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► **To cite this version:**

Philippe Boula de Mareüil, Eric Bilinski, Frédéric Vernier, Valentina de Iacovo, Antonio Romano. For a mapping of the languages/dialects of Italy and regional varieties of Italian. André Thibault, Mathieu Avanzi, Nicolas Lo Vecchio, Alice Millour. *New Ways of Analyzing Dialectal Variation*, Éditions de linguistique et de philologie, pp.267-288, 2021. hal-03318939

**HAL Id: hal-03318939**

**<https://hal.science/hal-03318939>**

Submitted on 11 Aug 2021

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# For a mapping of the languages/dialects of Italy and regional varieties of Italian

## Introduction

Unified late, Italy is well-known for its great linguistic diversity. This diversity has been thoroughly covered by linguistic atlases such as the Italian-Swiss Atlas (Jaberg/Jud 1928-1940), the Italian Linguistic Atlas (Bartoli *et al.* 1995), or the linguistic atlases of the Dolomites (Goebel 2003, 2012), Sicily (Sottile 2018), Calabria (Krefeld 2019) and the Piedmont mountains (Cugno/Cusan 2019), for which projects have undertaken to digitise a portion of the material (Tisato 2010)<sup>1</sup>. In other countries, too, various projects have aimed to make the dialect data collected in the 20th century more widely accessible: in France (Goebel 2002; Olivieri *et al.* 2017), Germany (Mutter/Wiatr 2018) and Switzerland (Scherrer *et al.* 2019). A third generation of atlases exploits the new possibilities offered by crowdsourcing, via thousands of informants using smartphone applications and/or social networks, to map regional variation in languages like Italian (Castellarin/Tosques 2014), French (Avanzi 2017, 2019; Glikman *et al.* 2018), German (Möller/Elspeß 2015; Leemann *et al.* 2015; Purschke/Hovy 2019) or English (Leemann *et al.* 2018). However, speaking atlases such as those for the Francoprovençal area (Médélice 2008; Glaser/Loporcaro 2012; Müller *et al.* 2001)<sup>2</sup> are rare. When they include audio, they are mainly limited to isolated words, following an onomasiological and/or semasiological approach (Tisato *et al.* 2013).

In addition, several initiatives have arisen independently that allow listeners to hear the same story spoken in languages or dialects from Norway (Almberg/Skarbø 2002), Italy (Romano 2016)<sup>3</sup> and France (Boula de Mareüil *et al.* 2017, 2018): namely, one of Aesop's fables, which has been used for over a century by the International Phonetic Association (IPA) to describe many languages of the world – following a long dialectological tradition of translating the parable of the Prodigal Son. In 2018, the latter two projects converged to integrate their data into one common mapping (Boula de Mareüil *et al.* 2019) on the same website, <<https://atlas.limsi.fr>>. It has recently been enriched with an interactive map of Italy on which users can click

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<sup>1</sup> <http://www3.pd.istc.cnr.it/navigais-web/>

<sup>2</sup> <http://www2.hu-berlin.de/vivaldi/>

<sup>3</sup> [http://www.lfsag.unito.it/ark/trm\\_index.html](http://www.lfsag.unito.it/ark/trm_index.html)

100 survey points to hear (and read) the IPA text in almost 30 languages/dialects. We know that the distinction between languages and dialects is more sociohistorical than strictly linguistic. Italian dialects are not corrupted forms of the Italian language, but have a different sociolinguistic role, as they are most often limited to family use. Also, in reaction to a period of great contempt for dialects and due to the fact that the European Union only recognises lesser-used minority or regional languages (Viaut / Pascaud 2017), some people claim that Ligurian, Sicilian, Neapolitan, etc. are genuine languages. We will not get into this endless debate.

The second objective of this work is to document regional varieties of Italian rather than traditional dialects. The Internet is used not only to disseminate research results but also to collect data: a crowdsourcing-based methodology has enabled us to gather information on pronunciation variants in regional Italian. A list of words with potentially region-dependent pronunciation was drawn up, and the resulting information was mapped in the same way as for the French language, via the Cartopho website (Boula de Mareüil *et al.* 2016). This allows users to readily observe how mid vowels (/E/ or /O/) are more or less open and how consonants are more or less geminated, voiced, etc. The motivation behind this work is to update the traditional dialectological atlases drawing on previous studies, such as the *Atlas der deutschen Alltagssprache* (AdA) developed for German (Elspaß 2007).

In this article, we will present the material collected and the protocol adopted to map the dialects/languages of Italy, before focusing on the examples of Ligurian (in the north of Italy) and three dialects from the south of Italy, which we will briefly analyse from the point of view of pronunciation and morphosyntax. In the second part, we will comment on the initial results obtained on regional varieties of Italian.

## 1. Speaking atlas of the languages/dialects of Italy

### 1.1. Material, protocol and mapping

Aesop's fable "The North Wind and the Sun" (about one minute of speech) was recorded in 20 Italo-Romance varieties, in varieties of Occitan, Francoprovençal and Catalan, in Sardinian, Friulian and Ladin, as well as in non-Romance varieties like Griko, Arbëresh, Walser (Alemannic) and South Tyrolean (Austro-Bavarian). The Italo-Romance languages or dialects for which we have at least one transcribed recording are: Piedmontese, Ligurian, Lombard, Emilian-Romagnol, Venetian, Tuscan, Marchigiano, Romanesco, Umbrian, Sabine, Abruzzese, Molisan, Apulian, Salentine, Calabrian, Sicilian, Lucanian, Neapolitan, Gallurese-Sassarese and Corsican. In the legend, they were grouped as northern, central and southern dialects. One speaker per locality was selected, with informants from varied socioprofessional backgrounds and ages. Most recordings were made in a sound-treated booth at the University of Turin.

A common protocol was applied in which speakers were asked to translate the fable into their regional language/dialect, either directly with the Italian text in front of them or reading a text they had written. The orthographic transcriptions were provided by the speakers themselves and checked by linguists. A spelling system inspired by German was used for Germanic dialects, the Conflans system for Francoprovençal (Martin 2011), A. Genre’s (1997) spelling for Occitan, the Catalan standard for the recording of Alghero (Sardinia), the unified spellings of Friulian (Madriz / Roseano 2006), and the so-called official Genoese spelling (Bampi 2009); see below. Yet we often had to deal with personal or spontaneous spelling in the Italo-Romance domain. Sometimes, the productions moved away from literal translations to get closer to oral traditions – different translation strategies also testifying to richness and diversity.

