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Demonstrative Systems Are Not Affected by Contact: Evidence from Heritage Southern Italo-Romance

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Abstract: Deictic information is present in every language; yet, there are significant differences as to how exactly such information is encoded, yielding different indexical systems across languages. The availability of cross-linguistic variation in indexical systems provides a window into the role of contact in shaping grammars: this work contributes to the discussion by investigating whether contact plays any role in determining the grammar of indexicality in heritage varieties. This study has a two-fold aim. Empirically, it investigates ternary demonstrative systems in heritage southern Italo-Romance varieties: on the basis of comprehension and production data, these systems are shown to be in the process of undergoing change. Theoretically, it underscores the insights that the combined microcontact and diachronic perspective provides for the understanding of variation and change in heritage languages: while, at face value, the elicited heritage data seem to indicate that demonstratives are affected by contact, pairwise comparisons across heritage varieties and diachronic observations lead to rejecting a plain contact-induced explanation and to conclude, instead, that deictic elements are largely unaffected by contact and that their change in heritage varieties is, rather, endogenous.

Keywords: demonstratives; deixis; heritage languages; Italo-Romance varieties; contact-induced change; diachronic change; person features

1. Introduction

Deictic information is present in every language and is marked on grammatical elements such as personal pronouns and demonstrative forms; yet, there are significant differences as to how exactly such information is encoded, yielding different indexical systems across languages. For instance, languages differ as to whether they encode a clusivity opposition with respect to first person pronouns (Cysouw 2013), or as to how many contrastive demonstrative forms they display (Diessel 2013). The availability of such cross-linguistic variation across indexical systems provides a window into the role of contact in shaping grammar. This study contributes to the discussion by investigating whether contact plays any role in determining the grammar of indexicality in heritage varieties. It does so by focusing on demonstrative systems as attested in southern Italo-Romance heritage varieties whose homeland counterparts show a three-way opposition between the deictic domain associated with the speaker, that associated with the hearer, and that associated with neither of them (that is, in short, varieties that display a contrast between 'this near me', 'that near you', and 'that far from us').

More specifically, this study has a two-fold aim. Empirically, it investigates whether the organisation of ternary demonstrative systems undergoes any change in heritage southern Italo-Romance varieties and, if so, whether the demonstrative systems of the dominant varieties determined a parallel reorganisation of the heritage systems. This constitutes a novel empirical domain: no study is currently available that investigates how indexicality is encoded in heritage varieties. Concretely, the data presented here were collected on fieldwork (2019–2020) by interviewing heritage speakers of Sicilian and Abruzzese who were born in Argentina, Quebec, Belgium, and New York City. This set-up follows the microcontact approach to language change in contact (D'Alessandro 2021; Andriani et al. 2022b) in

encompassing several contact contexts and thereby allowing for a finer-grained assessment of whether demonstrative systems are vulnerable to language-specific contact-induced change or whether they can be regarded as fundamentally impermeable to contact. On the basis of comprehension and production data elicited by means of a picture-sentence matching task and a semi-guided production task, ternary demonstrative systems are shown to undergo a reduction in heritage varieties. At face value, the elicited heritage data seem to support the view that deictic elements are affected by contact. However, upon closer inspection, it is concluded that the attested change is not determined by the relevant contact varieties; instead, ternary demonstrative systems are shown to follow the same developmental path in heritage varieties as they do in the diachronic evolution of Romance languages. Therefore, it is concluded that the observed change is endogenous and that deictic elements are largely unaffected by contact. As such, theoretically, this study aims at underscoring the insights that the combined heritage and diachronic perspective provide into how indexicality is encoded in demonstrative systems.

This paper is structured as follows. Section 2 provides the wider theoretical context against which this research is set. Section 3 introduces the demonstrative systems under investigation and lays the ground for the present study. Section 4 presents the methodology and Section 5 introduces the results. Section 6 discusses these results, also in the light of additional diachronic data, and proposes that change in heritage demonstrative systems is in fact independent of (language-specific) contact. Section 7 concludes.

2. Theoretical Background

Deixis is at the same time a basic, universal feature of human language (see, e.g., Bar-Hillel 1970; Levinson 1983), and a complex one to master, as it sits at the interface between grammar, pragmatics, and cognition (see, e.g., (Clark 1978; Tanz 1980; Küntay and Özyürek 2006) for the late acquisition of adult-like uses of indexical, and particularly demonstrative, forms in monolingual children). Building on these different facets of indexicality, different predictions can be made with respect to the behaviour of deictic elements in contact contexts. On the one hand, being intimately related to the extra-linguistic context, indexicality is commonly regarded as an external interface phenomenon: by virtue of its modularity, it may thus be predicted that indexicality is particularly difficult to master for bilinguals and possibly subject to cross-linguistic influence (either because of representational reasons: see a.o. (Hulk and Müller 2000; Müller and Hulk 2001); or as a matter of the processing, as per the Interface Hypothesis: see a.o. (Sorace and Serratrice 2009; Sorace 2011)). On the other hand, capitalising on its fundamental cognitive function and general prominence in natural language, it may be predicted that the encoding of deixis is not prone to contact-induced change, but rather that it is unaffected by contact (see Polinsky (2018) for the formal implementation of this intuition).

With the exception of explorations of the DP-internal syntax of indexical elements (see, among others, Guardiano and Stavrou 2021; Guardiano and Michelioudakis 2019), the behaviour of indexicality itself in contact, that is: how many deictic contrasts are attested within a given demonstrative system and whether these undergo a change in contact, has not been the object of systematic investigation to date. Nonetheless, the general understanding is that the encoding of indexicality in various contact settings is remarkably stable (see, a.o., Heine and Kuteva 2005; Friedman 2006; Matras 2009; Polinsky 2018), supporting the latter view. Against this background, recent investigations seem to suggest a more nuanced picture, with demonstrative forms possibly undergoing attrition in adult bilinguals (Vulchanova et al. (2020); but the role of contact in these patterns of attrition has been downsized in Vulchanova et al. (2022)). The cross-linguistic variation attested by demonstrative systems constitutes a fruitful window to further explore this issue, with the aim of understanding the role of contact in shaping syntactic variation and change in yet another domain of grammar. A similar investigation should also be performed with an eye toward the different predictions just laid out, so as to ultimately be able to better evaluate theoretical proposals concerning the encoding of indexicality in the grammar.[1]

The present study addresses these questions by investigating the encoding of deixis in demonstrative systems. It does so by focusing on a specific population: heritage speakers of southern Italo-Romance varieties. Heritage speakers are speakers of an immigration variety who were born in the immigration country and who naturally learnt their heritage variety at home in their early childhood, but were subsequently exposed to, and eventually became dominant in, the contact language spoken by the wider society. For a recent and comprehensive overview, see Polinsky (2018). It is well known that the grammar of heritage languages differs even significantly from that of their homeland counterparts; such divergences are typically traced back to aspects pertaining to the acquisition process (see Montrul (2016) for an overview). A full understanding of the factors that shape heritage grammars cannot therefore overlook the acquisition conditions and heritage grammars must be evaluated against the input grammar that heritage speakers received. However, it is also well known that it is not always straightforward to have access to the baseline for comparison; this is especially true for moribund and non-standardised heritage varieties, such as the southern Italo-Romance ones which constitute the focus of this study (for a discussion of this issue, see in particular D'Alessandro et al. (2021)).

