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Pragmatic functions and phonetic reduction: *Cioè* and *cè* in contemporary spoken Italian

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ABSTRACT

This paper investigates the phenomenon of phonetic reduction of the reformulation marker *cioè*, a very frequent lexical item in spoken Italian. This word has attracted both scholarly attention and popular interest over the years because of its multifunctionality and ability to convey a variety of social meanings. On top of this, the recent appearance of the reduced form *cè* has also been observed to have become increasingly frequent even in informal written usages.

This contribution aims at exploring the validity of informal observations that have been made about the distribution of *cè* and *cioè*. This is achieved by providing an acoustic analysis of the occurrences of this lexical item within a corpus of conversational spoken Italian, as well as by relating the phonetically full and reduced forms of these items to the main functions they perform. The results of the analysis conducted in this paper confirm the prevalence of phonetically reduced types over full forms, as well as the functional specialization of the unreduced form, two facts which seem to support the thesis that an ongoing change in formal and functional terms is happening.

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1. Introduction

In spontaneous speech, word tokens show great variability in pronunciation, and they are often produced in a reduced form, with shorter, weakly-articulated or fewer segments. Despite their significant presence in conversational speech, reduced variants seem to be at least partly accounted for by several linguistic factors – such as lexical category, morphological and syntactic structures, word type, frequency, contextual properties of the word, discourse function, prosodic factors and speech rate – as well as sociolinguistic variables, including age and gender (see Ernestus and Warner, 2011).

Only a few studies so far have investigated speech reduction in Italian (Savy, 1999; Cutugno et al., 2018; Mereu, 2022; Schettino et al., 2023), and none of these have systematically focused on the phonetic variability of individual words. To the best of our knowledge, only Geddo (2019) provides a spectrographic description of occurrences of *cioè* ('that is') in its full and reduced form. Geddo's contribution will act as a departing point for the study presented here.

The aim of this paper is to contribute to a more thorough understanding of the process of reduction in relation to semantic and pragmatic values by studying one word type in detail: the reformulation marker *cioè*, meaning 'that is'. This word is particularly interesting because it is characterized by dynamic polyfunctionality and by (social) indexicality. In the latter

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sense, *cioè* has significant potential to produce social meaning, especially with different usages depending on the generation of the speaker (Ghezzi, 2018, 2024).

Specifically, we build on a set of observations that a number of authors have made (Dal Negro and Fiorentini, 2014; Fiorentini and Sansò, 2017 and especially Geddo, 2019, 2023), according to which in the last couple of decades the reformulation marker *cioè* has been increasingly used with reduced pronunciation as part of a broader trend of phonetic reduction in casual speech. What makes the case of *cioè* different, however, is the fact that the phonetically reduced form has started to take a “life of its own”, in that it is being apparently perceived by speakers as a different lexical item. The extent of this phenomenon is apparent from its being graphically rendered, especially in online communication, with reduced forms. The most relevant of these forms is *cè*, which mirrors its reduced pronunciation but also explicitly marks it as different from the full rendition.

With this study, we want to bring together research on the polyfunctionality of *cioè* with a phonetic analysis of reduction in speech. Based on a systematic acoustic analysis of a dataset of instances of *cioè* extracted from a corpus of spoken Italian, we wish to examine the following questions.

1. How is *cioè* phonetically realized in Italian speech? What are its different phonetic variants and what is their frequency distribution?
2. Is there any systematic association between the different phonetic forms of *cioè* and the discourse functions conveyed by this polyfunctional word (i.e. have the different phonetic forms become specialized for specific functions over time)?
3. Is it possible to detect any patterns of *cioè* that can be associated with the sociolinguistic profiles of speakers?

More generally, this research work is intended as a first step to verify whether the phonetically reduced form *cè* works as an autonomous (or a partially autonomous) lexical unit which is independent from its corresponding full variant (*cioè*).

The paper is structured as follows: Section 2 provides an overview of the state of the art with regard to studies on phonetic reduction and the use and functions of *cioè*; Section 3 presents the data and methods used for this analysis, including phonetic, pragmatic and position labelling of the items under investigation; Section 4 reports on the results of the analysis conducted; Section 5 gives a concluding discussion.

2. Background

2.1. Phonetic reduction

The several studies carried out in recent decades on speech reduction have shown not only that reduction processes are highly complex and sophisticated phenomena, but that they occur pervasively in many different languages (Kohler, 2000; Ernestus, 2000; Johnson, 2004; Adda-Decker et al., 2005; Schuppler et al., 2011; Adda-Decker and Snoeren, 2011; Savy, 1999; Cutugno et al., 2018; Ernestus and Warner, 2011). The findings of these studies have also revealed that a series of distinct factors affect the probability that a given word occurs in a reduced form. Such factors include lexical properties, contextual properties of the word, prosodic position, speech rate, the presence of disfluencies after the relevant word, and speaking style (Ernestus and Warner, 2011).

One of the tendencies that has been revealed by these studies is the increased occurrence of reduced forms in ‘easy’ contexts as opposed to ‘hard’ contexts (Clopper and Turnbull, 2018: 27). What this means is that reduction is more likely to be realized in contexts which require low effort on the part of speaker and/or listener when processing linguistic messages (Bell et al., 2009; Gahl et al., 2012). The elements that tend to undergo reduction are therefore those speech portions which are more predictable, more frequent, and least informative (Jurafsky et al., 2001), i.e., function words, morphological items, discourse markers, and repeated information (Adda-Decker and Lamel, 2018: 101). Classic examples of reduction can be observed for different languages in very frequent word sequences which are generally predictable from the context, e.g. in French, *il y a* [ilija] ‘there is’ can be produced as [ja], as well as *je ne sais pas* [ʒənəsɛpa] ‘I don’t know’ can be realized as [ʃɛpa] or [ʃpa]; in English, *I don’t know* (that represents already a reduction of the extended form *I do not know*) is often further reduced to *I’d know* or *dunno* (Bybee and Scheibman, 1999; Scheibman, 2000; Adda-Decker and Lamel, 2018).

Another predictive factor are discourse functions (e.g., Bybee and Scheibman, 1999; Ernestus, 2000; Local, 2003; Schubotz et al., 2015; Martinuzzi and Schertz, 2022). A particularly significant example in this respect is the case of the Dutch word *natuurlijk* ‘natural(ly)’, which can convey different values – that is, it can function as an adjective or be used with the meaning of ‘certainly’ (Ernestus, 2000) – and, depending on its function in discourse, it can be realized in different ways: when employed as an adjective it is most frequently produced with the fully pronounced form, while when used as a discourse marker it gets reduced (Ernestus, 2000: 141–143). Another work in this direction is the more recent one by Schubotz et al. (2015), which investigates the collocation of *you know*, which can take both a lexical meaning and a discourse marker one. When compared to its lexical counterpart, the study reports that the discourse marker *you know* tends to be realized by speakers with a reduced vowel more often than with a full vowel, especially in the productions of young speakers. In the view of Schubotz et al., the main driver for the reduction of *you know* as a discourse marker is frequency. Indeed, the usage of this construction as a discourse marker occurs very frequently (also in the corpus analysed, i.e. the Buckeye Corpus of Conversational Speech), and it is well known that words with higher frequency tend to be reduced more (e.g. Bell et al., 2009).

