

Indefinite determiners in two northern Italian dialects. A quantitative approach.

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Received: 15-03-21

Accepted: 30-09-21

Published: 22-02-22

How to cite: Gianluca E. Lebani & Giuliana Giusti. 202x. Indefinite determiners in two northern Italian dialects. A quantitative approach. RLLT17, eds. Ora Matushansky, Laurent Roussarie, Michela Russo, Elena Soare & Sophie Wauquier. Special issue of *Isogloss Open Journal of Romance Linguistics* 8(2)/18, 1-19.
DOI: <https://doi.org/10.5565/rev/isogloss.122>

Abstract

Italian and Italian dialects express indefiniteness in different ways, among which with a null determiner (ZERO) like all other Romance languages, but also with the definite article (ART) unlike what is found in Romance. Italian and some northern Italian dialects also display the so-called “partitive determiner” DI+ART, which is present in French. Few northwestern Italian dialects display (bare) DI, parallel to French. We adopt Cardinaletti and Giusti’s (2015, 2016) unified analysis and build on Cardinaletti and Giusti’s (2018, 2020) hypothesis that the variation and optionality in the distribution of the four determiners in regional Italian mirror their distribution in Italian dialects along two isoglosses: the ART isogloss spreading from the center of Italy towards north-west and south-east; and the DI isogloss spreading from Piedmont eastwards. We conduct a quantitative analysis on the results of a questionnaire in

Piacentino and Rodigino. We test the distribution of the four determiners with mass and count nouns in two dimensions: sentence type (positive vs. negative) and predicate type (telic vs. atelic). The results confirm the hypothesis that the complexity of the determiner is related to its distribution highlighting two hierarchies of contexts: NEG < POS and ATEL < TEL. It also confirms that Piacentino, located at the crossroads of the ART and DI isoglosses, has more optionality than Rodigino, located at their borders.

Keywords: Italian dialects, indefinite determiners, partitive articles

1. A unified analysis of Italo-Romance indefinite determiners

Italian presents a large variety of indefinite determiners, four of which are the logical combination of two elements and their silent counterparts: one is homophonous to the definite article and the other is homophonous to the preposition *di* ‘of’. We use capital ART and DI to remain agnostic as to the grammatical category of these morphemes, which have been argued by Cardinaletti and Giusti’s (2015, 2016, 2018, 2020) to be neither the definite determiner nor the partitive / genitive preposition:

- (1) a. Non leggo libri come questi
NEG read-1.SG books
- b. Non leggo i libri come questi
NEG read-1.SG ART books
- c. Non leggo di libri come questi
NEG read-1.SG DI books
- d. Non leggo dei libri come questi
NEG read-1.SG DI+ART books
‘I don’t read books like these’

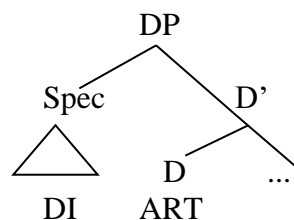
The four indefinite determiners are (almost) synonymous in this context. They vary considerably in other contexts and across dialects, as briefly presented in this section. In (1a) the bare noun phrase is parallel to what is found in all Romance languages except French. In (1b) the article is not definite in meaning and cannot be considered a weak definite¹. In (1c) we find the apparent preposition *di*, parallel to French *de*². In (1d) *di* is merged with the apparent definite article, forming what in French is called “partitive article”.

Cardinaletti and Giusti (2015, 2016) argue that DI is an indefinite determiner, merged in SpecDP while ART is a bundle of gender and number features in D, as in (2):

¹ There are many reasons not to treat (1b) as a weak definite (e.g. *read the newspaper*), among which the following (cf. Leonetti 2019): (i) weak definites are common in Romance; (ii) they mostly involve (count) nouns in the singular; they follow strict lexical restrictions (e.g. *read the book* is not a weak definite). On the contrary, ART with indefinite interpretation is not possible in other Romance languages; it is limited to mass singular and count plural (parallel to weak indefinites) and it is not subject to lexical restrictions (cf. Giusti 2021).

² The use of bare *di* in Italian is possible in this context due to the ‘quality’ interpretation of the DP conveyed by the modifier *come questi* (‘like these’).

(2)

**Table 1**

SpecDP	D	
0	0	<i>libri</i> (1a)
0	<i>i</i>	<i>i libri</i> (1b)
<i>de</i>	0	<i>di libri</i> (1c)
<i>de</i>	<i>i</i>	<i>dei libri</i> (1d)

Observing Italian dialects as witnessed by AIS (Jahberg and Jud, 1928-1940) maps 637 (“[to go look for] violets”), 1037 (“if there was water”), 1343 (“[to go to the cellar] to take wine”), Cardinaletti and Giusti (2018) argue that the optional realization of the two morphemes creates two isoglosses. The ART isogloss characterizes Italo-Romance; it has its core in the center-south of Italy (Marche, Umbria, Lazio, Abruzzi, Campania), where it is the only possibility and spreads throughout the Peninsula, with a lower distribution in the eastern and western parts of the North (Veneto and Piedmont / Liguria), in the extreme south (Calabria and Salento) and the islands (Sardinia and Sicily). The DI isogloss characterizes Gallo-Romance; it has its core in western Piedmont and the Aosta Valley and spreads eastwards across the Po Valley to the whole Emilia and Romagna, where it overlaps with the ART-isogloss giving rise to DI+ART. Bare *di* is limited to the north-west at the western border of the ART isogloss. DI-ART is limited to the Po Valley and is only sporadically found in Tuscany and only in one case in Lazio. Figure 1 visualizes this state of affairs.

Cardinaletti and Giusti (2015, 2016) propose that the variation of determiner types in one and the same point or area can either be due to a specialization of meaning of each determiner or to true optionality. Note that the three AIS maps present narrow scope indefinites. The differentiation of meaning must therefore regard subtle nuances of indefiniteness, such as saliency or small quantity, contrasted with core indefiniteness (lack of such nuances).

