Quaderni di Linguistica e Studi Orientali- QULSO
Working papers in Linguistics and Oriental Studies

Firenze University Press
https://oajournals.fupress.net/index.php/bsfm-qulso

Citation: R. Lai (2020) Divergent phonological behaviour in heritage speakers of Sardinian. *Qulso* 6: pp. 241-255. doi: http://dx.doi.org/10.13128/QULSO-2421-7220-9695

Data Availability Statement: All relevant data are within the paper and its Supporting Information files.

Competing Interests: The Author(s) declare(s) no conflict of interest.

Divergent phonological behaviour in heritage speakers of Sardinian*

Rosangela Lai
Università di Pisa (<rosangela.lai@unipi.it>)

Abstract:

In the literature on heritage speakers, phonology is often described as a comparatively well-preserved component of language competence. It does seem to be the case that heritage speakers, even when not fully proficient in some areas of grammar, sound superficially native-like as far as phonology is concerned. But does this picture hold up under closer scrutiny? This contribution deals with Sardinian, a language with an especially complex interplay of a stratified phonological lexicon and various phonological rules at word-boundaries. We will consider younger speakers of this minority language, who have experienced a break in the parental transmission in favour of the dominant language (Italian) and see whether they are able to master the finer aspects of Sardinian phonology. Fieldwork results will be presented showing that a drastic simplification of the system is under way, probably under the influence of Italian itself.

Keywords: *heritage speakers, language change, phonological competence, phonological lexicon*

1. Introduction

In the literature on heritage speakers, phonology is usually described as the best-preserved component of linguistic compe-

* I am grateful to the Alexander von Humboldt-Stiftung/Foundation for financial support of this work, and the *Seminar für Romanische Philologie* of the Georg-August University in Göttingen for hosting me. Many thanks are due to the audience of the 2nd International Conference on Bilingualism (University of Malta, 25-27 March 2019) for their useful feedback and suggestions. I am also thankful to Giovanna Marotta, Guido Mensching, Vincenzo Orioles, Leonardo M. Savoia, Ottavia Tordini and the anonymous reviewers of QULSO for comments which have greatly improved the quality of this paper. Many thanks to Simone Pisano and Ignazio Putzu for making available to me two recent works of theirs. Lastly, my deepest thanks go to the young Sardinian speakers who have participated in this study and to Domenica Sotgia, who helped in recruiting them. The usual disclaimers apply.

tence (cf. Au *et al.* 2002: 240; Benmamoun *et al.* 2010: 19ff.; Montrul 2010: 5-6; Polinsky and Kagan 2007: 378). Studies on heritage phonology, however, are a tiny minority of the heritage language literature, which focuses almost exclusively on morphological and syntactic aspects. Furthermore, the few studies that exist generally compare heritage speakers to the phonological performance of second language learners (Au *et al.* 2002: 240). While interesting in itself, this might obfuscate the issue of whether heritage speakers are comparable to fully proficient native speakers in their phonological competence. This contribution aims at beginning to fill that gap, by looking into the phonological competence of heritage speakers. Specifically, I will test some finer phonological aspects of Sardinian, such as phonological rules at word-boundaries. Sardinian has a stratified phonological lexicon, with different phonological rules for different layers. These rules implement a form of weakening that in an intervocalic position weakens a segment to the point of deletion (Lai 2009, 2011, in press). Some rules give rise to crosslinguistically marked segment-zero alternation that might conceivably prove problematic for less than proficient speakers.[1]

This article is organised as follows. Section 2 introduces the current situation of historical minority languages in Europe, and of Sardinian in particular. Section 3 details a phonological process of Sardinian, lenition of voiced stops, which has the peculiarity of not applying to loanwords. Section 4 describes the results of a production test that I designed and administered to teenage speakers from the village of Tertenia (Northern Campidanese), in order to assess their command of the process described in section 3. The results show that their performance is not native-like, in that these speakers have a tendency to omit to apply the lenition rule. Section 5 discusses the results and evaluates their significance for the development of the Sardinian phonological system as a whole. Section 6 summarises and concludes.

2. Historical minority languages and language decay: A focus on Sardinian

For decades now, most minority languages of Europe have been regarded as endangered (Salminen 2007: 224-227). The main reason is that historical minority communities have long been affected by a progressive language shift to a dominant language. National or official languages are eroding all the linguistic domains formerly occupied by minority languages (family domain included), with a break in the intergenerational transmission. As a result, in these communities, fluent speakers are mostly limited to the older age group, while younger generations have a reduced, at times exclusively passive, competence. Young speakers of historical minority languages with such limited competence can for all intents and purposes be regarded as heritage speakers (Montrul 2016: 15).[2] As in the general case of heritage speakers (children of migrant

[1] Interestingly, while the phonology of heritage speakers is comparatively understudied, the mastery of lenition rules was the object of Dorian (1977) for all intents and purposes a precursor to heritage language studies as a whole. The article focused on the phonological competence of what the author dubbed 'semi-speakers'. The population studied by Dorian also bore a strong resemblance to ours. Unlike most heritage language research, which focuses on the competence of second and third generation migrants, Dorian's study and mine consider the competence of younger speakers of a historical minority language (Scottish Gaelic and Sardinian, respectively) that have a partial competence in their minority language and have an official, national language as their dominant language (English and Italian, respectively). I thank Andrei A. Avram (University of Bucharest) for bringing this article to my attention.

[2] The definition of heritage language (and consequently of heritage speaker) is to some extent controversial. In this contribution, I will adopt the definition in Montrul (2016: 15), which includes not only immigrant languages but also "national minority languages" that "may have official status". Among Montrul's examples are "Basque in Spain and France, Catalan in Catalonia, Irish in Ireland, Welsh in Wales, Walloon in France, Greek and Aromanian

families), these speakers (usually, at school age) suffer a shift from the family language to the dominant language of the society they live in (Montrul 2016: 15-23). This pattern is so widespread in historical minority communities that the linguistic competence of whole age groups is now significantly compromised.