Therefore, in this work a different approach is pursued to the study of heritage varieties, to overcome these problems while still ensuring that the role of contact in determining properties of the heritage grammars, if any, is properly isolated and evaluated. This is achieved by comparing different heritage varieties of one and the same language in different immigration countries, that is, in contact with different dominant languages in a pairwise fashion, as per the microcontact methodology (see Andriani et al. (2022b) for an overview).[2] For instance, this concretely amounts to comparing heritage Sicilian spoken in Argentina to heritage Sicilian spoken in Canada, and so on. The outcome of such pairwise comparisons allows for the possibility to assess whether language-specific contact-induced change affects the organisation of demonstrative systems in heritage varieties: if so, we expect to see differences across heritage varieties spoken in different contact contexts. If, instead, one and the same demonstrative system is attested across different countries of immigration, then it is tentatively possible to assume either that contact (albeit not in terms of cross-linguistic transfer) affects the encoding of indexicality or that contact foes not play any role in shaping them. To better evaluate whether contact *per se* has a role in shaping heritage grammars, the patterns of change attested by heritage varieties are further compared to the diachronic stages of evolution of closely-related varieties. If different patterns of change are attested across the heritage context and the diachronic one, then it can be safely concluded that contact affects heritage grammars; if, however, the same patterns of change are attested across both contexts, then a more conservative conclusion is preferable, namely that contact varieties follow the general endogenous path of evolution, possibly at a faster pace (for a proposal in this direction for heritage languages, see Kupisch and Polinsky (2022)).

As will be shown in what follows, such a multi-faceted approach is necessary to provide an accurate evaluation of whether contact is involved in the encoding of indexicality in the grammar: without pairwise comparisons, the results presented in this study could be legitimately, but mistakenly, explained by appealing to contact-induced change. Instead, the overview resulting from the several pairwise comparisons, alongside the introduction of a diachronic dimension, strongly suggests that changes in the grammar of indexicality as attested in the heritage varieties under consideration here cannot be regarded as prominently, let alone solely, shaped by contact. Thus, the theoretical aim of this study is to underscore the insights that an approach to demonstrative systems from the combined contact and diachronic perspective provides into how indexicality is encoded in contact varieties and, beyond those, in human language in general. In fact, a proper assessment of the role of contact with respect to the encoding of indexicality feeds back into the theoretical question concerning how indexicality is encoded in the grammar: if contact does not play a role, then a formalisation of the encoding of deixis can be put forth that does not over-emphasise the interface nature of indexical terms; to the contrary, if contact affects the encoding of

deixis, then a formal approach to indexical terms should allow for this possibility while still deriving the difference with respect to diachronic evolution.

3. Demonstrative Systems in Contact

This study exclusively focuses on exophoric demonstratives or demonstrative forms that locate their referent in the external world with respect to a deictic centre (Lyons 1977; Levinson 1983, 2004; Diessel 1999; among many others).[3] The deictic centre coincides with one or more of the discourse participants: the speaker and/or the hearer; that is, demonstrative forms used exophorically specify whether a given referent is located in the vicinity of the speaker, in the vicinity of the hearer, or whether it is far from both. In what follows, these are taken to be the three basic semantic values which demonstrative systems express; they will be referred to as the speaker-related deictic domain, the hearer-related deictic domain, and the non-participant-related deictic domain.[4]

Languages differ with respect to how they encode these three deictic domains in their syntax-semantics, and to how they realise them in their morphology: according to the deictic centre(s) available to a given language, the three basic deictic domains may be clustered in different ways, yielding different demonstrative systems (see Table 1). Systems that only encode the speaker as deictic centre display a two-way deictic opposition between referents near the speaker and referents far from the speaker ('this/here (near me)'– 'that/there (far from me)'); such systems will be referred to as 'speaker-based binary systems' in what follows, and the two forms that they include as 'speaker-oriented' and 'non-speaker-oriented'. Systems that instead take both participants as a single, undifferentiated deictic centre illustrate a different two-way deictic contrast, namely between referents near either, or both, participants and referents far from the participants ('this/here (near me and/or you)'–'that/there (far from us)'); in this work, systems of this ilk will be labelled as 'participant-based binary systems', and their two terms as 'participant-oriented' and 'non-participant-oriented'. Finally, some systems contrastively encode both the speaker and the hearer as their deictic centres: this yields a three-way deictic contrast between referents near the speaker, referents near the hearer, and referents far from both ('this/here (near me)'–'that/there (near you)'–'that/there (far from us)'); therefore, these systems are referred to as 'ternary systems', and their three contrastive forms are labelled as 'speaker-oriented', 'hearer-oriented', and 'non-participant-oriented'.

Table 1. Demonstrative systems.

	Speaker-Related	**Hearer-Related**	**Non-Pt-Related**
Speaker-based, binary	speaker-oriented	non-speaker-oriented	
Participant-based, binary	participant-oriented		non-pt-oriented
Ternary	speaker-oriented	hearer-oriented	non-pt-oriented

As Table 1 shows, the main difference across the two types of binary systems and the ternary systems resides in how the hearer-related domain is encoded: in ternary systems, a dedicated hearer-oriented form is available to realise the hearer-related deictic domain, which is thus contrastively realised. In binary systems, on the contrary, the hearer-related domain is not contrastively encoded, but it is either realised by an all-purpose non-speaker-oriented form (speaker-based binary systems) or by a likewise general participant-oriented form (participant-based binary systems).[5]

Romance varieties display a fine-grained microvariation concerning which deictic centre is encoded in demonstrative systems and thus, ultimately, which demonstrative system is displayed. More concretely, this study focuses on southern Italo-Romance heritage varieties whose homeland counterparts display ternary systems, and in particular on varieties of Sicilian and Abruzzese. One sample system for each of these varieties is reported in (1), although microvariation is systematically attested also within these macro-dialectal groups; note that both demonstrative determiners and pronouns (English *this* and

that, here referred to as adnominal and pronominal demonstratives, respectively, and as nominal demonstratives cumulatively, 'DEM') and locative adverbs (English *here* and *there*, here defined adverbial demonstratives, 'ADV') were included in this study:[6]

(1) a. *Sicilian demonstrative systems* (Mussomeli: Ledgeway and Smith 2016, p. 885)

	speaker-related	hearer-related	non-participant-related
DEM	chistu	chissu	chiddru
ADV	ccà	ddrùəcu	ddrà

b. *Eastern Abruzzese demonstrative systems* (Ledgeway and Smith 2016, pp. 884, 892)

	speaker-related	hearer-related	non-participant-related
DEM	ʃtu	ssə	kwillu
ADV	èccə	èssə	èllə

The southern Italo-Romance heritage varieties investigated in this work have been documented in areas in which the dominant language is another very closely related Romance variety, or English. Specifically, the data collection took place in Argentina, Brazil, Belgium, Quebec, and the US (New York City and surroundings): the majority languages are thus Argentinian Spanish, Brazilian Portuguese, (Quebec) French, and English (spoken both in the US and in Quebec).[7] Brazilian data will however not be included in this study, as no heritage speaker of a southern Italo-Romance variety was interviewed there.