In map 1037, here rendered in Figure 2, “wine” is salient to the context of “going to the cellar” but can also favor small quantity. We note that ART is more widespread, covering the whole of Lombardy, wide areas of Veneto (north-east) and some points in Piedmont and Liguria (north-west). It is the most chosen form in the whole of Tuscany as well as in the center and the south of the peninsula, including Salento, Calabria and Sicily. We also note that DI (with no article) is more present in southern Emilia and Romagna (the extreme south of the DI isogloss) and at the borders with France from the Aosta Valley down to Liguria, while DI+ART appears as south as the Elba island (in Tuscany). ZERO is limited to the very north, especially north-east and Sardinia and very sporadic in Calabria and Sicily.

Figure 1. Rendering of the AIS maps number 637, 1037 and 1343. In the following figure each location censused in the AIS collection is represented by three overlapping dots showing the use of one of our four determiners in the sentences “[to go look for] violets” (left), “if there was water” (center) and “[to go to the cellar] to take wine” (right)

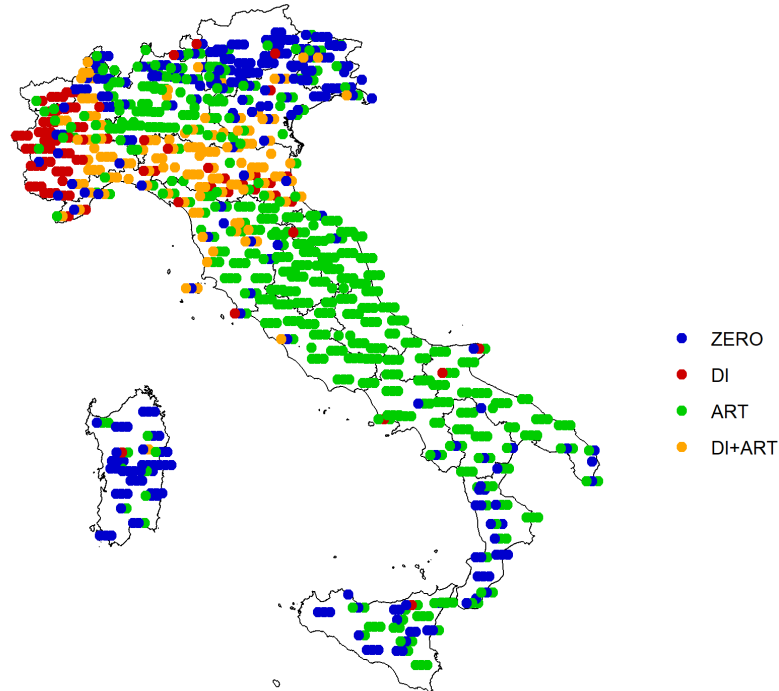
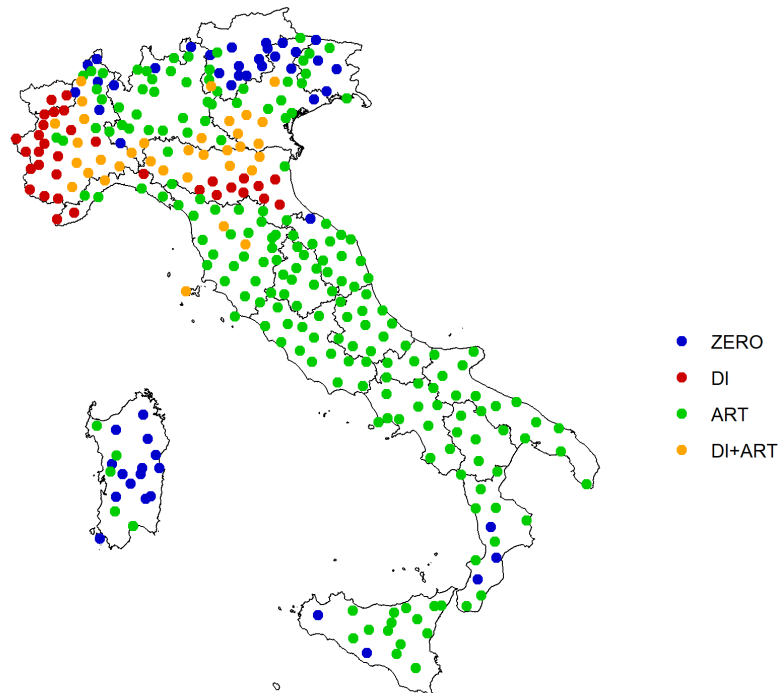
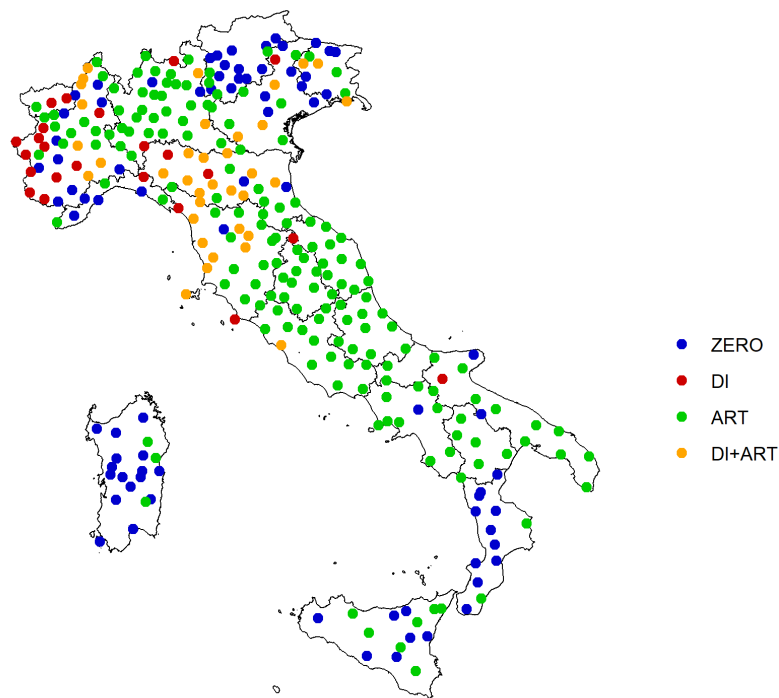


Figure 2. Rendering of the AIS map number 1343, showing the distribution of the use of the four determiners in the sentence “[to go to the cellar] to take wine”



In map 637, here rendered in Figure 3, “violets” favor the small quantity interpretation, as they are small flowers that create small bundles. DI+ART pops up in areas where it is not present in the other two maps: northern and eastern Veneto, Lombardy, Tuscany and even Lazio; in Emilia and Piedmont, it competes with bare DI. In turn, bare DI is found in three unexpected points: in the Marche, southern Tuscany and northern Apulia. Only Calabria and Sardinia have a solid presence of ZERO. In all other areas, the choice is wide and ART is present in the whole of the territory.