This is especially true of Sardinian (cf. Salminen 2007: 239, 257). Sardinian is an officially recognized minority language spoken on the island of Sardinia, besides Italian.[3] It is traditionally regarded as the most conservative among the Romance languages (Wagner 1997 [1950]: 120; Elcock 1960: 474-8; Tagliavini 1982: 388; Blasco Ferrer 1984: 24-41).[4] Sardinian in its varieties is spoken in the wider part of the island of Sardinia.[5] Two main groups exist: Logudorese in the central-northern areas and Campidanese in the south. In the middle, a transitional area can also be identified (Virdis 1988; Floricic and Molinu 2017; Lai in press). Within the main Sardinian groups a remarkable degree of variation can also be observed, both at the phonetic and morphosyntactic levels.

Sardinian was among the very first Romance languages to be adopted for official written purposes. The earliest legal documents in Sardinian date back to the 11th Century, a time when the island was divided into four independent kingdoms, namely, Kálaris, Torres, Arborea, and Gallura (Ortu 2017: 228-251). These kingdoms adopted their respective Sardinian dialects as official languages. In the 13th Century, however, the Sardinian kingdoms lost their independence. Ever since, Sardinian has co-existed with the languages of their foreign overlords: first with Old Pisan and Old Genoese,[6] then with Catalan and Spanish, and finally with Modern Italian (Blasco Ferrer 1984; Pisano 2015; Barbato 2017; Dettori 2017; Toso 2017; Virdis 2017; Putzu 2019). For centuries, Sardinian was confined to unofficial use. Urban élites mostly used the dominant languages, while the working class preserved the local varieties of Sardinian. But things dramatically changed in the third quarter of the 20th Century. Factors such as compulsory schooling, industrialization, migration, and mass media contributed to the spread of Italian to all social classes (Ginsborg 2003: 227; Rindler Schjerve 1993: 278-279, 2003: 237; 2017: 35-36). For decades, one observed a situation of Sardinian-Italian diglossia. Bilingual speakers used Sardinian in private domains (family, friends etc.), while Italian was the language of literacy and administration. Later, diglossia became unstable as Italian spread to other domains until then reserved for Sardinian (Rindler Schjerve 2003: 237, 239). Among those domains, the foremost is surely the family. The

in Albania, and Frisian in the Netherlands and Germany", i.e., historical minority languages of Europe that coexist with majority languages in their respective territories.

[3] It is important to bring to the reader's attention the fact that the Italian legislation on minority languages (Law 482/199) is restricted to the two classes of varieties. (a) Varieties that can be identified with or are strictly related to officially recognised foreign languages (Albanian, Catalan, Slovenian, German, Greek). (b) Varieties that are, for intrinsic linguistic reasons or historical tradition, regarded as 'distant enough' from Italian, in some sense (Ladin, Friulian, Sardinian). One consequence is that the rich ensemble of Italo-Romance varieties is denied any form of official recognition. As for this sharp dichotomy, Toso (2019) offers an in-depth discussion of its implications for linguistic rights and cultural heritage. On Law 482/199, see also Savoia (2001), Orioles (2003) and Dell'Aquila and Iannàccaro (2004: 51–58). On Italo-Romance varieties as unrecognized minority languages, I refer the non-Italian readers to Coluzzi (2009).

[4] For dissenting opinions, see the essays by Lőrinczi (1982); Bolognesi (2001) and Mensching (2004).

[5] Apart from Sardinian and Italian, other languages are spoken on the island. In the extreme North, one finds Sassarese and Gallurese two Italo-Romance varieties. Other minority languages are Catalan, spoken in the city of Alghero, and Tabarchin, a Ligurian variety of two communities in the South-West of the island. See Toso (2012).

[6] In the Late Middle Ages, Sardinian was strongly affected by contact with two Italo-Romance varieties, which resulted in a remarkable number of loanwords. The varieties were, first and foremost, Old Pisan, and, to a lesser extent, Old Genoese. It was only in the 19th century that Italian came to substantially influence Sardinian again. These two waves of strong language contact are often referred to as first and second Italianization, respectively (Loi Corvetto 1992; 1993; Blasco Ferrer 2002: 255-271).

break of intergenerational transmission began in the 1960s in cities and larger towns, but by the 1970s it was already spreading to rural areas (Rindler Schjerve 2000: 230, 2003: 239, 2017: 38). In Rindler Schjerve's words, "with primary socialization now conducted mostly in Italian, young speakers' acquisition of Sardinian remains incomplete" (Rindler Schjerve 1993: 280).

As made clearer by Rindler Schjerve (2003: 241) "[…] at present many young speakers, who have frequently been brought up in Italian, have a restricted active or even a merely passive command of their ethnic language. This lack of active command is generally reflected in deficient or restricted use of Sardinian […]". The same author lists a number of critical issues in the language of these speakers that shows a notable overlap with the issues commonly reported in the literature on heritage speakers (Rindler Schjerve 1993: 280-281). The lexicon is the most affected component (relexification under the influence of Italian), followed by morpho-syntax. Rindler Schjerve points out that the phonology of these speakers has never been investigated, just as it is comparatively understudied in heritage languages more generally (see Polinsky 2018, ch. 4, for a recent assessment). She nonetheless points out some phonological behaviours in younger speakers that diverged from a proficient native speaker's (Rindler Schjerve 1993: 281). One is the lack of the (geminate) voiced retroflex stop, a sound attested in all Sardinian dialects as the outcome of Latin LL, e.g., VILLA> [ˈbiɖɖa] 'village'. Some younger speakers replace the voiced retroflex stop with a voiced alveolar stop, a more familiar sound for them since the dominant language (Italian) includes the latter but not the former. She also reports changes in various phonological rules in Southwestern Logudorese (Rindler Schjerve 1993: 281).

Twenty years after Rindler Schjerve's major contributions on language shift, Sardinian is in sharp decline (see Rindler Schjerve 2017). As she would write in her posthumous work on the topic, "[…] the gradual Italianisation promoted by the school, the administration and the media, as well as the interruption in the intergenerational transmission means that the vitality of Sardinian currently appears to be compromised", (Rindler Schjerve 2017: 37, tr. mine). In a survey ordered by the Autonomous Region of Sardinia in 2007, the results on primary socialization language in the household left little doubt about it (Oppo 2007: 34, Table 4.2).[7] As can be seen in Table 1, in the age group 15-24 (now in their thirties), only 5.8% declared to have been spoken the local language first, and 5.2% both the local language and Italian at the same time. An overwhelming 89% declared to have had exclusively Italian as their language of primary socialization at home.