With respect to prosodic factors, although every portion of speech can be reduced or altered, it is more common for reduction to affect unaccented parts (Adda-Decker and Lamel, 2018: 106; Cutugno et al., 2018; Ernestus and Smith, 2018).

In addition to these linguistic factors, the reduced pronunciation of words can also be affected by situational and sociolinguistic factors such as the degree of speech spontaneity and formality, in that reduced forms occur more frequently in unplanned (that is, spontaneous), informal speech rather than in planned, formal speech (Ernestus et al., 2015; Adda-Decker and Lamel, 2018). Besides, various sociolinguistic studies have shown the relevance of speaker-related social factors when reducing the phonetic realization of words. Reduced pronunciations are not restricted to specific social and cultural groups but are used by speakers of different groups. That said, sociolinguistic research has shown that men tend to reduce more than women (Keune et al., 2005) and young people more than adults (e.g. Guy, 1991; Hay and Sudbury, 2005). Finally, when considering the diffusion of reduced variants across speakers, another factor that must be taken into account is the social prestige which a particular variant enjoys within a certain community at a given time. This very factor may be relevant in the case of *ciòè* because of its sociolinguistic indexicality.

2.2. Use, meaning and discourse functions of *ciòè*

Ciòè, meaning 'that is', is a reformulation marker which has also attracted much attention in the past decades in popular magazines (such as the teen periodical *Ciòè*, first released in 1980), non-fiction books (Goldoni, 1977) and, more recently, in social media, where its overuse or misspellings are often stigmatized. The reasons for this attention are manifold and have to do with its frequency in colloquial Italian, its wide range of functions departing from its semantic core, and its social indexicality.

In absolute terms, *ciòè* ranks very high (position 51) in the frequency list of spoken Italian (*Lessico di Frequenza dell'Italiano Parlato*, cf. De Mauro et al., 1993: 212) and is the tenth most frequent connective word in the same corpus. It is less frequent than words like *e* ('and'), *che* ('that'), *ma* ('but'), *perché* ('because'), *se* ('if'), but is more frequent than *però* ('however'), *o* ('or'), *comunque* ('anyway'), *infatti* ('indeed') and 58 other conjunctions and connective adverbs.¹ These high frequency values are due to the polyfunctionality of *ciòè*, it being quite different from more specific words or word combinations related to the paraphrastic functional domain, such as *nel senso*, *voglio dire*, *ovvero*, *ossia*, *in altre parole*, *in altri termini*, which in English stand for *in other words*, *I mean* and similar expressions. All of these Italian words and word combinations, however, have been recently involved in linguistic change processes with the result that they have been acquiring a broader functional scope, new textual and pragmatic values, as well as displaying new distributional patterns (see also Fiorentini and Sansò, 2017; Sansò, 2020: 34–37; 67–68). Yet, none of them shares the same frequency of occurrence and polyfunctionality as *ciòè* in contemporary Italian.

As a word form, *ciòè* is the result of a diachronically long univerbation process of the combination of the neuter demonstrative pronoun *ciò* and the copula *è*, literally corresponding to Latin *id est*, 'that is'. The presence of the formant *ciò*, though largely opaque in contemporary Italian, endows *ciòè* with inherently anaphoric values, in that previously mentioned textual objects are referred to and then further developed, corrected, or even denied.

Formally, *ciòè* can be defined as a connective (or anaphoric) adverb.² It shares with conjunctions the property of connecting two constituents (phrases, propositions or even larger text segments), as is the case for the two verbs *vivere* and *essere* in (1).³ In contrast to actual conjunctions, but consistently with its status as an adverbial, *ciòè* can occupy the initial, medial or final position within the utterance. Furthermore, it can combine with other conjunctions, notably with *e* 'and' (as in 3).

- (1) D01_01BF47: avrei # potuto tranquillamente vivere **ciòè** # essere in una zona monolingue
'I could easily have lived, **I mean**, been in a monolingual area'
- (2) D08_16BF22: sì ma che statistica è sulla base di cosa **ciòè**
'Yes but what kind of statistics is it on the basis of what, **I mean**'
- (3) D08_15BM22: poi lì a Torino ci sono tanti eventi quindi è già facile **e ciòè** è più facile che ne intercetti uno che sia già a torino
'Then there's a lot of events there in Turin so it's already easy **and, I mean**, it's easier to intercept someone who's already in Turin'

As for the position occupied by *ciòè*, this is closely related to the function (see Degand, 2014 and Section 3.2.3 below) but also to the source of the segment that is being reformulated within the conversation. Specifically, the initial position of *ciòè* may refer to a resumption of speech by the same speaker after a long pause, to a turn-taking mechanism, or to a hetero-

¹ Interestingly, the text type that accounts for the highest frequency of *ciòè* is not informal conversations but (public) interviews and debates in which longer monological turns with argumentative function tend to require reformulations and self-corrections. A brief check on the contemporary corpus of spoken Italian KIParla, encompassing almost 2 million words (Mauri et al., 2019), confirms the ranking of *ciòè* in relation to the other conjunctions and connecting words with the exception of *se* 'if', which presents lower absolute values. That said, a comparison between the two corpora works only to a certain extent, since in the case of LIP we referred to a frequency list, whereas in the case of KIParla we only checked occurrences within the corpus.

² On the distinction between (connective) adverbs and conjunctions in Italian, see Colombo (2012) and Prandi (2013). A reference to the anaphoric values of *ciòè* is also in Manzotti (1999).

³ All examples are taken from the DIA corpus (see Section 3.1 below for a description). Excerpts are transcribed orthographically and provided with a nonliteral English translation; # signals a short pause, [xxx] signals overlapping segments, < ... > stands for non-verbal sounds. Each speaker is identified by a code consisting of the dialogue number (e.g. D01, D02), followed by the ID of the speaker (e.g., 01, 02), a letter corresponding to the town of origin (e.g., B for Bolzano, L for Laives, T for Terlano), the sex (e.g., M or F) and two digits corresponding to the speaker's age at the time of recording (e.g., 47).

reformulation, i.e., one that refers to a previous turn by another speaker, as in extract (4) in which *ciòè* reformulates the interlocutor's expression *al centro* 'to the (regional) center' with the near synonym *alla città principale* ('to the main town').