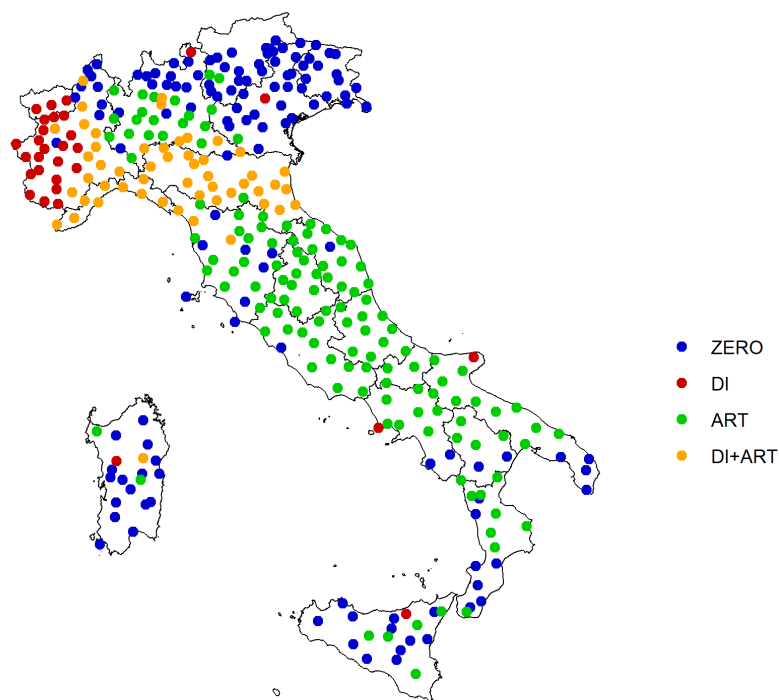
Figure 3. Rendering of the AIS map number 637, showing the distribution of the use of the four determiners in the sentence “[to go look for] violets”



The hypothetical sentence “if there was water” on map 1037, here rendered in Figure 4, gives us the less marked context. The map displays more homogenous areas. ZERO is solidly attested in the north and displays a vast area in the whole north-east. It also surfaces sporadically in the center and more solidly in the south, where it competes with ART. Interestingly, bare DI is the unmarked choice in western Piedmont and the Aosta Valley, which are at the borders of the ART isogloss, while DI+ART is the unmarked choice in eastern Piedmont, Emilia and Romagna, which are at the crossroads of the DI and the ART isoglosses.

Many questions arise from Cardinaletti and Giusti’s analysis, among which: Is the diatopic variation displayed by the dialects also represented in regional (informal) Italian? What is the situation in modern-day dialects with respect to variation and optionality after a century since the AIS fieldwork? And more generally, how does specialization of meaning interact with well-known effects found on indefiniteness such as noun types, aspect, polarity, and collocation?

Figure 4. Rendering of the AIS map number 1037, showing the distribution of the use of the four determiners in the sentence “if there was water”



Preliminary answers to these questions have been given in subsequent work (Cardinaletti and Giusti 2020, Giusti 2021) by creating a questionnaire covering some of the formal environments relevant to indefiniteness and administering it to Italian and dialectal speakers.

2. The questionnaire

A critical point in generative approaches is the resort to grammaticality judgements given by a small number of speakers. Another critical point in the dialectological fieldwork is the collection of translations of selected sentences administered in the standard language. The questionnaire aims to overcome these drawbacks.

In November-December 2016 Giuliana Giusti designed and conducted a MOOC course entitled *La grammatica che migliora la vita* ('The grammar that improves life') where speakers of Italian were presented a non-normative view of the study of language and were engaged in observing diatopic and diastratic variation. Three questionnaires were designed to make attenders reflect on their own judgements, one of which was the expression of indefiniteness. Cardinaletti and Giusti (2020) analyze the responses of 82 participants, native speakers of Italian, 35 of whom highly competent in their local dialect, rather balanced across 4 age groups 20 participants (18-30 years of age); 15 (31-40); 26 (41-50), 21 (>50-60). Their distribution across the Italian territory was not perfectly balanced (recruitment was totally voluntary) but covered most areas: Northwest 11 (4 Piedmont, 6 Lombardy, 1 Liguria); Northeast 21 (19 Veneto, 2 Friuli Venezia Giulia, 6 Emilia and Romagna); Center 10 (2 Tuscany, 2 Marches, 6 Lazio); South 20 (4 Abruzzo, 4 Campania, 8 Puglia, 4 Calabria), 5 Sardinia, 9 Sicily.

The questionnaire presented 15 multiple-choice items minimally different from one another for the type of determiner on the indefinite object, 2 substitution items, 6 open comments and 6 questions on linguistic attitudes. The determiners checked also

included *certo* ('certain'), which induces a special interpretation in Italian but is reported as an unmarked indefinite in southern Italian dialects.

The features interacting with indefiniteness were many, including noun class (mass vs. plural count), habitual negative sentences in the present, single-event positive sentences in the past, and different degrees of frequency in collocation. We refer the readers to Giusti (2021) for a detailed presentation of the questionnaire and an in-depth discussion of the interaction of these features in Italian compared to other Romance languages.

2.1. Informal Italian

Cardinaletti and Giusti (2020) analyze the results of the first administration of the questionnaire, highlighting the following distribution of the four indefinite determiners across contexts in informal Italian. Core indefiniteness favors ZERO and ART. More precisely, non-existential indefinites in the scope of negation favor ZERO over ART, while salient existential interpretation favors ART over ZERO. Bare DI is not present at all in first merge position.³ The acceptability of DI+ART increases with the small quantity interpretation and with the presupposition of existence, more so with telic rather than atelic predicates.