The dominant varieties display demonstrative systems which do not always align with the Italo-Romance ones in (1), as shown in (2):

(2) *The structure of the contact demonstrative systems*

	speaker-related	hearer-related	non-pt-related
Argentinian Spanish/1	este / acá	ese / ahí	aquel / allá
Argentinian Spanish/2	este / acá	ese *or* aquel / allá	
French/1	ce		
French/2	(ce ...) ci	(ce ...) là	
English	this / here	that / there	

As shown by (2), Argentinian Spanish/2 (Kany 1945, p. 135; Ledgeway and Smith 2016, p. 888; Saab, *p.c.*), French in Quebec and Belgium (although the basic nominal demonstrative system of French is unary, i.e., encodes no deictic contrasts: French/1), and English in the US display speaker-based binary systems, in which no difference is overtly made between the hearer-related and the non-participant-related domains: these simply fall under a general non-speaker-oriented exponent. Some varieties of Argentinian Spanish are instead described as displaying a ternary system akin to that of the target Italo-Romance varieties (Argentinian Spanish/1, in (2)): while this is generally documented for the prescriptive variety, ternary systems were also recorded in our fieldwork interviews with native speakers of Argentinian Spanish.[8]

Given these differences, this domain of investigation is particularly fruitful when it comes to assessing whether contact affects the encoding of deixis, and more specifically whether the deictic oppositions encoded in the demonstrative systems of the majority languages can drive parallel reorganisations in the heritage varieties spoken alongside them.

More concretely, the research questions of this study can be spelled out as follows:

- **Research question 1**: Does the structure of demonstrative systems in heritage southern Italo-Romance varieties undergo change?
  To respond to this question, production and comprehension data were elicited and compared across various contact contexts.[9]

- **Research question 2**: If change is attested, can it be explained as a function of the demonstrative systems of the majority languages, as a function of contact in general, or is it not determined by either of these factors?

  We can seek a response to this second question by addressing the following sub-questions: does change affect heritage Italo-Romance demonstrative systems differently across countries of emigration, and does it do so in a fashion consistent with the demonstrative systems of the specific contact varieties? If so, we could conclude that language-specific contact-induced change drove the reorganisation of the heritage systems. Although ternary systems are considered substantially equivalent, a finer-grained pairwise comparison is carried out in this respect, in keeping with the microcontact methodology (e.g., heritage Sicilian in contact with Spanish *vs* heritage Sicilian in contact with French, etc.).

  Building on the discussion in Section 2, the following predictions can be advanced:

- **Prediction 1**: If the encoding of deixis in demonstratives is to be primarily construed as an interface phenomenon, then we might expect demonstrative systems to undergo contact-induced change. More specifically, two different scenarios are conceivable:

  - *Prediction 1a*: For a given Italo-Romance variety, something changes in one language pair, but not in the others, highlighting the role of language-specific contact; for more specific predictions in this respect, see Section 5.2;
  - *Prediction 1b*: For a given Italo-Romance variety, one and the same thing changes across all contact pairs, possibly highlighting the role of contact *per se* (if the attested change is distinct from the endogenous one);

- **Prediction 2**: If the encoding of deixis in demonstratives is not regarded as a prominently interface phenomenon, instead, then we predict that nothing, in those systems, changes in contact: thus, varieties that display(ed) ternary demonstrative systems in Italy are expected to display similar ternary demonstrative systems in the different contact settings.

4. Methodology

This section introduces the participants to the present study and the materials and methods employed. Additional information about the participants and the questionnaire is provided in Appendix A.

Before proceeding, it should be noted that the data discussed in this work were collected during a preliminary set of fieldwork sessions which took place between 2019 and 2020 and that a more systematic data collection has not been possible so far, due to the COVID-19 pandemic (for more information, see Andriani et al. (2022a)). The preliminary fieldwork was carried out to gain some general insights into the organisation of demonstrative systems in heritage Italo-Romance varieties, as these are otherwise not documented. This is also true for the wider domain of heritage linguistics: to date, aspects pertaining to the encoding of deixis in grammar have been widely neglected in the field, which makes the present contribution particularly welcome. However, the exploratory design of the data collection whose results are reported here entailed that the informants recruited for this study could not be systematically controlled for homogeneity: hence, statistical analyses are not possible. Nonetheless, the results discussed in this study are particularly robust, despite the shortcomings of the data collection.

4.1. Participants

This study discusses the demonstrative systems of 11 heritage speakers. Of these, seven were heritage speakers of a Sicilian variety and four were heritage speakers of an Abruzzese variety (Table 2).[10] Given that the organisation of ternary systems is comparable across the homeland counterparts, these speakers will be mainly considered as a homogeneous group in as much as the structure of demonstrative systems is concerned.

Table 2. Participants.

	Sicilian	Abruzzese
Argentina	3	2
Belgium	1	—
Quebec	1	—
US	2	2
Total	7	4

All speakers were born and continuously resided in the country in which they were interviewed and are proficient in the local language (see again Table 2): Spanish, for the five heritage speakers from Argentina; French, for the one heritage speaker from Belgium; English, for the four heritage speakers from the US. The heritage speaker from Quebec was instead proficient in both French and English. Moreover, all participants were to some extent familiar with a non-standard variety of Italian: for a discussion of Italian *koiné* varieties spoken by heritage communities in the Americas, see Andriani et al. (2022a) and references therein. Nonetheless, all participants learnt their heritage language in a naturalistic setting and used it on a daily basis, although to different extents, at the time of our study. Given the nature of this study, it was not possible to include a control group: for the problem of the baseline in heritage research, see the discussion in Section 2.

4.2. Design, Materials, and Procedures

The heritage demonstrative systems were tested by means of two off-line tasks: a picture-sentence matching task and a semi-guided production task.[11] For each task, the stimuli were presented in random order, but no fillers were used. Both tasks were performed with audio-visual aids and our stimuli targeted one of the three deictic domains that can be contrastively encoded in ternary demonstrative systems: the speaker-related deictic domain ('this/here near me'), the hearer-related deictic domain ('that/there near you'), and the non-participant-related deictic domain ('that/there far from us'). A discussion of the considerations that led to this design is presented in Andriani et al. (2022a); the English translation of the full questionnaire can instead be found in the Appendix A.