- (4) D11_21BM60: eh certo pe-pe- paga sì sì <breath> eh paga il fatto sicuramente il fatto comunque di essere eh il centro di una di una regione eh centro di una regione dove eh molti servizi fanno capo al centro
 D11_22BM51: **ciòè** alla città principale che quindi è Bolzano
 D11_21BM60: 'well, of course, you pay for the fact that you are the center of a region
 center of a region where many services report to the center'
 D11_22BM51: '**that is**, to the main town, which therefore is Bolzano'

As for the semantic and functional aspects, one can identify in *ciòè* a semantic core of identity between two constituents. The expression *p ciòè q* may thus be formalized as $p = q$. In its "canonical" use, *ciòè* introduces an explanation of what was said before, and corrective values are an extension of this semantic core. In the latter case, it is exactly the presence of *ciòè* that traces the correction back to what has just been said; in borderline cases, *ciòè* can also have the function of creating identity between contradictory propositions, as in the almost stereotypical expression *sì, ciòè no* 'yes, I mean no' (Manzotti, 1999: 5).

The first "non-canonical" uses that have been observed in the literature are those in which *ciòè* occurs in contexts of textual discontinuity when a change in planned syntactic and semantic organization is about to occur, with the goal of providing coherence to fragmentary discourse (Sornicola, 1981: 53). Specifically, when in an initial position within an utterance or conversational turn, *ciòè* signals discourse resumption after an interruption. In addition, *ciòè* works as a filler, signaling an impasse in speech fluency, in which case it usually occurs in the middle of an utterance and is typically associated with other fillers as part of what Bazzanella (1995) defines as *catene* ('chains') of discourse markers (cf. also Ferrini, 1985). That said, it is worth bearing in mind that even in these cases *ciòè* never completely loses its paraphrastic and corrective semantic core (see already Bazzanella, 1986 on reformulation markers in general).

Finally, like other reformulation markers, *ciòè* has also developed modal values. These were first observed in Spanish by Pons Bordería (cf. Pons Bordería, 2014a) in the case of *o sea* 'I mean, in other words', and were then studied by Ghezzi (2018) and Fiorentini and Sansò (2017) in Italian. The modal values of *ciòè* go in two pragmatically opposite directions: on the one hand, *ciòè* takes on a reinforcing, or "boosting" function which originates from an invited inference that what is said turns out to be somewhat unexpected to the interlocutor, but this inference is left unexpressed⁴ (see example 5, taken from Ghezzi 2022: 293).

- (5) il sindaco della Louisiana non esiste. **ciòè**. (15_25_s_d_051911m)
 'the mayor of Louisiana does not exist. **that-is**'

On the other hand, *ciòè* functions as a hedging marker based on *ciòè* having value as a signal of imperfect equivalence, and thus of approximation and, again, vagueness (see example 6, taken from Ghezzi 2022: 293).

- (6) SEL io: **ciòè**: non che sia sbagliato (.) questo. però bisogna prendere una decisione.
 (15_25_s_u_07234)
 'I, **that-is**, I don't think it is wrong, this idea, but we have to make a decision'

In both cases *ciòè* loses its anaphoric values because the first or the second segment that should form the reformulation construct is left unexpressed. Apparently, these modal functions are the latest to have developed, at least for Spanish *o sea* (Pons Bordería, 2014a) and the latest to have been described in scholarship.

3. Material and methods

3.1. Corpus description

Data for the analysis presented here come from the DIA-Dialogic ItAlian corpus (Vietti and Mereu, 2021; Mereu and Vietti, 2021), a corpus of conversational Italian spoken in Bozen/Bolzano (South Tyrol, Italy) by Italian L1 and Tyrolean L1 speakers. The corpus is made up of 19 dialogic interactions, recorded in a room at the Free University of Bolzano, between speakers who know each other well (friends, relatives, couples, work colleagues), and has a total duration of 9 h and 26 min. It is currently archived at The Language Archive and is available for research purposes.

Dialogues were based on a list of suggested topics assigned before the recordings started, such as social and linguistic situations in Bolzano, South Tyrolean festivals and traditions, the political situation in the region, the environment, and other general topics. The subjects were in any case free to choose the topics that best suited their interests. Dialogues, lasting 30 min each, took place for the first 10 min in the presence of the researcher, while the central part of the recording (a further 10 min) took place without the researcher being present. In the last 10 min, the researcher was again present at the interaction, though without actively taking part in it.

Data were recorded at 44,100 Hz and 16-bit depth with a Zoom H4 recorder, using two headset microphones (Shure SM35), one for each informant. All conversations have been orthographically transcribed using the software ELAN (Sloetjes and Wittenburg, 2008).

For this study, only the conversations of the group of 22 Italian L1 speakers have been examined, corresponding to 63356 tokens and a total of 5 h and 27 min of speech. These speakers (age range 22–62; 13 F, 9 M) can be grouped into two age

⁴ Ghezzi (2022: 293) mentions the idea of syntactic vagueness since a follow-up clause is lacking.

classes: a first group of 11 younger speakers aged between 22 and 30 and a second, older group ranging between 47 and 62. Overall, the speakers have a medium level of education: one speaker has a secondary school diploma, seventeen have a high school diploma and four a university degree. In terms of occupation, twelve speakers are employees, five are students, two are technicians, two are retired and one is a housewife.

The language used by all informants during the recorded conversations is Italian. More specifically, because of the peculiar historical and sociolinguistic circumstances of South Tyrol, Bolzano Italian can be identified as a *koinè* variety with much less regional markedness than any other variety of Italian spoken in Italy (cf. Vietti, 2017; Vietti and Mereu, 2023). Besides, although the corpus consists of informal conversations between dyads of intimates, one must consider that the elicitation context was not totally natural and might have oriented participants towards a higher degree of formality than their usual interactions with their conversational partner. This sort of sociolinguistic “unmarkedness” of the corpus, both deriving from the elicitation conditions and from the standard-oriented variety of Bolzano Italian, must be kept in mind in the interpretation of the results with regard to the reduction of *ciòè* in speech.

3.2. Methods

3.2.1. Phonetic annotation

All occurrences of *ciòè* have been retrieved via ELAN and further analyzed and annotated. From the 382 occurrences of *ciòè*, we removed 32 tokens, the signal of which did not allow the extraction of formant values, i.e., tokens with weak acoustic signal and laughing speech. Therefore, our final dataset includes 350 occurrences, on which an acoustic analysis could be conducted. By means of Praat (Boersma and Weenink, 2022), the values of the first two formants (F1 and F2) of the vowels included in the word (where they were present) and the duration of the entire tokens were measured. F1 and F2 formant values were measured in the steady state of the segment. Each production was labeled with its respective phonetic transcription based on both the spectrogram inspection and the F1 and F2 measurements.

The labeling and analysis led to the identification of four phonetic categories that represent a gradient continuum from hyperarticulated to hypoarticulated or reduced forms.

- a) [tʃo'ɛ];
- b) [tʃɛ];
- c) [tʃə];
- d) [tʃ].

