ϑilipírke, ϑelapòrka* etc.	**ϑilipírke/*ϑelapòrka*	*i-i-í ~ e-a-ò*
5	Spider	§ 4.1.14	*soloíya, solóiya, suíya* etc.	**solo(b)ika*; cf. Lat. *solifūga, solipūga, sālpūga*	*o-o-i ~ o-i-ū ~ ā-Ø-ū*
6	Worm	§ 4.1.17	*tserríyu, tsirríyu, tsorroíyu*	**ϑVrro(C)íku/a*	*e-í ~ i-í ~ o-oí*
7	Lizard	§ 4.3.2	*aliyèrta, kalužèrtula, ϑalaʔèrta , ϑilikèrta*	**(ka/ϑi-)lVkerta*; cf. Lat. *lacerta*	*a ~ i ~ u*
8	Skink, slug	§ 4.3.4	*tsiliyúyu, ϑalakúʔa*; *sintsilúya, sattsalúya* etc.	**ϑilikúku/*ϑalakúka* **ϑiϑilúka/ϑaϑalúka*	*i-i-ú ~ a-a-ú*
9	Viperine snake	§ 4.3.5	*lírčis, lúrtsi*	**lírčis/*lúrtsi*	*i ~ u*
10	Kite	§ 4.4.6	*tirolía, ϑurulía, tsuiḍḍía, tsueḍḍía, tsuaḍḍía* etc.	**ϑirolía/*ϑurulía/ *ϑu(r)Vllía*	*i-o ~ u-u ~ ui ~ ue ~ ua*

	Meaning	Section	Form	Reconst.	Alt.
11	Fawn, female mouflon	§ 4.5.5	*bètta*, *bètte*, *bítta*, *bítti*	**bètt-*/**bítt-*	*è ~ í*
12	Hare	§ 4.5.8	*lèpparu*, *lèppere*, *lèppore/o*, *léppuri*	**lèppar-*/**lèpper-*/ **lèppor-*/**léppur-*	*a ~ e ~ o ~ u*
13	Marten	§ 4.5.9	*assíle*, *kassíβile*, *assaíle*, *asseíle* etc.	**(k-)assíbile*/ **assabíle*/**assebíle*	*í-i ~ aí ~ eí*
14	Film, layer	§ 7.2.2	*ϑídza*, *ϑòdza*	**ϑíl̪ia*/**ϑòl̪ia*	*í ~ ò*

Table 8.3.1: words exhibiting vowel alternations

The bulk of the alternations listed above are found in unstressed syllables. In light of the frequent vowel assimilations and dissimilations that take place in unstressed syllables in Sardinian (cf. Wagner 1941a: 24–36), it is possible that most of these vowel alternations are in fact of recent origin, even if the variants make it difficult to identify the original vocalism. A handful of words show variation in stressed vowels. These are:

- *koròsta ~ kurústa* (2) 'bed bug'
- *siśáya ~ seiśèi* (3) 'cockroach, darkling beetle'
- *ϑilipírke ~ ϑelapòrka* (4) 'grasshopper'
- *lírčis ~ lúrtzi* (9) 'viperine snake'
- *bètta ~ bítta* (11) 'fawn, female mouflon etc.'
- *ϑídza ~ ϑòdza* (14) 'film, layer'

There is just one alternation that occurs more than once, viz. *í ~ ò* in *ϑilipírke ~ ϑelapòrka* (4) and in *ϑídza ~ ϑòdza* (14). However, *ϑelapòrka* 'big grasshopper' may have been influenced by *pórku* 'pig'. The alternation *í ~ ú* in *lírčis ~ lúrtsi* (9) is also found in Srd. *soloíya* ~ Lat. *solifūga*, *solipūga* (5), but the vocalism of the latter differs with respect to the Latin form rather than in Sardinian internally, making it an imperfect comparandum. In other words, there is no sufficient evidence to attribute any of these alternations to a pre-Roman Sardinian language. One minor observation can nonetheless be made. In several words starting in **ϑili-*, we find variants with **ϑala-*/*ϑela-*: cf. *ϑilikèrta ~ ϑalakèrta* (7) 'lizard'; *tsiliɣúɣu*, *sintsilúya ~ tsaβaɣúɣu*, *sattsalúya* (8) 'skink, slug'. In Nuoro we also find *ϑilipírke* 'grasshopper' next to *ϑelapòrka* 'big grasshopper'. Perhaps this is evidence for the preexistence of different forms of the same pre-Roman affix (cf. § 9.1.2).