The picture-sentence matching task was designed to test the comprehension of the three different demonstrative forms available in the original ternary varieties. Our informants were presented with a series of pictures in which a dog owner and their dog were represented together with at least another character, as shown in Figure 1. The character on the left was invariably marked as the speaker by means of a balloon and the dog was in a different deictic domain in each picture: respectively, the speaker-related domain (Figure 1a), the hearer-related domain (Figure 1b), and the non-participant-related domain (Figure 1c).
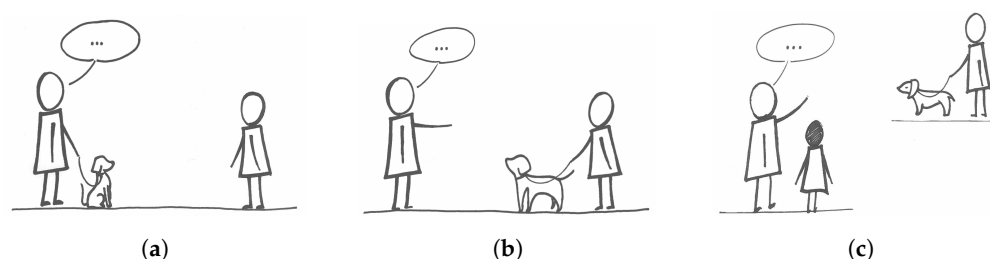

| (a) | (b) | (c) |

Figure 1. Picture-sentence matching task: (**a**) Speaker-related domain; (**b**) Hearer-related domain; (**c**) Non-participant-related domain.

Our informants saw one picture at a time while listening to three audio stimuli recorded by a native speaker of the target variety:[12] one described the position of the dog with respect to the speaker by using a speaker-oriented demonstrative, one by using a

hearer-oriented demonstrative, and one by using a non-participant-oriented demonstrative (e.g., *chistu*, *chissu*, and *chiddru*, respectively, for Sicilian; see again (1)).

The task was for our informants to select the stimulus that best described the position of the dog with respect to the speaker in each given picture. For instance, when presented with the hearer-related domain (Figure 1b), our informants heard three different stimuli, each containing a different demonstrative form (e.g., *chistu*, *chissu*, and *chiddru*), the target one being the hearer-oriented one (in this case, *chissu*). For a discussion of the difficulties related to this task, see Andriani et al. (2022a); here suffice it to say that our informants could not easily identify with the speaker in the picture, which yielded a slightly higher amount of speaker-oriented forms than expected, as all referents were equally close to the informant for the duration of the task (the pictures were shown on a laptop placed in front of the informant and within their arm's reach; for the role of physical contact in the use of a speaker-oriented demonstrative form, see among others Imai (2003)). This effect is particularly clear when comparing the results of this task with those of the production task, where many instances of non-target-like uses of speaker-oriented forms are restored to non-participant-oriented forms (for the non-participant-related domain; Figure 1c) and, less so, to hearer-related ones (for the hearer-related domain; Figure 1b).

The semi-guided production task was designed to test the production of demonstrative forms. We employed three pictures which represented one cat each: an orange one, a black one, and a white one. These were placed in the three deictic domains under examination, i.e., near the speaker (the informant: speaker-related domain), near the hearer (the interviewer: hearer-related domain), and far from both (non-participant-related domain). Our informants were asked details about the location of each cat in the context, both in the form "which one is the [*colour*] cat?" and "where is the [*colour*] cat?". This way, nominal and adverbial demonstratives were elicited, respectively.

These two tasks allowed us to test the production and comprehension of each of the three deictic domains overall five times: the picture-sentence matching task contained three sets of stimuli for each domain (by manipulating the syntactic environment in which the demonstrative forms occurred: adnominal context, e.g., 'this dog is mine'; pronominal context, e.g., 'this is my dog'; demonstrative-reinforcer construction, e.g., 'this here is my dog'); the semi-guided production task, instead, tested them twice: once in the nominal condition ('which one is the... cat?') and once in the adverbial one ('where is the... cat?'); for a full overview, see the Appendix A. Thus, by design, 15 items should have been collected for each speaker (total: *n* = 165 items); however, 21 responses could not be used for analysis, thus the final sample consists of 144 items.

Given the quantitative limitations of the dataset (and a lack of homogeneity within it), no statistical analysis could be performed. A descriptive statistics for the elicited data is instead presented in Section 5.

4.3. Coding

The elicited answers were coded as follows:

- speaker-oriented demonstratives (target forms for the speaker-related semantics) were coded as ST for nominal demonstratives (*this near me*), Q for adverbial demonstratives (*here near me*), and ST Q for demonstrative-reinforcer constructions (*this here near me*);
- hearer-oriented demonstratives (target forms for the hearer-related semantics) were coded as SS for nominal demonstratives (*that near you*), D for adverbial demonstratives (*there near you*), and SS D demonstrative-reinforcer constructions (*that there near you*);
- non-participant-oriented demonstratives (target forms for the non-participant-related semantics) were coded as LL for nominal demonstratives (*that far*), L for adverbial demonstratives (*there far*), and LL L for demonstrative-reinforcer constructions (*that there far*);
- different combinations of these forms were attested: they were coded as such, by recurring to the combination of the nominal demonstrative codes with the adverbial ones;
- in case of optionality, the competing forms have all been recorded;

- non-available answers, both in the case of non elicited answers and for irrelevant ones, were coded as NA (*n* = 21). These are not included in the results section.

According to whether the elicited forms were compatible with the target semantics in the homeland ternary counterparts, the answers were further coded as follows:

- Target-like (TL) answers: speaker-oriented demonstratives for the speaker-related deictic domain; hearer-oriented demonstratives for the hearer-related deictic domain; non-participant-oriented demonstratives for the non-participant-related deictic domain;
- Semi-target-like (STL) answers: cases in which two or three competing options were given (and one was fully target-like), cases in which the target form was used in combination with a non target-like one (e.g., ST D, or LL D, for two possible combinations used to refer to the hearer-oriented domain; fully target-like response: SS D);
- Non-target-like (NTL) answers: speaker-oriented demonstratives used for the hearer- or non-participant-related deictic domains; hearer-oriented demonstratives used for the speaker- or non-participant-related deictic domains; non-participant-oriented demonstratives used for the speaker- or hearer-related deictic domains.

In the next Section, the results of this study will be presented according to the latter taxonomy (target-like, semi-target-like, non-target-like).

5. Results

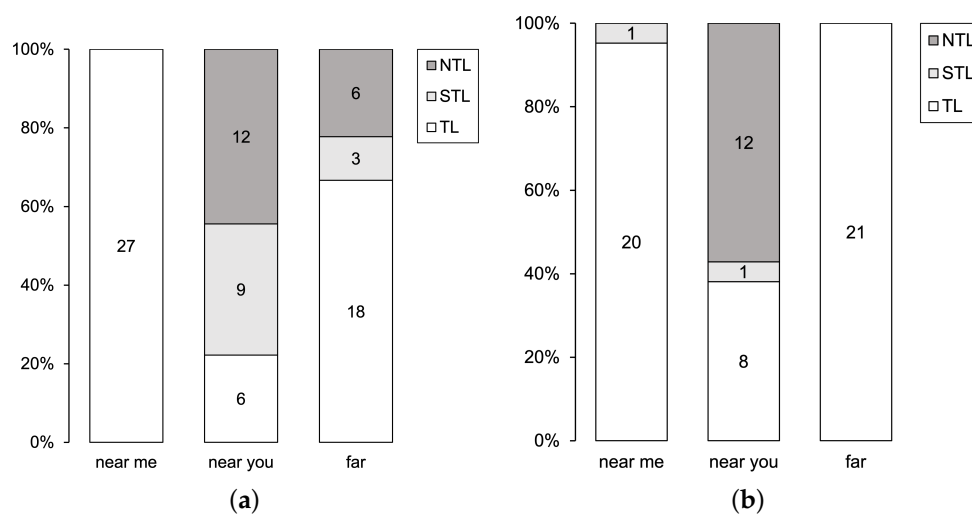The results of the two tasks are presented in Figure 2:

Figure 2. Overview of results for picture sentence matching task (**a**) and semi-guided production (**b**).

