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Introduction

Sardinian is a Romance language spoken almost exclusively on the island of Sardinia, an autonomous region of Italy. Sardinian and Italian are not mutually intelligible; there is considerable structural distance between the two linguistic systems, at all linguistic levels (Loporcaro 2009: 162–171).

Sardinian can be subdivided into two main dialectal subgroups: Campidanese – spoken in the southern part of the island – and Logudorese-Nuorese – spoken in the central-northern region. In the articulated classification provided by Viridis (1988) four regional varieties are identified (Figure 1): Campidanese, Logudorese, Nuorese and Arborense – spoken in the west-central region and defined in negative terms (Viridis 1988: 904), since it shows some isoglosses communal to Logudorese and others in common with Campidanese.

Two other language varieties closely related to the Italian linguistic domain are spoken on the island: Gallurese, spoken in the north-east, which is considered here a variety of Corsican, and Sassarese, an autonomous Italian dialect spoken in the north-west of the island (specifically in the towns of Sassari, Stintino, Porto Torres and Sorso) (Viridis 1988, Putzu 2012, Loporcaro & Putzu 2013). Two other minority languages are spoken in Sardinia: Algherese, an archaic variety of Catalan, is spoken in the town of Alghero, and Tabarchino, an archaic variety of Genoese, is spoken in two small islands of the south-west, Sant’Antioco (Calasetta) and San Pietro (Carloforte).

There are no reliable data on the number of Sardinian speakers. The only available information concerns the self-evaluation of Sardinian people about local varieties. The survey conducted by Oppo (2007), administered to 2437 Sardinian people, shows that 68% of the subjects claim to speak one of the local varieties of Sardinia, but this survey does not provide any data on the number of Sardinian speakers (see also Pinto 2013).

The distance between Sardinian and Italian is exemplified by the following phonological and phonetic features. Sardinian is characterized by:

- a system of five vowels, while Italian shows seven vowel phonemes (see further below)
- the maintenance of Lat(in) Ī and Ū, e.g. NĪVE(M) > Camp(idanese) Sard(inian) *nii*¹ [ˈnii] vs. It(alian) *neve* [ˈneve] ‘snow’, BŪCCA(M) > Camp. Sard. *bucca* [ˈbukːa] vs. It. *bocca* [ˈbokka] ‘mouth’
- the presence of metaphony (see further below)
- the lenition of intervocalic plosives, e.g. SABBATU(M) > Camp. Sard. *sabudu* [ˈsaβuðu] vs. It. *sabato* [ˈsabato] ‘Saturday’
- the retroflex geminate [d̪d̪] from Latin -LL-, which is preserved in Italian [ll], e.g. CEPULLA(M) > Camp. Sard. *cibudda* [tʃiˈβud̪d̪a] vs. It. *cipolla* [tʃiˈpolla] ‘onion’

¹ As for the orthographic transcription, rules proposed by Comitau Scientificu po sa normalisadura de sa bariedadi campidanese de sa lingua sarda (2009) are followed.



Figure 1 Geographical distribution of the varieties in Sardinia (Viridis 1988: 905).

At the morpho-syntactic level, Sardinian is characterized by:

- the morpheme *-s* as a plural mark, e.g. Camp. Sard. *gatu* ['gat:u] (SG), *gatus* ['gat:uzu] (PL) vs. It. *gatto* ['gatto] (SG), *gatti* ['gatti] (PL) 'cat, cats'
- the definite article derived not from Latin *ILLUM* as in Italian, but from Latin *IPSUM*, e.g. Camp. Sard. *su cani* [su 'ʧani] vs. It. *il cane* [il 'kane] 'the dog'
- the progressive form with the verb 'to be' (< Lat. *ESSE*), instead of the verb 'to stay' (< Lat. *STARE*), e.g. Camp. Sard. *seu papendi* ['seu βa'p:endi] vs. It. *sto mangiando* [sto man'dʒando] 'I am eating'
- periphrastic forms for future and conditional (Viridis 1988, 2003), instead of synthetic forms, as in Italian, e.g. Camp. Sard. *apu a papai* ['ap:u a 'βap:ai] vs. It. *mangerò* [mandʒe'rɔ] 'I will eat'

The linguistic history of the island mirrors the sequence of the external dominations. Very briefly, after the prehistoric period, the different phases are: the Phoenician period (from the 9th century BC to the of the 6th century BC), the Punic period (from the end of the 6th century BC to 238 BC), the Roman age (238 BC – AD 455), the occupation by the Vandals (AD 455–535), the Byzantine phase (AD 535–10th century), the period of the so-called 'Giudicati' (which were autonomous state entities ruled by kings called *Giudici* 'Judges', conventionally concluded in 1409), the Aragonese domination (from 1323), the Spanish period (1479–1713), the Austrian years (1713–1718), the Savoy period (from 1718) and, finally, the Italian

period, from 1861 (Blasco Ferrer 1984; Putzu 2012: 180). It is important to cite these historical periods of outside domination because they have left influences on the Sardinian language. In the Sardinian lexicon in particular it is possible to identify different strata of lexical borrowings resulting from the contact with different languages (Wagner 1951, Putzu 2012).

Sardinian does not have a standard variety – in the sense of a codified written variety, used as a model by all Sardinians (see Ammon 2004) – although there have been some proposals for its standardization. In Italian legislation it is considered an official minority language. Specifically, there are two laws protecting linguistic and cultural Sardinian specificity: the National Law n. 482 of 15 December 1999, which recognizes Sardinian as a minority language, and the Regional Law n. 26 of 15 October 1997, which promotes Sardinian culture and language. The latter allows the use of Sardinian in public administration. In recent years, the Sardinia Regional Administration presented two proposals for an official standard language variety reserved for documents issued by the regional administration: *Limba Sarda Unificada* (LSU; Unified Sardinian Language) and *Limba Sarda Comuna* (LSC; Common Sardinian Language), both developed by a scientific committee. The first model, LSU, published in 2001, was a variety presented as a compromise among all Sardinian varieties, but *de facto* based on the Logudorese variety (see Calaresu 2002). In 2006 the Sardinia Regional Administration decided to adopt another official standard, LSC, based mainly on a variety spoken in the island's central areas (see Calaresu 2008). In the same year, the Sardinia Regional Administration undertook the translation of legal-administrative documents into this official variety (see Putzu 2012: 177). Furthermore, at the end of 2014 there was a regional law proposal aimed at promoting the teaching of Sardinian at all school levels.