In addition to the borders of administrative regions, we showed the limits between linguistic domains, drawing inspiration from the classification of Pellegrini (1977), with particular signage for non-Romance languages (see Figure 1). A technique was designed using a Voronoi diagram around the survey points categorised with our different labels, to draw the limits of the linguistic areas and consequently colour them. Since, with 100 survey points, this technique results in rather chiselled maps, we developed a mechanism to automatically add intermediate points of the same area near linguistic borders in such a way as to limit this undesirable effect without compromising the accuracy of the data. For this operation, we used a moderate Lloyd’s relaxation, which takes into account the original and intermediate points. This new technique generates “choropleth” maps like those of Cartopho (Boula de MareÛil et al. 2016) and the ones we will describe in section 2. Moreover, options allow users to choose whether to display the seas, the recordings in Corsica and one in Istria, the legend, administrative regions, etc. Users can also zoom in on northern and southern Italy.

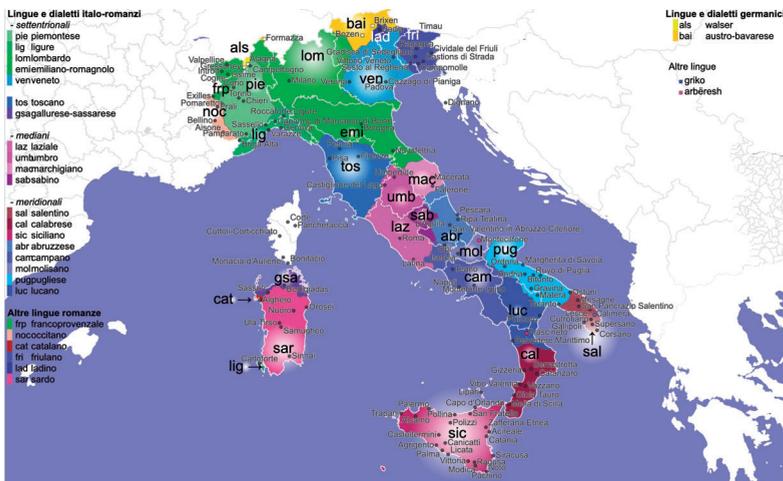


Figure 1. Linguistic map of Italy with the survey points displayed in <https://atlas.limsi.fr/?tab=it>.

1.2. Focus on Ligurian dialects

The data collected offers the possibility of carrying out comparative linguistic analyses. Let us first focus on Ligurian dialects – in green on our map, as with other Gallo-Italic varieties. Ligurian is particularly interesting insofar as it is spoken – beyond Liguria and peripheral areas in France and Monaco (Frolla 1974, 1975; Azaretti 1978; Dalbera 2002, 2013) – in Sardinia: since the 18th century, a variety of Ligurian has indeed been spoken in Carloforte, in an archipelago of southern Sardinia where an old Genoese colony took refuge after settling on the islet of Tabarka, near the Tunisian coast (Toso 2004, 2018). Aesop’s fable was translated and recorded in seven Ligurian varieties: on the coast (in Genoa and Varazze), in the countryside (in Sassello), in the peripheral areas of Piedmont (in Capanne di Marcarolo di Bosio and Roccaforte Ligure) including in Brigasc (in Briga Alta), and in the Tabarchino dialect (in Carloforte). The initial Italian text (after the title, which not all speakers read) begins as follows: “La tramontana e il sole discutevano un giorno su chi dei due fosse il più forte” (‘The North Wind and the Sun were disputing which was the stronger’). Table 1 reports the transcription of this first sentence in the seven Ligurian varieties recorded in Italy, using an orthography inspired by the Genoese *grafîa ofîçiâ* (Bampi 2009) for the recordings from the coast, and more or less individual spellings for the other survey points (Romano *et al.* 2010).

Locality	Transcription
Genoa	Un giorno o vento de tramontaña e o sô se parlavan de chi o fîse o ciù fôrte
Varazze	‘A tramontann-a e o sô raxonâvan ùn giorno in scë chi di duì o fôise o ciù forte
Sassello	Un dì, ei ventu d’tramuntana e ei sù, i parlâvan d’chi fusse u ciù forte
Capanne	‘Na zgiurnà u vèntu de tramuntan-a e u su descütèiven chi di duì l’èa ciù fôrte
Roccaforte Ligure	‘Na giurná-a èr vèntu de tramontan-na e u su i descörivun sù chi de luř duj’ouvisse u ciù fôrte
Briga Alta	Ën dì a binda e ‘r sù i s’ son méssi a descüttu sù chi di düi ef fusse ciù fôrte
Carloforte	In giurnu, a tramuntaña e u sù s’en missi à sciarìò perché ün u l’uàiva ésse ciù fôrte

Table 1. First line of the fable “The North Wind and the Sun” in seven Ligurian varieties.

The lack of unity between the writing systems is striking – for example, the /u/ phoneme takes the Genoese-inspired <o> grapheme for the coastal varieties and the <u> grapheme elsewhere. This heterogeneity, however, does not prevent us from observing a phonological feature that is typical of all Ligurian dialects, namely the palatalisation of the Latin cluster -PL- in /tʃ/: thus, PLUS it. ‘più’ > /tʃu/ or /tʃy/, transcribed *ciù*. Another characteristic phonological feature in Liguria (including the Tabarchino dialect) is the dropping of intervocalic *r*, with forms such as *ea*, *èa*, *éa* or *èa* (it. ‘era’)

for ERAT ‘s/he was’. This trait, however, is not found in Brigasc. In this archaic variety, also, the diphthong /au/ (from the velarisation of a Latin L) has been simplified in Liguria (e.g., *cado*, ‘warm’ in Genoa, it. ‘caldo’). Ligurian is known to have a distinctive vowel quantity (e.g. /da:/ ‘to give’ vs. /da/ ‘(s)he gives’ (Filipponio / Garassino, 2019). From our data, however, it is difficult to determine where vowel quantity is distinctive – we cannot deny some influence of Italian.

At the morphological level, we find quite diverse determiner systems: in the masculine, for example, the *ou* of the “standard” (‘the’, it. ‘il/lo’) alternates with *ei* and *er/èr* in Sassello and Roccaforte Ligure, whereas we have *’f/èl* in Briga Alta. Regarding verb conjugation, let us just note that the imperfect tends to display a diphthong (e.g., *strinzeiva* ‘tightened’ in Genoa, it. ‘stringeva’). In addition, the past participle of the first group, simplified in *-à* in Brigasc, is more or less diphthongised in *-aul/-uul/-òu* in the other varieties (e.g., *cominsòu*, ‘begun’, it. ‘cominciato’). As for the infinitives, they do not exhibit a final *-re*, whatever the variety: e.g., *sciuscîa* ‘to blow’, *perde* ‘to lose’ (it. ‘perdere’).