As Figure 2 shows, there is a clear difference between the speaker-related deictic domain ('near me') and the non-participant-related deictic domain ('far') on the one hand, and the hearer-related deictic domain ('near you') on the other, both in comprehension (Figure 2a) and in production (Figure 2b). The responses elicited for the former two domains are virtually at ceiling; the percentage of non-target-like answers for the non-participant-related domain in Figure 2a can be regarded as an artefact of the task, as shown by the production results for the same domain in Figure 2b (see discussion in Section 4.2). The responses elicited for the hearer-related domain, instead, are more consistently non-target-like, and equally so across the two tasks: despite a slight improvement in the production data (Figure 2b), it can be cautiously concluded that the participants were substantially performing at chance, with non-target-like responses scoring overall 57.1%, which in turn suggests that there is on-going change in the encoding of indexicality in heritage demonstrative systems. This provides a first answer to the question as to whether ternary demonstrative systems in heritage Italo-Romance varieties undergo change.

In what follows, comprehension and production data for the hearer-related deictic domain will be examined more in detail; the other two domains will instead be regarded as target-like in heritage speakers.

5.1. Hearer-Related Domain: Patterns of NTL

Before turning to the other research questions, it is worth taking a closer look at the elicited non-target-like forms for the hearer-related deictic domain: these are presented in Figure 3, where three additional labels are used: NTL_1 refers to the non-target-like use of a speaker-oriented form for the hearer-related deictic domain (e.g., *this (near me)* instead of *that (near you)*); NTL_3 refers to the non-target-like use of a non-participant-oriented form for the hearer-related deictic domain (e.g., *that (far from us)* instead of *that (near you)*); finally, NTL_13 refers to the optional non-target-like use of speaker- *and* non-participant-oriented forms for the hearer-related deictic domain.
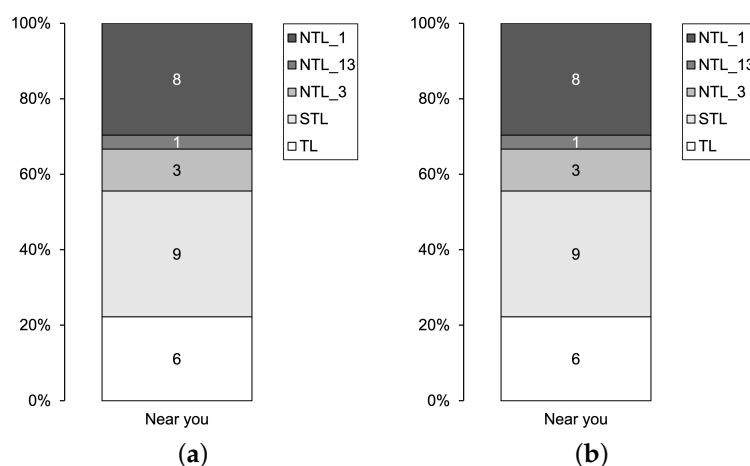

Figure 3. Hearer-related deictic domain: fine-grained results for picture sentence matching task (**a**) and semi-guided production (**b**).

The comprehension data (Figure 3a) show more (semi-)target-like responses than the production data (Figure 3b). Among the non-target-like responses, the most frequently elicited ones are speaker-oriented forms in the comprehension data (NTL_1) and non-participant-oriented forms in the production data (NTL_3). Note that, while the former is not expected under any prediction for contact-induced change, the result for the semi-guided production task seem to be partly compatible with the demonstrative systems of the contact varieties (mostly: speaker-based binary systems), where the expression of the hearer-related deictic domain is conflated with that of the non-participant-related domain, both expressed by means of non-participant-oriented forms (hence, a higher percentage of NTL_3). This preliminary observation is reviewed in the next subsection.

5.2. Hearer-Related Domain by Contact Variety

The overall patterns attested in the different contact contexts are presented in Figure 4, which substantially provides a primitive response to the question: do ternary demonstrative systems show different reorganisation patterns in different contact situations? (i.e., ultimately, do they undergo contact-induced change based on the specific contact variety?).

The responses elicited for the hearer-related domain diverge across the different immigration countries (and, hence, dominant varieties), both in the comprehension task (Figure 4a) and in the production task (Figure 4b). To help guide us in assessing whether change is to be modelled in terms of transfer from the dominant language, the following language-specific contact-induced change predictions may be formulated, on the basis of the differences presented in Section 3:

- ternary systems are expected to reduce to speaker-based binary systems in contact with French and English (and, possibly, in contact with Spanish, as per the variation

attested by Argentinian Spanish in this respect); this would correspond to higher rates of non-target-like non-participant-oriented demonstratives (NTL_3) employed for the hearer-related domain, leading to the conflation of the hearer-related and non-participant-related domains (speaker-based binary system);

- ternary systems might be preserved in Argentina (barring variation); this would correspond to higher rates of target-like hearer-oriented forms (TL) employed for the hearer-related domain, compatibly with a three-way partition of the system.
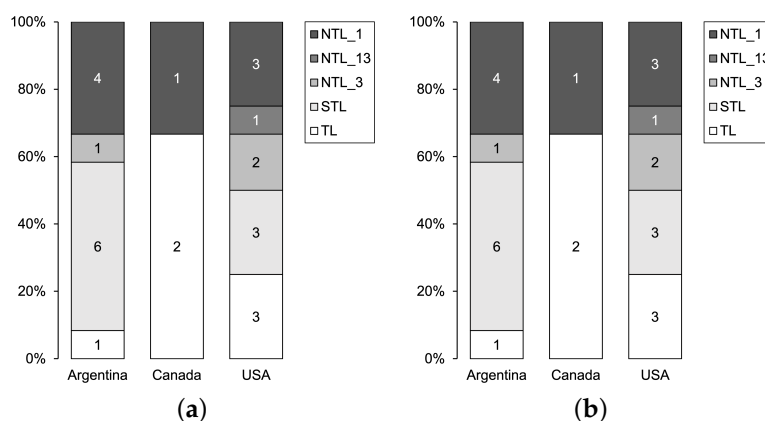
Figure 4. Hearer-related deictic domain across contact varieties: results for picture sentence matching task (**a**) and semi-guided production (**b**).