Although Sardinian still lacks a standard variety, scholars identify two main macro-varieties, used almost exclusively in literary contexts: the so-called 'literary Logudorese' and 'general Campidanese'. The first is characterized by the formal register of common Logudorese, based on the varieties of central Logudorese with some influences of north-western Logudorese, while the model of the latter is the formal upper-class variety of the Cagliari dialect (Viridis 1988: 897; Paulis 2001: 164–165; Dettori 2002: 901–902).

Nowadays, Sardinian is spoken almost exclusively in informal contexts, although in the last few years there have been sporadic attempts by some politicians to speak Sardinian in institutional contexts, for example in regional council meetings.

Cagliari Sardinian

The dialect spoken in the regional capital, Cagliari, belongs to the Campidanese variety. Cagliari Sardinian is an endangered urban variety (Loporcaro & Putzu 2013: 205): native speakers are very few in number, not only among young people but also among the elderly population. This fact is strongly connected to the situation of language transmission, which seems to be highly compromised, because Cagliari Sardinian speakers have stopped speaking their native language with their children and Italian has become the main spoken language. This is a general tendency characterizing urban contexts in Italy (Dal Negro & Vietti 2011).

As with the language in general, there are no precise data available on the number of Sardinian speakers in Cagliari. In the survey by Oppo (2007), 58% of Cagliari interviewees claim to speak Sardinian. However, this number contrasts with the 31% reported by Pinto (2013: 136–137), based on a questionnaire including tests aimed at verifying the knowledge of speakers. In their survey, on a sample of 145 subjects, almost 25% of people claimed to speak Sardinian but demonstrated weak competence or no competence in the language. The sum of these two percentages is very close to the 58% reported by Oppo (2007). It is thus worth noting that both of these surveys reveal a positive attitude towards Sardinian, in that people claim to know Sardinian even if their competence in it is low (Pinto 2013: 137). This

positive attitude to regional languages and dialects has been noted across the whole of Italy since the 1990s (Berruto 2002, Dal Negro & Vietti 2011).

Studies on Sardinian linguistics have always focused on rural varieties, and have thus paid little attention to the urban Cagliari dialect. The phonetic features of the Cagliari dialect are discussed in Wagner (1941/1984), Viridis (1978), Blasco Ferrer (1984), Paulis (1984), Atzori (1986), Fontana (1996), Dettori (2002), Cossu (2013), and sociolinguistic data on this variety are included in recent work by Paulis et al. (2013) and Rattu (2017). The current work seeks to provide a general phonetic description of Cagliari Sardinian, although some features are not exclusive to this urban variety.

Speech corpus

In the following sections I outline the consonantal and vowel inventory. I then illustrate in more detail some patterns of segmental variation typical of the dialect. These observations are based on recordings made in 2015–2016. Seventeen interviews were collected by means of semi-structured ethnographic interviews, focused on topics of interest to native-speaker consultants, for example the history of the religious confraternities of the towns, religious rites, changes of the town from past to present, the lack of services in Cagliari, etc. The interviews – individual and group interviews – were recorded at 44,100 Hz and 16-bit depth with a Zoom H5 recorder.

The speaker sample is made up of fifteen men and eight women, all born in Cagliari. The age range is 15–85 years. Given the qualitative nature of this work, I refer to four representative consultants. These consultants live in four neighbourhoods of the town. MM37 is a 37-year-old man from the neighbourhood of Marina, CF73 is a 73-year-old woman from Castello, VM46 is a man aged 46 years from Villanova and IsMM57 is a 57-year-old man from Is Mirrionis. These consultants' recordings have been selected because of their good acoustic quality and because they include typical phonetic traits of the dialect. Spectrograms used to describe phonetic features under investigation have been obtained by means of the PRAAT software (Boersma & Weenink 2017).

Consonants

The consonantal phonemic system coincides with that of 'general Campidanese' (see Viridis 1978) although the Cagliari dialect has some characteristic allophones, described below. In the consonant table below, allophones are set in brackets.

	Bilabial	Labio-dental	Dental	Alveolar	Post-alveolar	Retroflex	Palatal	Velar
Plosive	p b			t d		ɖ		k g
Affricate				ts dz	tʃ dʒ			
Nasal	m	(m̥)		n			ɲ	(ŋ)
Trill				r				
Tap				(r)				
Fricative	(β)	f v	(ð)	s z	ʃ (ʒ)			(ʁ)
Lateral				l			ʎ	
Approximant	w						j	

PHONEME	PHONEMIC TRANSCRIPTION	PHONETIC TRANSCRIPTION	ORTHOGRAPHIC FORM	GLOSS
p	/ˈpani/	[ˈpani]	pani	bread
b	/ˈbinti/	[ˈbinti]	binti	twenty
t	/ˈtrɔtu/	[ˈtrɔ:tu]	trotu	crooked
d	/diˈnai/	[diˈnai]	dinai	money
ɖ	/ˈmɔɖɖi/	[ˈmɔɖɖi]	moddi	soft
k	/ˈkazu/	[ˈkazu]	casu	cheese
g	/ˈgatu/	[ˈgatu]	gatu	cat
ts	/ˈtsɛrriˈai/	[ˈtsɛrriˈai]	tzerriai	to shout
dʒ	/dʒiˈgarru/	[dʒiˈgarru]	dzigarru	cigar
ʧ	/ʧiˈbudda/	[ʧiˈβudda]	cibudda	onion
dʒ	/ˈdʒɛnti/	[ˈdʒɛnti]	genti	people
m	/ˈmanu/	[ˈmanu]	manu	hand
n	/naˈrai/	[naˈrai]	narai	to say
ɲ	/ˈbaɲɲa/	[ˈbaɲɲa]	bànnja	tomato sauce
r	/arˈrubju/	[arˈruβju]	arrùbju	red
f	/ˈfillu/	[ˈfillu]	fillu	son
v	/venˈtana/	[ˈvenˈtana]	ventana	window
s	/ˈsabudu/	[ˈsaβuðu]	sàbudu	Saturday
z	/ˈmeza/	[ˈmeza]	mesa	table
ʃ	/kaʃˈfali/	[kaʃˈfali]	casciali	molar tooth
w	/ˈkwatru/	[ˈkwatru]	cuatru	four
j	/ˈkɔja/	[ˈkɔja]	koja	marriage

Obstruents

The three voiceless plosives /p t k/ are realized in three distinct ways depending on context: (i) word-initially they are realized as [p t k]; (ii) in intervocalic environments across word boundaries – also when followed by /t/ – they are lenited to voiced fricatives [β ð ɣ], e.g. *mancai pentzat* [ˈmaŋkai ˈβentsara] ‘maybe s/he thinks’, *su tempus* [su ˈðempuzu], ‘the time’, *de conca* [de ˈɣɔŋka] ‘of head’ (Figure 2), *sa pratza* [sa ˈβrattsa] ‘the town square’, *su trigu* [su ˈðriyu] ‘the wheat’, *sa crai* [sa ˈɣrai] ‘the key’; and (iii) in word-medial intervocalic position, lenition is blocked and they are produced with a long duration, which corresponds to the duration of typical geminate stops in Italian (see Ladd & Scobbie 2003; for /t/, see also De Iacovo & Romano 2015), e.g. *convocau* [komvɔˈk:au] ‘called’ (Figure 3).