At the syntactic level, subject doubling by a proclitic pronoun, at least in the third person singular, is observed everywhere in Ligurian, being more or less obligatory. The pronoun is *ou* in the masculine (followed or replaced by *l’* before a vowel): we thus have *chi o fise* in Genoese, corresponding to the Italian *chi fosse* ‘who was’. In Italo-Romance (Venetian), Gallo-Romance or Rheto-Romance languages of northern Italy, similar phenomena are observed, with *â/a* (*al* before a vowel) in the Occitan of the Piedmont valleys (Genre 1997; Benincà 2011), *al* in Friulian (Madriz / Roseano 2006). Even though all these languages or dialects are, of course, part of the same family, we could talk about some sort of a ‘Sprachbund’ (Troubetzkoy 1958) in northern Italy which stops at the French border with Royasc (Sibille 2015; Boula de MareÛil et al. 2019).

At the semantic level, finally, it is interesting to note that the traveller of the fable may become a *pilgrin* and that the cloak he is wrapped in becomes a *pellegrinn-a* /pelle’grin̩a/ in Varazze. These translation issues, concerning lexical choices (similarly for the name of the wind), were opportunities for very enriching discussions with the speakers we recorded. Let us now move on to three southern dialects: Salentine, Calabrian and Apulian.

### 1.3. Focus on Salentine dialects

In the Salentine area, eight survey points were mapped: Ostuni, Mesagne, San Pancrazio Salentino, Lecce, Cutrofiano, Gallipoli, Supersano, Corsano. These constitute a sample of a wider set that was recently analysed in further detail in Romano (2019), the source of the transcriptions reported in Table 2. These transcriptions reflect the pronunciation better than the ones for Ligurian. The speakers are also younger than the Ligurians, most of them being students.

At the phonetic level, leaving aside the variable presence of cacuminalisation (which is known to affect central Salentine dialects only, with effects of censorship or exaggeration in younger speakers), the first word displaying clear dialectal differentiation is *sole* ‘sun’: in all southern Salentine varieties, the pronunciations are in [u], whereas from Ostuni to Gallipoli, along the Ionic arc, they are in [ɔ] – a distinction that has been extensively studied (Mancarella 1976, among others). The final (atonic) vowel of this word coming from *sōLE(M)* is also interesting: *u* in Ostuni, *i* in the whole Brindisi area and Manduria, and *e* in the southeast of the peninsula. Such alternations are also found in verbal forms, like those that come from *LĪTĪGĀRE* ‘to quarrel’.

Locality	Translation
Ostuni	Nu ggiurne la tramendana e llu solu se šta' arrajàvene a cce' de li dō era lu cchiù fforte
Mesagne	Nu ggiurnu la tramuntana e llu soli si šta' llicitàunu a cci' ti tutt'e ddoi era lu cchiù fforti
San Pancrazio Salentino	Nu ggiurnu la tramuntana e llu sulì si sta' llicitàunu a cci' ti tutti e ddoi era lu cchiù fforti
Lecce	Nu ggiurnu la ṭramuntana e llu sule se sta' llicitàvanu a ccine te tutti e ddoi era cchiù fforte
Cutrofiano	Nu ggiurnu la tramuntana e llu sule se sta' llitigàvanu a ccine te tutti e ddoi era lu cchiù fforte
Gallipoli	Nu ggiurnu a ṭramuntana e llu sole sta sse vattiene pe' ccinca era cchiù fforte tra tutti toi
Supersano	Nu ggiurnu a ṭramuntana e llu sule sta sse llicitàune pe' cci' te tutti toi era u cchiù forte
Corsano	Nu ggiurnu la tramuntana e llu sule aci se llicitàvane pe' cci' de tutti toi era lu cchiù forte

Table 2. First line of the fable “The North Wind and the Sun” in eight Salentine varieties.

As for consonants, we can limit ourselves to finding confirmation for a couple of phenomena repeatedly detected as dialectologically distinctive (Romano 2015): the total conservation/assimilation of *-ND-* (in *QUANDO* ‘when’) and the treatment of the syllable-final *L* (in *CAL(I)DU* ‘hot’). The samples also allow us to observe the diffusion of the depalatalisation of *-skj-* through the presence of *schiettare/šcattare/scattare* ‘to be boiling’, and the dropping of the intervocalic *-v-* in examples like *rrivavalrriava/rria* ‘was coming’. Let us complete these observations on the segmental level by noting three other rather common phenomena, whose areal extension still remains to be defined: (1) the merger of some voiced/voiceless stop consonants, which results in the massive emergence of *te* for *DE* ‘of’, *toi* for *DUO* ‘two’, *càutu* for *CAL(I)DU* ‘hot’; (2) the lenition of /ʃ/ in *face* ‘makes’ (Fanciullo 1976); (3) the affrication of *s* in *-rs-* (e.g., *perselperze* ‘lost’). Finally, the text enables us to observe numerous contexts of external sandhi, which – together with other phenomena such as apheresis, paragoge,

pregemination/prenasalisation (e.g., *chhiù/cchiù* ‘more’, corresponding to the Ligurian *ciù*) – contribute to documenting cases of assimilation and cogemination (*raddoppiamento fonosintattico*; see below).

At the morphosyntactic level, it turns out that southern dialects use the preterit more than Ligurian (for instance) does, and that the verbal endings of the preterit in the third person singular are *-au* in the more central dialects vs. *-ó* in the more peripheral ones. The latter distinction is fundamental (Mancarella 1981), as is the distinction between the pronoun forms (e.g., *ci/ce* vs. *cinca* ‘who’). Distinctions in the allomorphs of the articles (e.g., *(l)lu* ‘the’) and the anaphoric pronouns are to be noted: they derive from the application of phonosyntactic rules which are local forms of the so-called *Lex Porena*, for simplifications such as *de la > da > ta* ‘of the’. At the syntactic level, too, a double system of complementisers exists, *cu/ca* ‘that/who’ (Ledgeway 2011): the form *cu* triggers the cogemination of the following consonant, as in *cu ttira* ‘who pools’, whereas the form *ca* does not, as exemplified by *ca se lleau* ‘who took off’ (in Lecce and Supersano). The areal distinctions associated with the use of *se šta* ‘themselves are/were’ vs. *sta’ sse* ‘are/were themselves’ vs. *aci se* ‘are/were-that... themselves’ (i.e., with the reflexive before or after the copula) should be investigated in progressive periphrases, as well as the modality of epistemic periphrases (e.g., *ia (bb)èssere* vs. *era bbèssere* ‘must be’): a more careful study should be conducted on this issue.