As regards their diatopic distribution, the three possible determiners are found throughout Italy, but with a difference in preference that mirrors the scenario displayed by the dialects: ZERO prevails in the lateral areas (north-east and south-west). ART prevails in the center-south but also in Emilia and Romagna. DI+ART prevails in the Gallo-Romance area, especially in Emilia and Romagna.

A preliminary answer to the question: "Is informal Italian influenced by contact with the local dialects?" is therefore positive. Even speakers who declare themselves as

³ We saw in (1c) that it is possible if the DP has 'quality interpretation'. It is also possible when the DP is dislocated and resumed by the quantitative clitic *ne*, as in (ii):

- | | | |
|------|----|---|
| (i) | a. | Non mangio (*di) prosciutto.
NEG eat-1.SG (of) ham
'I don't eat ham.' |
| | b. | Non mangio (*di) patate.
NEG eat-1.SG (of) potatoes
'I don't eat potatoes.' |
| (ii) | a. | (Di) Prosciutto non ne mangio.
(of) ham NEG QUANT.CL eat-1.SG
'Ham, I don't eat any.' |
| | b. | (Di) Patate non ne mangio.
(of) potatoes NEG QUANT.CL eat-1.SG
'Potatoes, I don't eat any.' |

The distribution of DI in dislocated indefinite nominals across Italian dialects has not been studied to our knowledge and is the topic of on-going research bilateral research in collaboration with Anna Cardinaletti and the VariOpInTA team (Variation and Optionality in Italo-Romance).

non-fluent in the dialect display preferences in their informal Italian that can be related to the features that characterize the dialect witnessed by AIS.”

2.2. Contemporary dialects

The other general question regards the status of contemporary dialects in contact with standard Italian.⁴ In the years 2018-2020, the questionnaire was adapted to many dialects covering the provinces of Treviso, Udine, Pordenone, Rovigo, Genova, Piacenza, Bari, Napoli, Reggio Calabria, Lecce.⁵ Giusti (2021) reports that the results confirm the tendencies found by Cardinaletti and Giusti (2018) in the AIS maps. In Table 2, [+] indicates that the determiner is present as core indefinite and is possible in all contexts, [-] indicates that it is not present, [(+)] indicates that it is only present in some contexts, in other words it has special meaning:

Table 2. Indefinites in object position in modern Italian dialects

	ZERO	ART	DI	DI+ART
Northern Veneto (Campomolino, Treviso)	+	(+)	-	(+)
Southern Friulian (provinces of Udine and Pordenone) Southern Veneto (province of Rovigo)	+	+	-	(+)
Piacenza	(+)	+	(+)	+
Ancona	-	+	-	(+)
Altamura (Bari)	-	+	-	-
Naples area	(+)	+	-	-
Galati (Reggio Calabria)	+	+	-	-
Lecce	+	(+)	-	-

Source: adapted from Giusti (2021: 294)

As in the AIS maps, more than one determiner occur in one and the same dialect (except for Altamura), but in many points one determiner is unmarked, while the other(s) specialize. In the extreme North-East (Treviso) and South (Lecce), ZERO is the unmarked choice and ART is only used in saliency context. The central dialect of Ancona and the southern dialect of Altamura well represent the ART isogloss and do not display ZERO at all. The areas in which ZERO and ART are in full competition are southern Friulian and southern Veneto in the North and Galati (Calabria) in the south. These dialects are at the border of the ART isogloss surrounded by ZERO. The only dialect in which ART and DI+ART are in full competition is Piacenza, at the crossroads of the ART and the DI isoglosses.

As expected, DI+ART is only present in the northern varieties and is a marked choice in the north-east. Also expected is that it is unmarked in Piacenza (the only true

⁴ According to the ISTAT (2017) Report on the linguistic situation in Italy in 2015, for all ages the exclusive use of the dialect decreases, even among elders who however remain the largest part of the speakers in 2015, 32% of over-75 citizens speak prevalently dialect in the family (in 2006 it was the 37,1%).

⁵ Antonaci (2018) on Leccese; Furlan (2018) on Campomolinense (Treviso); Maesano (2018) on Galatese; Molinari (2018, 2020) on Piacentino; Perinot (2018) on Southern Friulian; Procentese (2019) on Neapolitan; Vicenti (2019) on Altamurese; Zanaga (2018) on Rodigino. The data in Anconetano were collected by Giuliana Giusti.

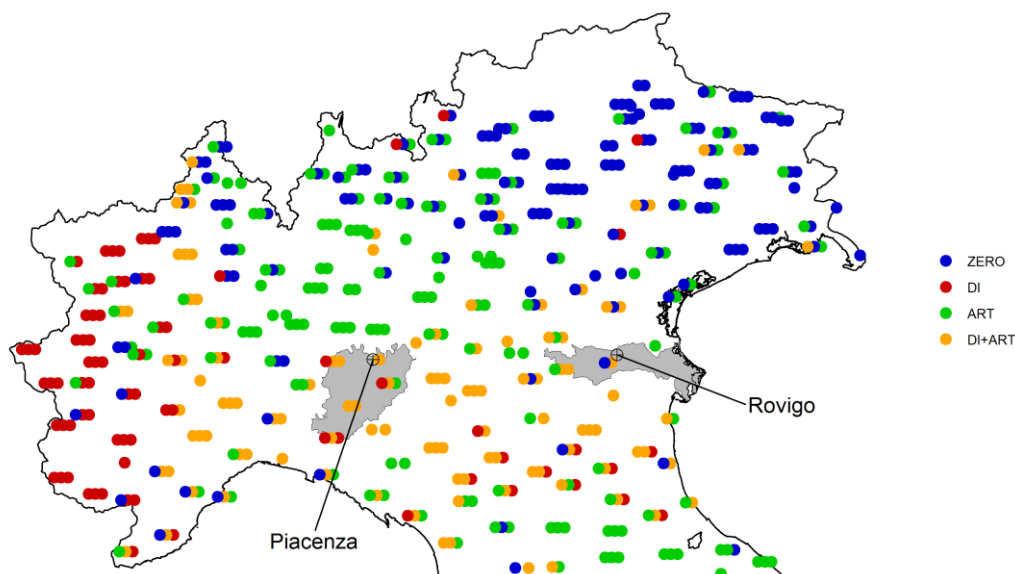
Gallo-Romance variety investigated), while north and south of Piacenza it has a special meaning. Differently from the AIS data, the modern Piacenza dialect allows ZERO (especially among young informants) and limits DI to the scope of negation, cf. Molinari (2018, 2020).