The full form (a) is characterized by the realization of every phonetic segment (see example in Fig. 1 where all phonetic segments can be clearly distinguished); the second form (b) shows the deletion of the unstressed vowel [o]; the third form (c) displays a further process of reduction, i.e. the centralization of the vowel sequence to [ə] (see example in Fig. 2, shorter in duration and where only one vowel segment can be visualized and perceived); category d), corresponding to the most reduced form, is produced only with the consonant. Since the last category is represented in our dataset by two cases only, for the descriptive and statistical analysis conducted in this paper these two realizations were merged with the [tʃə] forms (type c).

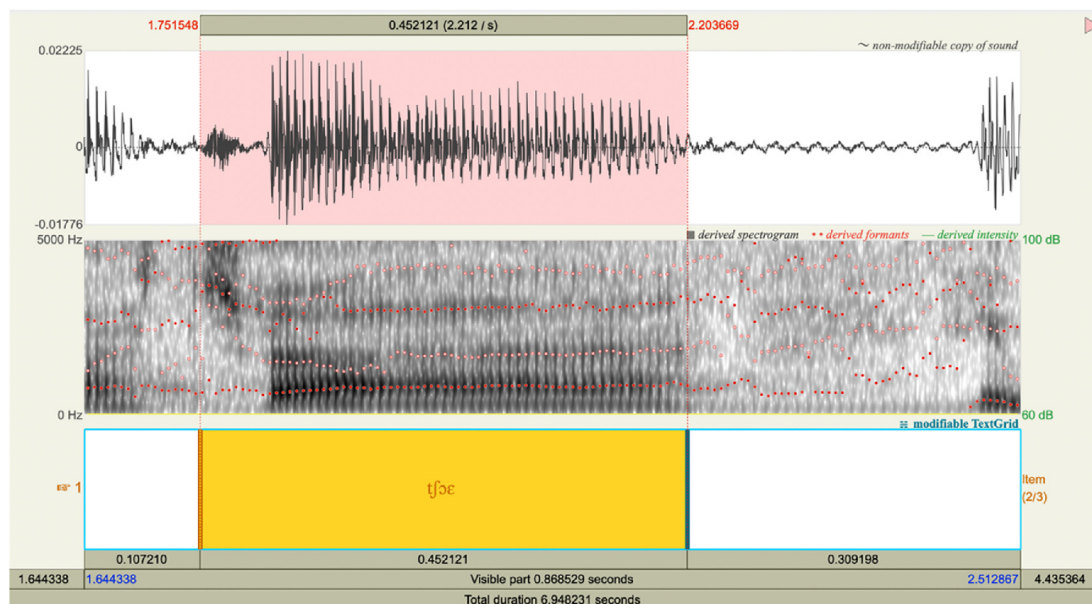


Fig. 1. Visualization of a full phonetic realization of *ciòè* ([tʃo'ɛ]).

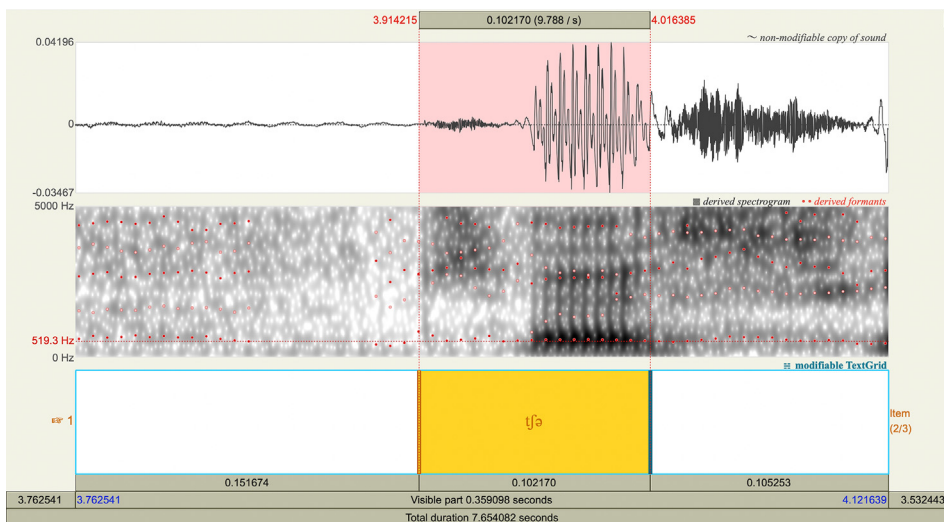


Fig. 2. Visualization of a reduced phonetic realization of *cioè* ([tʃə]).

3.2.2. Annotation of functions

In addition to the labeling of phonetic forms, a functional categorization was conducted on each occurrence of *cioè*, following the main functions identified in the literature and briefly discussed in Section 2.2.

This part of the research process proved particularly delicate because of the difficulty, in many cases, of reaching an unequivocal decision on the label to be given to individual items, the main difficulty consisting basically in the need to reduce continuous functional values into a close set of discrete categories. We thus decided to proceed individually in categorizing the tokens by following a shared workflow, and then jointly discuss cases of discordance between our ratings. The cases of disagreement were actually very few, with the percentage of inter-rater agreement between the two authors being very high (94%). The workflow was organized as a set of binary choices expressed in the form of yes/no questions resulting in six categories, as sketched in Fig. 3.

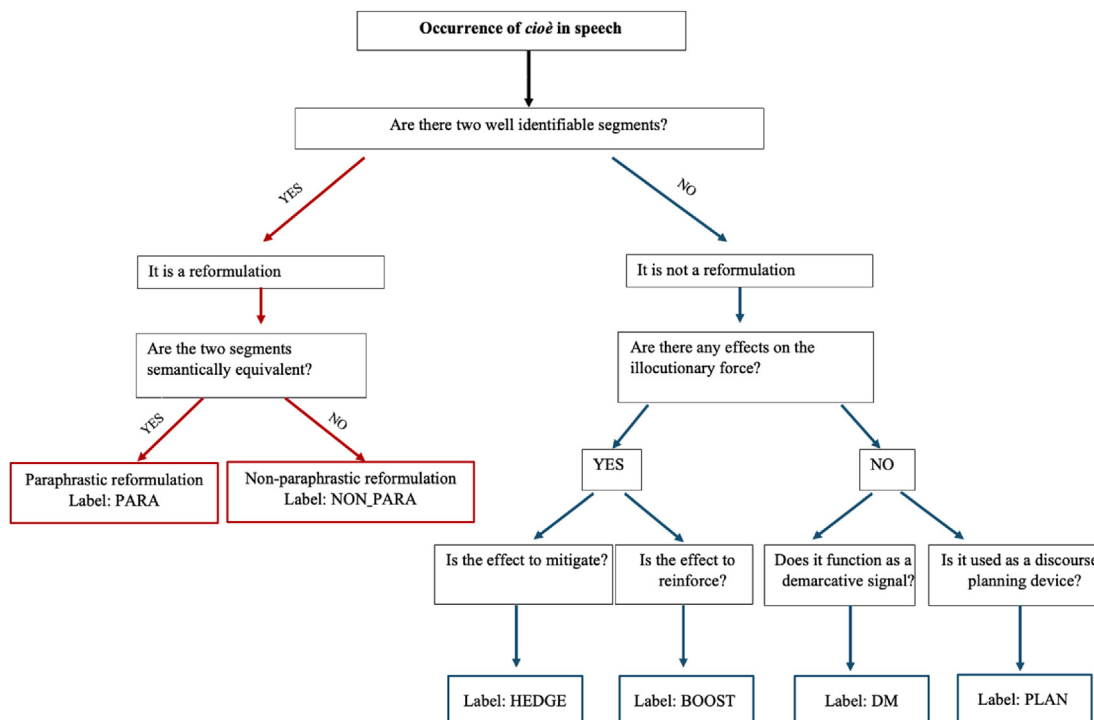


Fig. 3. Workflow to assign functions to *cioè* occurrences.