At the lexical level, different translation choices stand out regarding certain concepts or referents in the story. For the concept of dispute in the first sentence, we observe (*a*)*rrajà* (in Ostuni), *liticare* (exhibiting various conjugated forms, each time with a well-audible initial geminate) and *vattire* (in Gallipoli). Similarly, expressing the concept of agreement oscillates between quite widespread forms of *accurdare/ncurdare* and *ggiustare* ‘to adjust’ (in San Pancrazio Salentino). As for the concept of starting, the dense semantic field allows variation from *zzicare/zzaccare* to (*c*)*cumenzare/cuminciare* (the latter being closer to Italian). In contrast, for the traveller, the possibilities are reduced to forms of *cristianu* (‘person’, literally ‘Christian’ in the masculine or, more rarely, in the feminine), which – it is worth noting – are commonly used in Salento. Whereas the traveller’s cloak is designated as *ggiacca/ggiaccu* or (*c*)*cappottu* independently of any geographical conditioning or apparently the mastery of different registers, the preferences for *stringere/copirsi* ‘to tighten/cover oneself’ show an areal diffusion of forms related to the concept of tightly cloaking oneself ((*c*)*cuciatu/mmuciatu/mbuciatu*) avoided by the more northern speakers, who tend to prefer *cuvertu* ‘covered’) and others who, after using *ggiacca/ggiaccu* for the cloak, then make use of *ncapputtatu/ncappuciatu*.

#### 1.4. Focus on Calabrian dialects

In Calabria, seven versions of the fable were collected. For a description of this sample, we may refer to several sources that discussed the isoglosses and layers of historical sedimentation that characterise this area (Rohlf 1925, 1972; Falcone 1976;

Trumper 1997; Trumper / Maddalon 1988, among others). In particular, it seems useful to locate the survey points reported in Table 3 in the five dialectal groups outlined by Trumper and Maddalon (1988), the first group of which straddles Calabria and Lucania: Serrastretta is on the lower limit of group 2, whereas Gizzeria and Catanzaro are on the lower limit of group 3; Vibo Valentia and Vazzano are on the western border of group 4, but Vibo is more properly located in the northern end of group 5; only Gioia Tauro and Melia di Scilla are fully in group 5.

At the phonetic level, the dialects of groups 2 and 4 with diphthongised ě and ő stand out from the dialects of groups 3 and 5, in examples such as *vientu vs. ventu* ‘wind’ and *ncuollu/in cuoju vs. ncoddhu* ‘wrapped’ (literally, over his/her neck or shoulders). Everywhere in these areas, we notice  $\bar{o} > u$  in examples such as *sule/sula/suli* ‘sun’, as well as  $\bar{e} > i$  in other contexts: for instance, the different outcomes for the final unstressed vowel reveal a progressive change towards Sicilian forms like *sule* → *suli* ‘sun’ – for a general reference, see Devoto/Giacomelli (1972). Other developments in this direction are offered by: (1) cacuminalisation as in *mantellu/manteddu/mantedu/manteddhu* ‘cloak’ in areas delimited by complex isoglosses, which correspond to *cuollu/coddhu/coddu/cuoju* ‘wrapped’ and *illa/iddha/idda/ida/ija* ‘her’; (2) the *f* which sounds like a bilabial approximant with characteristics of laryngeality (and palatality in palatal contexts) on the edge of the isthmus of Catanzaro or as an aspirate in Catanzaro proper: e.g., *a (f)horza sua* ‘his/her strength’ (Radtke 1988; Trumper 1997; Fanciullo 1997a). Also, we observe a general (albeit not regular) tendency towards apheresis in the north-south progression from *arrivare/a/i* to *rrivari* and finally to *rruari* ‘to arrive’, with a loss of the entire prefix, and *s’arrendiu*, which, in Melia di Scilla, is reduced to *si rrendiu* ‘surrendered’.

At the morphological level, allomorphs of articles and prepositions are frequent, leading to a loss of certain segments, obeying morphosyntactic rules: for instance, forms like *a/lla* or *u/llu* ‘to the’ and *el’i/di/ri/d* ‘of the’ are noticeable. The use of a third-person dative clitic is also noticeable in forms of an original locative: *(c/n)c(eli)*, with for instance *nci* in the Reggio region of group 5, standing for ‘to him’. Although the data allow us to detail only a fragment of the complex morphology of possessives, their different locations with respect to nouns are worth contemplating in examples such as *a forza sua* (literally, ‘the strength his/her’) in the north of Calabria *vs.* *a so forza* (‘the his/her strength’, a widespread model in Sicily) in the south.

Regarding the imperfect verb forms, the first conjugation in *-ava* is remarkably uniform (e.g., *hjuffhiava, minava, çuçava, sciusciaiva* ‘(s/he) blew’) compared to the third conjugation, which gives *-ìa* in the northernmost dialects (*cogghìa* and *stringìa* ‘(s/he) tightened’) or *-iva* (*stringiva*) in Gioia Tauro and Melia di Scilla. The imperfect is used for the conditional, but the substitution differs depending on the context: for ‘would have been’ in the dialects of groups 3 to 5, we have *era* ‘was’ – in Serrastretta, we notice *fhorra statu/fhorra rescitu* ‘would have succeeded’ – whereas in Catanzaro an epistemic periphrasis resurfaces: *avia èssere* ‘had to be’ (see §1.3). For the preterit, with the exception of the Gizzeria speaker who preferred an analytical

form for the verb corresponding to ‘(they) saw’ and other verbs, we have *videru* in the north but *vittaru/vitteru/vittiru* in the south. Finally, in addition to the connectors *ca* and *chi* in the expressions *se mìseru d’accuordu ca* ‘(they) agreed that’, *decidiru ca* and *decidiru chi* ‘(they) decided that’ or *ricanusciù ca* and *eppi a rricanusciri chi* ‘recognised that’, a second complementiser appears regularly, avoiding infinitives in the subordinates in the expressions ‘to succeed in’, ‘to oblige to’, etc.: in the case of ‘to make him take off’, for instance, ‘*u, mu, ma* and *mi* ‘that’ surface (Trumper / Rizzi 1985; Fanciullo 1997a).

Locality	Translation
Serrastretta	Nu juornu u vientu e tramuntana e llu sule arraggiunàvanu supra chine de i dui era llu cchju fforte
Gizzeria	Nu jornu, u ventu ‘e tramuntana e u sulì parràvanu a cchi n’era u cchju fforta
Catanzaro	Nu jornu u ventu ‘e tramuntana e u sula dišcutianu subba quala dei dui husta u cchju fforta
Vibo Valentia	Nu juornu u vientu ‘i tramuntana e u sulì s’acchjappàvanu pe ccu di dui era u cchju fforti
Vazzano	Nu juornu u vientu ‘i tramontana e u sulì s’acchjappavanu pe ccu di due era u cchju fforta
Gioia Tauro	Nu jornu u ventu ‘i tramuntana e u sulì si sciarriaru su ccu era u cchiù fforti
Melia di Scilla	Nu jornu u ventu ‘i tramontana e u sulì si sciarriàrunu su ccu estì u cchiù fforti

Table 3. First line of the fable “The North Wind and the Sun” in seven Calabrian varieties.