8.4 Observations on pre-Roman phonotaxis

On the basis of the lexical data, we may attempt to make inferences about the phonotactical properties of the pre-Roman language(s) of Sardinia. This concerns aspects including syllable structure, phonological constraints etc. This possibility has been explored by Serra (1960) and Wolf (1998a: 77–81). Serra gives an overview of the vocalism found in Sardinian toponyms of pre-Roman origin. Wolf lists the various syllable types found in the pre-Roman toponyms of the Barbagia. The toponymic evidence he discusses points to a rather limited set of permitted root structures, namely *C*(*r*)*VC*, *CV*(*C*)*C*, *V*(*C*)*C*, in which any cluster of consonants could be either *-rC-*, *-sC-*, or geminate *-CC-*.[263] There are some rare cases of roots containing *-NC-* (e.g. *Pandelai*), but Wolf prefers to explain these as secondary or ultimately inherited from Latin (Wolf 1998a: 30–31). By and large, this analysis on the basis of toponyms is in line with the lexical evidence. However, there is lexical evidence for pre-Roman **-NC-*clusters; cf. *aϑáṇḍa* 'poppy' (§ 3.1.15), *tsorómpis* 'lizard, snake' (§ 4.3.3), *ϑònka* 'scops owl' (§ 4.4.11), suggesting that these clusters might in fact be original in toponyms as well. Additionally, there are some etyma that contain intervocalic clusters of the type *-Cr-*, which do not occur in the pre-Roman toponyms examined by Wolf; cf. *giḍḍòstre* etc. 'heather' (§ 3.3.20), *mufròne*, *muɣròne* 'mouflon' etc. (§ 4.5.10). While *giḍḍòstre* may owe its *-r-* to influence from the inherited suffix *-ástru* (Wagner 1952: 120), *mufròne*, *muɣròne* is attested already in the 5th c. CE as Lat. *mufron* 'mouflon', showing that this cluster must be old.

8.4.1 Word-final consonants

One question regarding syllable structure is whether pre-Roman Sardinian allowed consonants in word-final position. The strongest evidence is constituted by forms that are recorded with a final consonant. Examples are place names attested in early Sardinian sources, such as *Lacon* (Laconi), *Nugor* (Nuoro), *Migil* (Milis) etc. The direct lexical evidence for word-final consonants is discussed in § 8.4.1.1. In words ending in a vowel, unexpected final vowels can point to an original word-final consonant as well (cf § 8.1.5). If we find word-final vowel alternation, this could be the result of the independent addition of final vowels to resolve final consonants, as a nativization strategy. Additionally, the presence

[263] To an extent, there may have been more complexity that has been obscured by Sardinian sound changes. For example, all instances of *-r-* could hypothetically also go back to etymological **-l-* (Wolf 1998a: 32). Likewise, geminate *-tt-* could in theory be the outcome of **-tt-*, **-kt-*, **-pt-*, **-dd-*, **-gd-* and perhaps **-bd-* (Wagner 1941a: 192–193; Wolf 1998a: 35).

of paragogic vowels may also be indicative of an original final consonant (cf. Wagner 1941a: 57–62). These two lines of evidence are discussed in § 8.4.1.2. The following is an overview of all etyma showing one or more of the lines of evidence described above.