Examining the results reported in Figure 4 further, we can see that these predictions are not completely borne out. In fact, while under the first of the two language-specific contact-induced change predictions we expect an overall prominent percentage of non-participant-oriented forms (NTL_3), these were only elicited quite prominently (albeit not above chance level) in the production task by Argentinian speakers (Figure 4b); in all other cases, the preferred non-target-like forms are consistently speaker-oriented (NTL_1; compatibly with a participant-based binary system: this is not attested by any of the contact varieties). Besides, (semi-)target-like hearer-oriented forms are well represented, in the comprehension data, by heritage speakers both in Argentina (as partly predicted by the second language-specific contact-induced change prediction) and in the US (against the predictions), while the one Belgian heritage speaker performs at the ceiling in production (although no comprehension data are available for this speaker).

Overall, and bearing in mind that forms compatible with all types of systems have been elicited in all contact situations and that speakers show a considerable share of intra-speaker variation, it does not seem that the attested patterns can be accounted (exclusively) by appealing to language-specific contact-induced change.

Whether the specific contact varieties play any role in the change affecting the hearer-related domain can further be assessed, at a more fine-grained level, by means of pairwise comparisons. Figure 5 compares the results for each southern Italo-Romance heritage variety across the different contact contexts in which it was investigated, to respond to the questions: does one and the same variety change in different ways across contact contexts, and, if so, are those differences determined by transfer from the contact varieties?

The results reported in Figure 5 are not clear-cut (besides, the sample is very reduced in size). The patterns attested for heritage Abruzzese are roughly similar across Argentina and the US in both tasks, pointing to the absence of an effect of the demonstrative system of the contact variety. Heritage Sicilian data show instead a strong variation across the different contact varieties, which might suggest that heritage Sicilian realisation of the hearer-related domain is influenced by the specific contact variety; however, once again, the concrete patterns are largely incompatible with the language-specific contact-induced change predictions reported above (see, in particular, the mismatch across heritage Sicilian in Belgium and Canada in Figure 5b).
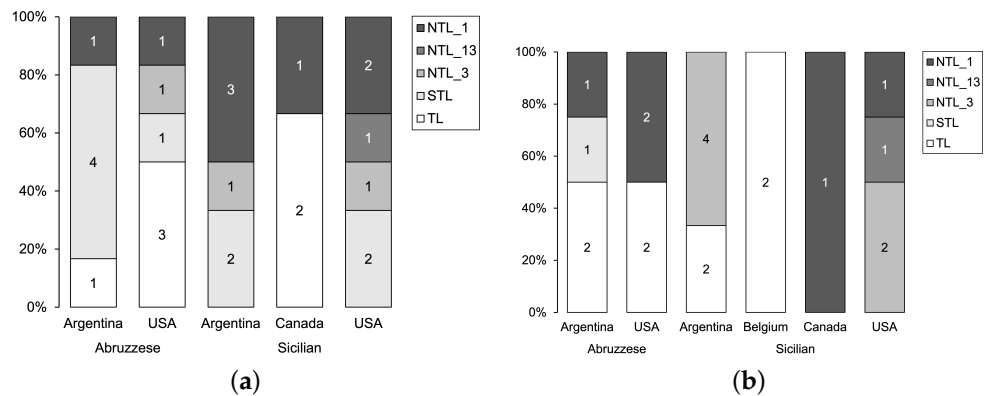
Figure 5. Hearer-related deictic domain across heritage varieties considered in different contact contexts: results for picture sentence matching task (**a**) and semi-guided production (**b**).

Conversely, whether each dominant language consistently determined the reorganisation of the heritage varieties can be investigated by comparing all the heritage varieties spoken in contact with one and the same dominant language. This ultimately responds to the question: does a given dominant language have one and the same effect on all heritage varieties? The results are given in Figure 6.
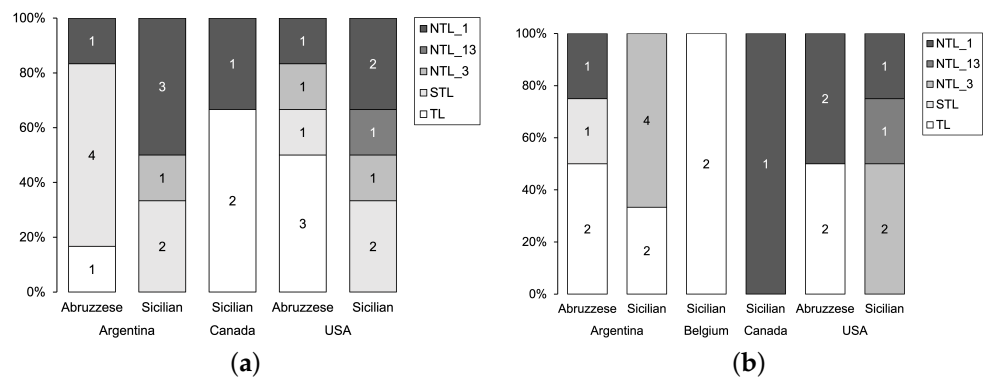
Figure 6. Hearer-related deictic domain across different heritage varieties in contact with one and the same dominant language: results for picture sentence matching task (**a**) and semi-guided production (**b**).

As Figure 6 shows, the responses elicited for each heritage variety in contact with one and the same dominant variety differ systematically across contact contexts and across the two tasks. This further suggests that the demonstrative system of the dominant language did not drive parallel reorganisations in the heritage varieties in contact with it. Furthermore, also in this case the elicited answer are not fully compatible with the language-specific contact-induced change predictions laid out above: this is shown, in particular, by the widespread availability of non-target-like speaker-oriented forms (NTL_1), not expected under any of the contact situations, and by the (semi-)target-like behaviour which is (partially) attested in Argentina, but also, and contrary to expectations, in Belgium and in the US.

Thus, to conclude, ternary demonstrative systems show different patterns in contact with different varieties, but these cannot be straightforwardly traced back to transfer from the dominant language, as the reorganisation is not parallel across dominant and heritage languages. Therefore, language-specific contact-induced change (with different effects that correlate with different languages) has to be excluded. Moreover, the availability of different patterns across different contact varieties, crucially not accounted for by transfer effects, seems to suggest that not even contact *per se* plays a role in the reorganisation of ternary demonstrative systems: otherwise, we should have expected similar results across contact languages, regardless of cross-linguistic differences among the contact varieties.

6. Discussion

The data collected in this study showed in a quite robust manner that the demonstrative systems of heritage varieties undergo change: more specifically, while the realisation of the speaker-related and non-participant-related deictic domains is fully target-like, the realisation of the hearer-related domain largely deviates from target-like hearer-oriented demonstrative forms (Figure 2). As such, it was concluded that ternary demonstrative systems are not preserved in the heritage varieties under investigation, but rather that they are in the process of reducing into binary systems. Besides, it was highlighted that the dominant varieties (with the partial exception of Argentinian Spanish) similarly display binary demonstrative systems. Thus, at face value, these data suggest that the encoding of deixis in demonstrative systems is affected by contact, supporting accounts whereby indexicality is to be conceived of as a primarily interface phenomenon.