At the lexical level, from north to south, various nuances of the verbs used for ‘to argue, to dispute’ (*arraggiunare, parrare, discutire, acchjapparsi, sciarriare...*) emerge in contrast to the only form for ‘to take off’ → *cacciarsi*. The ‘traveller’ is a *passanteli* ‘passer-by’, a *perzuna* ‘person’ or a *cristianu* ‘Christian’ (see §1.3), but then becomes an *òminu* or (*u*)*omu* ‘a man’. As compared to the other dialects, the choices for ‘cloak’ are more regular: they only show morphological or phonetic variations (*mantu / mantellu / manteddu / mantedu / manteddhu*). Even ‘to begin’ is rendered with two types (northern *ncignò / ncignau* vs. southern *cuminciau*), while ‘to give up’ oscillates between *si ncriscìu / s’arrendiù* ‘surrendered’ and *si dezza ppe vvintu* ‘was defeated’, an Italian calque preferred by informants from Gizzeria and Catanzaro. For ‘hot’, apart from the latter two survey points, which use *calura* ‘heat’, we note *caudu* with velarisation of L to the north, and *caddu* with assimilation to the south.

### 1.5. Focus on Apulian dialects

In the area of Apulian-type dialects, seven survey points were considered: Ortona, Margherita di Savoia, Andria, Ruvo di Puglia, Bitonto, Gravina and Matera (see Table 4).

At the phonetic level, Apulian dialects, as well as the eastern dialects of Lucania (here from Matera), are upper-southern Italo-Romance dialects whose “unstressed vowel systems are strongly reduced” (Loporcaro 1997, 341)<sup>4</sup>. The usual outcome is a schwa-like vowel, here transcribed <ë>, which can be deleted under certain conditions (Romano 2020)<sup>5</sup>. This deletion is associated with considerable shifts in vowel quality and lengthening phenomena, which frequently cause vowel diphthongisation and contribute to defining specific rhythmic alterations (Avolio 1995; Romano 2013). With regard to consonants, the voicing of postnasal unvoiced plosives and the assimilation of voiced stops in the same position clearly emerge as a common feature, which is one of the best-known upper-southern characteristics (Avolio 1995; Pellegrini 1977). Let us note *quannë* ‘when’, *splënnë* ‘to shine’ and *arrënnë* ‘to surrender’, among forms with an original -ND-, and *tramëndànë* ‘north wind’, *passandë* ‘passer-by’ and *mandëllë* ‘cloak’, among forms that originally had -NT-. As for the spread of the change -LL-> -dd-, it is very irregular, going from the south up to Margherita di Savoia for some words, whereas MANTELLUM ‘cloak’, for instance (which probably penetrated in later periods or, in any case, followed the model of dialects that have retained -ll-), features -dd- only in Andria (*mantiddë*) and Bitonto (*mantiddë*) in our samples.

At the morphological level, it is striking how gender oppositions were redefined on the basis of substitute morphs (generated by metaphony), considering the loss of phonological contrast in final vowels: see, for instance, the feminine *na mandëllë* in Margherita. In this regard, the presence of syntactic gemination in forms such as ‘*u ccallë*’ ‘the hot/heat’ shows the survival of neuter, as in Neapolitan and possibly other southern dialects (Fanciullo 2001).. Another notable feature is the exchange between the prepositions ‘for’ (it. *per*) and ‘with’ (it. *con*): e.g., *u vindë chë pprëmë* (literally, ‘the wind with first’ in Margherita) and *nu passandë pë nu mantiddë* (literally, ‘a passer-by by a cloak’) in Andria. A division between southern and more eastern dialects towards a central model is also found in the third-person oblique clitic; in the translations of ‘to make him’, compare the southern forms *fangilë* / *fangë* with continuers of (n)ci (see §1.4) vs. more northern forms of the type *fallë* / *fëllëd* with continuers of ÌLLE. To translate ‘her’, on the other hand, the speaker from Ortona used *ëssë* (< ÌPSA(M)), a solution of the Neapolitan type departing from the other dialects, which used *jëddë* / *jeddë* / *jëddë* / *jáddë* (< ÌLLA(M)).

<sup>4</sup> “The eastern Lucanian dialects are a continuation of those of Puglia” (Fanciullo 1997b, 349). Other contributions that help to contextualise these dialects can be found therein.

<sup>5</sup> Such vowels are often omitted by contemporary authors and in impressionistic accounts, even when they are stressed, at which point their quality moves towards the middle of the vowel space (Tortorelli 1981). In some cases, verified spectrographically, we also left sonorants, nasal alveolars especially, in syllable nucleus positions, possibly resulting in complex clusters (e.g., *accumnzò* ‘began’, *strngiáj* ‘tightened’ in Ruvo di Puglia). These phenomena contribute to a relocation of these dialects into the stress-timed rhythmic class, as originally discussed by Schmid (2004).

Locality	Translation
Ordonà	Nu jurnë dë vindë, la tramondënë e u solë dëscutëvënë sò' cchi dë i dujë fòss'u cchiù ffortë
Margherita di Savoia	Nu jurnë 'a tramundán'e u solë arraggiunévenë sop'a ccudë ca jer'u cchiù ffortë
Andria	Na dó u vind' dë tramundàn'e u saul stèven' a pparlà'dë cà je(r) u cchiù ffortë
Ruvo di Puglia	Na dej' u vind' dë tramndànë e u saulë stain'a pparlà dë ci tra lor e ddiu fuass' u cchiù fuartë
Bitonto	La tramëndeunë e u soulë na dojë stèvn'a pparlewë dë ci jeir'u cchiù ffortë
Gravina	Na dî nu vindë dë tramundënë e u soulë stain'a parlë dë ci dë lourë jër'u cchiù ffortë
Matera	Na dë, u vënd' d' tramndén' é u saul' fëndcávn' tra llòr' é llòrë é nnën dzë mëttevñ' d'acchörd'a ccë jër u chjë fför'

Table 4. First line of the fable “The North Wind and the Sun” in seven Apulian varieties.