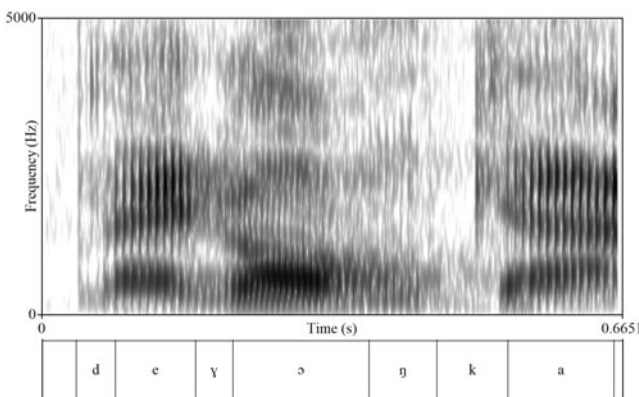


Figure 2 Spectrogram of item *de conca* [de ˈɣɔŋka] ‘of head’.

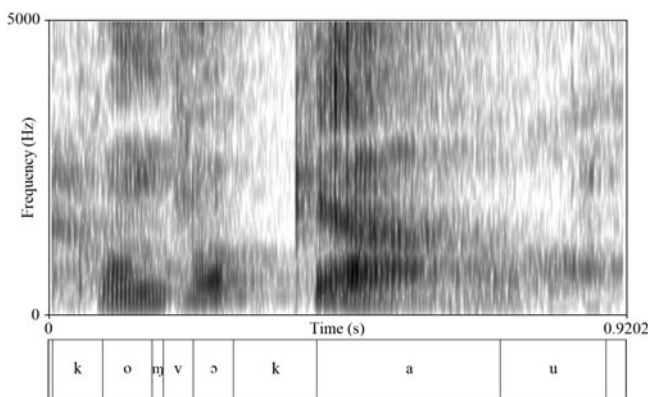


Figure 3 Spectrogram of item *convocau* [komvɔ'k:au] 'called'.

However, the realizations of long duration produced in word-medial intervocalic position do not contrast with the singleton voiceless plosives because historically the Latin voiceless plosives underwent a lenition process in intervocalic position (e.g. [ne'βɔði] < NEPOTE(M) 'nephew, niece, grandchild') and synchronically are lenited to [β ð γ] in external sandhi, that is, at word boundaries, as already mentioned. Therefore, 'there is a close link between gemination and intervocalic lenition . . . such that "geminate" is essentially equivalent to "not lenited"' (Ladd & Scobbie 2003: 168).

The lenition of the original voiceless plosives is strictly connected with the evolution of the Latin voiced plosives. These sounds, in intervocalic position, generally disappeared (e.g. PEDE(M) > ['pɛi] 'foot'; FABULA(M) > ['faula] 'lie'), through an intermediate phase of voiced fricatives. Evidence of this phase is seen nowadays in a small set of words in Campidanese Sardinian, where the Latin voiced plosives do not disappear and are realized as their voiced fricative counterparts, e.g. NIDU(M) > ['niðu] 'nest', NUDU(M) > ['nuðu] 'nude', FRIGIDU(M) > ['friðu] 'cold' (see Virdis 1978: 50). The process of lenition affecting the Latin voiced plosives might have favoured the sonorization and spirantization of the Latin voiceless plosives (Paulis 1984: XLIII). Given these considerations, it is possible that the Latin voiceless plosives became the Sardinian voiced fricatives through an intermediate phase of voiced plosives and then underwent a process of lenition. These historical processes of lenition involving the Latin plosives determine a difficulty in establishing how to synchronically analyse the Cagliari Sardinian lenited forms from a phonological point of view. For the voiced fricatives [β ð γ], Virdis (1978) identifies phonemic opposition with /b d g/, as exemplified by some minimal pairs, though they include only phrases, e.g. *sa bena* [sa 'b:ɛna] 'the blood vessel' ~ *sa pena* [sa 'βɛna] 'the pain'; *funt duas* ['funti 'd:uaza] 'they are two' ~ *funt tuas* ['funti 'ðuaza] 'they are yours'; *a gatu* [a 'g:at:u] 'to the cat' ~ *agatu* [a'ɣat:u] 'I find'. However, it is highly debatable to regard [β ð γ] as phonemes because their realization is always context-dependent – they occur only in intervocalic environments.

The treatment of the plosives in the loanwords sheds light on the relationship between plosives and voiced fricatives from a phonological point of view. In the loanwords, intervocalic /p t k/ always remain invariant and are produced with a long duration, e.g. Cat(alonian) *aturar*> [atu'rai] 'to stay', It. *scatola*> ['skat:ula] 'box', so they NEVER undergo lenition. On the other hand, /b d g/ can remain invariant with a geminate pronunciation, e.g. *dd'at acabada* [dɔd ar ak:a'b:ara] 's/he stopped it' (*acabai* < Cat. *acabar* 'to stop') or can undergo a spirantization process, e.g. Sp(anish) *acudir* > [ak:u'ðiri] 'be on time'; Cat. *bossinada* > [bussi'naða] 'slap'; Sp. *dudar* > [du'ðai] 'to doubt'; Sp. *de badas* > [de'b:aðaza] 'in vain', It. *bottega*> [bu't:ɛɣa] 'small shop' (see Virdis 1978). The treatment of these loanwords leads us to hypothesize that synchronically the underlying phonemes for [β ð γ], derived from the Latin intervocalic voiceless plosives, could be /b d g/. However, this issue remains open to further in-depth phonological investigations because it is hard to assign the surface lenited

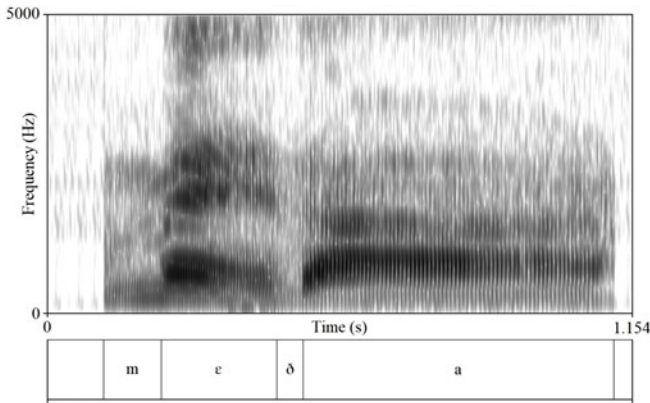


Figure 4 Spectrogram of *meda* [ˈmɛða] ‘much’.