	15-24 years	25-44 years	45-64 years	65 years and more
Italian	89.0	66.9	33.9	16.8
Local language	5.8	19.9	51.7	73.7
Both	5.2	13.2	14.4	9.5
Total	100.0	100.0	100.0	100.0
N	*191*	*532*	*555*	380

Table 1. Language learned first, by age group

Table 1 displays a progressive decrease in the exclusive use of the local language and a parallel increase of the use of Italian as primary socialization languages. The conjoined use of both Italian and the local language first sees an increase in the '45-64' age group, then declines

[7] Oppo (2007) has 'local languages' because it also accounts for local minority languages other than Sardinian (see footnote 5).

as well. Thus, the number of monolingual Italian speakers on the island is by now higher than the number of minority language-Italian bilinguals. Most relevantly, as the number of fluent speakers of Sardinian decreases, heritage speakers can be expected to become the majority of Sardinian speakers in the near future.

3. A peculiar phonological process: The case of voiced stop lenition

Sardinian is well-known for having several phonological processes that apply at word-boundaries. Both strengthening and weakening processes are observed, and so are several assimilation processes, albeit with considerable dialectal variation (Molinu 2017; Lai *in press*, a.o.). The most intensively studied phonological rules of Sardinian, though, are the weakening processes. The most widespread is the lenition of voiceless stops, that changes them into voiced fricatives in intervocalic position e.g. /ssa kanna/ [sa ˈɣanna] 'the reed'. In some areas of Campidanese Sardinian, lenition also affects intervocalic voiced obstruents (Virdis 1978: 78; Bolognesi 1998: 30-33; Lai *in press*). Such is the case in the variety under consideration, i.e., the Northern Campidanese of Tertenia. This kind of lenition results in the elision of the obstruent, as in /ssa buka/ [sa ˈuka] 'the mouth'. To complicate matters even further, this rule only applies to word-initial voiced obstruents in words of the native lexicon: voiced obstruents in loanwords are not affected by the rule.[8] This situation reflects a stratification of the lexicon (cf. Itô and Mester 1999), which resulted from the contact of Sardinian varieties and the dominant languages that have succeeded one another ever since the High Middle Ages (Wagner 1928; Putzu 2019). The stratification, which involves different treatments of the native and foreign lexicon, has effects not only on voiced obstruents but on various other classes of segments as well (Bolognesi 1998: 462-464; Lai 2015). Nowadays, the lenition rule for native voiced obstruents can be regarded as a conservative trait, which is attested only in Northern Campidanese.

In Table 2, I report the behaviour of voiced obstruents in Northern Campidanese. The table summarises, with data from Tertenia (Lai 2009), a pattern that is well established in the literature on Sardinian. Wagner ([1941] 1984: 138-141, 168, 424) made it clear that the pattern was universal in Common Campidanese (*campidanese volgare*), and it contrasted with an innovative pattern that at the time of writing was spreading from Cagliari to the neighbouring areas (on which see section 5 below). The pattern described here is also presented in Virdis (1978: 50-51, 78-79).[9]

a. Native vocabulary		
	Word-initial position	*Intervocalic position*
/b/	[ˈbuka] 'mouth'	[sa ˈuka] 'the mouth'
/d/	[ˈdomu] 'house'	[sa ˈomu] 'the house'
/g/	[ˈgaŋga] 'throat'	[sa ˈaŋga] 'the throat'

[8] By "native lexicon", I refer to the outcomes of the indigenous evolution from Latin, plus a small number of very ancient Italian loanwords, whose treatment in all contexts is indistinguishable from Sardinian indigenous items. An example reported also in Table 4 is [ˈbeʃu] 'old, elderly' from Old Italian (see Wagner [1950] 1997: 287). This item – like the indigenous words and unlike Catalan, Spanish and Modern Italian loans – shows intervocalic lenition at word-boundary.

[9] On Virdis (1978), consider the caveat by Bolognesi (1998: 35-39).

b. Foreign vocabulary		
/b/	[buˈʤaka] ‘pocket’ (Cat.)	[sa buˈʤaka] ‘the pocket’
/d/	[diˈziʎʎu] ‘desire’ (Cat.)	[su diˈziʎʎu] ‘the desire’
/g/	[ˈgana] ‘will, wish’ (Cat., Sp.)	[sa ˈgana] ‘the will, the wish’

Table 2. Voiced stops in intervocalic position

As seen in the second column, in both groups, in initial position (a strong position), a voiced obstruent is present, while in intervocalic position (a weak position), the behaviour of the two groups diverges. Obstruents of the foreign vocabulary (loanwords from Catalan and Spanish, in the examples at hand) do not present any form of intervocalic weakening. By contrast, obstruents of the native vocabulary are subjected to elision. The groups also diverge in other respects. For instance, voiced obstruents in loanwords are insensitive to the application of any phonological rule (see Wagner ([1941] 1984: 168).

Table 3 presents the behaviour of the two groups in post-consonant position. It is apparent that the native vocabulary group displays a voiced fricative, while loanwords retain the voiced stop in every position. Table 3 lists the same lexical items as Table 2, but in the plural. The items are preceded by the plural article /is/ in order to put the voiced stops in a post-consonant position. The presence of a rhotic instead of [s] in the phonetic form is due to one further rule that changes /s/ into [r] whenever followed by a [+ voiced] segment: thus, in our table, /is/ appears as [ir] due to the presence of a [+ voiced] fricative or stop. This rule applies equally to both groups and is not of importance in our discussion (cf. Lai *in press*).

a. Native vocabulary		
	Word-initial position	*Post-consonant position*
/b/	[ˈbukaza] ‘mouths’	[ir ˈβukaza] ‘the mouths’
/d/	[ˈdomuzu] ‘houses’	[ir ˈðɔmuzu] ‘the houses’
/g/	[ˈgaŋgaza] ‘throats’	[ir ˈɣaŋgaza] ‘the throats’
b. Foreign vocabulary		
/b/	[buˈʤakaza] ‘pockets’	[ir buˈʤakaza] ‘the pockets’
/d/	[diˈziʎʎuzu] ‘desires’	[ir diˈziʎʎuzu] ‘the desires’
/g/	[ˈganaza] ‘will, wishes’	[ir ˈganaza] ‘the will, the wishes’

Table 3. Voiced stops in post-consonant position

We are thus dealing with a phonological pattern that is complex enough to be a fine testing ground for the claim that the phonological system of heritage speakers is (roughly) indistinguishable from the system of fluent speakers. Fluent speakers give each vocabulary set the respective treatment, and apply the lenition rule only to the relevant set. As we will show below, this is much harder for heritage speakers: young speakers (who suffered from interruptions in the intergenerational transmission) are unable to apply the lenition rule correctly to the native vocabulary and tend to extend the treatment that is traditional of loanwords to the native lexicon.