Compared to the samples discussed above (especially in §1.3), all these dialects exhibit a frequent use of infinitives, always rigorously in apocopate forms (e.g., *arrëvè/arrué/arrëvà* ‘to arrive’ or *luè/llëvâ* ‘to take off’). The popularity of the preterit for narratives is also confirmed, possibly with a verb reclassification (e.g., *accumënzettë* ‘(s/he) began’, *convëngéttë* ‘(s/he) converged’ in Margherita di Savoia; see *arrënnéttë* ‘(s/he) surrendered’ in Gravina). Moreover, the verbal endings of the indicative imperfect of the third person singular are homologated to those of *suffiajë* ‘(s/he) blew’ in the case of *avajë* ‘(s/he) had’, *riusciajë* ‘(s/he) succeeded’, *strëngiajë* ‘(s/he) tightened’ in Ruvo di Puglia and Gravina, with I/E > [a(i)], as in *tënavë* ‘kept’ in Matera.

At the lexical level, the dialects from the area analysed still keep a certain autonomy with respect to the Neapolitan influence, which affected many upper-southern dialects (Avolio 1995; Aprile *et al.* 2002). The dialects from the Foggia area (and to a lesser extent those from Murge, partly in Lucania) partially do not escape this influence. For example, the introductory expression ‘one day’ is rendered by *nu jurnë* in Ordonà, but regularly by continuers of DIË(M) elsewhere: *na dó*, *na dej'*, *na dojë*, *na dî*, *na dë*. For VËNTU(M) ‘wind’, except in Matera, which has ‘*u vëndë*’, a constant is ‘*u vindë*’ (which in the sample from Andria contrasts with *vëndë* ‘won’, testifying to a diachronic exchange between [i] and [e])<sup>6</sup>. Solutions vary to translate ‘to take off’, with the use of the type ‘to throw’ (*vutté*, *mëná* / *mëná*), but for ‘to blow’ the choices are limited to forms similar to the Italian *soffiare*: *suffiè* / *sëffié* or even *soffiewë*, in Bitonto, with a paragoge that to some extent restores an oxytone pattern. A single lexical choice

<sup>6</sup> Actually, *i* rarely retains a high-front quality (Romano 2013): in our data, only Ordonà and Matera have *primë* for ‘first’. On the other hand, we have high [e]-like sounds from an original A in *tramëndënë* (which is even found as *tramundënë* or *tramëndeunë*) ‘north wind’ or *crëst-jënë* ‘christian’. The dialects of this area are inclined to favour vowel differentiation (and in many cases raising) in the original open syllable (Carosella 2005).

is also present for the concept ‘to begin’, with, from north to south, forms such as *accumënzè* / *accumënzett* / *acchëmënzé* / *acchëmënzoj* / *accumnzò* / *acchëmëndzò*; beyond the different graphic transcriptions, the tendency towards paragoge in Bitonto (*acchëmënzøjë*) is also confirmed.

### 1.6. Discussion

This description of a dialect from northern Italy and three dialects from southern Italy allows us to appreciate what separates them from “standard” Italian, which the dialects of central Italy are closer to. We are aware that the concept of “standard” (or “neostandard”) Italian is challenging (Berruto 1987). It is generally accepted that the prestige norm for Italian comes from Tuscan, for phonology (and morphosyntax), because this variety has phonemic oppositions ignored elsewhere. But this does not apply to the level of phonetic realisations, which can be stigmatised in the Tuscan accent (Canepari 2018, 233). We will come back to this in the next section.

The goal of the speaking atlas described in this section was to link regional languages and dialects with modernity through an attractive website and to revitalise our linguistic heritage – at least to acknowledge it as a vector of creativity, for lack of being able to counteract the decline in the use of minority languages. We got in touch with additional speakers to fill in gaps such as the lack of recording in the Slavic dialects spoken in Italy (Slovenian and Croatian dialects). In line with the following section, we are planning to launch an email campaign and hope to achieve the success of the *Speaking atlas of the regional languages of France* (with over 700,000 visits), to which this site has been linked up.

## 2. Pronunciation variants in regional Italian

A crowdsourcing methodology (Eskénazi *et al.* 2013) coupled with cartographic visualisation tools may also be used to map regional variation in Italian, in particular pronunciation variants. In the words reported in Table 5, for example, initial vowels may be open-mid or close-mid and consonant articulation can change depending on the region (Canepari 2018). Other sources of diatopic (i.e., geographic) variation have been identified, such as the French-like /ʁ/ (*r francese*) in Piedmont (Romano 2001) and the *gorgia toscana* (‘Tuscan throat’) – exemplified by pronunciations such as [la hõha hõla] for *la Coca-Cola* (Marotta 2008) – but they seemed to us more difficult to handle. We concentrated on phonemes which involved phonological oppositions in “standard” Italian and which are unevenly pronounced as a function of the region. For instance, the word *posto* ‘place’ may be uttered [põsto] or [postõ] (Renwick / Ladd 2016)<sup>7</sup>. To study to what extent this or that pronunciation is the majority use in each of the 110 Italian provinces, we developed an online questionnaire, which we will now describe.

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<sup>7</sup> See also the online pronunciation dictionary <http://www.dipionline.it/dizionario/>.

### 2.1. Questionnaire, subjects' task and participants

After gathering information on the participants concerning the province where they grew up and currently live, as well as their age, gender, etc., the actual experiment consisted in presenting a list of 70 words, previously read by an Italian actor, with two possible pronunciations for each one. Table 5 shows the number of items in each category, for mid vowels (/O/ and /E/), consonant voicing, (de)gemination, (de)palatalisation and affrication. The actor was asked to pronounce the stressed (underlined vowel) of *stella* 'star' and *centesimo* 'cent' as [e] and [ɛ], *casa* 'house' with an unvoiced [s] and a voiced [z], *zio* 'uncle' with [ts] and [dz], *accelera* 'accelerate' with one or two [l]'s, *a Roma* 'in Rome' with a simple and a geminated [r] (the so-called *raddoppiamento fonosintattico* phenomenon), *spago* 'string' with an [s] and an [ʃ], *scienza* 'science' with an initial [ʃ] or [sj], *dici* 'you say' with a [tʃ] and a [ʃ]. A possible case of dissimilation (i.e., the pronunciation of an [r] instead of the first standard /l/ in *coltello* 'knife') was also added. The set of words is listed in Table 5: it includes relatively frequent words, for which Canepari (2018) and Italian pronunciation dictionaries (e.g., De Mauro 2000) report variation.

The LimeSurvey platform was used to play the audio stimuli and capture participants' responses, within an interface in Italian<sup>8</sup>. The Wave stimuli (normalised in energy) consisted of pairs of standard and nonstandard pronunciations: even if this distinction is not always easy to make, we ensured that as many stimuli appeared in the standard nonstandard order and in the nonstandard standard order. For each word, an orthographic form was provided to the subjects: for *a Roma* 'in Rome', the participant heard, for example, a pair of forms like [aroma]~[arroma] and had to indicate which one of the two forms (1 or 2) was closer to his/her most common pronunciation. A third button was proposed, in addition to pronunciations 1 and 2: *Non sento differenza* 'I don't hear a difference' – but our informants clicked on this button in only 3% of cases. Subjects could listen to the stimuli as many times as they wished.