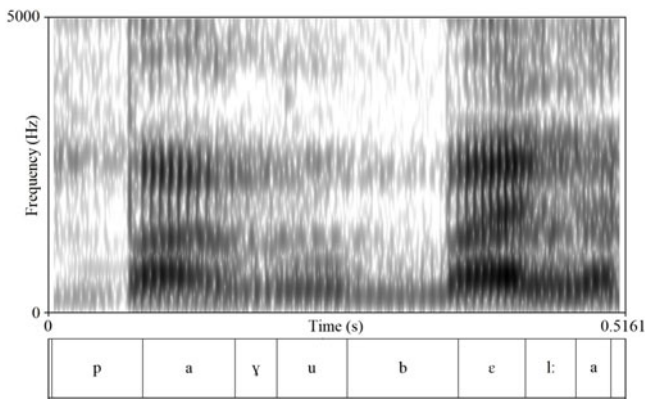


Figure 5 Spectrogram of item *pagu bella* [ˈpaɣu ˈb:ɛlla] ‘not very beautiful’.

forms to one set of plosives or the other, since even retracing historical processes, they do not lead to a straightforward phonological analysis. Given the above perspective, Cagliari Sardinian voiced plosives /b d g/ could be seen as having the following realizations: (i) word-initially as [b d g]; (ii) in word-medial intervocalic position as [β ð ɣ], e.g. *meda* [ˈmɛða] ‘much’ (Figure 4) – that is, in the same way as /p t k/ are realized across word-boundaries; and (iii) across word boundaries, lenition is blocked and they are generally produced with a long duration (Paulis 1984: LV–LVII), e.g. *pagu bella* [ˈpaɣu ˈb:ɛlla] ‘not very beautiful’ (Figure 5).

While in other Campidanese varieties /t/ and /d/ are produced as [ð], in intervocalic environments, across word boundaries and within words respectively, in the Cagliari dialect in these contexts, they are more commonly realized as an alveolar tap [ɾ]. This sound represents a sociophonetic variant of both /t/ and /d/, e.g. *meda* ‘much’ in Cagliari can be realized as [ˈmɛða] (Figure 4) or as [ˈmɛɾa] (Figure 6); similarly, *su topi* ‘the mouse’ can be pronounced as [su ˈðɔpi] or [su ˈɾɔpi]. The alternation of these two variants, [ð] and [ɾ], depends on factors such as social class and communicative style. The stigmatized variant is the alveolar tap [ɾ], while the fricative variant [ð] is perceived as the standard variant.

As for velar plosives, a specific feature of the Cagliari dialect, which is subject to sociophonetic variation, is the palatalization of the velar plosives /k g/ preceding the open front vowel /a/, e.g. *candu* [ˈkʲandu] ‘when’ (see also Virdis 2013: 174). The palatalized variants represent a local stereotypes. Figures 7 and 8 illustrate a word containing a palatalized /k/ in front of /a/, and an example without it, respectively. Spectrograms show the productions of

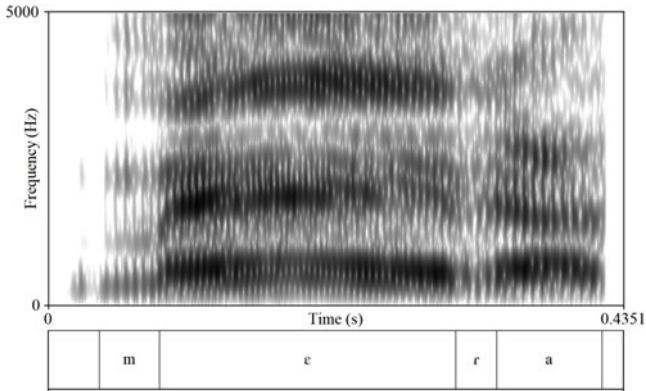


Figure 6 Spectrogram of *meda* ‘much’ pronounced with an alveolar tap [‘mɛrɐ].

two words, *candu* ‘when’ and *cantu* ‘how much’. In the first instance the speaker produces [‘ɥʲandu], while in the second, [‘ɥantu] – there is no palatalization.²

As seen in these two figures, the F2 after [ɥ] is much higher in the first word (2216 Hz) than the second (1754 Hz), and thus clearly indicative of a palatal onglide (see Ní Chiosáin & Padgett 2012).

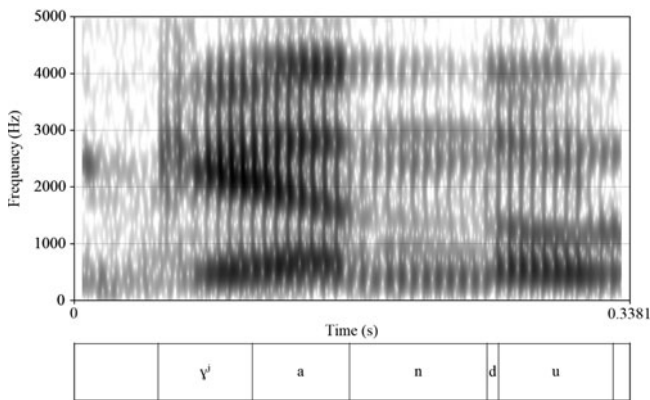


Figure 7 Spectrogram of item *candu* [‘ɥʲandu] ‘when’.