The comparative analysis of the Southern Venetan dialect of Rovigo and the Gallo-Romance dialect of Piacenza will allow us to observe two northern Italian dialects that present quite different uses of the four determiners. A quantitative perspective applied to selected contexts will allow us to pin down the different values of the determiners in the two dialects and to observe true optionality, if present.

3. A quantitative study on Piacentino and Rodigino

As shown in Figure 5, Piacenza and Rovigo are at the crossroads of the DI isogloss (the red area) and the ART isogloss (the green area). Piacenza is quite central to both isoglosses (it is in an area in which the two isoglosses overlap, and produces DI+ART marked as orange), while Rovigo is peripheral to both (it is at the northern border of ART, where solid green is mixed with blue and at the eastern border of DI(+ART) marked as orange):

Figure 5. Detail of Figure 1 showing the positioning of Piacenza and Rovigo at the crossroad of the DI and ART isoglosses. The cities are marked by “circle plus” markers, while the provinces are shown as grey-filled polygons.



3.1. Hypothesis and expectations

Let us hypothesize that core indefiniteness is expressed by the formally less complex determiner(s) available in the language, while specialized meanings are reserved to the formally more complex one(s).⁶ According to structure (2), the less complex determiner

⁶ Our hypothesis is set in the minimalist tradition and is the mirror image of other accounts, starting from Zamparelli's (2000), which claim that referential, specific, strong DPs

among the ones we are studying is ZERO (null SpecDP and null D). ART and DI are equally complex in that each has a null and an overt position. DI+ART is the most complex of all in that it has both positions filled.

We expect a higher degree of optionality in the dialect of Piacenza, which is in an area in which the complex DI+ART is found in the hypothetical context of AIS map 1037 (the less marked of the three contexts provided by the AIS maps). If the most complex determiner can be used to express core indefiniteness, the less complex determiners DI and ART are expected to be in competition with it and not to specialize for given contexts.

Rovigo is at the eastern border of the DI isogloss and at the northern border of the ART isogloss. We therefore expect a high degree of specialization of meaning across the three possible determiners ZERO, ART, and DI+ART, which have a different degree of complexity.

We also expect that the different rates of optionality reflects the complexity hierarchies NEG < POS (indefinites with narrow scope in negative contexts are expected to be less complex than indefinites in positive sentences) and ATEL < TEL (indefinite objects of atelic predicates are expected to be less complex than indefinite objects of telic predicates).⁷ In other words, we expect that less complex determiners appear (at a higher rate) in negative and atelic contexts, while more complex determiners appear in positive and telic contexts.

3.2. Participants

Overall, 31 dialect speakers volunteered to participate in the study. 16 native Piacentino speakers (Age: 18-30 ($n=5$); 31-60 ($n=6$), 61+ ($n=5$)), 15 native Rodigino speakers (Age: 18-30 ($n=9$); 31-60 ($n=5$), 61+ ($n=1$)). Data of two subjects, one of each group, were not included in the final analysis due to missing data or because they didn't comply with the instructions⁸. The judgements from the participants from Rovigo were collected by Micol Zanaga with an on-line questionnaire (Zanaga 2018), while the participants from Piacenza were interviewed at home by Luca Molinari (Molinari 2018).

are richer in structure than non-referential, non-specific, weak DPs (cf. Ihsane 2008, Dobrovie Sorin and Beyssade 2004, Espinal and Cyrino 2021). Instead of assuming more structure for semantically more complex determiners, our hypothesis maintains the minimal structure in (2) for all types of nominal projections and poses a hierarchy of complexity in the type of elements that fill SpecDP and D. This latter part of the proposal is in line with the tradition that sets a correlation between morphological strength and richness of features with pronouns (cf. Cardinaletti and Stark 1999).

⁷ According to Brasoveanu and Farkas (2016), uncontroversial indefinites may introduce a new referent in the discourse or not refer to any referent at all. Indefinites in the scope of negation and as objects of atelic predicates do not presuppose the existence of the referent, while a positive context and a telic predicate favour presupposition of existence. In this view POS and TEL contexts are taken here as requiring a “more complex” referent that NEG and ATEL contexts.

⁸ The compliance of each participant was tested by measuring its pairwise agreement with all the other raters from the same area. Participants failing to reach a Krippendorff's alpha score (Krippendorff, 2004) of at least 0.3 with at least one other rater were excluded from the pool. We adopted such a very low threshold to be as conservative as possible.

3.3. Procedure and Stimuli

Each participant was asked to rate 55 sentences as being acceptable or not. Sentences were shown in the dialect of the rater. Sentences were presented in groups of 5 introduced by a contextual description, i.e. by a simple statement used to rule out possible ambiguities in the interpretation of the target sentences. For instance, a contextual description like “In your dialect, a vegetarian would say” was presented in order to rule out an unwanted but plausible interpretation of the certain-type interpretation that *certo* (“certain”) has in Italian.

The groups of sentences are a subset of the 17 experimental items by Giusti (2021), from which we selected the 11 experimental items that could be used to contrast POS vs. NEG and TEL vs. ATEL contexts. Accordingly, we narrowed down the questionnaire to the 11 items that are relevant to polarity and telicity. Our dataset presented in Table 3 is thus composed of 4 narrow scope indefinite in negative sentences with atelic predicate (1-4), 3 narrow scope indefinites in positive sentences with atelic predicate (5-7), 4 narrow scope indefinites with telic predicates (8-11), as shown in Table 3. Negative atelic contexts diagnose core indefinites and lack of presupposition of existence. Positive telic contexts diagnose specialized meanings and presupposition of existence.