However, a closer investigation of the comprehension and production data for the hearer-related domain revealed a less straightforward role of contact in shaping the attested patterns of change. Specifically, the data presented in Section 5.2 strongly suggest that the on-going reorganisation of ternary demonstrative systems cannot be attributed to transfer from the dominant variety, and, likewise, that one and the same dominant variety does not have a consistent effect on the heritage varieties spoken in contact with it. Overall, it was concluded that the demonstrative systems of the contact varieties do not drive parallel reorganisations in the demonstrative systems of the heritage varieties, in comprehension and production alike. Moreover, the fact that different patterns of change were reported across the various contact contexts (see Figures 4 and 5) and that this difference may not be attributed to transfer from the dominant language suggests that not even contact itself may be the (sole) trigger of this change, as otherwise we would have expected comparable patterns of change across the different contact contexts.

Thus, despite being ostensibly compatible with the predictions made by accounts that highlight the interface nature of indexicality, a microcontact approach to these data with focus on pairwise comparisons shows that they are ultimately not compatible with the hypothesis that contact plays a role in the reorganisation of ternary demonstrative systems. A traditional approach, whereby one single variety is investigated in isolation, would have led to different conclusions, and to inaccurate ones.

Further evidence that the reorganisation of demonstrative systems as attested in heritage southern Italo-Romance varieties is not driven by contact is provided by the consideration of diachronic data: Terenghi (2022, in prep.) showed that the diachrony of ternary demonstrative systems across Italo-Romance varieties (and beyond) attests similar reduction patterns to those discussed in the foregoing for heritage southern Italo-Romance varieties. Examples of such reduction patterns are provided in (3):

(3)   a.   *Ternary system > speaker-based binary systems* (own knowledge)

	speaker-related	hearer-related	non-pt-related
Tuscan	questo	codesto	quello
Standard Italian	questo	quello	

   b.   *Ternary system > participant-based binary systems* (Ledgeway 2004, *et seq.*)

	speaker-related	hearer-related	non-pt-related
Old Neapolitan	chisto	chisso	chillo
Modern Neapolitan	chisto		chillo

Some Italo-Romance varieties show the reduction of ternary systems into speaker-based binary systems: this is the case for Standard Italian in (3a), where, similarly to some of the results discussed in Section 5, the hearer-related deictic domain displays the same exponent as the non-participant-related deictic domain (NTL_3). Other Italo-Romance varieties show a different pattern of change, as exemplified by Neapolitan in (3b), where original ternary demonstrative systems reduced to participant-based binary ones: also this

path of evolution is compatible with some of the results presented in this study, namely with those cases in which the hearer-related deictic domain is realised by the same form used for the speaker-related deictic domain (NTL_1). Finally, Italo-Romance varieties are also attested in which ternary demonstrative systems remain stable (see Ledgeway and Smith (2016) for a complete overview), mirroring the target-like results presented in the foregoing.

The similarity across the possible patterns of reduction attested by ternary demonstrative systems in heritage varieties and in the diachronic development of other closely related varieties strongly suggests that the explanation for these paths of change should be holistic, and not rely on contact alone. Terenghi (2022, in prep.) proposes one such integrated account, whereby patterns of reduction in demonstrative systems are uniquely modelled in terms of featural complexity and structural constraints. Simplifying, deixis is taken to be encoded in demonstrative systems by means of person features: [±speaker] and [±participant] (see, e.g., Noyer 1992; Nevins 2007; Harbour 2016). Under this assumption, the hearer-related deictic domain is identified as a locus of complexity in the grammar of indexicality because of its featural derivation, which includes non-uniform feature values:

(4) a. speaker-related deictic domain ('near me') = [+speaker, +participant]

  b. hearer-related deictic domain ('near you') = [−speaker, +participant]

  c. non-participant-related deictic domain ('far') = [−speaker, −participant]

To solve this complexity, one person feature may be delinked from the internal structure of demonstrative forms, leading to either speaker-based binary systems (derived by the sole [±speaker]) or participant-based binary systems (derived by the sole [±participant]).

While a full exploration of this issue exceeds the scope of this study, before concluding it should be mentioned that the impermeability to contact of the encoding of deixis in demonstrative terms feeds back into the specific theoretical choices which should be made to model the encoding of indexicality in demonstrative elements. In line with the discussion in Section 2, the conclusions of this study strongly suggest that the interface dimension of indexicality is not prominent in its encoding: as such, an account for how indexicality is encoded in the grammar of demonstrative forms should not rely excessively onto interface considerations, to ensure that contact is not predicted to determine the change in demonstrative systems in the grammar of heritage speakers.

Moreover, this study showed that a proper assessment of the reasons which underlie change in heritage demonstrative systems is possible even in the absence of the ideal testing conditions (access to the baseline variety, acquisition-related considerations, etc.). This possibility is granted by a multi-layered approach to the heritage data, including pairwise comparisons across one and the same heritage variety considered in various immigration countries (hence in contact with various dominant languages) and diachronic observations.

7. Conclusions

The foregoing reported on the results of a study concerning demonstrative systems in heritage Italo-Romance varieties. The homeland counterparts to the chosen varieties display ternary demonstrative systems, that is, demonstrative systems that contrastively encode a three-way deictic opposition between the speaker-related deictic domain (e.g., *this near me*), the hearer-related deictic domain (e.g., *that near you*), and the non-participant-related deictic domain (e.g., *that far*). This study investigated whether the organisation of ternary demonstrative systems is still in place in the heritage varieties, or whether it has undergone change.

The results of both production and comprehension tasks presented in this work strongly indicate that the structure of ternary demonstrative systems underwent change in the Italo-Romance heritage varieties under investigation. However, upon closer inspection (as per the microcontact paradigm), the attested change was argued to be unrelated to cross-linguistic transfer. On the one hand, despite differences across contact contexts, the elicited answers were shown to be fundamentally incompatible with the specific structure

of the demonstrative systems attested in the dominant languages. On the other, it was additionally shown that different heritage Italo-Romance varieties show different patterns of change in contact with one and the same language, further suggesting that the specific contact varieties did not determine the attested patterns of change. As such, (language-specific) contact-induced change was ruled out on empirical bases.

Instead, as similar patterns of evolution are also attested in the diachronic development of closely related Italo-Romance varieties, it was concluded that change in the encoding of the hearer-related deictic domain, as reported in this study, is not a direct effect of contact, but ultimately follows the general patterns of endogenous change. This indicates that changes with respect to the encoding of indexicality in demonstrative systems need to be addressed holistically: a suitable account should prominently rely on formal considerations.