	Meaning	Section	Forms	Reconstr.	Final alt.	Possible paragoge
1	Bristly ox-tongue	§ 3.1.4	*ɟiòkkoro, sóčči̯ri* etc.	**ɟiokkor-/ *ɟókkir-*	*-i, -o*	✓
2	(Fool's) water-cress	§ 3.1.24	*ǧúɣuru, ǧúru* etc.	**i̯úguru*		✓
3	Galingale	§ 3.2.3	*sèssene, sèssini*	**séssene*		✓
4	Knotgrass, horsetail	§ 3.2.4	*síntsiri, sintsurru*	**ɟínɟi/ur-*	*-i, -u*	✓
5	Rosemary	§ 3.3.14	*ɟíppiri, tsíppiri*	**ɟíbbir*		✓
6	Tree heather	§ 3.3.20	*giḍḍòstre, iḍḍòstro, giḍḍóstru, ʔiḍḍòstra*	**gillostr-*	*-a, -e, -o, -u*	✓
7	Resin	§ 3.4.5	*tsònkine*	**ɟònkene*		✓
8	Viperine snake	§ 4.3.5	*lírčis, lúrtsi*	**lírčis, *lúrɟi*	*-is, -i*	
9	Bird of prey	§ 4.4.2	*ɟáiri*	**ɟá(C)iri*		✓
10	Robin, yellow wagtail; hare	§ 4.4.9	*príncˇiri, bríncˇis(i), bríncˇi, brinkíḍḍi*	**brink/či-*	*-is, -i*	✓
11	Robin, wren	§ 4.4.10	*gríši, kiríši, kiríu* etc.	**grísi/*kirísi/ *kiri-*	*-i, -íu, -u*	✓
12	Bat	§ 4.5.1	*čížini*	**kikin-*		✓
13	Fawn	§ 4.5.5	*bíta, bítti, bètte, bétu*	**bett-/*bitt-*	*-a, -e, -i, -u*	✓
14	Hare	§ 4.5.8	*lèpparu, lèppore, lèporo, léppuri*	**leppVr-*	*-e, -i, -o, -u*	✓
15	Hillock	§ 5.1.6	*mòɣora, mòɣoru*	**mokor-*	-a, -o	✓
16	Rocky plain	§ 5.1.23	*Theppar* (OSrd.), *tsèppara*	**ɟèppar*	*-Ø, -a*	✓
17	Border	§ 5.2.1	*lákkana*	**lákkana*		✓
18	Nuraghe	§ 5.2.2	*NURAC* (Lat.) *nuráke*	**nurak-*	*-Ø, -e*	
19	Tilled land	§ 6.1.8	*tèle, tuvèle*	**t(ev)èle*		✓

	Meaning	Section	Forms	Reconstr.	Final alt.	Possible paragoge
20	Clay used to make acorn bread	§ 6.2.2	*tòrko*, *tròkko*, *trók-ku*	**tork-*	*-o*, *-u*	✓
21	Cheek	§ 7.1.3	*tutúrru*	**tuturr-*		✓

Table 8.4.1: Words with potential evidence for a word-final consonant

8.4.1.1 Direct evidence for word-final consonants

A handful of Sardinian words occur with variants with a final consonant. In the modern dialects these are *lírčis* (8) and *bríncis* (10). In Old Sardinian we find the toponym *Theppar* (16), which probably belongs to *tsèppara* 'rocky plain'. To these direct attestations we may add two likely punicisms, whose Punic source ends in a consonant: *ϑíppiri* (5) << Pun. *zibbir* and *síntsiri*, *sintsurru* (4) << Pun. *zenzur*. Finally, there is the epigraphic attestation of *NURAC*, on the architrave of nuraghe Aidu Entos near Bortigali (Gasperini 1992: 303–306), which corresponds to modern Srd. *nuráke*, *nuráɣe* etc. 'nuraghe' (18). However, while this almost certainly native form suggests the occurrence of word-final *-c* [k], it cannot fully be excluded that the absence of a final vowel is the result of Roman epigraphic abbreviation practices.[264]

The directly attested evidence suggests that not only Punic allowed word-final consonants (cf. Friedrich 1951: 34–36), but also the pre-Roman language(s) native to Sardinia. Loanwords from both Punic and other pre-Roman language(s) would have undergone the same phonological treatment when they were borrowed into Sardinian Latin. The modern Sardinian forms provide direct evidence only for word-final *-s*. This is unsurprising, since inherited plural *-s* (unlike other consonants) is in some Sardinian dialects still realized without paragogic vowel (Wagner 1984: xxiv–xxv).