Table 3. Contextual description and variants of each experimental item

Negative	Atelic	1. In your dialect, a vegetarian would say: <i>I don't eat 0/ART/DI/DI+ART meat</i>
		2. Please substitute <i>meat</i> with <i>potatoes</i>
		3. In your dialect, a teetotaler would say: <i>I don't drink 0/ART/DI/DI+ART wine</i>
		4. Please substitute <i>wine</i> with <i>spirits</i>
Positive	Atelic	5. Suggesting what one could do in the mountains, one could say: <i>You can pick 0/ART/DI/DI+ART violets</i>
		6. / 7. Telling what you did last Sunday in the open air, you would say: I cut 0/ART/DI/DI+ART grass for an hour I picked 0/ART/DI/DI+ART blackberries for an hour
		8. / 9. Telling what you did last Sunday in the open air, you would say: <i>I cut 0/ART/DI/DI+ART grass in an hour</i> <i>I picked 0/ART/DI/DI+ART blackberries in an hour</i>
	Telic	10. /11. Complete the sentences: While Gianni was setting the table in the garden <i>Maria went to the cellar to take 0/ART/DI/DI+ART wine</i> ... and in the meantime <i>Teresa went to the butcher's to buy 0/ART/DI/DI+ART beefsteaks</i>

Source: adapted from Giusti (2021)

As shown in Table 3, each group of sentences was composed of five different variants, characterized by the use of a specific determiner:

- the ZERO variant: sentences lacking the determiner, as in *non mangio _carne* (“I don’t eat meat”);
- the ART variant: sentences in which the direct object is preceded by an article, as in *Non mangio la carne* (lit. I don’t eat the meat);
- the DI variant: sentences in which the direct object is preceded by the determiner *di*, as in *Non mangio di carne* (lit. I don’t eat of meat);

- the ART+DI variant: sentences in which the direct object is preceded by the partitive determiner, as in *Non mangio della carne* (lit. I don't eat of+the meat);
- the CERTO variant: sentences in which the object is introduced by *certo*, as in *Non mangio certa carne* (lit. I don't eat certain meat). This condition was added as a filler sentence and ignored in our analysis.

3.4. Data Analysis

For either participant or item, the average acceptability score was computed as a function of the following factors: determiner type; aspectual class of the predicate and sentence polarity. Data were analyzed both by-subject and by-item by means of different Analyses of Variance (ANOVAs). Note that, following Forster and Dickinson (1976), the null hypothesis should be rejected only if significant F-values are observed for both the by-subject and the by-item analyses.

Due to the unbalanced design, the factors verb aspectual class and sentence polarity couldn't be included in the same by-subject or by-item ANOVA, but separate analyses had to be performed to account for the influence of these factors. The factors determiner-type and dialect, on the other way round, were present in all ANOVAs.

In the by-subject analyses, acceptability scores were submitted to two separate ANOVAs, both with one between-subject factor and two within-subject factors. The between-subject factor and one of the within-subject factors were identical across the two analyses: the dialect of the participant and the determiner type, respectively. The second within-subject factor consisted of the factor aspectual class in the first ANOVA and the factor polarity in the second ANOVA. Similarly, in the by-item analyses, two separate ANOVAs were performed, both with two within-item factors (determiner-type and dialect) and one between-item factor (either aspect or polarity).

For all analyses, a smoothing procedure⁹ was applied to account for the lack of variance in one of the cell of the design in involving the acceptability of the DI variant: namely, its acceptability by the Rodigino speakers in the by-item analysis; its acceptability in the telic and in the positive sentences for the first and second by-subject analyses, respectively.

Post-hoc analyses (Unequal Tukey's HSD) were performed to disentangle possible significant interactions between factors. F-values are reported for both by-subject (F_1) and by-item (F_2) analyses.

3.5. Results

Overall, we collected 1,276 judgements, distributed as shown in tables 4 and 5.

⁹ Specifically, a value of 0.000000001 was added to a single randomly selected cell.

Table 4. Proportion of acceptable realizations (“Acceptability”) and number of collected judgements (“N”) as a function of aspectual class, determiner type and dialect.

Aspect	Determiner	Piacentino		Rodigino	
		Acceptability	N	Acceptability	N
Atelic	ZERO	0.467	105	0.694	98
	ART	0.848	105	0.735	98
	DI	0.476	105	0	98
	Di + ART	0.657	105	0.173	98
Telic	ZERO	0.133	60	0.089	56
	ART	0.833	60	0.839	56
	DI	0	60	0	56
	Di + ART	0.8	60	0.5	56

Table 5. Proportion of acceptable realizations (“Acceptability”) and number of collected judgements (“N”) as a function of polarity class, determiner type and dialect.

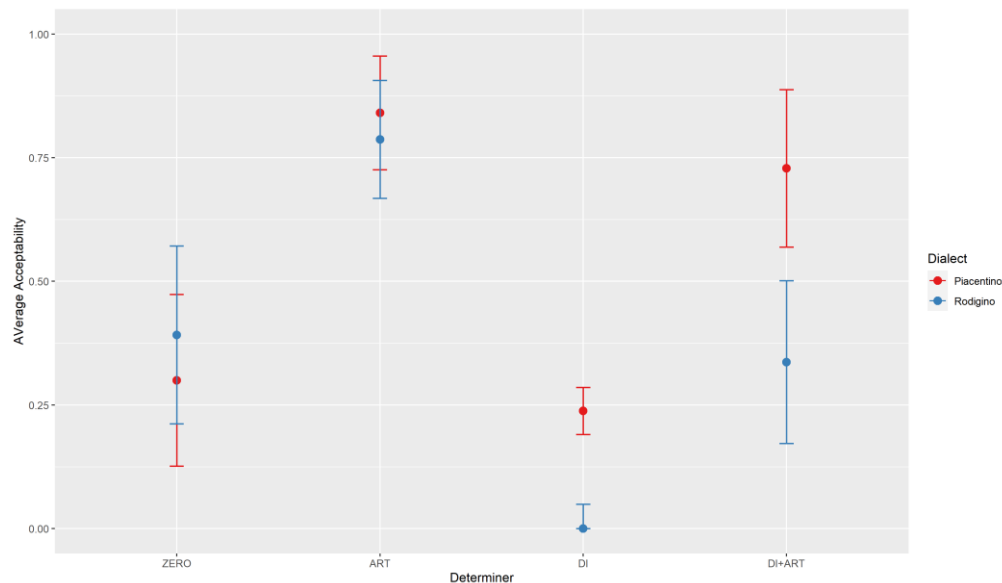
Polarity	Determiner	Piacentino		Rodigino	
		Acceptability	N	Acceptability	N
Negative	ZERO	0.533	60	0.839	56
	ART	0.8	60	0.696	56
	DI	0.833	60	0	56
	Di + ART	0.45	60	0	56
Positive	ZERO	0.238	105	0.265	98
	ART	0.867	105	0.816	98
	DI	0	105	0	98
	Di + ART	0.857	105	0.459	98