Examples (7) and (8) represent the prototypical reformulation function and, more specifically, in (7) *cioè* marks the semantic equivalence of the two segments ('three by three by [three]' and 'a cube'), whereas in (8) *cioè* introduces the correction of a lexical item: *vendano* '(they) sell' is corrected as *regalino* '(they) give away'. In both cases *cioè* occupies its canonical, median position between the two segments involved.

- (7) D01_01BF47: boh tre per tre per **cioè** è un cubo eh non so
'Dunno, three by three by **that is** a cube eh I don't know'
- (8) D15_29BF21: sì che poi magari quel camion che hanno allestito non lo vendano
cioè non lo regalino come han fatto nel nell'altro documentario
'Yes that then maybe that truck that they set up they don't sell it **that is** they don't give it away like they did in the other documentary'

As regards these corrective cases, we were able to detect eight instances in which a particular construction occurs that, to the best of our knowledge, has not been described so far. It consists of the exact repetition of the constituent that requires the correction, preceded by *cioè* and followed by the target (i.e., "correct") constituent. The construction formed by *cioè* and the repeated item co-occurs with a specific intonational profile that is similar to that of parentheticals. One such case is reported in (9). Though interesting per se, these cases have been classified as non-paraphrastic/corrective because of the reduced number of occurrences.

- (9) D03_06LM22: eh conosco un posto molto bello sopra bolzano **cioè** sopra
bolzano dalle parti della dell'alpe di siusi
'Well I know a very beautiful place above Bolzano, **I mean** above Bolzano, in the surroundings of the Siusi Alp'

As for modal functions, *cioè* functions as a hedging marker in (10) where it mitigates the rather strong effect of the derogatory term *terroni* 'southerners' to define South Tyroleans, and as an intensifier in (11), boosting the positive value of the expression *una bella cosa* 'a good thing'. As one can see, *cioè* precedes the segment upon which it exerts a hedging function, but it follows it whenever its function is a boosting one.

- (10) D04_08BF55: ma va là già siamo considerati diciamo ### una brutta parola ma
eh **cioè** i terroni del su-eh certo per forza quello è
'Come on, we are regarded as, let's say a bad word but, **that is**, the "southerners" of South eh of course that is it'
- (11) D12_24LF27: e allora dico beh è una bella è una bella cosa **cioè**
'And then I mean well that's a good thing **I mean**'

Examples (12) and (13) relate to discourse and textual organization. In (12) *cioè* is added to a confirmation request signal (*capito?*) – and these cases have been labelled as discourse marker *stricto sensu* – while in (13) it seems to function rather as a filler signaling problems in speech planning (label: PLAN).

- (12) D13_25LF23: ovvio che c'era anche quello **cioè** capito?
'Of course there was also that **I mean** understood?'
- (13) D13_25LF23: okay ma quindi # **cioè** # okay voi comprate i regali ma è
comunque Babbo Natale che li mette
'Okay but then, **I mean**, okay you buy your presents, but it is still Santa Claus who puts [gives] them'

3.2.3. Position

It is well known from earlier research that there is an interaction between the pragmatic functions of a discourse marker and its position in the utterance (e.g. Pons Bordería, 2018a, 2018b). In a similar way, the position in the utterance may affect the phonetic realization of a word. Therefore, to evaluate the effect that position plays on the form and function of *cioè* in conversational speech, we decided to systematically examine the position of this item in an utterance-like domain. Among the different models developed for discourse segmentation (see Pons Bordería, 2014b for a review on some of these for Romance languages), we chose the domain of "slash unit", as applied by Bell et al. (2003), and based on the criteria described in Meteer et al. (1995). This type of unit is intended to model the sentence-like units which characterize spoken conversation and are thus defined with respect to both syntactic criteria and large intonational boundaries. Bell et al. (2003) use this kind of domain to investigate the realization of some English functional words in relation to certain contextual factors, including the position of the word in the utterance. Given the scope of our work, we therefore decided on this domain, but there are other possible models which are equally based on the mixed syntactic-prosodic criterion, such as the Basic Discourse Unit Model (Degand and Simon 2009). As is well known, in speech many turns are not made up of complete sentences but are nevertheless perceived as complete utterances. A slash unit consists of at most one sentence, but it can also be a smaller unit, typically a phrase. The slash units below the sentence level intuitively correspond to those parts of the conversation which are not considered sentences but which the annotator interprets as complete units, due to intonational factors.

These kinds of units (signaled with//) may include complete syntactic sentences (as in 14) as well as phrases serving as complete turns (as in 15, D08_15BM22's turn).

- (14) D06_11LF28: /siamo passati per questo per questo paesello che adesso verrà tagliato da una mega galleria/
'We passed through this little village that will now be cut by a huge tunnel'
- (15) D08_16BF22: /sai che sono ignorante mi arrivano su Instagram le presentazioni di di/
D08_15BM22: /dei candidati/
D08_16BF22: 'You know I am ignorant I get on Instagram presentations of'
D08_15BM22: 'Of candidates'

An utterance may be contained in a single turn, or it may be interrupted by a backchannel such as *sì* or *mhmh*, or by another comment from the interlocutor. In (16) the speech produced by D08_15BM22 is considered an utterance even though it is interrupted by *mhmh* produced by D08_16BF22.

- (16) D08_15BM22: /infatti non sono mai venuto a Bolzano sto mese [perché andavo a Bolo]gna in giornata/
D08_16BF22: [mhmh]
D08_15BM22: 'Indeed I never came to Bolzano this month because I was going to Bologna in the day'

Larger turns of speech are generally divided into utterances where syntactic boundaries correlate with intonation boundaries (cf. Bell et al., 2003: 1020). In example (17), the long turn of D17_33TM62 has been divided into two different units, based on both syntactic and intonation boundaries.