In word-initial position, /s/ is realized as [s] if it is followed by a vowel or a voiceless consonant, e.g. *solí* [‘sɔli] ‘sun’, *sperai* [spe‘rai] ‘to hope’, but it is produced as [z] preceding a voiced consonant, e.g. *sballiai* [zballi‘ai] ‘to make a mistake’, as in Italian. This applies also within words, e.g. *turismu* [tu‘rizmu] ‘tourism’. In pre-consonantal environments /s z/ are variably realized as [ʃ] depending on social factors, e.g. *dd‘at scopiada* [dɔ‘ari ʃko‘pɔjara] ‘s/he broke it’ (Figure 9), *prus mannu* [pruʃ ‘mannu] ‘bigger’ (Figure 10). The postalveolar realization [ʃ] represents a stigmatized variant, connected to low social class and very informal styles.

² In these two instances, as in other examples illustrated below, word-initially, /k/ is pronounced as a [ɥ] instead of [k] because the examples are extracted from connected speech and thus are not in real word-initial position but in intervocalic position across word boundary, where lenition takes place.

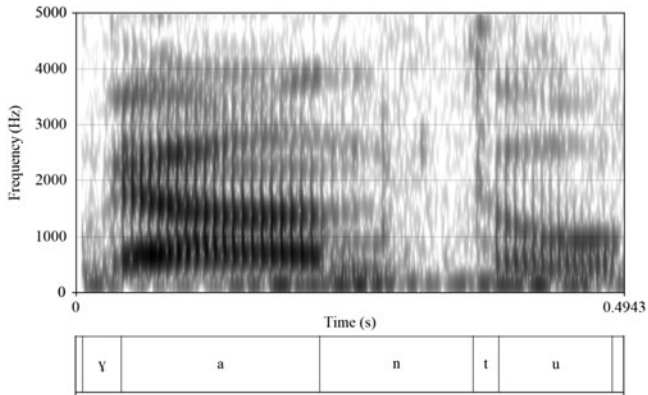


Figure 8 Spectrogram showing *cantu* [ˈɣantu] 'how much'.

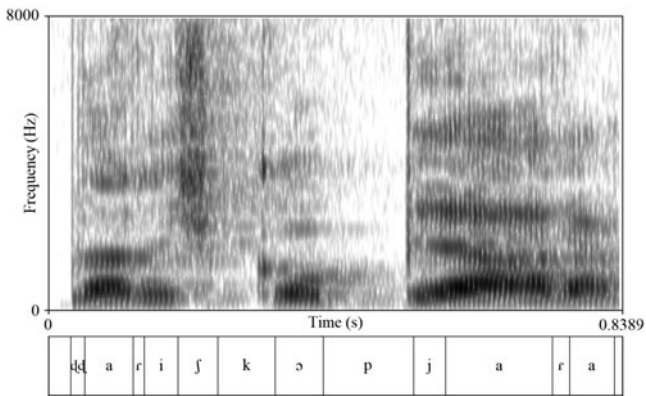


Figure 9 Spectrogram of *dd'at scopiada* [dɔˈari ʃkoˈpɔːjara] 's/he broke it'.

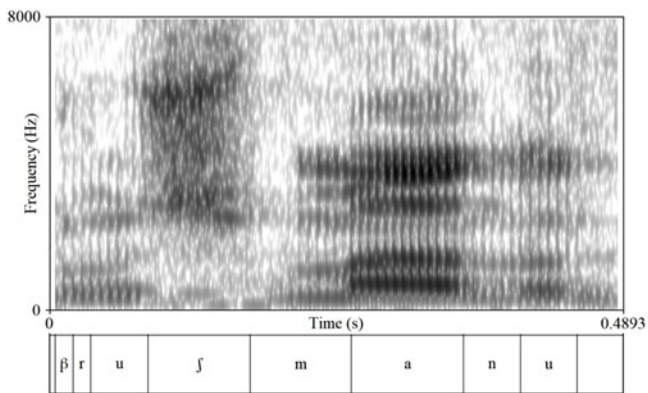


Figure 10 Spectrogram of *prus manu* [pruʃˈmannu] 'bigger'.

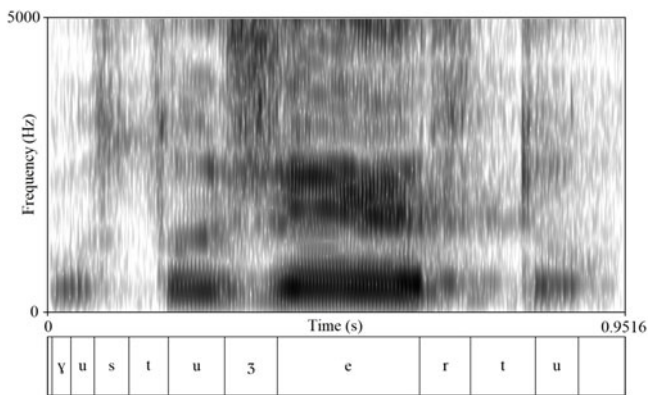


Figure 11 Spectrogram of item *custu certu* [ˈɣustu ˈʒertu] ‘this fight’.

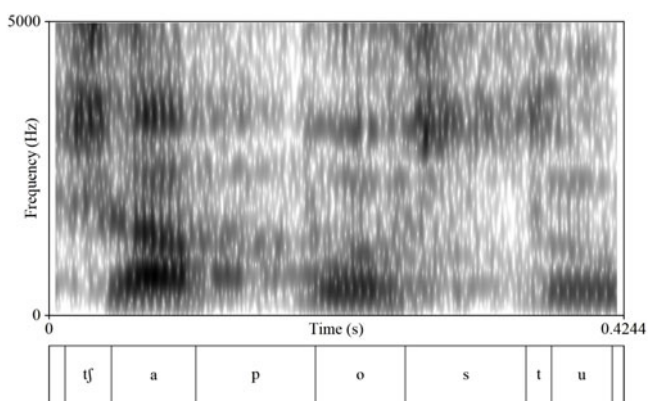


Figure 12 Spectrogram of item *nci a'ppostu* [tʃa ˈppostu] ‘s/he has put’.

In intervocalic environments, we find /s/ realized as a voiced consonant as in standard Italian, e.g. *arrosa* [arˈrɔza] ‘rose’, *su soli* [su ˈzɔli] ‘the sun’; however, in Cagliari Sardinian in these environments the phonetic realization may also be [ʒ], e.g. *Nostra Sennora* [ˈnɔstra senˈnɔra] ‘Our Lady’ (see Pinto 2013: 140).

The postalveolar affricate /tʃ/ is realized as [ʒ] across word boundaries, between vowels, e.g. *custu certu* [ˈɣustu ˈʒertu] ‘this fight’ (Figure 11).