A random order was established, but since LimeSurvey does not allow randomisation to be changed on each trial, a reverse random order was proposed to subjects, according to whether they were born on an even or odd date<sup>9</sup>. This was intended to ensure that a fatigue effect would not bias the results, since we hypothesised that a person's date of birth would not affect the responses. In a few months, almost 1,000 subjects completed the task: 876 subjects to the end of the test and another 100 subjects who stopped the test early. They were mainly from urban centres around Turin and Rome, where we were in touch with universities, but also from over 80 Italian provinces.

<sup>8</sup> LimeSurvey offers responsive solutions with radio buttons and drop-down menus, which were particularly appreciated for the 110 Italian provinces plus Aosta (AO) and a category "Other".

<sup>9</sup> The addresses are <https://sondage.limsi.fr/italindagine/index.php/866948?lang=it> and <https://sondage.limsi.fr/italindagine/index.php/874243?lang=itse>.

Phenomenon	#words	Example
aperture of /O/	17	<i>posto, buono, forte, kilometro, nevrosi, termostato, colonna, eroinomane, nonno, nuvoloso, sogno, solo, sono, anonimo, docile, fronte, logico</i>
aperture of /E/	12	<i>stella, centesimo, tempo, credito, lettera, menta, stesso, bicicletta, schermo, battello, bene, ieri</i>
voicing	12	<i>casa, zio, alzo, nazione, frizzante, pranzo, zucchero, americano, affittasi, chiuso, smettere, Enzo</i>
(de)gemination	15	<i>accelera, a Roma, l'ho visto, pagina, attaccare, sciopero, carriera, avallare, libero, arrivare, radio, scorreggia, terremoto, tappeto, avevo</i>
(de)palatalisation	8	<i>spago, lasciamo, scienza, scatola, vogliono, puliamo, Sonia, svizzero</i>
affrication	5	<i>dici, luce, persona, insalata, ingiallito</i>
dissimilation	1	<i>coltello</i>

Table 5. Phenomena studied, with the number of words concerned and the words used in the online survey<sup>10</sup>.

## 2.2. Visualisation of the results

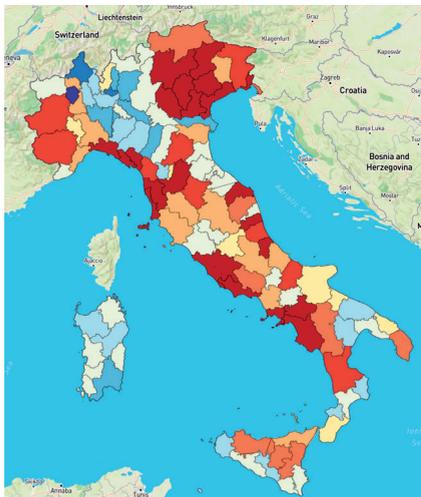
To visualise the results obtained, we drew a map of Italy with, for each province, a colour code indicating the majority pronunciation as declared by the participants. The data turned out to be too sparse to indicate, say, a more or less open /O/ with more or less clear colours, as was done in Cartopho. In comparison, there were nearly 2,500 participants for the French language. Here, we represented a majority pronunciation 1 by, say, darker or lighter blues and a majority pronunciation 2 by, say, darker or lighter reds. The provinces for which there was no clear-cut trend or which had fewer than five participants were left transparent. Some of the maps generated for each of the 70 words are reported in Figure 2.

Figure 2a shows that *stella* ‘star’ tends to be pronounced [stella] in most places but [stɛlla] in Lombardy, where a sort of *loi de position* ‘law of position’ is applied: the mid vowel tends to be open-mid in a closed syllable (here, before a geminate consonant) and would tend to be close-mid in an open syllable (Serianni/Castelvecchi 1997). Figure 2b confirms that the *raddoppiamento fonosintattico* ‘phonosyntactic doubling’ (Gili Fivela/D’Imperio 1997) applies to central and southern Italian, but not to northern Italian, where the /r/ is not geminated in *a Roma* ‘in Rome’. Figure 2c also suggests a division between northern Italy, which exhibits a voiced [z] in the word *casa* ‘house’, and central/southern Italy, which exhibits an unvoiced [s] in this context – while Sardinia shows variation. By contrast, Figure 2d rather opposes the centre of

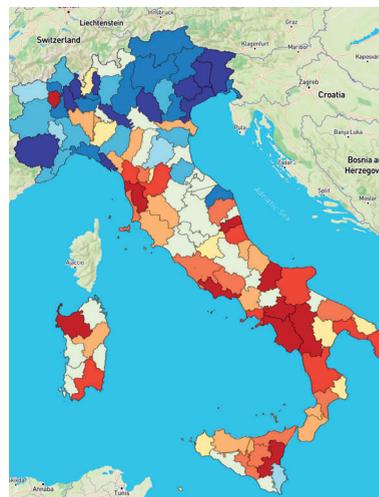
<sup>10</sup> In a few ambiguous cases, the vowels or consonants investigated are underlined: for example, the degemination with respect to standard Italian of /k/ (and not /t/) in *attaccare* ‘to attack’.

Italy (around Tuscany, with an unvoiced fricative [ts] at the beginning of *zio* ‘uncle’) to the rest of the territory, with a voiced initial [dz].

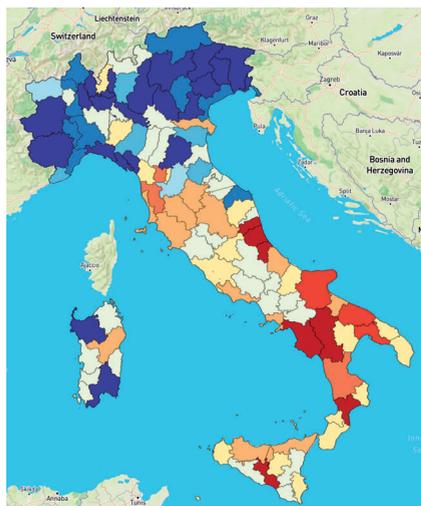
(a) *stella*



(b) *a Roma*



(c) *casa*



(d) *zio*

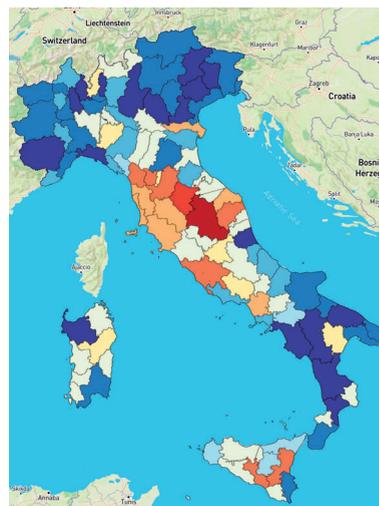


Figure 2. Maps generated for the words *stella* ‘star’ (2a), *a Roma* ‘in Rome’ (2b), *casa* ‘house’ (2c) and *zio* ‘uncle’ (2d).