- (17) D17_33TM62: /pur essendo di madrelingua italiana potrebbe comportare dei problemi no?/<breath>/**cioè** se queste persone aumentano ... /
'Despite being a native Italian speaker, it could cause problems, no? <breath> **that is**, if these people increase ... '

The boundaries of the units were therefore identified taking into account both syntactic and prosodic criteria. After establishing the boundaries of an utterance, each token of *cioè* has been annotated according to its position in the "slash unit", i.e., initial, internal and final. In addition to these positions (cf. Bell et al., 2003), we also decided to signal when *cioè* occurs isolated, and we marked it as a stand-alone token. For example, in (18), *cioè* occurs in medial position in the first turn of D12_24LF27, while in her second turn it is in final position. In (19) *cioè* occurs at the beginning while (20) represents a case of stand-alone token.

- (18) D12_24LF27: /sì non è una bambina che ha paura di s-**cioè** ti ricordi anche con la con la Rossella cosa era perché se l'era presa in braccio tranquillam[ente]/
D12_23LM30: [sì sì sì]
D12_24LF27: /no ma infatti quella è una bella cosa **cioè**/
D12_23LM30: /ma vuol dire tantissimo/
D12_24LF27: 'Yes, she is not a child who is afraid of- **I mean** you remember also with Rossella how she was, because she picked her up very easily'
D12_23LM30: 'Yes yes yes'
D12_24LF27: 'No but indeed that is a good thing, **I mean**'
D12_23LM30: 'But it means so much'
- (19) D03_06LM22: /era un tema che è venuto fuori un bel tema che che ci ha fatto dire ma davvero?/**cioè** ci perdiamo in questi bicchieri d' acqua ogni giorno/
'It was a theme that came up that led us to say but really? **I mean** we drown in an inch of water every day'
- (20) D01_01BF47: /l'identità linguistica è anche un'identità culturale/
D01_02BF47: /sì/
D01_01BF47: /**cioè**/
D01_01BF47: 'Linguistic identity is also a cultural identity'
D01_02BF47: 'Yes'
D01_01BF47: '**I mean**'

4. Results

As mentioned above, our dataset consists of a sample of 350 tokens of *cioè* occurring in the speech of 22 native speakers of Italian. As expected, these occurrences are not equally distributed in the corpus. To determine whether the two most relevant social variables, age and sex play a role in the distribution of these tokens, the data have been plotted in a mosaic plot with the standardized residuals (see Fig. 4), which was created on the basis of a chi-squared test. Standardized residuals indicate how distant the expected and observed values are from each other for each cell in the assumed model. As such, they signal which cells are driving the lack of fit to the independence model. In this graph, the only salient trend we can observe is that the use of *cioè* is dispreferred by the group of adult males (age range 47–62).

Another observation that may be made is that, regardless of their age, female speakers produce far more instances of *cioè* than male speakers. In female speech, *cioè* occurs 6.9 times for 1000 words, while in male speech its frequency of use is 3.5 per 1000 words – that is, proportionally almost half of the times.

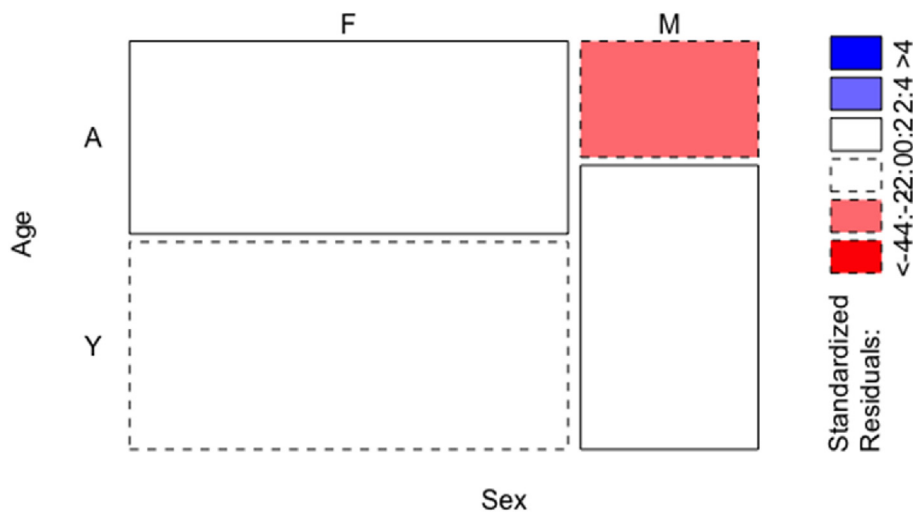


Fig. 4. Mosaic plot showing the distribution of *cioè* in the corpus according to sex and age.

Focusing on form types and their distribution within the sample (see Table 1), we can notice that the most frequent form is [tʃɛ], followed by the most reduced realization [tʃə] (which includes the two occurrences of [tʃ]). Surprisingly, given its being considered as the canonical form of *cioè*, the full form [tʃo'ɛ] is but marginally attested in the data (4.3%). Similar results are also reported by Geddo (2019), who, however, does not distinguish between different reduced forms. In his study, monosyllabic *c(io)è* accounts for the large majority of the occurrences in all datasets considered.

Table 1
Frequency of form types in the corpus.

Form	Occurrences	Male		Female	
		Young	Adult	Young	Adult
tʃɛ	243 (69.2%)	52 (71.2%)	2 (6.9%)	99 (76.7%)	90 (75.6%)
tʃə	92 (26.5%)	20 (27.4%)	24 (82.8%)	27 (21%)	21 (17.7%)
tʃo'ɛ	15 (4.3%)	1 (1.4%)	3 (10.3%)	3 (2.3%)	8 (6.7%)
Sum	350 (100%)	73 (100%)	29 (100%)	129 (100%)	119 (100%)

Although the sample of speakers in our study is not perfectly balanced by age and gender, it is still possible to see the distribution of the different phonetic types across these two social categories. Observing the occurrence percentages of the three variants among groups of speakers, we find that for all groups the most frequent form is [tʃɛ] with the exception of adult males who have a clear preference for [tʃə]. However, this latter group is also that in which the use of *cioè* is the least frequent (see Fig. 4), with the total number of occurrences being overall low (29). Interestingly, younger males also present slightly higher values of [tʃə] than females, a result that seems to confirm the general preference of male speakers for (more) reduced forms (Keune et al., 2005). As for [tʃo'ɛ], it is the group of adult speakers who display a comparatively higher number of occurrences of this form, both in absolute terms and proportional ones.

Considering speakers individually, we can notice that the full variant is not only uncommon in general, but it is also attested in very few speakers, as shown in Fig. 5. Moreover, speakers presenting this form always also use one of the two reduced realizations, or both, but never vice versa.