8.4.1.2 Indirect evidence for word-final consonants

For the other words listed above in Table 8.4.1, it is possible but not certain that they once ended in a consonant. Both word-final vowel alternations and possible paragoge can point to an original word-final consonant, but these arguments are not conclusive by themselves. Moreover, examples like *Laconi* < *Lacon*, *ǧáyaru* 'hound' < *gjagar*, Camp. *krášt* 'tomorrow' < Lat. *cras* show that word-final consonants could also be resolved by a paragogic vowel that did not copy the previous

[264] Cf. Gasperini's (1992: 305) interpretation, which proposes abbreviations for most forms in the inscription.

one, even when copying of the vowel is the norm (Wagner 1941a: 57–62). It is therefore possible that there are other words, not listed in Table 8.4.1, that originally also ended in a consonant.

The following words exhibit both final vowel alternation and identical vowel quality in the last two syllables:

- *ʔiòkkoro*, *sóčči̱ri* 'bristly ox-tongue'
- *giḍḍòstre*, *iḍḍòstro*, *giḍḍóstru*, *ʔiḍḍòstra* 'tree heather'
- *gríši*, *gríšu*; *kilíši*, *kilíšu* 'robin, wren'
- *bètta*, *bètte*, *bítta*, *bítti* 'fawn, roe deer, lamb'
- *lèpparu*, *lèppore*, *lèpporo*, *léppuri* 'hare'
- *tòrko*, *tròkko*, *trókku* 'clay used to make acorn bread'

All of these words show variation of the final vowel, including one variant that could be due to paragoge. Especially significant are the words whose variation in the vowel of the penultimate syllable is matched by the last syllable; cf. *ʔiòkkoro* ~ *sóčči̱ri*; *bètte* ~ *bítti*; *lèppere* ~ *lèpporo*. Rather than assuming vowel alternations in two syllables, we might propose reconstructions like **ʔiókkor*/**ʔiókkir*, **bétt*/**bítt*, **lépper*/**léppor*.

8.4.1.3 Evidence for word-final consonant clusters

The various forms for 'tree heather' contain all possible final vowels except *-i*. Among these, the *-o* of *iḍḍòstro* is the most difficult to explain in a regular way and is likely either original or paragogic. This word has been proposed to contain the same suffix *-ost*(*r*)- (§ 9.2.9) as found in *golóstri*, *golóstį̱u* etc. 'holly' (§ 3.3.7), which is predominantly attested with final *-i*. If we want to explain the observed alternations in *ʔiḍḍòstra*, *giḍḍòstre*, *iḍḍòstro*, *giḍḍóstru* 'tree heather' as the result of different strategies of resolving a word-final consonant, we would have to posit a reconstruction **gillostr*, which does by no means conform to Latin or Sardinian phonotaxis (cf. § 8.1.5.2.1). The same is true for *bètte*, *bítti* etc. 'fawn' < **bétt*/**bítt* and for *tòrko*, *tórku* 'clay' < **tórk*. However, these three words do not constitute sufficient evidence to posit word-final consonant clusters for pre-Roman Sardinian. No evidence for word-final clusters is found by Wolf (1998a) either.

8.4.2 Evidence for pre-Roman vowel harmony

Serra (1960: 408–409) notes that there is a sizable number of pre-Roman Sardinian toponyms that are vocalically "monotonous", i.e. all syllables of one variant contain the same vowel. Examples are *Árzana*, *Semèstene*, *Ísili*, *Sòrgono* etc. (Ser-

ra 1960: 409–418). Serra (1960: 408–409) attributes this to some kind of vowel harmony in pre-Roman Sardinian.[265] In cases where the vocalism is not identical throughout the word, Serra (1960: 408–409) argues that the unaccented syllables nevertheless often contain the same vowel; e.g. *Gúspini*, *Tortolì*, *Tèltoro* etc. (Serra 1960: 409–418). This latter tendency is difficult to attribute to vowel harmony in a pre-Roman language. The forms that would fall under this description are too diverse in terms of vocalism and stress placement to be reliably taken as a single phenomenon. For instance, the toponyms *Gúspini*, *Tortolì*, *Tèltoro* each exhibit pairs of identical vowels, but the vowels are different and they occur in different orders.