To conclude this study, we aggregated all the words and mapped the provinces where the declared majority pronunciation follows what supposedly represents the norm. In Figure 3, we see (unsurprisingly) that standard pronunciations are mostly

respected in central Italy, around Tuscany. The north, the south, the islands of Sicily and Sardinia deviate from this standard, all the more so when we restrict the analysis to mid vowels. The maps are similar for /O/ and /E/, even if the gap widens for the latter: majority pronunciations are even opposed to the norm in Lombardy for the /e/~ɛ/ pair, while the norm seems to extend farther south towards Rome.

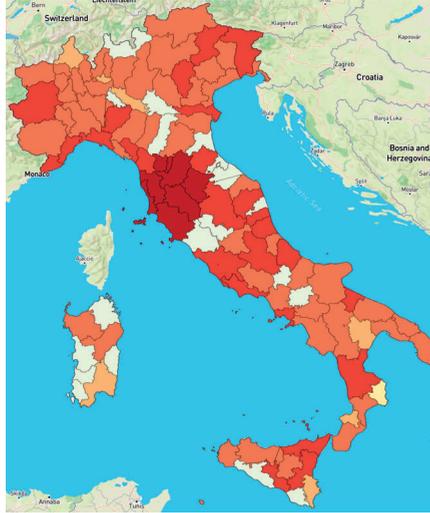


Figure 3. Map generated by aggregating all the words and representing their proximity to the standard pronunciations – the darker the red, the more the pronunciation adheres to the norm.

### 2.3. Discussion

We did not want to overextend the word list we tested: with 70 words like in Cartho, this list is already quite long for a crowdsourced study – typically, each of Avanzi’s (2017, 2019) surveys is based on sets of 26 words. For this reason, we did not include minimal pairs that could have been confusing for the subjects, such as *pesca* /ˈpeska/ ‘fishing’ vs. /ˈpɛska/ ‘peach’ – even though it would have been undoubtedly interesting to study to what extent such differences are perceived and realised in various regions of Italy. To determine whether an /E/ or an /O/ should be close-mid or open-mid in “standard” Italian, it is necessary to know the origin of the word that contains it: in Latin, vowels were distinguished on the basis of their quantity (i.e., their duration); yet this system broke down in the imperial era, when short vowels were pronounced open<sup>11</sup>. As early as the Quattrocento, proposals to remedy this were put forward, such as the use of the accented letters *ê* and *ô*, without success (Serianni/Castelvecchi 1997), whereas in present-day Italian we have <è>/<ò> and <é>/<ó> for open-mid and close-mid vowels, respectively. Today, these pronunciation

<sup>11</sup> The regular outcome of /ɛ/ and /ɔ/ in Italian derive from ě and ō respectively. However, this rule is far from being always respected: see for example *maestro* < MAGĪSTRUM.

differences may be misperceived in many regions of Italy. This may be the reason why some maps related to mid vowels are uneasy to interpret.

In addition, there are minimal pairs such as *fuso* /'fuso/ (noun, 'spindle') vs. /'fuzo/ (past participle, 'melted'), which were not included in our survey. Historically, /ts/ (resp. /dz/) most often corresponds to a Latin cluster TJ or CJ (resp. DJ), but this distribution is not respected in all regions of Italy (Serianni / Castelvechi 1997): this was confirmed in Figure 2d with *zio* 'uncle', from Greek through Latin THIOS. Such phenomena, like the *raddoppiamento fonosintattico*, are well-known to Italian linguists. Our approach, however, made it possible to map them on an objective basis.

### 3. Conclusion and future work

The speaking atlas we have presented here shows the richness of our linguistic heritage. It enables its diversity to be heard (and read) directly, on a comparable basis: a single minute of speech allows visitors to appreciate considerable variation in pronunciation, grammar and vocabulary. Of course, the observations we made (on Ligurian, Salentine, Calabrian and Apulian dialects especially) would need to be compared with spontaneous speech (not prepared from written material) in more organic conditions. We intend to continue this work, in particular with a prosodic analysis including questions that we elicited from some speakers, following Canepari (2018), such as "A te piaxùà sta stöia?" ('Did you enjoy this story?') in Varazze Genovese. With this website, we hope to lend prestige to the dialects of Italy, to give them a positive image, even if we are unable to reverse the decline in their use – since transmission among young people is far from ensured. It is probably inevitable that Italian dialects will be supplanted by a more widely used language like Italian – which is also mortal. At a time when linguistic diversity and biological diversity are threatened, we should be eager to devote all our energy to delaying the deadline and redeveloping a taste for the local.

Regional accents are also a precious reality for linguistic diversity. To study them today, we can reach a large audience through social networks. The work reported here shows the feasibility of large online surveys to map regional variants of pronunciation in Italian, even though the number of subjects who took part in the experiment so far is still insufficient. This investigation made it possible to confirm well-known phenomena such as the *raddoppiamento fonosintattico* and the pronunciation [kasa] for *casa* 'house' in central and southern Italy. The maps presented in this article make it possible to immediately visualise these traits – if not from field linguistic data, at least on a perceptual/declarative basis, from judgments on the proposed pronunciations. It would be interesting to compare self-reported pronunciations and actual uses: experiments where the subjects record themselves are needed. Moreover, possible perspectives consist in analysing the results in more detail, breaking them down to disentangle the influence of subjects' age, gender and mobility – which can also be mapped.

Based on dialects and accents, classification techniques are possible to better identify a north/south divide. To draw more precise isoglosses, collecting more data is needed. Unfortunately, rural regions (where traditional dialects are more protected) may be reluctant to take part in crowdsourcing: this constitutes a limit of the methodology. Nevertheless, we believe this project is of pedagogical interest, and we will develop its educational component.

## Acknowledgements

This work was partially funded by the Maison des Sciences Humaines (MSH) of Paris-Saclay University, within the framework of the HISTORIA project led by I. Vasilescu, whom we warmly thank. We are also extremely grateful to the two reviewers of an earlier version of this article for their fruitful comments as well as to the many speakers who translated, transcribed and recorded their versions of the fable “The North Wind and the Sun”: we express our deep gratitude to them and to all the subjects who took part in the crowdsourcing-based experiment.

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