Thus, the present study ultimately advocates for a cautious approach to the evaluation of the purported role that contact would have in framing change in heritage languages: by combining pairwise comparisons and diachronic data, it was hinted that the divergent patterns attested in the heritage varieties under investigation, which might superficially resemble a case of contact-induced change, should instead be uniformly traced back to featural and structural factors which hold for all varieties, independently of their nature (heritage or not, spoken in contact or not). To conclude, demonstrative systems in heritage varieties may undergo change, but, if they do, such change is largely independent of the structure of the specific contact language and of contact in general.

Abbreviations

The following abbreviations are used in this manuscript:

ADV	locative adverb
DEM	(nominal) demonstrative
NTL	non-target-like
STL	semi-target-like
TL	target-like

Appendix A

Appendix A.1. Biographical Information

Table A1. Biographical information about the participants.

Speaker	Country	Age	Hometown|Dialect
A_sic_CO_025	Argentina	71–75	Acireale (CT)|Eastern Sicilian
A_sic_CO_029	Argentina	71–75	Motta d'Affermo (ME)|Eastern Sicilian
A_sic_RO_037	Argentina	56–60	Alcara li Fusi (ME)|Eastern Sicilian
A_abr_RO_039	Argentina	56–60	Pietraferrazzana (CH)|Western Abruzzese
A_abr_RO_040	Argentina	66–70	Lentella (CH)| Western Abruzzese
Be_sic_Br_003	Belgium	71–75	Mazzarino (CL)|Central Sicilian
C_sic_Mo_002	Canada	56–60	Villarosa (EN)|Central Sicilian
U_abr_B_002	USA	46–50	Introdacqua/Sulmona (AQ)|West. Abruzzese
U_abr_Q_004	USA	56–60	Orsogna (CH)|Eastern Abruzzese
U_sic_B_009	USA	51–55	Castelbuono (PA)|Western Sicilian
U_sic_B_011	USA	36–40	Carini (PA)|Western Sicilian

Appendix A.2. Questionnaire

The audio material used to perform the two tasks (instructions and stimuli) was recorded by Italian-born native speakers of the target varieties (for the full, original version, see Terenghi (in prep.), Appendix A.1).

The instructions given for each task follow, in their English translation:

- **Picture-sentence matching task (Items I1–J6): Instructions.** *We will now show you some images. The character with a balloon is the one that is speaking. Please, choose the sentence that, according to you, the speaker is uttering./Which sentences can they utter?*
- **Semi-guided production task (Items J7–J8): Instructions.** *I will now ask you where these three cats are. (Please, respond by saying where the cats are now.)/Can you tell me where the three cats are?*

The English version of the entire questionnaire is presented in Table A2; here, for the sake of brevity, the three deictic domains (speaker-related, hearer-related, and non-participant related) are indicated by 'DEM.1', 'DEM.2', and 'DEM.3', respectively; likewise, the three demonstrative forms (speaker-oriented, hearer-oriented, and non-participant-oriented) are referred to as '1', '2', and '3', respectively.

Table A2. Questionnaire.

Item	Syntax	Semantics	Stimuli	Target
I1	Pronominal	DEM.1	Figure 1a; audio: '{1/2/3} *is my dog*'	1
I2	Pronominal	DEM.2	Figure 1b; audio: '{1/2/3} *is your dog*'	2
I3	Pronominal	DEM.3	Figure 1c; audio: '{1/2/3} *is their dog*'	3
I4	Adnominal	DEM.1	Figure 1a; audio: '{1/2/3} *dog is mine*'	1
I5	Adnominal	DEM.2	Figure 1b; audio: '{1/2/3} *dog is yours*'	2
I6	Adnominal	DEM.3	Figure 1c; audio: '{1/2/3} *dog is theirs*'	3
J4	Reinforcer	DEM.1	Figure 1a; audio: '{1/2/3} *here is my dog*'	1
J5	Reinforcer	DEM.2	Figure 1b; audio: '{1/2/3} *there$_2$ is your dog*'	2
J6	Reinforcer	DEM.3	Figure 1c; audio: '{1/2/3} *there$_3$ is their dog*'	3
J7	Nominal	*Context-dependent*	Figure: three cats in the room; audio: *Which one is the black/orange/white cat?*	—
J8	Adverbial	*Context-dependent*	Figure: three cats in the room; audio: *Where is the black/orange/white cat?*	—

Note

1.   This latter issue exceeds, however, the scope of this work; for a preliminary proposal (see Terenghi (2022, in prep.)).

2.   Despite not being a generally accepted approach in acquisition studies, this is an entirely legitimate choice from a formal standpoint, as heritage varieties are languages in their own right and possess, as such, a fully-fledged, independent grammar of their own. Therefore, they can partake in traditional comparative research.

3.   Endophoric demonstratives (anaphoric, discourse, and recognitional demonstratives; Diessel (1999) and, for a more complex typology, Levinson (2004)) are instead left aside: the main reason for this is that endophoric demonstratives typically encode fewer deictic contrasts than exophoric ones, and maximally two, dividing the referents into old/familiar information as opposed to new information. This study investigates, instead, more complex demonstrative systems, which include three contrastive terms.

4.   As an aside, it should be noted that the assumption of a person-oriented basic semantics for demonstrative systems is but one of the possible formalisations thereof. An alternative view is to assume thoroughly distance-oriented semantics for demonstrative forms. This issue exceeds the scope of the present paper, but see Terenghi (2021) for discussion.

5.   Speaker-based binary systems may also refer to the hearer-related domain by means of a speaker-oriented form: this may however only be done if the hearer is near the speaker, so ultimately the use of a speaker-oriented form is constrained by the position of the referent with respect to the speaker.

6.   The following discussion abstracts away from orthogonal patterns of morpho-syntactic variation: all forms are recorded in their masculine singular inflection.

7.   Italo-Romance varieties have been spoken in these areas since at least the late 19th century; however, the areas under investigation differ with respect to various aspects linked to the history of the Italian presence: when the periods of most intense immigration were (e.g., considerably later for Quebec and Belgium than for Argentina and the US), to what extent the different regional communities merged into an Italian community and to what extent the former or the latter integrated within the local communities, etc. A discussion of these topics can be found in Andriani et al. (2022a).

8.   Further research is needed to fully understand variation in this respect (whether it has sociolinguistic correlates, diatopic correlates, etc.). Most importantly, at the present stage we have not verified which system was used by our heritage Italo-Romance informants when speaking in Spanish, due to the preliminary nature of the data collection (see Section 4).

9.   Note, again, that here heritage languages are compared to varieties which are not their baseline; for a discussion, see Section 2.

10.   Additionally, one heritage speaker of Calabrian was interviewed in Argentina; however, due to the comparative endeavour of the microcontact methodology, the results of that speaker are disregarded in this work.

11.   Note that deixis has become the focus of much research only recently: therefore, a well-established model for data collection is still mostly unavailable, with the exception of Wilkins (1999, 2018). As that questionnaire would have proved excessively long (and rather difficult to perform with our population), we opted for original tasks.

12.   However, due to the level of microvariation and to (micro)diachrony, the variety of the recorded stimuli did not typically coincide with that spoken by our informants. The issue did not hinder the execution of the tasks, with the exception of data collected in New York City, where tasks were performed as translations instead.

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