In this same environment, the labiodental fricative /f/ is produced as [v], e.g. *su fradi* [su ˈvraði] ‘the brother’.

From the description presented so far, the existence of a pattern of lenition affecting the voiceless plosives /p t k/, the voiceless postalveolar affricate /tʃ/ and the voiceless fricatives /s f/ emerges: in intervocalic position, across word boundaries, /p t k/ and /tʃ/ undergo spirantization and voicing, while /s f/ turn into [z v]. In the same context, /b d g/ are generally produced with a long duration, but they spirantize in word-medial position. However, in external sandhi, when the word preceding the initial voiceless obstruent is a word historically ending with a consonant, lenition is blocked and the obstruent is produced with a long duration (as in the case of word-medial intervocalic position) although the context is apparently intervocalic, e.g. *de terra* < DE TERRA [de ˈðerra] ‘of soil’, but *a terra* < AD TERRA(M) [a ˈtɛrra] ‘to the ground’ (see Virdis 1978), *iat fatu* [ˈia ˈfatu] ‘s/he had done’, *nci a'ppostu* [tʃa ˈpɔstu] ‘s/he has put’ (Figure 12). These are cases of ‘postlexical

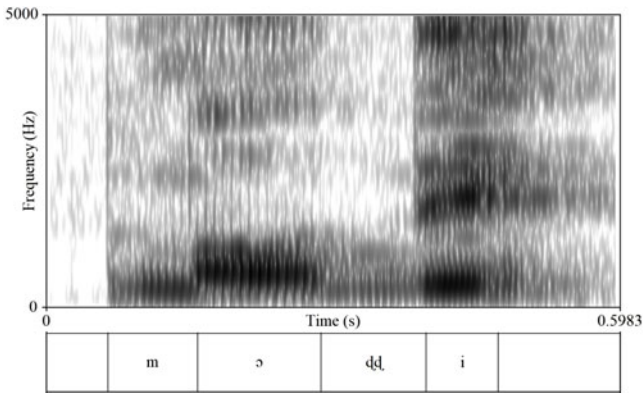


Figure 13 Spectrogram of item *moddi* [mɔdɔdɔi] ‘soft’.

gemination’ (Ladd & Scobbie 2003: 169). This particular process of gemination is not restricted to obstruents but it occurs also with sonorants, e.g. *si podiat nai* [‘zi βɔ‘ria ‘n:ai]³ ‘you could say’.

The retroflex plosive /d/ appears only in geminate form, e.g. *moddi* [‘mɔdɔdɔi] ‘soft’ (Figure 13), and only a few minimal pairs with /d/ can be found, e.g. *ddus* [dɔdɔs] ‘them’ ~ *duus* [dus] ‘two’, *sedda* [‘sɛdɔdɔ] ‘saddle’ ~ *seda* [‘sɛðɔ] ‘silk’. /d/ is often pronounced as an alveolar plosive [dd].

Sonorants

The nasal /n/ has labiodental and velar allophones, e.g. *cunfradia* [kumʃra‘ðia] ‘confraternity’, *conca* [‘kɔŋka] ‘head’, following the tendency to nasal homorganicity.

As for the Cagliari lateral approximant /l/, this phoneme has a velar allophone [ɭ], in intervocalic and preconsonantal environments, e.g. *dificili* [di‘fiʃiɭi] ‘difficult’.

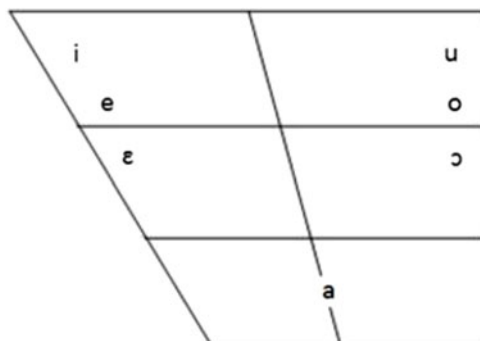
Intervocalic singleton /r/ is always realized as [r], e.g. *pira* [‘pira] ‘pear’. In all other contexts it is realized as a trill [r], e.g. *traballai* [trab:al‘lai] ‘to work’, *rispetu* [ris‘pet:u] ‘respect’. Therefore, the alveolar tap [ɾ] is an allophone of /r/ (in word-medial intervocalic position) in all Campidanese varieties and in the Cagliari dialect it is also a sociophonetic variant of /t/ and /d/, as mentioned before. Consequently, a word like *maridu* [ma‘riðu] ‘husband’ in the Cagliari dialect can be realized also as [ma‘riru], with the first [r] representing /r/ and the second, /d/.

Geminates

As already mentioned, in specific contexts, the obstruents are subject to lengthening but these long segments do not phonologically contrast with their singleton counterparts because of historical and synchronic processes of lenition. In Cagliari Sardinian, the phonemic opposition between geminate and non-geminate consonants is limited to the consonants /n l r/, e.g. *manu* /‘manu/ ‘hand’ ~ *mannu* /‘mannu/ ‘big’, *filu* /‘filu/ ‘thread’ ~ *fillu* /‘fillu/ ‘son’, *caru* /‘karu/ ‘dear’ ~ *carru* /‘karru/ ‘wagon’. This can be contrasted with the Italian system, which has 15 contrastive geminate consonants (Bertinetto & Loporcaro 2005).

³ In the audio file, for the nasal segment [nn] has a duration of 73 ms, which can be compared with the duration of [n] in the word *cenàbara* [tʃɛ‘naβara], which lasts 22 ms.

Vowels and diphthongs



PHONEME	PHONEMIC TRANSCRIPTION	PHONETIC TRANSCRIPTION	ORTHOGRAPHIC FORM	GLOSS
i	/ˈtʃinku/	[ˈtʃiŋku]	cincu	five
e	/ˈletu/	[ˈlet:u]	letu	bed
ε	/ˈpɛdra/	[ˈpɛðra]	pedra	stone
a	/ˈkrai/	[ˈkrai]	crai	key
ɔ	/ˈskɔla/	[ˈskɔla]	scola	school
o	/ˈɔɣu/	[ˈoɣu]	ogu	eye
u	/ˈturri/	[ˈturri]	turri	tower

Cagliari Sardinian, like all Campidanese varieties, has a surface inventory of seven vowels in stressed position: [i e ε a ɔ o u]. Figure 14 shows formant values for the seven vowels of the Cagliari Sardinian system [i e ε a ɔ o u]. Values are extracted from the speech of a male consultant (VM46).