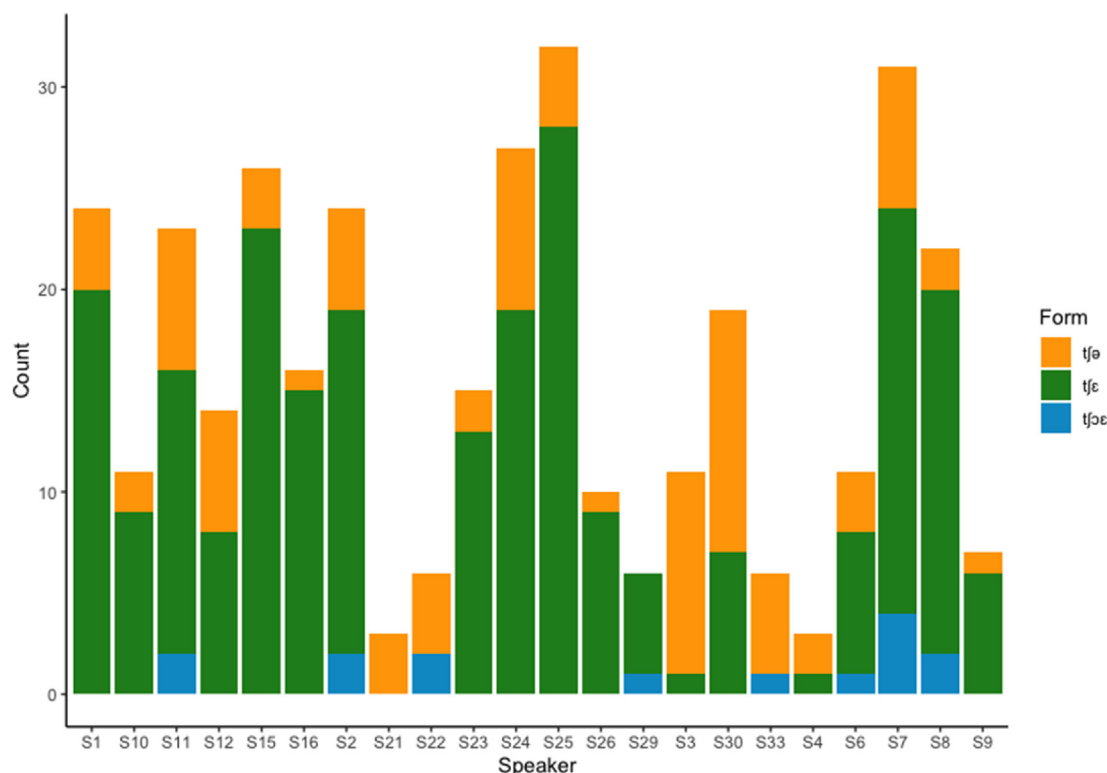


Fig. 5. Bar plot of the distribution of different form types among speakers.

Overall, the distribution of phonetic variants in the sample seems to support the idea that the default form for *cioè* is actually [tʃɛ], which is slightly preferred by females over males and, secondarily, by the younger over the older. On the other hand, both the full form and the highly reduced one represent marked choices for speakers. The first is slightly more preferred by the adults, while the second is slightly more preferred by males.

Similarly to form types, discourse functions of *cioè* are not evenly distributed in the dataset. Table 2 displays figures for the six functions described above (Section 3.2.2). It may be noticed that non-paraphrastic (usually corrective) reformulation values are by far the most frequent contexts of occurrence, followed by uses of *cioè* as a discourse marker. Interestingly, paraphrastic reformulation, which is the most prototypical function, does not have a prominent position in the sample of speakers. Finally, modal functions are the least represented in the data.

Table 2
Functions of *cioè* within the corpus.

Functions	Occurrences	Label
Paraphrastic	55 (15.7%)	PARA
Non-paraphrastic	100 (28.6%)	NON_PARA
Hedging	20 (5.7%)	HEDGE
Boosting	44 (12.6%)	BOOST
Discourse marker	74 (21.1%)	DM
Planning Device	57 (16.3%)	PLAN
Sum	350 (100%)	

To inspect the relationships existing among phonetic forms, discourse functions and position in the utterance, we used Multiple Correspondence Analysis (MCA, FactoMineR, R package), an exploratory statistical technique designed to identify emergent patterns and associations among categorical variables (Greenacre, 2007). This analysis resulted in a graph that attempts to reduce the complexity of a matrix of data by plotting the values of the variables into a two-dimensional scatterplot. To interpret this plot, it is necessary to consider that the nearer two points are on the graph, the stronger the association between them is. The analysis has been performed by taking the three variables Form, Function and Position as active variables, while Speaker has been considered as a supplementary variable.

A first visualization of the correlation among variables in the map (Fig. 6) reveals that there is a strong correlation between the discourse function (X2) and the position of the item in the utterance (X3), something that could be expected from the literature, as mentioned in Section 3.2.2. In contrast, the phonetic form (X1) is not significantly associated with these two variables (X4 stands for the supplementary variable, i.e. Speaker).

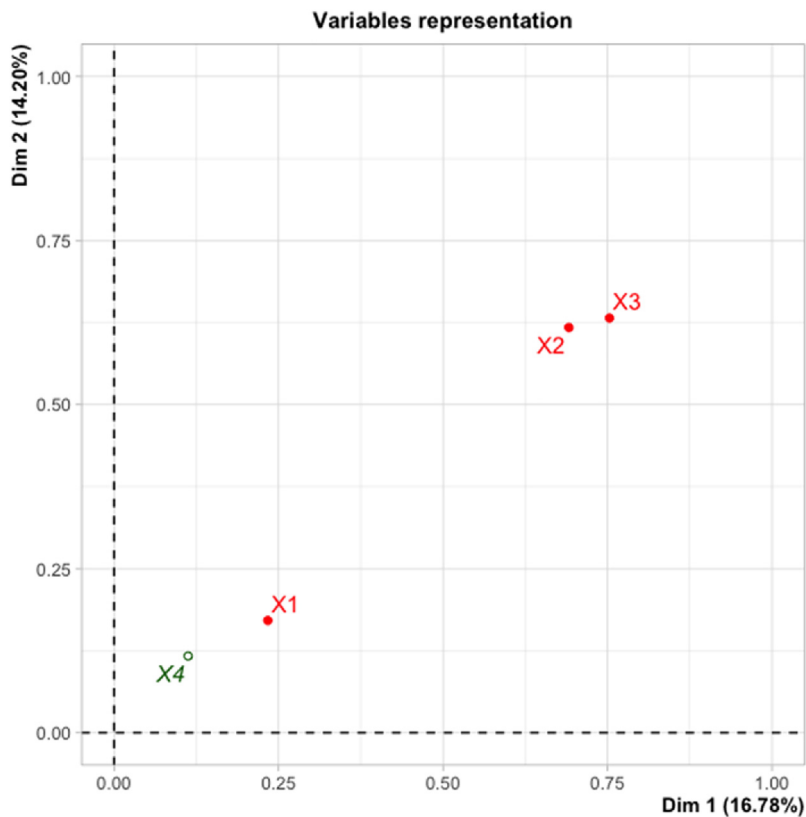


Fig. 6. Visualization of the correlation among variables and MCA principal dimensions.