Serra compares this putative phenomenon to North-African toponyms to support his hypothesis of a "Libyan" substrate in Sardinia. Whereas such toponymic comparisons are outside the scope of this study (cf. § 2.1.2.2.1), it is worthwhile to investigate whether forms containing three or more identical consecutive vowels are in fact found in lexical items of pre-Roman origin. The following is a list of forms of plausible pre-Roman origin discussed in § 3 – 7 that exhibit this phenomenon. Excluded are punicisms, and forms where the apparent vowel harmony involves a productive inherited suffix (e.g. *kaðúmbulu* with inherited **-ul-*). Beside the forms exhibiting potential vowel harmony and their reconstruction, cognate forms without potential vowel harmony are listed.

	Meaning	Sect.	Forms with harmony	Reconst.	Vowel pattern	Other forms
1	Arum	§ 3.1.2	*ϑoϑoróyu*	**ϑoϑorói̯*	*o-o-ó*	*tattaróyu*
2	Bristly ox-tongue	§ 3.1.4	*ϑiòkkoro*	**ϑi̯òkkoro*	*ó-o-o*	*sóčči̯ri*, *čóčči̯ri*
3	Hemlock	§ 3.1.11	*úḍḍuru*	**vúlluru*	*ú-u-u*	*biḍḍúri*, *búḍḍaru*, *meḍḍure*
5	Poppy	§ 3.1.15	*tzàndhara*	**ϑándara*	*á-a-a*	*ϑánda*, *ánna*
6	Watercress	§ 3.1.24	*ğúɣuru* etc.	**i̯úguru*	*ú-u-u*	
7	Galingale	§ 3.2.3	*sèssene*, *sèssini*	**sèssene*	*é-e-e*	
8	Strawberry tree fruit	§3.3.18	*liṡiriòne*	**lisiriòne*	*i-i-i-ò*	

[265] Serra (1960: 408–409) does note the difference with other languages exhibiting vowel harmony, where the harmonizing vowels match each other's timbre rather than taking over each other's quality completely.

	Meaning	Sect.	Forms with harmony	Reconst.	Vowel pattern	Other forms
9	Traveller's joy	§ 3.3.19	*attsára*	**aϑára*	*a-á-a*	*alússara*, *auttsára*
10	Mushroom	§ 3.4.3	*tuntúnnu* etc.	**tuntúnnu*	*u-ú-u*	*antúnna*, *tunníu* etc.
11	Clothes moth	§ 4.1.5	*lanásta*	**lanásta*	*a-á-a*	*lána*
12			*nástala*	**nástala*	*á-a-a*	
13	Grasshopper	§ 4.1.9	*tsimpilíɣe*	**ϑimpilíke*	*i-i-í-e*	*pilíkke*
14	Grasshopper	§ 4.1.11	*piβittsíri*, *piβiϑϑía* etc.	**pipiϑí-*	*i-i-í*	
15	Grasshopper	§ 4.1.12	*ϑilipírke* etc.	**ϑilipírke*	*i-i-í-e*	*ϑelapòrka*
16	Tick	§ 4.1.16	*kaðánka* etc.	**katánka*	*a-á-a*	
17	Kestrel	§ 4.4.4	*tserpeḍḍéri*	**ϑerpelléri*	*e-e-é-i*	*tsarpeḍḍéri*, *spraḍḍéri*
18	Kestrel	§ 4.4.5	*tilibríu*, *tilibríkku*	**ϑiliprí(kk)u*	*i-i-í-u*	
19	Robin, yellow wagtail	§ 4.4.9	*prínciri*	**brínciri*	*í-i-i*	*princóttu*
20	Robin, wren	§ 4.4.10	*kiríši, kilíši*	**kilísi*/**kirísi*	*i-í-i*	*gríšu*, *kilíšu*, *kiríu* etc.
21	Bat	§ 4.5.1	*čížini*	**kíkini*/ **kíkine*	*í-i-i*	*čižinéḍḍu* etc.
22	Hare	§ 4.5.8	*lèppere*	**lèppere*	*è-e-e*	*lèpparu*, *lèppore*, *léppuri* etc.
23	Hillock	§ 5.1.6	*mòɣoro*	**mokoro*	*ò-o-o*	*mòɣora*
24a	Rock crevice	§ 5.1.19	*kalánka*	**kalánka*	*a-á-a*	
24b			*kolonkòne*	**kalankòne*	*o-o-ò-e*	
25	Border, limit	§ 5.2.1	*lákkana*	**lákkana*	*á-a-a*	
26	Sheep that has lost its young	§ 6.1.2	*argáša*	**argása*	*a-á-a*	
27	Tilled land	§ 6.1.8	*tevèle*	**tevèle*	*e-è-e*	*tèle*
28	Cheek	§ 7.1.3	*tuttúrru*	**tuttúrru*	*u-ú-u*	