The distribution of mid vowels is predictable because high-mid vowels appear only before final unstressed high vowels. Low-mid vowels /ε ɔ/ alternate with /e o/, respectively, if followed by a phonetically high vowel. This is therefore a process of vowel harmony, known in Romance linguistics as METAPHONY, e.g. *bella* ['bella] 'beautiful (F)', *bellu* ['bellu] 'beautiful (M)'; *cosa* ['kɔza] 'thing' and *logu* ['loɣu] 'place'. Given that high-mid vowels derive from low-mid vowels, according to Bolognesi (1998), Frigeni (2002) and Torres-Tamarit, Linke & Vanrell (2017), high-mid vowels are considered allophones of low-mid vowels. Therefore, the contrastive vowel inventory of all Campidanese varieties, including Cagliari Sardinian, has

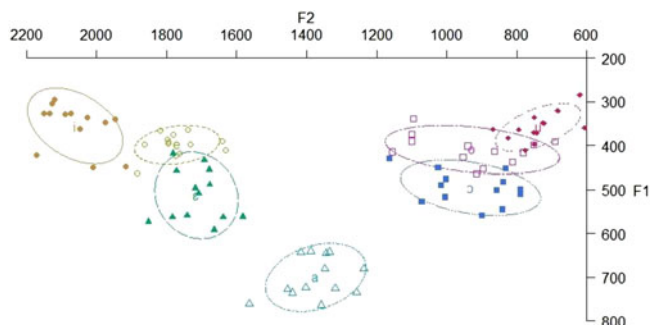


Figure 14 F1*F2 vowel chart for Cagliari Sardinian.

only five vowels, /i ɛ a ɔ u/. Metaphony in Campidanese is blocked in two cases (Bolognesi 1998, Frigeni 2002, Torres-Tamarit et al. 2017):

- It is also possible to find [ɛ ɔ] before high vowels in inflectional suffixes when final /i u/ are developments of Latin E and O. It is important to bear in mind that in the suffixal domain, Campidanese Sardinian has a surface three-vowel system [i a u]. However, historical and inter-dialectal data prove that the subset of inflectional suffixes which do not trigger metaphony can be considered as derived high vowels, given that they are the result of a process of vowel merger in the suffixal domain which has led phonemic mid vowels to merge on the surface with high vowel suffixes (Frigeni 2002, Torres-Tamarit et al. 2017). In view of this, we have, for example, [ˈfrɔri] < FLORE(M) ‘flower’, [ˈbeni] < BENE ‘well’. This produces some minimal pairs, e.g. [ˈbeni] < VENI ‘come (imperative form)’, [ˈbeni] < BENE ‘well’; [ˈollu] < OLEUM ‘oil’, [ˈollu] < *VOLEO ‘I want’.
- Metaphony is also blocked when it interacts with a process of word-final vowel epithesis, which applies in two distinct environments (Paulis 1984: XXIV–XXV):
 - (i) After stressed vowels in word-final position as a means to prevent words with final stress, e.g. *caffè* [kaˈfɛ:i] ‘coffee’, *però* [pɛˈrɔu] ‘but’.
 - (ii) After a final consonant, to prevent a consonant in word-final coda position, e.g. *ses* [ˈsɛzi] ‘you are’. This is called ‘paragogic vowel’, generally characterized by the same quality as that of the preceding vowel. However, in Campidanese Sardinian it can be different, as shown in *ses* [ˈsɛzi] ‘you are’; in particular, if the preceding lexical vowel is /e/ or /i/, the paragogic vowel is a high front vowel while if the preceding vowel is /o/ or /u/, it is a high back vowel. Therefore, the paragogic vowel copies the degree of backness of the preceding vowel (Torres-Tamarit et al. 2017: 5).

With regard to unstressed vowels in word-final syllables, the vowel system reduces to three vowels /a i u/ (Viridis 1978), e.g. *froris* [ˈfrɔris] < FRORES ‘flowers’, *boxi* [ˈbɔzi] < VOCE(M) ‘voice’; *castiai* [kastiˈai] < CASTICARE ‘to look’; *bonus* [ˈbɔnus] < BONOS ‘good (PL)’, *logu* [ˈloɣu] < LOCUM ‘place’.

In non-word-final post-tonic and pretonic positions, all seven vowels can be found, e.g. *àxina* [ˈaʒina] ‘grapes’, *gèneru* [ˈdʒeneru] ‘son-in-law’, *telèfonu* [tɛˈlɛfɔnu] ‘telephone’, *gùturu* [ˈguturu] ‘throat’, *cenàbara* [tʃɛˈnaβara] ‘Friday’; *maridu* [maˈriðu] ‘husband’, *genugu* [dʒɛˈnuɣu] ‘knee’, *conillu* [koˈnillu] ‘rabbit’, *sitzigorryu* [sittiˈɣorryu] ‘snail’, *mulleri* [mulˈlɛri] ‘wife’.

Diphthongs are formed by a sequence of a glide /w/ or /j/ and a vowel. There are both rising and falling diphthongs (symbols for approximants are used only for rising diphthongs).

PHONEME	PHONEMIC TRANSCRIPTION	PHONETIC TRANSCRIPTION	ORTHOGRAPHIC FORM	GLOSS
ja	/ˈdʒɔβja/	[ˈdʒɔβja]	giòbia	Thursday
ju	/ˈpressju/	[ˈpressju]	prèssiu	peach
wa	/ˈkwatru/	[ˈkwatru]	cuatru	four
wi	/ˈkwindizi/	[ˈkwindizi]	cuindixi	fifteen
au	/kɔnˈnau/	[kɔnˈnau]	connau	brother-in-law
ai	/atuˈrai/	[atuˈrai]	aturai	to stay

However, diphthongs, especially raising diphthongs, can undergo the so-called ‘secondary hiatus’, a process of syllabification, defined as the modification of a diphthong into a disyllabic sequence (see Loi Corvetto 1979–1980, 1983: 60–70; Viridis 2013: 179; for other

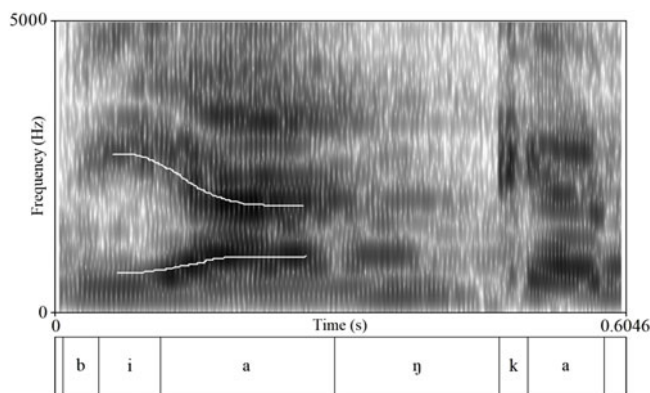


Figure 15 CF73 saying *bianca* [bi'ʌŋka] 'white (F)'.