3.5.1. Analysis with the factor aspectual class

The ANOVA revealed that all main effects and their interactions were significant, all $F_{1s} \geq 5.004$, all $p_s < .03$, all $\eta_p^2 \geq .16$. Of particular relevance for the current study are: the two-way interaction involving the factors determiner-type and dialect, $F_1(3, 81) = 12.15$, $p < .001$, $\eta_p^2 = .31$, and the three-way interaction involving the factors determiner-type, dialect and aspectual class, $F_1(3, 81) = 10.90$, $p < .001$, $\eta_p^2 = .29$.

As for the two-way interaction, post-hoc analyses showed that acceptability scores were significantly higher for the Piacentino than the Rodigino, but only for the “DI” ($p = .01$) and the “DI+ART” ($p < .001$) variants, whereas comparable scores were observed for the ZERO and ART variants ($p_s \geq .87$), see Figure 6:

Figure 6. Average acceptability scores by determiner type and speaker’s dialect. For the sake of brevity and to avoid redundancy, only the acceptability scores from the by-subject analysis are reported.

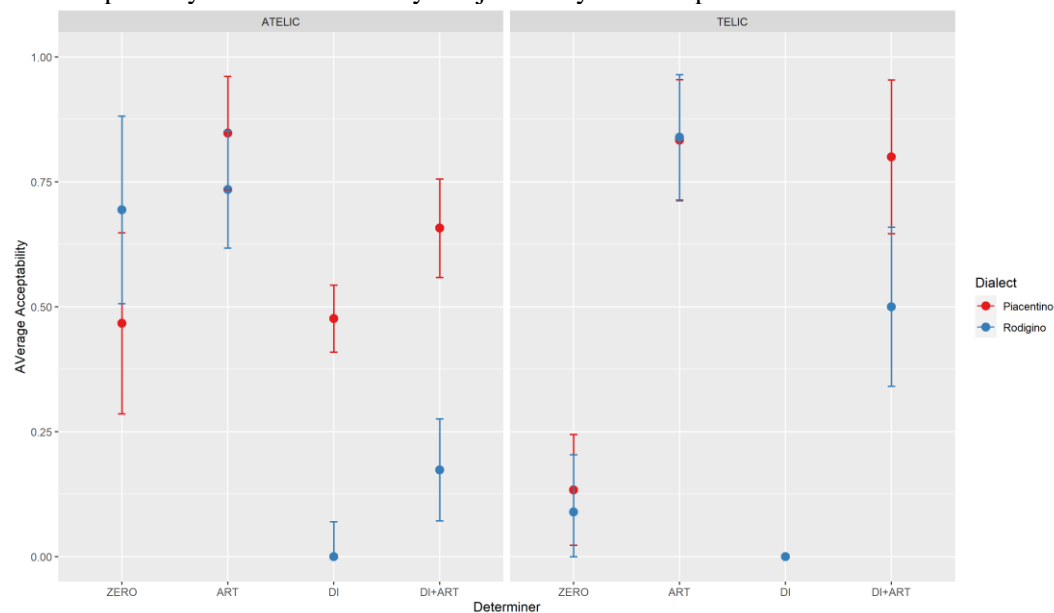


This pattern, however, is further characterized by the aspect of the predicate, as shown by the significant three-way interaction shown in Figure 7. Specifically, on the one side we have a significant difference between the two dialects for the “DI+ART” determiner both in the atelic ($p < .001$) and in the telic ($p = .03$) condition. On the other hand, we found a significant inter-dialectal difference for the “DI” variants only in the atelic condition ($p < .001$), something that we tie to fact that, as shown in the next subsection, Piacentino speakers find “DI” acceptable only in the negative sentences, that in our unbalanced design are presented only in the atelic condition. The remaining differences were not significant ($p_s > .3$).

Focusing on the distribution of the different determiner types over telicity, we found a higher acceptance rate for ZERO in the atelic condition in both dialects ($p_s < .001$), a higher acceptance rate for DI in the atelic condition for the Piacentino speakers ($p < .001$) and a higher acceptance rate for DI+ART in the telic condition for the Rodigino speakers ($p < .001$). The remaining differences were not significant ($p_s > .69$).

The results of the by-item analysis confirmed the main findings of the by-subject counterpart, revealing significant interactions involving the factors determiner-type and dialect, $F_2(3, 27) = 6.9$, $p = .001$, $\eta_p^2 = .43$, and the factors determiner-type, dialect and aspectual class, $F_2(3, 27) = 3.66$, $p = .02$, $\eta_p^2 = .29$.

Figure 7. Average acceptability scores by determiner type and speaker’s dialect in sentences with an atelic (left) or telic (right) verb. For the sake of brevity and to avoid redundancy, only the acceptability scores from the by-subject analysis are reported



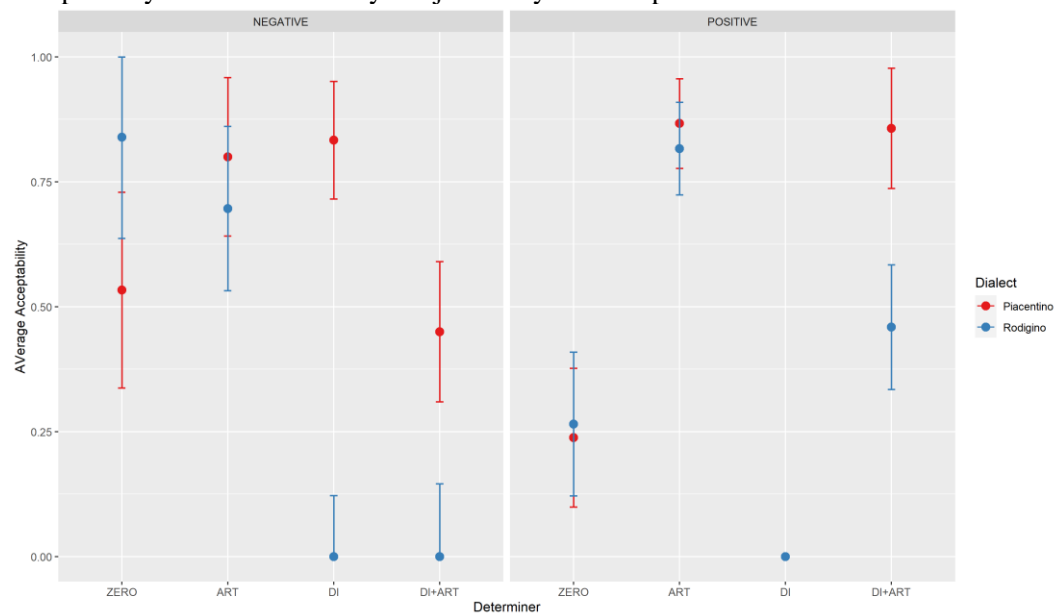
3.5.2. Analysis with the factor polarity