4. Methodology and results

In what follows, I will present the results of a small-scale study designed to ascertain young speakers' mastery of the phonological pattern described in Section 3. My subjects were 18 middle-school students (11 male, 7 female), all aged 12. They all had Sardinian parents and were raised in Sardinia. They belong to the bilingual community of Tertenia, whose variety is regarded as one of the most conservative ones in the Campidanese domain. As a matter of fact, one promising feature of this area is that the decline of Sardinian is less advanced than the overall picture given in Section 2. Nevertheless, in the 1980s and 1990s in most families Sardinian was replaced by Italian as the household language. Most community members in their twenties and thirties experienced a defective intergenerational transmission of Sardinian, and younger members even more so. Today, in the whole village (population approx. 3,800) very few children can be considered fluent speakers of Sardinian. Their parents are typically unbalanced bilinguals, that speak predominantly or exclusively Italian to their children. Older speakers (aged 70-80) do not usually speak Sardinian to their grandchildren either, even though they often speak the language with one another. This provides a source of passive exposure to Sardinian for younger speakers, which explains the limited, mainly aural proficiency displayed by many children. Some basic information on the family background of these speakers has been obtained by asking the speakers which language or languages were spoken at home. Thus, I was able to divide the subjects into two groups: one group of speakers, depending on whether they were stemming from a Sardinian or an Italian speaking household. For the purposes of this study, comparatively liberal standards have been adopted to define a 'Sardinian-speaking household': since it could be taken for granted that no household was Sardinian monolingual or even Sardinian dominant, a speaker was classified as hailing from a Sardinian-speaking household if Sardinian was spoken frequently at home (besides the dominant Italian). Households where Sardinian was reported to be rarely or never spoken were labelled 'Italian-speaking households': this would not, in any case, prevent the children from acquiring a basic competence of Sardinian in other communicative contexts (playmates, neighbourhood, relatives outside their nuclear family etc.). Children of both categories were sometimes able to produce simple sentences in Sardinian on familiar topics. They were usually unable to interact with their interlocutor in Sardinian, let alone hold a conversation in Sardinian. Whenever talked to in Sardinian, they reply in Italian. Their limited production in Sardinian, though, sounds to fluent Sardinian speakers as native-like, which at first sight suggests that phonological competence is preserved. At a closer look, however, their phonological system proves different than a fluent speaker's.

The experimental design consisted in an elicited production task. The presentation was oral and conducted in their Sardinian variety of Tertenia by the author. Written presentation was avoided, since the vast majority of Sardinian people has no literacy in Sardinian. The test was administered in person.

The task was designed as follows. As a cue, a plural noun was presented, preceded by a definite article:

(1) [ir ˈβukaza] 'the mouths'

The task was producing its singular counterpart:

(2) [sa ˈuka] 'the mouth'

For example: 'Give me the singular of [ir ˈβukaza]', i.e. [sa ˈuka]

The experimental items were in a single list of 26 lexical items, which were intermixed with 26 fillers with the same format. The experimental list is presented in Table 4 below.[10] The presentation was pseudo-randomized for each of the 18 subjects. The total data points gathered are 468.

	Phonological Form	Phonetic Form	Translation
1	/is bid̪d̪igus/	ir ˈβid̪d̪iɣuzu	'the navels'
2	/is birðias/	ir ˈβirðiaza	'the stepmothers'
3	/is bizus/	ir ˈβizuzu	'the dreams'
4	/is bazidus/	ir ˈβaziðuzu	'the kisses'
5	/is barβas/	ir ˈβarβaza	'the beards'
6	/is binus/	ir ˈβinuzu	'the wines'
7	/is bɛranus/	ir βɛˈranuzu	'the spring times'
8	/is bɛrmis/	ir ˈβɛrmizi	'the worms'
9	/is bukas/	ir ˈβukaza	'the mouths'
10	/is bakas/	ir ˈβakaza	'the cows'
11	/is bid̪d̪as/	ir ˈβid̪d̪aza	'the villages'
12	/is bɔdʒis/	ir ˈβɔdʒizi	'the voices'
13	/is bɛntus/	ir ˈβɛntuzu	'the winds'
14	/is brunkus/	ir ˈβruŋkuzu	'the muzzles'
15	/is bidʒinaus/	ir βidʒiˈnauzu	'the neighbourhoods'
16	/is bindʒas/	ir ˈβindʒaza	'the vineyards'
17	/is binnɛnnas/	ir βinˈnɛnnaza	'the grape harvests'
18	/is bɔis/	ir ˈβɔizi	'the bulls'
19	/is bɛrβɛis/	ir βɛrˈβɛizi	'the sheep' (plur.)
20	/is dɔmus/	ir ˈðɔmuzu	'the houses'
21	/is dɔminigus/	ir ðɔˈminiɣuzu	'the Sundays'
22	/is didus/	ir ˈðiðuzu	'the fingers'
23	/is dɛntis/	ir ˈðɛntizi	'the teeth'
24	/is gangas/	ir ˈɣaŋgaza	'the throats'
25	/is gunnɛd̪d̪as/	ir ɣunˈnɛd̪d̪aza	'the skirts'
26	/is bɛʃus/	ir ˈβɛʃuzu	'the elderly'

Table 4. Experimental items

[10] The list includes indigenous items (items that come directly from Latin) as well as some fully assimilated loanwords (very ancient loanwords that behave analogously), namely items number 25 and 26. [ɡunˈnɛd̪d̪a] 'skirt' is from It. *gonnella*, while [ˈbeʃu] 'old man' is from It. *vecchio*. On this aspect, see footnote 8.