Table 8.4.2: Pre-Roman words containing three identical consecutive vowels

Although there are numerous lexical forms that exhibit vocalic "monotony" as described by Serra (1960: 408–409), many words of well-established pre-Roman origin do not (e.g. *kóstike*, *giḍḍòstre*, *òrga*, *nuráɣe* etc.). Moreover, most words

listed in Table 8.4.2 are also attested with slightly different vocalisms that contradict this phenomenon. It is likely that some of the instances of vocalic monotony are due to recent vowel assimilations, which are common in inherited forms too (cf. Wagner 1941a: 24–35). As a related observation, in various words, not all of which fit the criteria to be listed in Table 8.4.2, we find vocalic alternation by which two identical consecutive vowels change in unison.

	Meaning	Section	Form 1	Form 2
1	Arum	§ 3.1.2	*tattaróyu*	*ɸoɸɸoróyu*
2	Bristly ox-tongue	§ 3.1.4	*ɸiòkkoro*	*sóčči̯ri*
3	Bed bug	§ 4.1.3	*kurústa*	*koròsta*
4	Earthworm	§ 4.1.10	*ɸilingròne*	*ɸulungròne*
5	Lizard	§ 4.3.2	*ɸilikèrta*	*ɸalaʔèrta*
6	Skink	§ 4.3.4	*ɸilikúkku*	*ɸalakúkku*
7	Skink	§ 4.3.4	*sintsilúɣa*	*sattsalúɣa*
8	Bird species	§ 4.4.3	*korrokkáu*	*kurrukkáu*
9	Bat	§ 4.5.2	*ɸiɸɸirri̯ólu*	*ɸuɸuréḍḍu*
10	Fawn	§ 4.5.5	*bítti*	*bètte*
11	Hare	§ 4.5.8	*lèppere*	*lèporo*

Table 8.4.3: Words with two consecutive vowels alternating in unison

With the exception of the words for 'bed bug' (3) and 'fawn' (10), all of these alternations are found in unstressed syllables. This raises the suspicion that in many of these forms, one of the two unstressed alternating vowels owes its quality to assimilation (cf. Wagner 1941a: 24–35). In cases like *ɸiòkkoro* next to *sóčči̯ri* (2) 'bristly ox-tongue', the quality of the final vowel may be due to paragoge (cf. § 8.1.5).

In conclusion, it is clear that only a subsection of the potential pre-Roman lexicon exhibits a vocalism that could point to vowel harmony. Since vowel assimilation is frequent across the Sardinian dialects, the lexical evidence does not enable us to corroborate the kind of pre-Roman vowel harmony that Serra (1960) posits on the basis of vocalically "monotonous" toponyms like *Árzana*, *Semèstene*, *Ísili*, *Sòrgono*.