Mirroring the results of the previous analysis, all main effects and their interactions were significant, all $F_{1s} \geq 5.93$, all $p_s < .002$, all $\eta_p^2 \geq .18$. The results confirmed the presence of a significant two-way interaction between the factors determiner-type and dialect, $F_1(3, 81) = 17.77$, $p < .001$, $\eta_p^2 = .40$, which was further modulated by the factor sentence polarity $F_1(3, 81) = 20.55$, $p < .001$, $\eta_p^2 = .43$. As shown in figure 8, significant differences between the two dialects were found between the acceptability scores of the “DI” and “DI+ART” variants in the negative sentences ($p_s < .001$), and for the “DI+ART” in the positive sentences ($p = .003$). The remaining differences were not significant ($p_s > .08$).

Focusing on the distribution of the different determiner types over polarity, we found a higher acceptance rate for ZERO in the negative sentences in both dialects ($p_s < .01$), a higher acceptance rate for DI+ART in the positive sentences for both dialects ($p_s < .001$) and a higher acceptance rate for DI in the negative sentences for the Piacentino speakers ($p_s < .001$). The remaining differences were not significant ($p_s > .96$).

The results of the by-item analysis confirmed the main findings of the by-subject counterpart, revealing significant interactions involving the factors determiner-type and dialect, $F_2(3, 27) = 28.23$, $p < .001$, $\eta_p^2 = .76$, and the factors determiner-type, dialect and sentence polarity, $F_2(3, 27) = 19.18$, $p < .001$, $\eta_p^2 = .68$.

Figure 8. Average acceptability scores by determiner type and speaker's dialect in a negative (left) or positive (right) sentence. For the sake of brevity and to avoid redundancy, only the acceptability scores from the by-subject analysis are reported



4. Discussion

All of our expectations are confirmed. As regards the overall presence of the four determiners (fig 6), Piacentino (which is located at the crossroads of the DI and ART isoglosses) displays a higher degree of optionality than Rodigino (which is located at the border of the two isoglosses). Not only does Piacentino display ART, DI and DI+ART, it also displays ZERO (probably due to contact with Italian). In both dialects, ART prevails over ZERO, but ZERO is more present in Rodigino than in Piacentino, as expected in view of the fact that Rodigino is at the border of the ART isogloss (surrounded by ZERO). Furthermore, in Rodigino DI is not an option at all and DI+ART is limited to special meaning.

As regards the correlation between the complexity of the determiner with the complexity of its interpretation, we expect that in ATEL and NEG contexts the simplest available determiners be more present. This is the case of ZERO in Rodigino and DI in Piacentino (where some cases of ZERO are also present in these contexts, but in a limited number). In ATEL (fig 7), Piacentino displays all four determiners, with a prevalence of ART and DI+ART and an equally lower presence of DI and ZERO, while Rodigino displays full optionality between ART and ZERO. In NEG contexts (fig 8), optionality in Piacentino holds between ART and DI (which are equally complex), while in Rodigino, such optionality holds between ZERO and ART, but with a higher rate of the former, which is the simpler of the two. In TEL (fig. 7) and POS (fig. 8) contexts, which imply or presuppose the existence of the referent, we expect to find the more complex forms. In fact, Piacentino displays optionality between DI+ART and ART, while Rodigino prefers ART but also allows the more complex DI+ART at the expenses of ZERO. Thus, the correlation between the complexity hierarchies NEG < POS and ATEL < TEL and the complexity of the determiner is confirmed.

As regards specialization of meaning, we observe that, differently from the data in AIS (cf. Cardinaletti and Giusti (2018) and figg. 1-4 here), in Piacentino DI has been reduced to the scope of negation (total lack of presupposition of existence), while ZERO is gaining space in competition with ART and DI+ART. DI+ART in Piacentino is the all purpose determiner which is in free variation with simpler forms (bare DI and ART) in ATEL and NEG contexts and with ART in POS and TEL contexts. The only specialized form in Piacentino is DI, which specializes for lack of existence.

In Rodigino, which is at the eastern border of the DI isogloss, DI can only occur in the presence of an overt D, forming DI+ART. This complex form is limited to telic contexts, which are the most complex in the hierarchy. The alternative possibilities are the less complex ZERO which specializes for ATEL and NEG and the intermediately complex ART, which is the all purpose determiner that competes with the two specialized ones in different contexts.

5. Conclusions

In this paper, we have applied a quantitative methodology to the study of variation and optionality in the distribution of the four indefinite determiners formed by the (c)overt realization of a [-def] feature in SpecDP and a (c)overt realization of gender and number features in D.

We have argued that it is possible to draw a correlation between the complexity of the morpho-syntactic forms and the complexity of the referent they convey, thereby accounting for their specialization of meaning. We have also shown that variation may give rise to true optionality or different preference rates.

Acknowledgments

We thank Anna Cardinaletti and the VariOpInTA team, Vincenzo Di Caro, Luca Molinari, Cristina Procentese, and Francesca Volpato for insights and discussions. We also thank an anonymous reviewer for constructive criticism. For the sake of the Italian law, Gianluca Lebani is responsible for sections 1 and 3 and Giuliana Giusti for sections 2 and 4.

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