One important point to make clear is that the subjects' performance did not exclusively rely on their internal lexicon correctly classifying a word as native or foreign: the cues (the items in the plural) submitted to the subjects contained initial fricatives, which makes it clear to proficient speakers that they are dealing with native lexicon, and they should apply the rule to the singular form, regardless of whether they knew the word already or it was new to them (see Table 3, post-consonant position in the native lexicon).

The results of the test are given in full in Table 5. The application of the rule will be expressed in terms of "lenition ratio", the ratio of application of the rule over the number of experimental items (26).

Subject	Lenition ratio (x/26)	Gender	Household
S1	7	F	I
S2	4	M	I
S3	23	M	S
S4	2	M	S
S5	17	M	S
S6	20	M	S
S7	14	M	S
S8	15	F	S
S9	16	M	S
S10	11	F	I
S11	16	F	S
S12	13	M	S
S13	13	M	S
S14	16	M	S
S15	7	M	I
S16	14	F	I
S17	15	F	S
S18	9	F	S

Table 5. Results

As can be seen at first sight, the ratio of lenition ranges from very high (23/26 for S3) to extremely low (2/26 for S4). As detailed in section 3 above, the Tertenia phonological system involves lenition of all the experimental items, so the expected ratio is 26/26. For concreteness, let us focus on speakers labelled as hailing from Sardinian-speaking households. The data show high variation (SD=±5.05; CV = 34.8%) and are not normally distributed (skewness = –0.804; kurtosis = 0.724). Let us now consider whether the performance of these speakers is significantly different from what is expected of fully proficient native speakers. In a one sample Wilcoxon signed rank test, the ratio of lenition in the speakers from Sardinian-speaking households (mean

= 14.5; median = 15) resulted to be highly significantly lower than the native target of 26/26 (*p*-value < .001).[11]

5. Heritage phonology and language change

The results just shown reveal a clear difficulty with the voiced stops paradigm illustrated in section 3 above. To summarise it briefly, as far as lenition goes, Sardinian native words behave in a fundamentally different way from loanwords. In the former, intervocalic voiced stops are subjected to a lenition rule in external sandhi; in the latter, no such rule applies. As a matter of fact, our heritage speakers, in failing to apply the lenition rule in (on average) 40% of the relevant instances, are processing native words as they would process loanwords. The lenition rule for voiced stops is being eroded, and in the future might be abandoned altogether. There are at least two (not mutually exclusive) hypotheses as to why this is happening. First, treating native words and loanwords alike might be regarded as a simplification of the system, and this would be motive enough to struggling heritage speakers of the language. Second, heritage speakers might be influenced by Italian (their dominant language), which does not include weakening of obstruents across word-boundaries.[12]

Regardless of its cause, this innovation is laying the groundwork for a complete reorganization of the phonological system of Sardinian, which might affect other external sandhi processes. The phonology of external sandhi in Sardinian displays a delicate balance between strong and weak positions. In intervocalic (i.e., weak) position, a segment weakens, while in post-consonant position or a phonosyntactic doubling context (i.e., strong positions), the same segment is insensitive to lenition or even strengthened.[13] At the same time, weakening acts on a scale: voiceless stops weaken into voiced fricatives, voiced stops weaken even further and are deleted altogether. This is a well-known feature of Sardinian lenition. Once the rule affecting voiced stops is lost, the traditional balance will fail: in a weak position, voiced obstruents will be realized as stronger than voiceless obstruents.

	Voiceless obstruents	Voiced obstruents
a. Fluent speaker	[sa ˈβala] 'the shoulder'	[sa ˈuka] 'the mouth'
b. Heritage speaker	[sa ˈβala] 'the shoulder'	[sa ˈbuka] 'the mouth'

Table 6. Voiceless and voiced obstruents in intervocalic position

In addition, as far as voiced obstruents are concerned, the loss of the above-mentioned rule will also change the balance between weak and strong positions: paradoxically enough, intervocalic (weak) positions will yield stronger realizations than strong positions. This can be exemplified in Table 7. Compare the phonology of fluent speakers in (a) with that of heritage speakers in (b):

[11] This test was preferred over a t-test because the normality assumption of the latter test is not met by my data. Cf. Gries (2013: 209).

[12] Regional varieties of Italian spoken, for instance, in Tuscany or Lazio have forms of weakening: respectively, the so-called *gorgia toscana* (Giannelli and Savoia 1978, 1979-1980; Bafile 1997; Marotta 2008), and the lenition attested in much of Central Italy (Marotta 2005; D'Achille and Stefinlongo 2008). However, such phenomena are entirely absent from the regional Italian spoken in Sardinia and from standard varieties of Italian.

[13] Phonosyntactic doubling is a sandhi strengthening process widespread in some Italo-Romance varieties, as well as in Sardinian and Corsican (cf. Fanciullo 1997; Loporcaro 1997; Passino 2013).

	Intervocalic position	Post-consonant position
a. Fluent speaker	[sa ˈuka] 'the mouth'	[ir ˈβukaza] 'the mouths'
b. Heritage speaker	[sa ˈbuka] 'the mouth'	[ir ˈβukaza] 'the mouths'

Table 7. Voiced obstruents in intervocalic and post-consonant position

In 7(a), (the grammar of a fluent speaker), the voiced obstruent in intervocalic position is deleted but surfaces as a fricative in post-consonant position while in 7(b), (the grammar of a heritage speaker) the same voiced obstruent has a stop in intervocalic (weak) position and a fricative in strong position (the post-consonant position). Regardless of the foreseeable future of Sardinian itself, which is my main concern here, this development is intriguing in itself. It lends support to the view that phonology, understood as the knowledge of the lexical elements and their phonetic alternations, prevails over substantive phonetic generalizations (here, *ceteris paribus*, a segment that underwent a process of weakening is realized as stronger than a similar segment that did not).