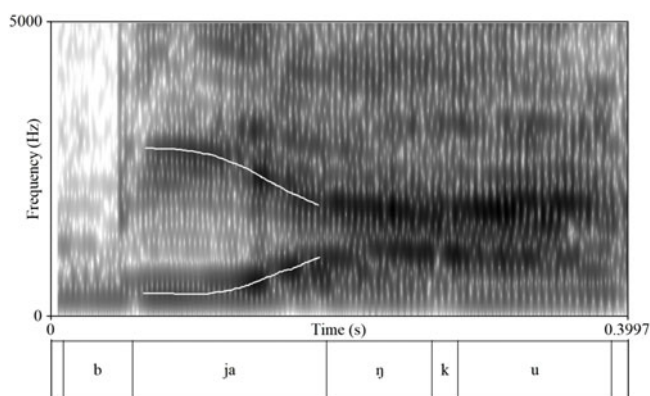


Figure 16 Spectrogram of *biancu* [ʰbjʌŋku] 'white (M)'.

Romance varieties, see Chitoran & Hualde 2007). For example, the word *italianu* 'Italian' is pronounced as [ita:li'ʌnu] and not as [ita:ljanu]; the word *cuindixi* 'fifteen' is pronounced as [ku'indiʒi] and not as [kwindiʒi]. Figures 15 and 16 display two different tokens, *bianca* 'white (F)' and *biancu* 'white (M)', respectively, produced by the same speaker (CF73): [bi'ʌŋka] with the hiatus and [ʰbjʌŋku], with the diphthong.

Even without taking the measurements of the acoustic parameters, by comparing the spectrograms in these two figures, the difference between the trajectories of the first two formants in the hiatus and the trajectories in the diphthong becomes clear.

Stress

Drawing on Porru's dictionary (Porru 1832), Bolognesi (1998) reports that 85% of underived words show stress in the penultimate syllable, e.g. *pratza* [ˈprattsa] 'town square', *traballu* [traˈballu] 'work, job', *ventana* [venˈtana] 'window'. Fourteen per cent of words are stressed on the antepenultimate syllable, e.g. *àxina* [ˈaʒina] 'grapes', *cenàbara* [tʃeˈnaβara] 'Friday', while 1% show final stress. Nouns with final stress tend to be repaired by means of epithesis, e.g. *caffè* [kaˈfɛi] 'coffee', *però* [peˈrɔu] 'but' (Bolognesi 1998: 65). Word-stress assignment can be distinctive, given the presence of minimal pairs such as *cantat* [ˈkantaða] 's/he sings' vs. *cantat* [kanˈtaða] 's/he sang' (see Bolognesi 1998, Vanrell et al. 2015).

Transcription of recorded passage ‘The North Wind and the Sun’

Phonemic transcription

su 'bentu e tramun'tana e su 'soli 'fiant abeti'endi a'pittsus e 'kini 'fessit su prus 'forti | 'kandu 'est arri'bau 'unu vjaddʒa'dōri imbus'sau in 'dunu man'teqd̥u || 'issus ant det'tsidju ka su 'primu ki 'fessit arren'neʃʃu a 'fai bo'gai su man'teqd̥u a su vjaddʒa'dōri | 'iat 'essi 'stetju prus 'forti de s 'atru || 'dunkas su 'bentu e tramun'tana at sul'lau prus 'forti ki po'diat | ma prus 'issu sul'lada | prus su vjaddʒa'dōri si imbus'sada in su man'teqd̥u | e a sa 'fini su bent e tramun'tana at arrinun'tʃau || in'tsandus su 'soli d̥d̥ at kallen'tau 'fendi 'luʒi | e 'totu in 'duna 'bōrta su vjaddʒa'dōri si nd est bo'gau su man'teqd̥u || e a'itʃi su bent e tramun'tana at 'depju a'miti ka de is dus su 'soli 'fiat su prus 'forti||

Phonetic transcription

su 'b:entu e ðramun'tana e su 'zoli 'vianta ab:eti'endi a'p:ittsuzu e 'kini 'vessi su βru 'f:orti | 'kandu 'est arri'b:au 'unu vjaddʒa'rōri imbus'sau in 'dunu man'teqd̥u || 'issuzu 'anti det'tsirju ʒa su 'βrimu ʒi 'vessiri arren'neʃʃu a 'fai b:o'ʒai su man'teqd̥u a su vjaddʒa'rōri | 'iar'essi 'stetju βru 'f:orti de s 'atru || 'duŋkaza su 'b:entu e ðramun'tana a sul'lau βru 'f:orti ki βo'riara | ma 'βruzu 'issu sul'lara || pru su vjaddʒa'rōri si imbus'sara in su man'teqd̥u | e a sa 'vini su 'b:ent e ðramun'tana 'ari arrinun'tʃau || in'tsanduzu su 'zoli d̥d̥a k:allen'tau 'vendi 'luʒi | e 't:otu in 'duna 'b:ōrta su vjaddʒa'rōri si nd eβ:o'ʒau su man'teqd̥u || e a'itʃi su 'b:ent e ðramun'tana a 'd:epju a'miti ka de iz 'duzu su 'zoli 'via su βru 'f:orti ||

Orthographic version

Su bentu de tramuntana e su soli fiant abetiendi apitzus de chini fessit su prus forti candu est arribau unu viagiadori imbussau in d-unu manteddu. Issus ant detzidiu ca su primu chi fessit arrennèsciu a fai bogai su manteddu a su viagiadori iat a essi stètiu prus forti de s'atru. Duncas, su bentu de tramuntana at sullau prus forti chi podiat, ma prus issu sullat prus su viagiadori si imbussat in su manteddu; e a sa fini su bentu de tramuntana at arrinunciau. Intzandus su soli dd'at callentau fendi luxi e, totu in d-una borta, su viagiadori si ndi est bogau su manteddu. E aici su bentu de tramuntana at dèpiu amiti ca de is duus su soli fiat su prus forti.

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Supplementary material

To view supplementary material for this article, please visit <https://doi.org/10.1017/S0025100318000385>.

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