8.5 Conclusion

The evidence for the retrieval of phonological characteristics of the pre-Roman language(s) is discussed in this chapter. We have observed that it is rather scarce and of indirect nature. It is therefore impossible to offer a complete reconstruction of the phonological system of this language, if it was one language. However,

we can make a number of preliminary inferences on the phonological tendencies we have observed, and check whether or not they are homogenous across Sardinia. If so, they could hold clues about the linguistic diversity on the island prior to Roman conquest.

In § 8.2 and § 8.3, it has been shown that there are hardly any observable patterns in the irregular alternations that we encounter, neither in the consonantism, nor in the vocalism of the discussed material. This could be an indication that the pre-Roman language(s) of Sardinia were not strikingly different from Latin in terms of their consonant and vowel inventories. The low number of alternations in consonant quantity challenge the longstanding idea that voicing alternation in stops is a characteristic of the "Mediterranean substrate" (e.g. Bertoldi 1931: 134–137). On the other hand, there is evidence that the pre-Roman Sardinian contained a phoneme, non-native to Latin, that merged with the outcomes of Latin **kʲ* and **tʲ* in Sardinian, i.e. **ϑ* > *ϑ*, *t*, *ts* (cf. § 8.1.3). The reflexes of Sardinian **ϑ* are found in Punic loans, where it represents Pun. *z* (§ 8.1.2). This is evidence that the variety of Punic spoken in Sardinia may have preserved the affricate realization [dz] of this phoneme. In the northern part of Sardinia, some forms contain *ts* or *č*, which do not correspond to the regular outcomes of **ϑ* (§ 8.1.4). The geographical distribution of this phenomenon is rather inconsistent however, and it cannot be ruled out that most instances of it are due to sound-symbolic alterations of **ϑ* or other inherited consonants. As for the vowel inventory of the pre-Roman Sardinian, there is not much evidence that it was significantly different from that of Latin. All five inherited vowels (*a*, *e*, *i*, *o*, *u*) are attested in non-inherited words as well as in toponyms. There is no evidence for length oppositions, as Sardinian merged Latin long and short vowels. In contrast to Latin, there is no evidence for any vowel weakening process, as all five vowels appear to occur both in stressed and unstressed syllables. Word-finally, all five vowels are attested as well.

Phonotactically, a more limited set of root structures is attested in forms of likely pre-Roman origin than in inherited forms (Wolf 1998a: 28–36)(§ 8.4). There is evidence for pre-Roman language(s), including Punic, allowing word-final consonants (§ 8.4.1). Beside final *-s*, which is preserved both in inherited (e.g. plural *-s*) and in non-inherited words (e.g. *lírčis* 'viperine snake'), there is direct toponymic evidence for word-final *-l*, *-n* and *-r* (e.g. *Migil*, *Lacon*, *Mandar*). The Roman inscription containing the form *NURAC* presents potential evidence that **-k* too could be in word-final position (but cf. § 8.4.1.1). In modern Sardinian these have been resolved largely with paragogic vowels. It is possible that some non-

inherited words exhibiting word-final vowel variation originally ended in a final consonant too (cf. § 8.4.1). The strongest cases among these still only point to word-final *-*r* and *-*s* however. The evidence for word-final consonant clusters is too limited to draw any firm conclusions (§ 8.4.1.3). Finally, while there are some forms that adhere to the tendency of "vocalic monotony" described by Serra (1960), there are too many counter-examples to reliably posit vowel harmony for any pre-Roman language (§ 8.4.2). Additionally, some of the attested vocalic "monotony" can be explained by means of assimilatory processes within Sardinian (Wagner 1941a: 24–35).

In conclusion, there is no strong evidence that the pre-Roman phonological system was radically different from that of Latin. There is little to no evidence for significant differences in phonological systems between various parts of Sardinia. Non-inherited *ə is attested across the island, and Wolf's (1998a: 36) restrictions on syllable structure identified for toponyms in the Barbagia, seem to apply to lexical items attested in other regions too. This homogeneity is consistent with the preexistence of a single language or closely related language varieties across the island.