From the perspective of language change, there is one more issue that is worth considering. The behaviour of our speakers is consistent with the situation in another area of the Sardinian language domain (the far south) approximately one century ago. The south of the island originally had the same lenition system described above for Northern Campidanese. In particular, a rule was present that weakened voiced obstruents to the point of deletion (Wagner [1941] 1984: 139-141, 424; [1950] 1997: 285). According to Wagner ([1950] 1997: 285), in the island's capital (Cagliari), the influence of Italian was very strong at the time.[14] This, Wagner surmises, would have encouraged some speakers to innovate on the model of Italian. He states, though, that in the first decades of the century the innovation was already spreading in the south of the island, having been adopted by the upper-middle class and being increasingly imitated by the working class.

Wagner does not identify the class of speakers responsible for the innovation, and refers generically to the "city pronunciation" (tr. mine), (Wagner [1941] 1984: 139, 168-170). Some examples, listed in Wagner ([1950] 1997: 285), are *sa ddènti*, *su ggáttu* instead of *sa ènti*, *su áttu*.[15] However, further evidence to the fact that Cagliari originally had the same pronunciation as Common Campidanese lies in words such as [piˈzurʧi] 'pea', that comes from [ˈpizu] 'bean' plus [ˈdurʧi] 'sweet', with the deletion of intervocalic -d-, now lexicalized (Wagner [1941] 1984: 139).

Wagner also makes a remark highly relevant to our purposes. At the time of Wagner's fieldwork, in the communities already affected by the innovation, both pronunciations (with and without the stop) were attested (Wagner [1941] 1984: 168-170). Three quarters of a century later, in the late twentieth century, in the south the pronunciation with the stop was attested as almost exclusive. Namely, Bolognesi (1998: 37), when discussing the dialect of Sestu (10 km from Cagliari) argues that the intervocalic "[…] deletion is not obligatory, but in many cases also prohibited. Many words that begin with a voiced stop never alternate and the form which exhibit the deletion is considered ungrammatical". This can probably be regarded as the last stage before the loss of the rule.

[14] Cagliari Sardinian is today an endangered language. I refer the reader to Rattu (2017) and Mereu (2020) for the sociolinguistic situation of the city.

[15] In describing the innovation (i.e., the maintenance of voiced stops in intervocalic position), Wagner ([1941] 1984: 424) speaks of "doubling of b, d, g", (tr. mine). As a matter of fact, the segments are often phonetically realized as long. Phonologically, on the other hand, there is evidence that they should be regarded as simple. For a discussion of the phonological status of geminates in Sardinian, see Bolognesi (1998) and Lai (2015).

6. Conclusions

The evidence of an identical innovation at a century's distance raises more general issues about the way minority languages are affected by contact with a dominant language. It is especially interesting to consider the identity of the leaders of change, i.e., the linguistic innovators and/or early adopters (Milroy and Milroy 1985). In our case, it is clear that the innovation is being spread by heritage speakers, dominant in Italian and with an imperfect, mostly passive competence in Sardinian. I am unable to assess the similarities with the early 1900s situation witnessed by Wagner (Wagner [1941] 1984: 139-141; [1950] 1997: 285). While the sophisticated middle-class of Cagliari should perhaps not be regarded as heritage speakers at that point, we know that they were Italian-Sardinian bilinguals, and many could well have been Italian-dominant. It is then easy to hypothesize that a context of strong language contact and diglossia could have encouraged a simplification of a phonological system that involved highly marked consonant-zero alternations. Prestige might have played a role too, as an Italian-influenced pronunciation would have helped these bilinguals to distinguish themselves from Sardinian-dominant lower classes.

So far, I have implicitly favoured an explanation in terms of language shift or obsolescence: it has often been claimed that the phonological and grammatical system of an endangered language can experience changes due to either interference with a dominant language or to a general drive for simplification (Dorian 1978, a.o.). However, other lines of explanation cannot be excluded. Milroy and Milroy (1985) hypothesise that language innovations spread faster as a function of a loosening of social networks. To the extent that one can venture into broad sociological statements, it is reasonably clear that in the last decades rural Sardinia has experienced wide-ranged social changes that affected economic activities, migration patterns, tourism, and the city-countryside relations (Gentileschi 1995; Brigaglia, Mastino and Ortu 2006: 134-151, 162-175). These changes might have favoured a shallower pattern of weak social links over former close-knit community networks. This dynamic would help to explain the diffusion of the innovation, regardless of its source: one can either think of a Southern Campidanese influence, or of an innovation introduced from scratch.

References

Au, T.K., L.M. Knightly, Sun-Ah Jun *et al.* 2002. "Overhearing a Language during Childhood." *Psychological Science* 13, 3: 238-243.

Bafile, Laura. 1997. "La spirantizzazione toscana nell'ambito della teoria degli elementi." *Studi linguistici offerti a Gabriella Giacomelli dagli amici e dagli allievi. Quaderni del dipartimento di linguistica – studi* 4: 27-38.

Barbato, Marcello. 2017. "Superstrato catalano." In *Manuale di Linguistica Sarda*, ed. by Eduardo Blasco Ferrer, Peter Koch, and Daniela Marzo, 150-167. Berlin-New York: Mouton De Gruyter.

Benmamoun, Elabbas, Silvina Montrul and Maria Polinsky. 2010. "White Paper: Prolegomena to Heritage Linguistics." Ms. Harvard University, <https://scholar.harvard.edu/files/mpolinsky/files/hl_white_paper_june_12.pdf>. (06/2020)

Blasco Ferrer, Eduardo. 1984. *Storia linguistica della Sardegna*. Tubinga: Niemeyer.

Blasco Ferrer, Eduardo. 2002. *Linguistica sarda: storia, metodi, problemi*. Cagliari: Condaghes.

Bolognesi, Roberto. 1998. *The phonology of Campidanian Sardinian: a unitary account of a self-organizing structure*. The Hague: Holland Academic Graphics.

Bolognesi, Roberto. 2001. "Il sardo tra isolamento e contatto. Una rianalisi di alcuni stereotipi." *Ianua* 2: 1-47.

Brigaglia, Manlio, Attilio Mastino and G.G. Ortu (eds). 2006. *Storia della Sardegna 2. Dal Settecento a oggi*. Bari: Laterza.