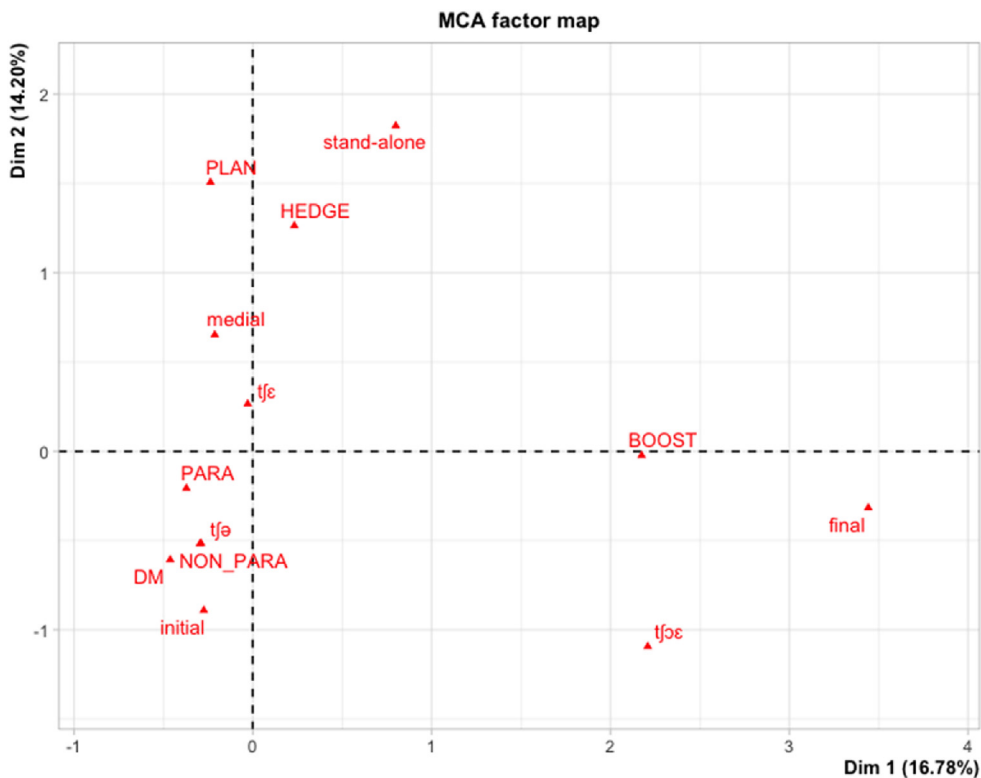


Fig. 7. Map of correspondences for phonetic form, discourse function and position in the utterance of *ciòè*.

By looking in more detail at how the values of the different variables are spatially distributed (Fig. 7), we can see that the full form [tʃo'ɛ] is close to the modal boosting function and to the final position. Their spatial proximity can be explained in the following way: full phonetic forms tend to convey a boosting function and be situated in utterance-final position. The analysis of the contribution of the variables to the definition of the dimensions shows that these three specific categories play an important role in explaining Dimension 1, in the sense that they are mostly correlated with this dimension.

Another relationship shown in Fig. 7 is the association between the reduced form [tʃə] and the function of both reformulation (non-paraphrastic and paraphrastic) and discourse marker, which means that the most hypoarticulated realization is preferred for these most frequent functions of *ciòè*. In terms of utterance position, these categories tend to co-occur in utterance-initial position. Finally, the proximity of [tʃə] to the center of the graph means that this represents the default form, used in most cases to convey different discourse functions.

However, it should be kept in mind that the overall variance of the data explained by the two dimensions is rather low, i.e. 33.62%, hence the correlation between the categories is rather weak.

5. Discussion and conclusion

In this paper we investigated the use of the reformulation marker *ciòè* in spoken Italian from a phonetic and pragmatic perspective in a corpus of conversations. The purpose of this research was to verify through empirical analysis the use of this polyfunctional word in relation to both its phonetic realizations and the functions it conveys.

Returning to our first research question, which concerns the phonetic realization of *ciòè*, the acoustic analysis of 350 occurrences of this item strongly points to the fact that the monosyllabic realization [tʃə] is actually the unmarked variant of this word. This coexists with further reduced realizations [tʃə] and, to a much lesser extent, with the full, bisyllabic realization [tʃo'ɛ]. In general, the clear predominance of reduced realizations over non-reduced forms can be explained by the increasing frequency of use of this word over the decades, which is parallel to the broadening of its functionality. Indeed, earlier studies have shown that more frequent words are more likely to be reduced than less frequent ones (Bybee and Scheibman, 1999; Bell et al., 2009).

To answer our second research question – that is, whether there is any systematic association between phonetic forms and functions – we also performed a functional categorization of each occurrence in addition to the phonetic labeling. Moreover, in order to assess the possible effect that the position in the utterance may play on both form and function, we also provided a coding of the items with reference to this variable. The analysis has shown a strong correlation between functions and position of *ciòè* in the utterance, while the phonetic form is not significantly associated with either of these two variables. This is a very important result because it points to the fact that phonetically reduced forms are generally independent and unconstrained by other contextual factors. On the other hand, a more robust relationship emerged between non-reduced realizations of *ciòè* [tʃo'ɛ], boosting function and final position. This means that albeit with a very low percentage (4%), the full form resists in a sort of contextual niche resulting from the combination of function (“boosting”) and (final) position, with both being characterized by prominence. Whether this co-occurrence of form, function and position can turn into a shifting away of “full” *ciòè* from the now most common reduced form with its polyfunctional values is difficult to establish on the basis of our results. However, the increasingly frequent graphic realizations of *ciòè* as *cè* or *ceh* can be seen as the reflection of an ongoing change in the lexical categorization of speakers, especially young ones.

Finally, with respect to the third research question, the sample of speakers used for this analysis does not allow us to make reliable generalizations regarding any possible patterns of *ciòè* associated with the sociolinguistic profiles of speakers. The reduced form [tʃə] represents the default variant for all speakers, regardless of gender and age, except for the adult male group, for which the most frequent form is [tʃə]. The latter, in fact, could be regarded as the actual reduced variant of the main form [tʃə] because of its distribution, both sociolinguistically (male speakers over females) and pragmatically (weak association with the most frequent functions).

The general predominance of the reduced form over the unreduced variant represents a finding that is all the more surprising given that the corpus of data on which we worked on is not characterized by any sociolinguistic markedness. On the contrary, our corpus documents the speech of adult and young adult speakers as recorded in a context that is only partially natural. A future line of research would be needed to verify whether in formal varieties of Italian, whenever a hyperarticulated pronunciation is expected, proportionally more occurrences of bisyllabic *ciòè* would emerge, as these might be corresponding to a wider range of functions than what is attested in our data. If that proves not to be the case, then our hypothesis that *cè* is definitely “the new” *ciòè* would be proven correct.

CRedit authorship contribution statement

Daniela Mereu: Writing – original draft, Visualization, Methodology, Investigation, Formal analysis, Conceptualization.
Silvia Dal Negro: Writing – original draft, Methodology, Investigation, Funding acquisition, Formal analysis, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Data availability

Data will be made available on request.

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