Coluzzi, Paolo. 2009. "Endangered minority and regional languages ('dialects') in Italy." *Modern Italy*, 14, 1: 39-54, DOI: 10.1080/13532940802278546.
D'Achille, Paolo, and Antonella Stefinlongo. 2008. "La lenizione delle sorde a Roma tra diacronia e sincronia." In *L'Italia dei dialetti*. *Atti del Convegno. Sappada/Plodn (Belluno)*, ed. by Gianna Marcato, 28 giugno – 2 luglio 2007, 183-196. Padua: Unipress.
Dell'Aquila, Vittorio, and Gabriele Iannàccaro. 2004. *La pianificazione linguistica. Lingue, società e istituzioni*. Roma: Carocci.
Dettori, Antonietta. 2017. "Superstrato piemontese." In *Manuale di Linguistica Sarda*, ed. by Eduardo Blasco Ferrer, Peter Koch, and Daniela Marzo, 184-199. Berlin-New York: Mouton De Gruyter.
Dorian, N.C. 1977. "A Hierarchy of Morphophonemic Decay in Scottish Gaelic Language Death: The Differential Failure of Lenition." *Word* 28: 96-109.
Dorian, N.C. 1978. "The Fate of Morphological Complexity in Language Death: Evidence from East Sutherland Gaelic." *Language* 54, 3: 590-609.
Dressler, Wolfgang. 1981. "Language shift and language death — a Protean challenge for the linguist." *Folia Linguistica* 15(1-2): 5-28.
Elcock, William D. 1960. *The Romance Languages*. New York: Macmillan.
Fanciullo, Franco. 1997. *Raddoppiamento sintattico e ricostruzione linguistica nel sud italiano*. Pisa: ETS.
Floricic, Frank, and Lucia Molinu. 2017. "Storia delle indagini e classificazioni." In *Manuale di Linguistica Sarda*, ed. by Eduardo Blasco Ferrer, Peter Koch, and Daniela Marzo, 15-30. Berlin-New York: Mouton De Gruyter.
Gentileschi, M.L. 1995. *Sardegna emigrazione*. Cagliari: Edizioni Della Torre.
Giannelli, Luciano, and Leonardo M. Savoia. 1978. "L'indebolimento consonantico in Toscana." Part I. *Rivista italiana di dialettologia* 2: 23-58.
Giannelli, Luciano, and Leonardo M. Savoia. 1979-1980. "L'indebolimento consonantico in Toscana." Part II. *Rivista italiana di dialettologia* 3-4: 39-101.
Ginsborg, Paul. 2003. *A history of contemporary Italy: Society and politics, 1943-1988*. Basingstoke: Palgrave Macmillan.
Gries, Stefan T. 2013. *Statistics for Linguistics with R: A Practical Introduction*. Berlin: De Gruyter.
Itô, Junko, and Armin Mester. 1999. "The Structure of the Phonological Lexicon." In *The Handbook of Japanese Linguistics*, ed. by Natsuko Tsujimura, 62-100. Oxford: Blackwell.
Lai, Rosangela. 2009. "Gradi di forza nelle occlusive di una sotto-varietà campidanese dell'Ogliastra." *Rivista Italiana di Dialettologia* 33: 85-100.
Lai, Rosangela. 2011. "Peculiarità fonologiche dei prestiti in Sardo Campidanese." In *Le nuove forme del dialetto*, ed. by Gianna Marcato, 117-122. Padua: CLUEP.
Lai, Rosangela. 2015. "Word-initial geminates in Sardinian." *Quaderni di Linguistica e Studi Orientali* 1: 37-60, DOI: http://dx.doi.org/10.13128/QULSO-2421-7220-16515.
Lai, Rosangela. (In press). "Sardinian." In *Manual of Romance phonetics and phonology*, ed. by Christoph Gabriel, Randall Gess, and Trudel Meisenburg. Berlin/New York: Mouton De Gruyter.
Loi Corvetto, Ines. 1992. "Sardegna." In *L'italiano nelle regioni* I: *Lingua nazionale e identità regionali,* ed. by Francesco Bruni, 875-917. Torino: UTET.
Loi Corvetto, Ines, and Annalisa Nesi. 1993. *La Sardegna e la Corsica*. Turin: UTET.
Loporcaro, Michele. 1997. "Lengthening and raddoppiamento fonosintattico." In *The dialects of Italy*, ed. by Martin Maiden and Mair Parry, 41-51. London: Routledge.
Lőrinczi, Marinella. 1982. "Dell'esotico dietro l'angolo: ovvero che cosa è il sardo per i linguisti." *La Ricerca Folklorica* 6: 115-125.
Marotta, Giovanna. 2005. "Il consonantismo romano. Processi fonologici e aspetti acustici." In *Italiano parlato. Analisi di un dialogo*, ed. by Federico Albano Leoni, and Rosa Giordano, 1-24. Naples: Liguori Editore.
Marotta, Giovanna. 2008. "Lenition in Tuscan Italian (Gorgia Toscana)." In *Lenition and Fortition*, ed. by Joaquim Brandao de Carvalho, Tobias Scheer, and Philippe Ségéral, 235-272. Berlin: Mouton de Gruyter.
Mensching, Guido. 2004. "Su sardu – limba arcàica o limba moderna?" In *Su sardu. Limba de Sardigna e limba de Europa*, ed. by Lucia Grimaldi, and Guido Mensching, 27-53. Cagliari: CUEC.

Mereu, Daniela. 2020. *Il sardo parlato a Cagliari. Una ricerca sociofonetica*, Milano: Franco Angeli.
Milroy, James, and Lesley Milroy. 1985. "Linguistic change, social network and speaker innovation." *Journal of Linguistics* 21: 339-384.
Molinu, Lucia. 2017. "Fonetica, fonologia, prosodia: sincronia." In *Manuale di Linguistica Sarda*, ed. by Eduardo Blasco Ferrer, Peter Koch, and Daniela Marzo, 339-358. Berlin.New York: Mouton De Gruyter.
Montrul, Silvina. 2008. *Incomplete Acquisition in Bilingualism. Re-examining the Age Factor*. Amsterdam: John Benjamins.
Montrul, Silvina. 2010. "Current issues in heritage language acquisition." *Annual Review of Applied Linguistics* 30: 3-23.
Montrul, Silvina. 2016. *The Acquisition of Heritage Languages*. Cambridge: Cambridge UP.
Oppo, Anna, (ed.). 2007. *Le lingue dei sardi. Una ricerca sociolinguistica*. Cagliari: Regione Autonoma della Sardegna.
Orioles, Vincenzo 2003. *Le minoranze linguistiche. Profili sociolinguistici e quadro dei documenti di tutela*. Roma: Il Calamo.
Ortu, G.G. 2017. "Establishing Power and Law in Medieval and Modern Sardinia." In *A Companion to Sardinian History, 500-1500*, ed. by Michelle Hobart, 228-251. Leiden-Boston: Brill.
Passino, Diana. 2013. "A unified account of consonant gemination in external sandhi in Italian. Raddoppiamento sintattico and related phenomena." *Linguistic Review* 30: 313-346.
Pisano, Simone. 2015. "Importanza del superstrato catalano, castigliano e italiano in alcune varietà sarde moderne: aspetti lessicali, fonetici e morfosintattici." In *Le lingue d'Italia e le altre. Contatti, sostrati e superstrati nella storia linguistica della Penisola*, ed. by Lorenzo Filipponio, and Christian Seidl, 149-165. Milan: Franco Angeli.
Polinsky, Maria. 2018. *Heritage Languages and their Speakers* (Cambridge Studies in Linguistics), Cambridge: Cambridge UP, DOI: 10.1017/9781107252349.005.
Polinsky, Maria, and Olga Kagan. 2007. "Heritage Languages: In the 'Wild' and in the Classroom." *Language and Linguistics Compass* 1/5: 368-395, DOI: 10.1111/j.1749-818x.2007.00022.
Putzu, Ignazio. 2019. "History of the Sardinian Lexicon." *Oxford Research Encyclopedia of Linguistics*, <https://oxfordre.com/linguistics/view/10.1093/acrefore/9780199384655.001.0001/acrefore-9780199384655-e-469>, (06/2020).
Rattu, Roberto. 2017. *Repertorio plurilingue e variazione linguistica a Cagliari: i quartieri di Castello, Marina, Villanova, Stampace, Bonaria e Monte Urpinu*. Ph.D. dissertation, Università di Cagliari.
Rindler Schjerve, Rosita. 1993. "Sardinian: Italian." In *Bilingualism and Linguistic Conflict in Romance,* ed. by Rebecca Posner, and J.N. Green, 271-294. Berlin-New York: De Gruyter.
Rindler Schjerve, Rosita. 1998. "Codeswitching as an indicator for language shift? Evidence from Sardinian-Italian bilingualism." In *Code switching worldwide*, ed. by Rodolfo Jacobson, 221-247. Berlin: Mouton De Gruyter.
Rindler Schjerve, Rosita. 2000. "Inventario analitico delle attuali trasformazioni del sardo." *Revista de Filología Románica* 17: 229-246.
Rindler Schjerve, Rosita. 2003. "Sardinian between maintenance and change." In *Aspects of multilingualism in European language history*, ed. by Kurt Braunmüller, and Gisella Ferraresi, 235-260. Amsterdam: John Benjamins.
Rindler Schjerve, Rosita. 2017. "Sociolinguistica e vitalità del sardo." In *Manuale di Linguistica Sarda*, ed. by Eduardo Blasco Ferrer, Peter Koch, and Daniela Marzo, 31-44. Berlin/New York: De Gruyter.
Salminen, Tapani. 2007. "Endangered Languages in Europe." In *Language Diversity Endangered*, (Trends in linguistics. Studies and monographs, 181), ed. by Matthias Brenzinger, 205-232. Berlin: Mouton de Gruyter.
Savoia, Leonardo M. 2001. "La legge 482 sulle minoranze linguistiche storiche. Le lingue di minoranza e le varietà non standard in Italia." *Rivista italiana di dialettologia* 25: 7-50.
Tagliavini, Carlo. 1982. *Le origini delle lingue neolatine*. Bologna: Pàtron.
Toso, Fiorenzo. 2012. *La Sardegna che non parla sardo: profilo storico e linguistico delle varietà alloglotte gallurese, sassarese, maddalenino, algherese, tabarchino*. Cagliari: CUEC.

Toso, Fiorenzo. 2017. "Superstrato toscano e ligure." In *Manuale di Linguistica Sarda*, ed. by Eduardo Blasco Ferrer, Peter Koch, and Daniela Marzo, 137-149. Berlin-New York: De Gruyter.
Toso, Fiorenzo. 2019. "Alloglossie e minoranze linguistiche in Italia. Problemi terminologici e forme della tutela." *Estudis romànics* 41: 401-422, DOI: 10.2436/20.2500.01.276.
Virdis, Maurizio. 1978. *Fonetica del dialetto sardo campidanese*. Cagliari: Ed. Della Torre.
Virdis, Maurizio. 1988. "Sardisch: Areallinguistik." In *Lexikon der Romanistischen Linguistik. IV. Italienisch, Korsisch, Sardisch*, ed. by Günter Holtus, Michel Metzeltin and Christian Schmitt, 897-913. Tübingen: Max Niemeyer Verlag.
Virdis, Maurizio. 2017. "Superstrato spagnolo." In *Manuale di Linguistica Sarda*, ed. by Eduardo Blasco Ferrer, Peter Koch, and Daniela Marzo, 168-183. Berlin-New York: De Gruyter.
Wagner, M.L. 1928. "La stratificazione del lessico sardo." *Revue de Linguistique Romane*, 13/14: 1-61.
Wagner, M.L. 1984. *Fonetica storica del Sardo*, ed. by Giulio Paulis. Cagliari: Trois. (Or. 1941. *Historische Lautlehre des Sardischen*. Halle: Niemeyer).
Wagner, M.L. 1997. *La lingua sarda. Storia spirito e forma*, ed. by Giulio Paulis. Nuoro: Ilisso. (Or. 1950. *La lingua sarda. Storia spirito e forma*. Bern: Francke).